IICE 2016

Ireland International Conference on Education

April 25-28, 2016

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Message from the Steering Committee Chair

Welcome to the Ireland International Conference on Education (IICE) biannual conference (April and October). The IICE-2016 provides an opportunity for academicians and professionals from various educational fields with cross-disciplinary interests to bridge the knowledge gap, promote research esteem and the evolution of pedagogy. The IICE-2016 received 1601 papers from 81 countries of which 253 papers were accepted after the first review and 110 papers were finally accepted for presentations, 8 Posters, 1 Invited Workshop, and 4 Workshops. A double blind paper evaluation method was adopted to evaluate each submission and selected papers will appear in high impact International Journals.

Many people have worked very hard to make this conference possible. I would like to thank all who have helped in making IICE-2016 a success. The Steering Committee and reviewers each deserve credit for their excellent job. I thank the authors who have contributed to IICE-2016 and our Keynote Speakers: Dr Linda Hargreaves, Dr Vanessa Kind, Professor Michael Shevlin and Dr Karen Edge, for agreeing to participate in IICE-2016. I also like to acknowledge my appreciation to the following organisations for their sponsorship and support: Infonomics Society, University of Cambridge, Durham University, Trinity College Dublin, University College London and Canadian Teacher Magazine. It has been great pleasure to serve as the Steering Committee Chair for IICE-2016. The long term goal of IICE is to build a reputation and respectable conference for the international community.

On behalf of the IICE-2016 Executive members, I would like to encourage you to contribute to the future of IICE conference as authors, speakers, panellists, and volunteer conference organisers. I wish you a pleasant stay in Dublin, and please feel free to exchange ideas with other colleagues.

Professor Charles A. Shoniregun
IICE-2016 Steering Committee Chair
Message from the Steering Committee Chair

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Keynote Speakers
Keynote Speaker 1

Dr Linda Hargreaves is Reader (Emerita) in Classroom Learning and Pedagogy of the Faculty of Education University of Cambridge. A former primary teacher in Leicestershire, she completed her PhD on context-based assessment at the University of Leicester. She has researcher, team member, and Principal or Co-investigator on many national, funded research projects including primary classroom interaction, transfer and transition, collaborative groupwork, the status of teachers, and educational provision in small and rural schools. She was a lecturer at the Universities of Leicester and Durham, before moving to Cambridge in 2000. She was an Associate Director of the Cambridge Primary Review (Director: Robin Alexander). Recently, she has been investigating children’s epistemic beliefs and ‘Successful Educational Actions’ (SEAs) with Dra. Rocio Garcia-Carrion and colleagues at the University of Barcelona, CREA Centre, and is currently part of a CREA-based Erasmus+ project ‘SEAs4ALL’ involving schools in England, Cyprus, Italy and Spain.

Title: Educational research in rural schools and communities: does one size ever fit all?

Abstract:
Educational research in rural schools and their communities is a minority interest even where the mass of the land is undeveloped and a significant proportion of the people live in isolated and sparsely populated locations. The concept of ‘rural’ has been, and still is, widely debated but academic debates about definitions should not hold back progress towards the achievement of universal primary education in rural as well as metropolitan contexts. Similarly, romanticised images of ‘the rural’ and arguments for a special educational diet in rural areas must be examined critically. My talk will consider the role of theory and its influence on the rural ‘research footprint’; revisit a rural research agenda that Rune Kvalsund and I constructed in 2009; and argue that all children, rural and urban alike, would benefit from a more dialogic pedagogy.
Keynote Speaker 2

Dr Vanessa Kind is currently Reader in Education in the School of Education, and Deputy Head of Faculty (Postgraduate) in the Faculty of Social Sciences and Health, Durham University, UK. Vanessa trained originally as a chemistry teacher, before becoming a science teacher educator at the Institute of Education, University of London. Her research interests include science teacher education and teaching and learning post-16 chemistry. Vanessa directed a teacher professional development centre at Durham from 2011 -2013, leading to involvement in interdisciplinary research projects with colleagues in Medieval History, Archaeology and Law. Vanessa’s interest in pedagogical content knowledge evolved from her work as a Head teacher of an international school in Norway, and as a science teacher educator both at the Institute of Education, University of London, and in Durham. Her current projects include a three-year national study on practical work in science funded by the Gatsby Charitable Foundation, and a research capacity building project on chemistry teacher knowledge with colleagues in South Africa, funded via a British Academy Newton Mobility Grant.

Title: Pedagogical content knowledge: lessons from research and policy for improving teaching quality

Abstract: The lecture discusses the expectations societies have for their teachers, introducing factors required for “quality teaching”. Current teacher preparation methodologies in many nations operate a deficit model that focuses on providing potential teachers with information deemed necessary to function as a teacher, allied to a “master-apprentice” system to develop classroom teaching strategies. The impact on student achievement is mixed: international data shows that some well-funded jurisdictions perform at or below average, and outcomes for students vary. The lecture explores research evidence illustrating “great teaching”, identifying components that seem consistently essential for high attainment. Pedagogical content knowledge is presented, and analysed from the perspective of teacher preparation policies in five contrasting jurisdictions. Empirical evidence illustrating the quality of pedagogical content knowledge teachers require will be presented. The lecture concludes with a proposal for a teacher quality framework model and recommendations for policy and practice.
Keynote Speaker 3

Michael Shevlin is Professor in Inclusive Education, Trinity College Dublin since 1996. His teaching and research has focused on facilitating the inclusion of children and young people with special educational needs within mainstream schools, promoting the voice of marginalised people within decision making processes that affect their lives, and addressing access issues for young people with disabilities within compulsory and higher education. He, along with a number of colleagues, have completed a number of national studies including Study of Special Classes in mainstream schools (in association with ESRI team), Quali-TYDES project longitudinal study of lives of young people with disabilities (European Social Fund), Transition Experiences of Students with Disabilities into Further and Higher Education, and Project IRIS longitudinal study of special education in Ireland. Michael has been involved in a number of policy making initiatives within Irish education in relation to the development of inclusive learning environments in schools and higher education.

Title: Educational inclusion for students with special educational needs: Is it a case of so far and no further?

Abstract: There appears to be a well-established consensus that educational inclusion is a ‘good’ that should be achieved within our educational systems. Ground breaking international conventions, national policy and legislation all articulate the value of educational inclusion for children and young people from traditionally marginalised communities, in particular, those students who have special educational needs. Students with special educational needs are increasingly supported within mainstream education with dedicated teaching and support personnel, adapted curricula and reasonable accommodations. Despite this progress serious questions and challenges remain. Some researchers (Minow, 1991, Norwich, 2009) have conceptualised these challenges as the dilemma of difference. Within this address, I would like to explore in greater depth what these dilemmas of difference look like in practice and suggest that in many instances these dilemmas are not confined to establishing inclusive learning environments but rather concern fundamental struggles with difference within society.
Keynote Speaker 4

Dr Karen Edge is a Reader in Educational Leadership at Trinity College Dublin, UK. Karen is an academic and advocate committed to asking new questions to shake up how policy and educational leaders think about educational opportunities and challenges. Karen’s latest international research project engaged 60+ generation X school leaders in London, New York and Toronto in exploring their careers, leadership and future aspirations. She is a member of the six-person Advisory Panel for International School Leadership Principals, a visiting academic in Canada, Malaysia and Chile and serves as Editor-in-Chief of Educational Assessment Evaluation and Accountability. Karen regularly gives talks and support organisations in relation to knowledge management, leadership, networks, talent spotting, retention and well-being.

Title: Bright Lights, Big Cities, Big Questions: Recruiting, developing and retaining our next generation of educational leaders

Abstract: In this interactive keynote, Dr Edge will share how an interesting cohort of GenerationXers view high-stakes accountability, perpetual challenge of finding work-life balance, persistent gender issues and the value of the social policy safety net on their careers. The talk will look back and forward to what leaders say they will do in the future. Shockingly, for many, it is not remaining in the principalship for more than 5-8 years! Each finding can influence the long-term infrastructure and health of our local and national education systems. As we are globally in the midst of a period of forward thinking and educational innovation, there is an important policy/practice moment at which to pause, take stock and consider the future. Drawing on recent research and our study, the keynote will present a set of tools for leaders and policy makers to examine their work, serving as role models and talent-spotting and diversifying the future generation of school leaders. The lessons from our participating Global Cities and provide some important and inspiring points of reflection for school and district leaders, academics, policy makers and professionals on their journey forward. The keynote will examine how to harness the power of current leaders to build the cadre of leaders for the future.
Workshops
Invited Workshop: Strategies to Improve Behavior and Learning in Students with ASD Experiencing Temper Tantrums: A Collaborative Team Approach

The purpose of this 90-Minute Workshop is to provide faculty, parents and educators specific behavior management and instructional strategies they can employ at school and at home for students with ASD who may be demonstrating temper tantrums at school or at home.

There are four goals for this 90-minute workshop along with accompanying objectives:

Goal 1: To understand the background of the behaviour challenges associated with temper tantrums.
1) To describe the characteristics of students with Autism Spectrum Disorder.
2) To explain why students with Autism Spectrum Disorder are prone to temper tantrums.
3) To describe what types of temper tantrums are most likely to occur with students with Autism Spectrum Disorder.
4) To comprehend why this temper tantrum behaviour can be so challenging to teachers and parents.
5) To understand how a systems perspective that includes family dynamics and culture has been suggested as playing a role in the development of temper tantrums.
6) To understand what are the triggering factors that contribute to the escalation of temper tantrums in students with Autism Spectrum Disorder.

Goal 2: To apply Applied Behavioural Analysis theory and research to our understanding of temper tantrums.
1) To describe behaviour management strategies which may be often utilized but are not likely to work to manage temper tantrums in students with Autism Spectrum Disorders and why.
2) To describe two recent research studies conducted at the University of Kansas that suggest that there are some Applied Behavioural Analysis (ABA) techniques which may be preferable to other techniques to manage temper tantrums
3) To address some of the treatment resistance challenges that must be overcome in order to make a treatment effective.

Goal 3: To share audience insights on the topic of temper tantrums and their management at home and at school.
1) To suggest that audience members bring their own research, clinical practice, case studies and ideas to the workshop for sharing in a collaborative discussion format regarding temper tantrums and Autism Spectrum Disorder.
2) To address outstanding questions as a group about issues related to temper tantrums in students with ASD.

Goal 4: To make a goal to continue this discussion and share again at the Spring 2017 IICE Conference
1) To suggest to the audience that those in attendance consider continuing the discussion in a collaborative workshop to be prepared for the Spring 2017 IICE Conference. The proposed workshop
would deal with the topic of “Issues Related to Behaviour Management of Temper Tantrums” among other Behavioral Disorders that potential workshop participants would like to address, such as Depression and Anxiety among students with ASD. Attendees might even consider collaborating in shared research for presentation at the Spring 2017 IICE Conference. “Cultural and International Perspectives” could be considered as a framework for future collaboration.

2) Collection of individual contact information for purposes of communication throughout the year and in preparation for a collaborative workshop at Spring 2017 IICE on broad issues related to behavior management

**Organiser:** Robert G. Harrington, Department of Educational Psychology, University of Kansas, United States
Workshop 1: Strengthening Body Confidence as a Springboard for Success

This body confidence workshop will introduce you to a new world-class resource that aims to help students develop a more robust sense of self. This helps young people (particularly aged 11-14) to fully participate in academic and social activities, and so go on to reach their full potential. Specifically the resource supports students to:

- Understand the concept of appearance ideals and where pressure to achieve them comes from
- Build media literacy, exploring how images and messages, from advertising to cinema and social media, are often manipulations of the truth
- Develop strategies to resist appearance pressures, avoid comparing themselves, challenge appearance ideals and build body confidence

At the end of the workshop, attendees will be given a free USB stick with all materials required to run sessions in class. These include teachers' guides, stimulus presentations, films and activity sheets. The objectives of the workshop are:

"Change the way you see, not the way you look." Young people today face a huge range of complex self-esteem issues, many of which will become apparent during their school years. Research has shown that negative body image and poor self-esteem correlates with low concentration and participation in class and can even affect school attendance. The Dove Self-Esteem Project has been set up to help change this. We have created in-school body confidence resources working with some of the world's leading independent experts. Since 2004, we have helped over 15 million young people around the world improve their self-esteem and body confidence. What's more, students who participate in the DSEP 'Confident Me' workshops have been to shown to have improved body image and feel more confident to participate in social and academic activities.

Organiser: Martin Staniforth, Laughing Phoenix, United Kingdom
Workshop 2: Gamification in education or the workplace to increase motivation and engagement

Gamification uses game elements and frameworks that consumers have been exposed to for years. Gamification has been successful in inspiring increased motivation and engagement of students or any participant and can extend to parental and community engagement. Gamification is not to be confused with game-based learning which requires schools or corporations to have large budgets and specialized staff to create video games. In fact, gamifying a training program can be done without technology. This workshop explores the elements of gamification and the transposition of these elements into a classroom or training setting. As the reality of schools change, in rural and urban locales, so must the classroom. The 21st Century is demanding a change in teaching and training. Harnessing the elements that drive relentless efforts to succeed in the virtual world can change the effects on students or employees and their learning experiences.

The objectives of the workshop are:

- Explanation of gamification and what does it look like in a classroom setting 21st Century approaches for the 21st Century student or employee
- Discussion of 21st Century student needs, industry requirements of new employees, and preparation of students for the 21st Century workplace
- Gaming elements and how they can be applied to teaching or training- Participants engage and experience gamified activities
- Demonstration of gamified training in action

Organiser: Theresa Papp, University of Saskatchewan, Saskatoon, SK, Canada
Workshop 3: International Perspectives on Adult and Family
Literacy Programs

The goals for this workshop will be to share program design and implementation of several models from ProLiteracy Worldwide, an international adult education organization with over 50 years of experience in adult and family literacy programming. We would like the workshop to be interactive and establish a forum for discussion and ongoing dialogue about adult education and its role in the great education community. The participants will come away with a knowledge of several international models of adult education. The workshop will also discuss the latest PIAAC study (sponsored by OECD) on adult skills and the implications for education at all levels.

The objectives of the workshop are:

The relationship between parental education and general education of youth is a critical topic and relevant to the core topics of this conference. In addition we will address some of the technological advances in this area relative to distance education, another conference priority

Organiser: Peter A. Waite, ProLiteracy Worldwide, United States
Workshop 4: Enjoyable Warm up Activities for Young Learners Classes

As all educators know, the main principle in young learner's learning a language is the desire to learn. So if s/he enjoys learning, s/he will be able to acquire the language and its structure easier. This workshop will provide activities that a teacher or a mother could use before teaching the core language in order to get the child interested in learning and to make him/her ready for learning.

The objectives of the workshop are:

- Understand the main characteristics of Young Learners
- Be aware of the importance of warm up activities in Young Learners Classes
- Be involved in practicing a variety of Enjoyable and interesting warm up activities in order to be able to use / adapt them in the classes or with their own children.

Organisers: Lamia Al Sinani and Maryam Al Ghanami, Ministry of Education, Sultanate of Oman
PhD and Doctorate Consortium

The idea of writing a research paper or developing a topic of research interest that can lead to a PhD / Doctorate degree or proposal is always an endless thinking of where, when, why, what and who. Therefore, becoming an experienced researcher and writer in any field or discipline takes a great deal of practice. The Consortium has the following objectives:

- Provide a supportive setting for feedback on current research that will stimulate exchange of ideas;
- Guide on the future research directions;
- Promote the development of a supportive community of scholars and a spirit of collaborative research;
- Contribute to the conference goals through interaction with other researchers and conference events.

The PhD and Doctorate Consortium highlights possible solutions in response to the lack of competence demonstrated by young researchers and PhD and Doctorate students, and the understanding of what contributes to knowledge gap.

Organiser: Charles A. Shoniregun, Infonomics Society, United Kingdom and Ireland
Using Data Analytics to Predict Peer-Group Effects on Student Exam Results

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Abstract

There has been much research examining the influences on an individual student and his/her academic performance within a University environment and the impact of the heterogeneous social groups to which they become members. Manski [10] has addressed the concept as “Reflection” or the influences within group dynamics. Constructivism is a pedagogy theory that says knowledge is constructed and not acquired. Social Constructivism emphasises the importance of an individual’s social and cultural environment within which they interact and learn. It considers how they are influenced by the past, their present interactions and ergo, their influence on their peer group members. We examine this hypothesis within a University environment and build on research which recognises the intricate nature of complex community structures.

Using anonymised campus WiFi access logs collected through use of the University’s Eduroam system, we are able to identify locations where students congregate within academic and social environments and we have identified students who spend a higher proportion of their time together in comparison to with other class members, thus defining social groupings. As an illustration of our approach we randomly choose a mid-semester school day as representative of a University’s activity. We mined the 7 million WiFi log events for that day and identified the activity of 4,700 students. On that day there was an average of 40 interactions or meetings between student pairs. From this we can determine which students collocate and those who interact less with other class members.

1. Introduction

Universities are unique micro-environments in which multiple individuals interact with the same overall objectives, to attend campus for classes, study sessions and in some cases social events. Through their interactions with the University online systems, students provide large quantities of data providing their individual unique digital footprints. This footprint is collected and stored by the University’s IT systems. We believe this information could be usefully mined for knowledge using learning analytics approaches, which could ultimately benefit the student and inform theories of pedagogy.

During their University career most students will become part of one or more social groups. Our principal research question is as follows: is the academic achievement level of a student correlated with the levels of the friends and peer groups that they associate with and can we capture these associations automatically. Constructivism and specifically social constructivism believes that knowledge is constructed though the sharing of ideas based on life experiences and understandings. Constructivism at it’s core is a theory that learning is a longitudinal collaborative process and that who we are learning from can influence what we learn and vise-versa. In our work we measure some of the collaborations and interactions each student has with others and determining this, we can examine our research question quantitatively. Ultimately gaining this level of insight could help with better planning of student activities, better organization of course curricula or to identify individual students who could benefit from additional assistance.

On entering their first year, University students are formed into exogenous units as dictated by the University administration, i.e. their class, study, work, labs or assignment groups. However the endogenous groups that form within the University community also have a bearing on a student’s performance. These latter groups include self-formed study teams, social and sports groups. These groups overlap in composition, time and location and contain sub-units that exist within larger groups. We wish to examine the make-up and interactions of all groups and the effects or reflection they have on each member. Our research is undertaken within an
environment where we consider it possible to identify groups as they successfully pass through Tuckman’s [15] stages of group development. Our research focuses on the makeup of each group during the performing stage. Not every group completes all of Tuckman’s stages and many disband at any stage for a variety of reasons. It is the group members’ ability to interact that dictates the stability and longevity of the group from ephemeral and ad-hoc to long-term.

We will identify group dynamics and the influences of group on the individual and the effect on their academic achievements. The hypothesis is that individuals will become members of a number of emergent groups in the early stages of interaction which can lead to the forming of friendships that will become influential in a student’s development. The strength of the friendship will determine the effects of the individual on the group. Individuals will effect and be affected on many levels within groups based on their own personality, academic achievements and social maturity (Constructivism). It is our intention to accurately profile students of interest with supplemental information including previous academic achievement, demographic data plus other interactions with the University’s IT resources, thus broadening the definition of a students’ digital footprint.

The novel element of our research is the data collection process. Data collection in the majority of the research in this area has been invasive. Typically it involves direct interaction and observational or census-gathering techniques. Such methods can introduce a bias into the data collection process due to interviewer or interviewee interpretations of questions. Interpretations can vary across subjects and team members, based on their own characteristics. It is difficult to estimate the bias effect of a subject’s awareness that they are part of a research project. Carney, [4], carried out an extensive literature review in the domain of peer influence. As with much research in this area, it identifies that data in the main is collected through direct observation and/or the use of census. While the influence of the Hawthorne effect, prescribed by Elton Mayo [11] is an unavoidable bias in much quantitative research, our work is based on data collection which is unobtrusive and has minimal contact with the subjects providing the data. This is because we perform data analytics on ambiently-collected log files. These logs are effectively the students’ digital footprints left through their interactions with the University WiFi system. This leaves the researcher removed from the subjects themselves.

2. Background

Our data set is derived from a University with a campus accommodating an academic staff of 440 and approximately 12,000 students each semester. All students, once registered are provided with a unique login identifier for accessing the University’s Information Technology (IT) assets such as email, web browsing, Google apps and access to the University’s virtual learning environment (VLE), Moodle. Access is either directly through network-enabled PCs or via mobile devices such as smartphones, tablets and laptops. In addition to the main campus, there are five linked institutions that share University resources and all students registered in the University have access to all IT assets through the Eduroam system.

Eduroam is an international roaming service for those in Universities and other higher education institutions which allows seamless interconnected Internet access for University students, researchers and other staff. This access spans borders and provides access to all participating institutions using just their home institution’s login credentials. It is based on IEEE 802.1X protocols and is currently deployed in almost 70 countries worldwide. It is the default network for students and staff using wireless devices on our University campus. When a student, or staff member, connects to the Eduroam WiFi network, a record of that connection is created in a log file and this is the raw data that we will use in our analysis.

3. Related Work

Much of the past research in the area of exploring group influence on academic performance involved the creation of an artificial environment from which analyses and hypothesis-testing could be performed. We interpret artificial to mean the environment is designed specifically for the experiment and/or the test subjects are reminded on continuous bases that they are being observed. Carrell et al. [5] in their study at a US Air Force Academy monitored students exogenously assigned to groups. Their research reported a peer effect of “greater magnitude than previously found”. The effect of experimental interventions within the research environment such as in this related work, causes bias which we believe could be avoided utilizing a new and novel approach to data collection.

Brewe et al. [3] investigated the effect of a community within a purpose-built physics learning centre concluding that social network analysis holds significant promise for the description and analyses of student learning.

Eagle [6] used what was at the time, cutting edge technology to track subjects to infer contextual interactions between them. The approach was novel as it did not use any form of census data collection to develop their dataset, but used mobile phone location monitoring for temporal and geolocation data.
In 2015, Rui Wang [16] used advances in mobile smart-phone technology to monitor a small cohort of students for the purpose of predicting “academic performance”. He used regression analyses to develop a behavioral slope and behavioral breakpoints. These methods were used to identify changes in a student’s behavior on a weekly basis. In both studies the subjects were fully aware of their role in the research. Recently, researchers such as Minaei-Bidgoli [12] now focus on data collection from web-based educational systems. The use of e-learning systems provides useful data based on a student interaction with on-line materials.

Our research uses Social Network Analyses (SNA) as a deterministic basis for the modularity of the domain and specifically social groups. It was the research of Wasserman [17] who first expressed the usefulness of SNA to identify patterns or regularities of inter-relationships among interacting units. He sub-divided networks into (1) one-mode (uni-partite) networks using students as the entities and (2) multi-mode networks also incorporating Lecturers, and University administrators. For our research we focused on the one-mode network with students as our entities. Grundspan [8] et al. utilized Social Network Analysis in the domain of Education Research and specifically in the analysis of groups formed within the classroom.

4. Data sources

The collection and assimilation of data is the first step of the usually long process of data mining. Data mining is a method of processing data with the specific aim to obtain useful knowledge from the data. Osmanbeovic et al. [13] compared numerous approaches to data mining when researching the impact of demographic variables, previous academic results and academic ambitions on their final exam results.

Hanneman [9] introduces the concept of Power and examines methods of measurement based on Freeman, Borgatti and Everett who are the authors of the widely utilised social network analysis package, UCINET [2]. Longitudinal data collection examines how networks changed over time, giving rise to two questions, namely how has a network changed over time and how can the past predict the future? These methods are usually labour-intensive and require extensive human interaction whether it is observational, recalling and recording events or interpreting questions and expressing their response in a manner that can be accurately recorded.

Our data is a set of WiFi access logs. These logs contain each access request from a WiFi-enabled device on the University campus, to the University’s IT network. Each device uses the unique logon details of the registered student, or staff members, to verify their credentials and provide access to the University’s online assets and records the date, time, the asset accessed through the address of the WiFi base station used.

The main campus occupies a 50-acre site with more than 30 buildings with universal Eduroam coverage. To support this there are 780 WiFi base stations distributed around the campus. This allows us to determine with fidelity or accuracy, where the student is at any point and therefore surmise their activity including their company. So, for example, we can determine whether a student is in the restaurant, or one of the cafes or library and who else is in the vicinity at that time i.e. potential group members.

Haven taken our sample day for our initial analyses we created a sub-set of data based on students for a single module. Figure 1 identifies 40 of the most frequently accessed stations. Not surprisingly the top locations are transit areas, areas students pass through or congregate in between classes. Within the top 10 are classrooms and sports areas.

For the quantitative stages of this research all user identities are anonymised. Their reasons for interacting with the Eduroam system are of no concern as we are interested only in identifying students’ on-campus locations. Furthermore we focus on the subset of students in certain undergraduate degree modules. These were chosen as they span a broad section of disciplines and have a large number of registered students and student types such as full-time vs. part-time.

![Figure 1. Location of students for sample day](image)

Our first hypothesis is that endogenous groups tend to form between people with similar characteristics, backgrounds and social demographics. To test this hypothesis we carried out SNA and identify groups with a high degree of centrality. Our second hypothesis will examine the correlation between the types of students and the number of groups they are members of, to determine a correlation, if any with academic performance.

This will be based on identifying a set of characteristics for each student and applying these to...
an analytical algorithm to build a profile for each. These characteristics include:

- Previous academic achievements
- Mature student y/n
- Gender
- Attendance at lectures
- Access patterns to the Moodle VLE
- Social-demographics
- Time spent in academic Vs. social areas
- Number of friends (Pairs)
- Friends’ scores

Using the characteristics of group members, our hypothesis will test if students with similar characteristics form groups and that potential academic achievement can be derived from the group profile. Androushchak [1] examined the role of peers in student academic achievement in exogenously formed University groups. He found that the presence of high-ability classmates has a positive effect on individual grades in overall academic performance.

5. Methodology

Using a similar methodology to Manski [10] each student in the population is profiled using a set of characteristics derived from the categories academic, personal and social. Linear regression analyses will identify unique baseline scores for each student. Integrating the scores with those of their friends a total score for the student can be formulated. This algorithm will be run each week to identify variance and re-calculate a Predictor based on the data collected from previous week’s data. The Predictor identifies which groups predictive score has varied in a negative sense from the previous weeks scores, similar to Rui Wang’s [16] behavioral slope. It is accepted that many students are members of more than one group. Palla [14] recognises the intricate nature of overlapping community structures and the sub-units from which they are comprised. He defines a community, or more specifically a K-clique community as a union of all K-cliques that can be reached from adjoining K-cliques. It will therefore be necessary to consider correlated effect. We refer to correlated effect as the impact of an individual being a member of a network of groups and their interactions within the University Campus community and its environs.

From these findings we can infer relationships or friendships, furthermore inferring the contexts in which they occur. The context, duration, number of participants and frequency of the interactions will be used to determine the type and strength of the friendships. There will be a separation between time spent with groups in various contexts. Time spent in an area that has been classified as “Social” (e.g. Cafe or Sports area) will have a different weight to time spent in an “Academic” (e.g. Library, study room) tagged location.

Using the DCU WiFi access logs collected by the Eduroam system for a complete academic year, we established the durations and locations that students spent their time on campus. We used the log data to identify which student groups interact on a continuous basis both within the confines of the class and also specifically in areas where gathering would be for more social or for shared studies. Using our previous mentioned data set representing the students of a single module on a single day we calculated the numbers of students co-located at any one time.

Figure 2 gives a breakdown in 10-minute segments of the maximum number of students congregating at anytime. From this we can see, for example, that at 9:40, 10:50 and 11:50, the largest groups of students were congregated together, which tallies with scheduling for lectures which commence on the hour. Observe that at 11:50, 18 students from one sample module were collocated.

6. Conclusion

When commencing our research we posed a number of questions and developed a number of hypothesis. Our questions included:

1. Can we identify the make-up of student groups from the analysis of a university WiFi logs?
2. Does the number of groups a student is a member of influence the academic performance of the student?
3. Does the make-up of a group dictate the academic performance of the students in the group?

We believe that we can identify groups from WiFi logs. From this analysis we can determine each groups constituent make-up. Our research has progressed to the point where an analysis of data has commenced. A preliminary analysis of WiFi traffic has proven that we can identify clusters of students by location and calculate a score per student per day.

Our approach is a non-invasive strategy using
ubiquitous log data which can identify the movement of an individual through the University campus. As previously stated by Manski [10], inferring influence requires further information about the members of a group. We believe it will possible to collect and correlate the data we need from University sources preserving the integrity of our approach, which is a non-invasive study.

7. Future

At present, profiling of students is predominantly historical and based on static information. Our objective is to use our dataset for a more granular analyses culminating in the profiling of groups (communities) and membership of those communities. Once we have established a technique to do this our objective is recommend an optimum approach to the formation of study group course work to maximize academic achievements.

An interesting approach to the profiling of students is through their use of Social media. Greenhow, [7] identified the use of social media as a support mechanism for students. We believe there could be benefits to the examination to profiling individuals through their use of social media activities.

Acknowledgements

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8. References


Sessions
Session 1: Inclusive Education

Creativity Applied to Fine Arts in Basic Education, in Inclusive Teaching of Students with Autism: A Case Study in Lisbon, Portugal
(Authors: Marta Gaspar, Tereza Ventura)

Training and Teachers’ Attitudes toward the Inclusion of Students with Special Needs in the Classroom
(Author: Maria de Fátima Coelho)

People from the Same Home Country: They Do Matter to International Students’ Socio-cultural Adjustment
(Author: Yu-Yi Grace Chien)
Creativity Applied to Fine Arts in Basic Education, in Inclusive Teaching of Pupils with Autism
- A Case Study in Lisbon, Portugal -

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Abstract
The action-research project that supports the present communication intended to verify if creativity in Fine Arts contributes to scholar inclusion of students with autism spectrum disorders (ASD). The inductive process was based on semi-structured interviews to teachers involved in the educational process of the pupil and to parents, and also on direct participant observation of the action, as privileged means of investigation. The results obtained showed that the use of strategies of the scope of the Visual Arts, the creative / proactive attitude and the partnership between all the teachers, contributed to the development of communication / expression of the pupil, promoting mutual assistance, and increasing his socialization and inclusion. Thus stresses the great importance of sharing of information, experiences and strategies among all those involved in the teaching-learning process of the pupil.

1. Introduction
The problem that set off this investigation is the relationship between creativity in the Visual Arts and the inclusion of pupils with ASD: how this intervention / experience benefits these pupils, if the arts stimulate their imagination / creativity and promote their inclusion / socialization, that is to say what is the contribution of creativity in the Visual Arts for the "inclusive education", towards an effective implementation of the concept of "inclusive school."

In fact we assumed, as a starting point, what is referred to in Glória "Creative experiences require the development of relationships and the refinement of personal discoveries, creativity is the function of the transactional relationship between the individual and the environment in which it is engaged" [2].

It was believed that the most individuals develop their creative ability the most they are able to be critical, reflective and able to accept the difference and to include it in their experiences, considering it indispensable for the development of the creative process.

It was believed that greater diversity of individuals, working together, regardless of their needs and abilities, guaranties a richer creative process and becomes, for all, an event of more integral personal training. “The most important art of the teacher is to awaken the motivation for creativity and for the knowledge.” [3].

The process of inclusion through creativity makes more abundant the teaching-learning process for all pupils, giving everyone a greater magnitude to create,” (…) not just one or the other, but in all artistic areas, globally, in musical, dramatic, danced or verbal expression, in literary expression … among others” [4].

The art not only facilitates the finding of the “Self” as a social being, it is also an excellent vehicle for knowledge, as it allows greater ease in acquiring knowledge: “(...) education through the arts that follows from the meeting of modern pedagogy with the new artistic experiences, promote the humanistic education of the individuals, by the integration and harmony of experiences and acquisitions, facilitating the scholarship inclusive development, in a physical and mental balance (…)” [5].

Thus, in the view of above referred authors, under a pedagogical perspective, any educational institution should promote the development of the creativity of his pupils, because all pupils are entitled to an education that promotes their scholar and educational success, being essential for this to guaranty the access to artistic education, to facilitate the development of fundamental human capabilities, as the critical spirit, creativity, sensitivity, socialization, inclusion, etc.

2. Description of the study
The research work carried out was intended to confirm the contribution of creativity and the arts in the process of socialization and inclusion of a young boy with autism spectrum disorder attending the 2nd cycle of basic
education, taking into account that communication and socialization are domains compromised in any subject autistic, albeit in different commitment levels.

Within an action-research project we checked how activities that call for creativity in Visual Arts can be a suitable vehicle for the inclusion of pupils with autism spectrum disorders, bearing in mind that these pupils, culturally, are already integrated into regular schools.

The action-research project was conducted by contexts and had several phases of previously scheduled interventions: within the first context - Structured Teaching Unit (STU) - the Studio of Plastic Expression, Personal and Social Development and the Music Workshop - and within the second context - the classrooms in the disciplines of Education for Technology and Musical Education.

was organized by priorities, exposing and developing the specific content covered by the unit, so creative and playful use of arts enable participation in the atelier of other pupils of the school, having as purpose the sharing of experience and knowledge, looking for the "opening" of the unit itself to the school community.

Regular education pupils who were invited to participate in the activities carried out on STU, as part of this Studio, were assessed by the Director of Class in the discipline of Civics, for his performance in the context of the so-called "Project Sponsors", who sought to promote mutual assistance and exchange of knowledge/experiences between regular education pupils and pupils with autism spectrum disorders of STU. Regular education’ pupils enthusiastically participated in this project.

Image 1. Studio of Plastic Expression – Construction of a puppet, a character from a story

In the Studio of Plastic Expression - oriented and coordinated by the first author of this paper, with the support of two special education teachers - the activity
During the process of self-regulation of the management of activities, to deepen understanding of the case study, there was also need to collect some opinions of teachers and parents and these reports were analyzed and synthesized for study’s purposes.

During the investigation-action, on STU, the first author of this article worked with the same commitment with all pupils here supported (six pupils with ASD). The results were very positive with all pupils. The selection of one of the six pupils with ASD for presentation of the results is due only to the extent of a broader study.

2.1. Methodology and procedures

The research methods that best fit this study is qualitative in nature, since it was intended to produce a comprehensive study and an interpretation of the educational practice (to explore, describe and analyze, to provide knowledge about the phenomenon studied and on the processes applied in action, to see or contrast effects and relationships present in this case). The inductive process was based on semi-structured interviews and direct/participant observation, as privileged means of investigation.

In the course of the action-research, in order to deepen the understanding of the case study, there was need to collect some opinions of teachers and parents, related to pupils under study. For information gathering various tools were developed: semi-structured interview’s guides for teachers and parents and a direct participant’s observation grids.

The interview to the teachers is composed of 10 questions focused on the followed guidance points: the contribution of creativity to acquire learning, social skills development and inclusion of pupils with ASD; teaching of fine arts as promoter of the socialization of the pupil with ASD and facilitator of the inclusion of the pupil with ASD; teaching of fine arts as a facilitator of a harmonious and safe environment for pupils with ASD; parental involvement in creative/visual arts projects with the pupil with ASD. The interview with parents consists of 7 questions focused on the orientation points that follow: contribution of creativity to acquire learning, social skills development, and inclusion of the pupil with ASD; teaching of fine arts as promoter of the socialization of the pupil with ASD and facilitator of the inclusion of the pupil with ASD; teaching of fine arts as a facilitator of a harmonious and safe environment to the pupil with ASD; parental involvement in creative/visual arts projects with the pupil with ASD, in school.

With the direct participant observation it was intended to observe the relationships, dynamics, ways of doing, strategies, rhythms, the interactions with peers and teachers, in the two abovementioned contexts.

The observation of this interaction and involvement was organized around topics related to the Visual Arts, in particular, as regards the aspects: stimulating creativity, socialization and inclusion promoter and developer of normalizing contexts. Reports were compiled with detailed descriptions relating the above referred topics (relationships, dynamics, ways of doing, strategies, rhythms, interactions with peers and teachers) in both contexts and in each of the sessions, allowing us to draw conclusions (grounded theory) about how the pupil expressed creativity; how he applied, through creativity, the methods intrinsic to the artistic discipline and develop or acquire intellectual, social and emotional skills, promoting his inclusion; as pupil socialized, as the pupil was included; as teachers encouraged creativity through teaching Visual Arts using intrinsic methods and strategies to discipline; as teachers promoted the socialization and inclusion of the pupil. The analysis of reports from teachers and parents of the pupil with ASD in STU was made by categorization in four themes: creativity, socialization, inclusion and environments / contexts. The speeches of the parents were categorized into five themes: creativity, socialization, inclusion, environments / contexts – classroom and parental involvement. The treatment of data categorized validated the findings that were later confronted with those of other studies presented by other authors.

2.2. Contextual characterization

The school where the case took place includes teaching preschool and 1st, 2nd and 3rd Cycles of basic education and belongs to a mega Group located in the city center of Lisbon. The school has 80 pupils in pre-school; 160 pupils in the first cycle; 380 pupils in second cycle; 300 pupils in middle school; 1 structured teaching unit with 6 pupils included in 2nd cycle and 1 support multihandicap unit with 6 pupils included in classes of 2nd cycle. Has 68 teachers distributed by varying degrees of education: 2 educators, 6 teachers of the 1st cycle, 18 teachers of the 2nd cycle, 20 teachers of middle school and 12 special education teachers. It also has 2 speech therapists, 1 physiotherapist, 1 social education, technician, 1 rehabilitation technician, 2 psychologists, 2 technical assistants and 16 operating assistants.

2.3. Characterization of target population

The pupil observed is a boy of 12 years, with ASD, who lives with his parents and a 16 years old brother without disabilities. The communication / socialization is his compromised domain. He is accompanied at school, by a speech therapist, a rehabilitation therapist and a psychologist. At home with the family, he speaks correctly
but in school with teachers and classmates he don't verbalize, articulating the words without sound, and uses examples through the action, or PSC (pictographic symbols for communication). He reads and writes words with great difficulty. Their strengths are mathematics and crafts. He features a very reasonable fine motricity and excellent penmanship. He is well organized and rigorous. Apparently calm, sometimes he has seizures where he expresses enough violence, both at home and at school. He attends the 2nd cycle of basic education (CEB), integrated in a structured educational unit, and integrates a group of 5th grade level in three disciplines - technologic education, music education and physical education. Technologic education’s teacher is effective teacher of the Group of schools, and member of the coordination board of the school, despite finishing the complete specialization in special education during the year on which this study took place (2013/2014). In the previous academic year (2012/2013) he opposed his vote to the opening of Structured Teaching and Support for Multihandicap Units (STU/SMU) at school, not agreeing with the inclusion of their users as pupils in school. Teachers of Music Education and Physical Education are teachers hired.

3. Presentation and reflective analysis of the results

The present work had two main objectives: to understand how creativity in the Visual Arts can contribute to the inclusion of a child with ASD at school and review the appropriateness of strategies / methods used in the artistic education and verify if they contribute to the development and socialization of the child.

According to the results of interviews conducted with teachers, there was the strong conviction that the fine arts stimulate imagination and creativity, using strategies that are intrinsic to teaching-learning methods of the discipline, developing communication and expression, increasing the autonomy and promoting socialization.

The parents of the pupil under study consider that through creativity in the teaching of fine arts and intrinsic methodologies in this area, learning can be facilitated, exposing the contents in a more interesting and playful way, a view shared with both teachers and parents of other pupils with ASD based on STU, that added to this list also the development of social skills.

According to the teachers the skills to be developed through the applied methodologies and creativity in the teaching of fine arts are not only social but also emotional skills and intellectual ones.

The parents of the pupil, and parents of pupils with ASD based on STU, in this aspect, refer to social and intellectual skills.

The teachers consider that creativity in the arts contributes to the inclusion of the pupil with ASD by providing socialization, through sharing and mutual aid, encouraging tolerance, favoring a peaceful environment, providing equal opportunities and developing self-esteem.

The parents of the pupil in study takes care that creativity arises as a facilitator of inclusion, of communication and socialization. Parents of pupils with ASD based on STU affirm the same opinion saying that creativity in the arts facilitates the inclusion of the pupils with ASD.

Through the activities observed in two contexts above (direct / participant observation) and taking into account the results obtained with the analysis of the answers to the interviews and reports of speech of the teachers accompanying pupils on study and parents, it was found that they consider of great importance for the success, socialization and inclusion of the pupil with ASD, the way how to meet their needs in the classroom.

In fact, they affirm the importance of the empathy between teacher and pupil, the adoption of a proactive attitude in the classroom by the teacher, the adequate planning of activities for the group/class, with the exchange of experiences / partnership between teachers (regular education and special education) using intrinsic strategies to the disciplines of arts appropriate for each pupil, appreciating the strengths of ALL, generating an environment of respect, mutual and equal opportunities.

It was also affirmed that the use of strategies of the scope of the Visual Arts and creative/proactive attitude, of partnership between all the teachers, contributed to the development of communication and pupils’ expression, promoting mutual assistance, thus contributing to their socialization and inclusion. It was noted the great importance of sharing of information, experiences and strategies among all those involved in the teaching-learning process of the pupil (teachers and parents).

It was verified, through the reports of speech, from teachers and parents of pupils with ASD, based on what they consider a lack of stimulation of the pupil with ASD in the classroom, that thus leads to detachment and indiscipline, hindering their socialization and inclusion. It was noted the need for creativity, developing, in this context, and stimulating dynamic and playful activities, using language connected to practice, facilitating learning, taking into account the whole group but safeguarding the individual characteristics of each one. Through positive interactions and interactive learning the pupils could study in establishing and facilitating their socialization and inclusion. Teachers accompanying pupils on study and guardian consider that the activities developed in the framework of creativity in the Visual Arts, promoted mutual assistance, were facilitators and promoters of communication and expression of the pupils with ASD by providing their socialization and inclusion.
It was found, through direct observation of the pupil with ASD that he participated very well in activities in the field of plastic arts, demonstrating creativity in the way he communicates and expresses himself, how he resolve troubleshoots, choose and apply materials, shows motivated participation in the activities and learning, cooperates with colleagues (helps and is helped) and with the teachers. It was observed that the use of strategies in the context of the arts, promoting mutual aid and the positive interaction between the pupil and their peers and teachers, motivated him, increasing his self-esteem and developing his autonomy throughout this process, having facilitated his socialization and inclusion. It is consensual that is essential to articulate the school with family, these being the main institutions "responsible" for the socialization of the child and the provision of a quality education for all. Due to the specificities of the SEN pupils with ASD is of great relevance to their scholar success the cooperation between teachers and parents.

4. Discussion of the results

It turns out that there are several authors who attest a positive relationship between creative activities / motivation to learning / socialization and inclusion, revealing that a more creative and proactive teaching relationship is of great importance to the success, socialization and inclusion in the school [7], [2], [8], [9], [10], [11], [12], [13], [14], [15].

It was noted during the present study that the arts stimulate imagination and creativity using strategies and creative methods intrinsic to the discipline, developing communication and expression, increasing the autonomy and promoting socialization of the pupil with ASD.

It was also found that through the creativity in the teaching of fine arts and applying intrinsic methodologies in this area, we can be facilitated learning, exposing the contents in a more interesting and playful manner, promoting the development of social, emotional and intellectual skills of the pupil with ASD.

It was noted that the activities developed in the framework of creativity in the Visual Arts contributed to the inclusion of the pupil with ASD by providing socialization, through sharing and mutual aid, encouraging tolerance, favoring a peaceful environment, providing equal opportunities and developing the self-esteem of the pupil with ASD.

It was also found in this study that the use of strategies of the scope of the Visual Arts and creative / proactive attitudes, of partnership between all the teachers, contributed to the developing of communication and expression of the pupil under studying, promoting mutual assistance, thus contributing to their socialization and inclusion.

It was noted the great importance of sharing of information, experiences and strategies among all those involved in the teaching-learning process of the pupil, and between teachers and family.

It was found that the lack of stimulation of the pupil with ASD in the classroom leads to detachment and fosters the indiscipline hindering their socialization and inclusion.

It was noted the need for creativity, namely to develop and to stimulate activities, playful and dynamic, using language linked to the practice, facilitating learning, having regard to the whole group but safeguarding the individual characteristics of each one.

It was noted, from the data collected on direct observation, that after the intervention the pupil improved: communication and expression; motricity; learning; autonomy; self-esteem; socialization and inclusion.

5. Conclusions

The present case study sought to contribute to a deeper understanding of the concept of "inclusive school" and processes that can facilitate its implementation. With it, we intended to check and confirm if creativity in the Visual Arts can be a suitable vehicle for the inclusion of pupils with autism spectrum disorder, taking into account that these pupils, culturally, are already integrated into regular schools.

Because all education process must be special, the path during the construction of this project was the rethinking of education for ALL, the rethink teaching and learning in a more creative, attractive, exciting and inclusive view.

With the limitations and the advantages inherent to a case study, this project - that does not allow for generalizations of the results but contributed to a better understanding of the processes - was, for the authors, an enhanced awareness of the great responsibility of teaching, of being a docent, integrating a system that so many times prevents its members to grow, denying school and citizenship of all and for all.

The inclusive school allowed the pupils with ASD to interact with their peers and teachers, developing social, emotional and intellectual skills, facilitated the overcoming of the barriers inherent in their own learning.

It is believed that the sooner we get walking towards the effective scholar inclusion, the deeper and most positive changes will arrive both in the development of individuals with ASD and their social inclusion.

“The inclusion of all pupils teaches each one, that all people are equally valuable members of society and that it is worthwhile to include them all” [16].
6. References


Training and Teachers' Attitudes toward the Inclusion of Students with Special Needs in the Classroom

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Abstract

In this study we sought to discover teachers’ attitudes toward the inclusion of students with special educational needs (SEN) in the classroom, the nature of the difficulties they experience in promoting inclusive education and to relate these to their training and professional development. We concluded that the variables of age, length of service, level of education and academic qualifications do not influence attitudes toward inclusion. With regard to the 'type of training' variable, we found that teachers whose initial training had included curriculum components related to SEN students did not develop more positive attitudes. In terms of continuing and specialist training, the data show that positive attitudes to inclusion are more frequent in teachers who have had continuing or specialist training in the SEN area as part of their professional development. Respondents also highlighted six categories of difficulties in the implementation of inclusion in schools: the attitudes of teachers; the attitudes of families; coordination between educational staff; the attitude of the teaching community; lack of human and physical resources; and lack of training to work with SEN students.

1. Introduction

The concept of the inclusive school requires a radical change in the whole teaching system. Current trends focus this change essentially on school, on stakeholders and of course on teachers as the key players in an educational establishment. However, for this to happen it is essential that teachers’ attitudes towards inclusion are positive, because it is they who have influence in the education and learning process of the students. Positive attitudes reinforce success and are the foundation for inclusion [1].

Some researchers, like Avramidis and Norwich [2] and Vaz [3] consider that the factors that influence teachers’ attitudes towards inclusion are personal: age, gender, academic qualifications, type of training, length of service, special education experience, or related to the context; that is, kind of teacher, employment status, educational level, number of students in class, work experience and school location [4].

Other studies also point to a very strong relationship between teachers’ attitudes and their training. These different explanations for the relationship between attitudes and inclusion led us to ascertain the most important factors influencing teachers’ attitudes in Portugal; whether personal ones related to training or contextual more system-related and educational policies. A previous study carried out by the author, with a sample of 135 teachers, points to a strong relationship between education and attitudes towards inclusion, with the other factors not being relevant.

In the light of this and based on the theoretical references underlying the literature review, the following general objectives were formulated for the study: to identify the attitudes of basic education teachers, with regard to inclusion of students with special educational needs (SEN) in the classroom, to explore the nature of the difficulties that teachers feel in promoting inclusive education and relate them to the kinds of attitudes that they demonstrate towards their career and training needs.

2. Theoretical context

Various writers support the idea that teacher training today cannot simply be reduced to imparting technical and instrumental knowledge, since affective and cognitive aspects play a key role. Initial teacher education comes into the debate in that it provides the foundations for the construction of a teacher profile required in every school system [5], including key aspects such as learning how to teach, professional socialization and the ability to mediate [6].

In Portuguese society there has been a clear lag over the years between policy objectives on teacher training and practice. Any teacher is a teacher of “someone” teaching “something” in a certain context and for certain purposes; it is important to place training and teaching professionalism in a given political, social, cultural and economic context. [7]

A new training concept has emerged- the idea of lifelong learning- linked to the professional development of teachers [8], which emphasizes
evolution and continuity, where theory and practice should be considered in an interconnected way. [9] This principle assumes that teachers must have training in order to be able to think about their practice, implying that each school situation is different and therefore the needs and responses to those needs are different. Reflective training processes are a strong reference point for many studies and proposals in the field of teacher education [10], [11].

From this socially constructed conception of knowledge, we understand what is expected from the reflective practical teacher and its importance in the scenario of the inclusive school.

The concept of inclusion that gave rise to the inclusive school or school for all, and inclusive education [12], profoundly changed traditional practices, replacing them with a more global concept, in which every student has the right to an education without exclusions. Inclusion implies a conceptual framework and consists of six components: i) All pupils should be educated in the schools near to where they live; ii) the percentage of pupils with SEN in each school/class must be representative of their prevalence; iii) schools should be governed by the principle of “zero” rejection; iv) pupils with SEN should be educated in regular schools, in environments appropriate to their age and educational level; v) education in cooperation and peer tutoring are preferred teaching methods; vi) the support given by special education services should not exclude pupils with SEN [13]. An inclusive school is therefore an institution that will enhance the multiple expressions of cultures to be found in each one; it is an intercultural school, building mutual recognition and preparing the foundations for a critical interpretation of the world [14]. The attitude and professional development of teachers also depend on the stage they are at in their career, with the most experienced teachers tending to show more resistance to change [15].

Several writers assume that the development of practices and the construction of more inclusive educational settings in mainstream schools are closely related to teachers’ and other educational officials’ attitudes in relation to inclusive education [16], [17], [18].

Teachers’ attitudes, which some studies have linked to their pedagogical ideas, training and experience, appear to be decisive for the possibilities and limits of inclusion. Teachers with more positive attitudes more easily change and adapt their work in order to benefit students with special needs, while positively influencing their peers [19] [20], because a teacher with a higher educational level is more likely to accept methodological changes and attitudes.

3. Methodology and procedures

The study presented here is descriptive in design, and is intended to describe some aspects, facts or phenomena of a particular situation [21]. The information was collected using three distinct processes (questionnaires, focus groups and document analysis). The mixed-type questionnaire used contains an attitudinal scale towards disability (AFI), whose reliability analysis has a Cronbach alpha of 0.831. The analysis was supported on normality tests (K-S), randomness (Rachas) and the principle of homogeneity (Levene). Where any of these assumptions failed, non-parametric tests were used. To broaden this study, two more data collections were made, through two focus groups with eight members each, based on various models [22], [23]. For document analysis, 23 teachers’ texts were used. The focus groups, as well as all the documents, were subject to content analysis, using computer support.

3.1. Target

The sample consists of 325 teachers from schools in different regions of Portugal. 46.2% are classroom teachers, while 30.2% are from the area of special education. Of the respondents 91.7% are graduates. About half of teachers have between 7 and 25 years of professional experience. It should also be noted that 22.5% have been teaching for less than three years. We found that 43.4% of teachers covered working with students with special educational needs in their initial training and that 25.5% of them consider that this training was insufficient. 50.5% of the participants have some continuous teacher training in this area. This also does not meet teachers’ expectations; in 39.3% of cases they consider the training insufficient in terms of quality. As regards specialized training on the subject, 38.7% of respondents had received such training, specifically directed to disruptions in the cognitive and motor domain.

4. Discussion

Although other variables in the study were used, we will focus only on the following: training and information received teacher type, degree, regular teaching, teachers' attitude and special education, with regard to the inclusion of children with SEN in the classroom.

We conclude that a degree does not influence attitudes towards inclusion (Kruskal-Wallis H 0.941). Other researchers [17], in contrast, suggest that teachers with higher academic qualifications theoretically manifest more positive attitudes, but they have fewer ideas and goals for working with
students with SEN, when compared with other teachers with lower academic qualifications.

Regarding training, we have found contrary to expectation that teachers who had covered students with special needs in their initial training courses do not develop more positive attitudes towards inclusion of these students. The Mann - Whitney U test p value = 0.092 shows us that there are no significant differences, so we conclude that the initial training does not determine the type of teacher attitudes towards the inclusion of pupils with SEN in the classroom. The same conclusions were reached by Loreman [24] and Gafoor and Asaraf [25], who state that there were no significant differences with regard to the attitudes of teachers and their initial training, perhaps because this concept is already internalized by the individual. Other studies show a relationship between positive attitudes and curricula where there are subjects related to inclusion [26], [27].

Coincident with the hypothesis (continuing education within special education needs develops the most positive attitudes in teachers towards the inclusion of pupils with SEN in the classroom) we can see, there is an increase in positive attitudes towards students with SEN after the teachers have received training.

There is a clear increase in positive attitudes towards students with SEN after the teachers have received training. The differences found in the U Mann-Whitney test (p = 0.00) confirm this hypothesis, so that it seems beyond doubt that continuous training influences the attitudes of teachers towards the inclusion of pupils with special educational needs in a positive way. Several studies confirm these results, indicating that this influence is greater than the experience [12], [29], [30], while increasing the self-esteem and self-confidence of teachers and skills capacities for professional practice.

It appears therefore that neither initial training nor daily experience prepare teachers for inclusive practices, shared reflective practice and the concept of continuing education, which can determine more inclusive attitudes [30]. Regarding specialized training, it also influences the attitudes of teachers.

Applying the Mann-Whitney U test p-value = 0.00 means that the differences found in the above graph are significant. In common with other researchers we found that training in special education compared to normal training promotes more positive attitudes [31],[32],[33].

Another variable studied was the kind of role the teacher plays in school (special education teacher / regular teacher and head teacher) which positively influences the attitudes of primary school teachers towards the inclusion of pupils with SEN in the classroom.

The study shows, that special education teachers have more positive attitudes towards pupils with special educational needs. To confirm the statistical significance, we applied the nonparametric Kruskal-Wallis H (p=0.00). We accept that there are significant differences between the groups and therefore attitudes change depending on the role the teacher plays. In this case we proved post-hoc that it is teachers with special education functions who show more positive attitudes towards pupils with special educational needs.

One researcher also concludes that there is a relationship between the teacher's situation at school and attitudes towards inclusion, and teachers with more stability, who have security of tenure, are less inclusive. She also found that teachers of educational guidance departments, and teachers linked to the arts have more inclusive attitudes, contrary to regular teachers or those from other departments [34].

To collect the opinions of teachers about the factors that facilitate inclusion and allow a further response to the second general research objective (to ascertain the nature of the difficulties that teachers feel in promoting inclusive education and to relate them to the kind of attitudes demonstrated, with their course and training needs), we asked them in the last part of the questionnaire to classify in descending order, from the most important to least important, the conditions they consider more conducive to the process of inclusion of SEN pupils in the classroom ("teachers’ attitudes"; "specialized teachers"; "specific training"; "teaching methods"; "evaluation/monitoring of students"; "collaboration between teachers" and "materials and resources") .

We conclude that the most important condition chosen by the teachers is "teachers’ attitudes," followed by "specific training". It should also be noted that there are degrees of importance assigned by teachers to personal and professional factors. Overall we can point out that teachers aged between 31 and 40 are those who most value the inclusion process. It appears also that as age increases, the relevance attributed to teachers’ attitudes increases, while the younger teachers value materials and resources more. Finally, the importance given to specific training is influenced by age; that is, teachers who are between 31 to 40 and 41 to 50 value this condition more. Studies done by Huberman [35], show that teachers’ attitude and performance changes throughout their career, while others claim teachers that have more experience verbalize more their lack of knowledge in the field of SEN.

As for the influence of educational and professional qualifications, cited by teachers as necessary to be able to carry out an effective process of inclusion, it was found that the importance given to specific training requirements for working
students with SEN is significantly higher in licensed teachers. There is a pronounced rise in specific training in licensed teachers, who in turn devalue the condition “Collaboration between teachers”. Regarding qualifications and on reviewing some studies [12], [30], [36], we conclude that the professional qualifications to which specific training is associated should be taken into account in the implementation of an inclusive school, given the strong relationship this has to teacher attitudes. Regarding the training variable, we analyzed the influence of initial, continuous or specialized training in the importance given to each of the conditions for an effective inclusion process.

Although there were some differences between the two groups (teachers who had SEN in their initial training courses and those who did not), these differences were not statistically significant.

Some researchers argue that teachers must have an inclusive education module in their initial training, because they will feel more comfortable with inclusive practices [37]. Others, however, argue that there should be a more systematic introduction of intensive training [38]. Within this research project another concern, besides measuring the attitudes of teachers, was to investigate the process that would be needed for a school to become more inclusive. To understand this process it was also important to monitor the difficulties experienced by teachers, using data obtained from the documentary collection and the conclusions from focus groups. In general, teachers gave as an explanation for the difficulties encountered in the implementation of an inclusive school. There were two types of factors. The first were based on causes of a contextual nature, such as the low participation of families and the attitudes of the educational community, problems of space in schools, remaining in operation as well as the organization of classes. Studies done by Rodríguez Tejada [34] and Mandarino [39] also reach these conclusions.

With regard to causes of a personal nature these were related to attitudes; lack of training that did not allow them for example, to know how to build or adapt various specific materials, the impossibility of programming content management in heterogeneous classes, many difficulties in time management; cooperation in team work among others. Similar issues were found by other researchers in their studies and state that teachers attribute the greatest difficulties for the promotion of an inclusive school to issues regarding themselves [1], [40]. However, others argue that the most important is our will to change the school [1], [42].

All respondents who said they had no specific training to work with students with special educational needs, attribute the inclusion problem to teacher training. Thus, regular education teachers seem to need to know more about students to adapt their working and teaching methods to be able to define new strategies to support pupils with SEN [34], [41], [42].

5. Conclusion

Regarding initial training, we conclude that teachers who had covered SEN students in their training courses did not develop more positive attitudes. However, teachers who had continuous training or specialized training during their career have more positive attitudes compared with those who did not have this type of training. It was also found that the specialized training within the SEN framework significantly influences the relevance given to teacher attitudes towards encouraging inclusion.

The type of role the teacher plays in school influences positive attitudes towards inclusion because the data shows that a teacher who carries out special education functions has more positive attitudes than classroom teachers or those with management responsibilities. Thus, special education teachers consider attitudes as the most important condition, while teachers with other functions give greater importance to the existence of specialized teachers in schools.

We also point to six categories of problems signaled by teachers that are described below: teachers’ attitudes as a barrier to inclusion; families attitudes such as low parental involvement in the educational process of their children; communication between educational providers; the attitude of the teaching community; lack of human and physical resources and lack of training to work with SEN students. In relation to training needs, difficulties were found both in terms of the pedagogical relationship, lesson planning, design of activities, curriculum changes, time management and classroom management skills.

Within the deficiencies mentioned by the teachers in promoting inclusive schools, the one mentioned most frequently was the need for training. As regards initial training, they mentioned modules which included content related to legislation on SEN, approaches to different types of disability, concepts of assessment, specific educational intervention and educational differentiation methodologies, cooperative learning, classroom management and curriculum organization. All refer to the relevance of in-service training.

On completion of this work, and after a thorough reflection on the entire progress of this research, we would argue for its importance in understanding the issues around teacher attitudes towards the inclusion of pupils with SEN. This also allows us to conclude that inclusive attitudes are today, from the
philosophical point of view, a reality accepted by the majority of teachers, who argue that the heterogeneity of a class provides richer learning situations.

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People from the Same Home Country: They Do Matter to International Students’ Socio-cultural Adjustment

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Abstract

Research on international students betters our understanding of the internationalization of higher education. This study investigates how people from the same home country affect the socio-cultural adjustment of the first-year, full-time, postgraduate, international students at a southwestern UK university through a sequential exploratory mixed methods research design. Twenty-six students participated in the qualitative interviews. 250 valid respondents answered a quantitative online questionnaire survey. The results indicate that people, including students, from the same home country do matter to the socio-cultural adjustment of the research participants. People from the same home country play a more crucial and helpful role, especially with initial adjustment, in international students’ socio-cultural adjustment; however, people from the same home country may hinder international students’ host cultural engagement and interaction with students from other countries. This research adds to theoretical knowledge associated with the adjustment of international students and points to practical improvements that could be made in our present understanding and support services for international students.

1. Introduction

More and more students prefer to study abroad. This popular trend has made universities become increasingly internationalized. The aim of this research is to investigate how people, including students, from the same home country influenced the socio-cultural adjustment of international postgraduate students at a UK university. The research was conducted in a university in South West England. To preserve its anonymity, this university will be referred to as University South West (USW) throughout the study. USW was chosen as the study site because the university had been dedicated to increasing its own international reputation; in addition, there was a large international student population representing over 140 countries at this institution.

The internationalization of higher education is an important issue in this globalized era. Altbach [1] indicates that internationalization will be a significant trend for research, science or scholarship, and will affect both political and economic changes in the future. Teichler [2] states, “[w]e might consider internationalization of higher education as the next theme, which gives rise to a new focus of both higher education policy and higher education research”. Therefore, research on international education and the experiences of international students is increasingly relevant within the higher education context.

Based on information from the Higher Education Statistics Agency (HESA) [3], among “2,299,355 students in higher education in Britain in 2013/14, 125,300 (5.5%) were from other EU member countries and 310,195 (13.5%) were from non-EU countries”. China, India, Nigeria, Malaysia, and the United States were the top five non-EU countries of origin. Non-UK students represented almost 19% of the total student population in Britain.

Mellors-Bourne et al. [4] report that the internationalization of UK higher education benefits the British economy, the entire United Kingdom as a host, international graduates as alumni, and international students’ countries of origin. The advantages for international students of receiving higher education in the UK include promoting career development or alternatives, improving English language skills, accelerating personal growth via wider experiences, broadening networks through professional or social contacts, and developing cosmopolitanism and multicultural sensitivity. Finally, receiving an overseas education from the UK also contributes to the development of sending countries by returning more skilled and advanced human resources with the impact on societal development, and the broader personal influence on family, education, or national settings.

This research intends to offer both academic and practical contributions to education and provide useful insights into the experiences of international
students. In addition, it will offer a guide towards initiatives to improve the well-being, practical support services, or resources for international students that will contribute to the benefits for students and institutions alike as the internationalization of higher education proceeds.

2. Literature review

Most of the relevant research defines international students as individuals studying in a foreign country with a student visa. However, because of the special situation in the UK, as a European Union (EU) member, the definition in this study is adjusted and therefore differs from the traditional one or that used in research implemented in other countries or different socio-cultural contexts. In this research the term ‘international student’ refers to any student who is not a UK citizen or permanent resident.

Pedersen [5] states that adjustment implies the concept of ‘change’. Hannigan [6] stated that adjustment “can be conceptualized as a psychosocial concept which has to do with the process of achieving harmony between the individual and the environment”. In this research adjustment is delineated as a process of change or adaptation in response to the situation or environment in which a person finds him or herself. Socio-cultural adjustment is defined as the adaptive process of how individuals get used to a new social and cultural environment.

Among many issues related to socio-cultural adjustment, social networking and interaction are essential issues and should not be ignored in international students’ socio-cultural experience. Rajapaksa and Dundes [7] discovered that social networks played an important role in international student adjustment to American college life whereas the number of close friends did not successfully predict the social networking satisfaction of the international students examined. Wu and Hammond [8] found that interaction with host students or nationals seldom occurred for international students “unless contact was facilitated through shared accommodation or structured encounters in social or academic setting”. East Asian Master’s students experienced “an ‘international postgraduate student culture’ rather than integration into local culture”. This international postgraduate student culture was “defined by its widespread use of English; participation of students from a range of national backgrounds; and a focus on achieving academic success”. Within this culture, students connected with students from the same or similar cultural background and had ongoing or constant interest in

or contact with issues or events in the sending countries through Internet technology.

Additionally, Yan and Berliner [9] unveiled that Chinese international students tended to have more frequent interaction with co-nationals. It was usually difficult for them to start social contact or interaction with host students or nationals, even though they wished to have greater socio-cultural interaction. The Chinese international students who were studied also indicated that their social and emotional needs were best met through interacting with students or people from the same home country. However, this situation made them more isolated from the host culture. Moreover, research [10], quantitatively investigating how factors associated with ethnic communities influenced individual adaptation of foreign students at an American state university, mainly found that ties and social relationships with cohorts from the same country or a similar culture, including ethnic communities within an American university, contributed to the personal adjustment of international students to American life.

The aforementioned literature underscores the impact which people from the same home country have on the adjustment of international students. It also creates heightened interest for the relevant research investigation.

3. Research methods

This research used a sequential exploratory mixed methods strategy, combining both qualitative and quantitative methods, for data collection and analysis. Two qualitative semi-structured interviews were first conducted to investigate twenty-six first-year, full-time, postgraduate, international students separately in the autumn and spring terms of the 2010–11 academic year. The interview participants were purposively selected via the maximum heterodoxy sampling strategy based on the consideration regarding the equal distribution of demographic characteristics, such as gender, geographic areas of origin (Asia, Europe, America, Oceania, Africa, and Middle East), study program, etc. Tashakkori and Teddlie [11] state that this purposive strategy is called “sampling for heterogeneity: cases are selected such that their combination provides the maximum heterogeneity on certain attributes (e.g., ethnicity, education) that are important to the research objective of the study”. The qualitative data analysis in this research mainly followed the procedures of analyses focused on meaning. An online survey questionnaire was then distributed to all qualified international students at USW in the summer term of the same academic year. The new online survey instrument, named as
International Student Adjustment Survey (ISAS), was developed based on the findings from the earlier two qualitative interview studies and the existing literature review. 250 valid respondents answered the survey questions. The constructs of the survey instrument include data collection regarding demographic characteristics and international student experience. Descriptive statistics were mainly used for quantitative data analysis. This research carefully follows the guidelines of the British Educational Research Association (BERA) and the Ethics Committee of the researcher’s university.

4. Analysis of research findings

Both qualitative and quantitative research findings are described below. All findings from both the micro qualitative and macro quantitative investigations are generally consistent.

Firstly, the qualitative interview findings mainly showed that most of the interviewees often interacted with students or people from the same home country or a similar cultural background. Many of them said that people from the same home country or a similar cultural background were quite helpful when they needed any assistance. For instance, Peter, an Asian PhD student mentioned: “My landlord’s family and I are from the same home country. At the beginning, I indeed needed their help because I did not know quite a lot of things in the UK. Now I get used to the life here and we talk about everything together”.

Brian, another PhD student from the Middle East stated: “I have found not many friends from my home country; but we have a community and sometimes gather together … Especially when I just arrived in South West, students from my home country helped and gave me very helpful advice. We support and talk to each other”.

Only six of the twenty-six interviewees indicated that they usually did not interact with students or people from the same home country or a similar cultural background. For instance, George, an Asian Master’s student stated: “I know some students from my home country but usually do not interact with them. I always interact with students or people from other countries and try not to speak my native language or not to stay with students from my home country”. Nancy, a European Master’s student also mentioned: “No, I also do not know anyone from my home country … I also do not want to be together with people from my home country because I will not speak English but one of my purposes here is to improve my English”.

The aforementioned interview findings show that in spite of students’ original perception that studying abroad may benefit their personal development in terms of intercultural interaction, what seems evident here is that international students’ interaction with non-student local British people needs to be encouraged. International students tend to interact with their peers, which may result from their shared feelings, internal needs or desires. However, interacting more with local British people may help them understand better about what local British culture means, despite the feelings of culture shock, differences, or alienation that they may simultaneously feel.

Secondly, for the quantitative phase of the research findings, the questionnaire survey data clearly showed that international students interacted most often with students from their own country (43.6%). They were also more likely to socialize with students from different countries (31.2%), followed by students with a similar cultural background but from different countries (15.2%). The survey participants interacted least with British students (3.2%) or people (3.2%). The relevant findings reinforce other data showing a limited interaction between international students and the host community and suggest that the interaction between international students and host British students or people needs to be improved for increasing mutual cultural understanding.

The preceding survey findings also correspond to the following discoveries: nearly half of the 250 respondents agreed that most of their friends were students or people from the same home country (46.4%), followed by students from different countries (29.6%), or students or people from different countries but with similar cultural background (16.0%). The smallest number of the respondents had a majority of friends who were British students (3.2%) or non-students (2.8%).

Additionally, more questionnaire survey responses showed that international students in this research generally thought that people or students from the same home country were helpful to their adjustment (81.6%), hence it was better to interact with people from the same country or culture (45.6%). These findings indicate the positive contribution of people or students from the same home country to international students’ adjustment. They also indirectly support a third space for one’s own culture while adjusting to a host environment.

The preceding relevant findings reveal and re-emphasize the importance and supportive role of people from the same home country or culture in international students’ socio-cultural adjustment.

Finally, all of the above research findings uncover that international students find it difficult to build friendships with British students or people. Although it cannot be established from these results
where the nature of this difficulty lies, the fact that
the international students find it easier to relate to
other international students from the same culture or
a variety of backgrounds, rather than to students
from the host country, suggests that the problems or
the causes of the related phenomena may be
institutional rather than any unwillingness to
integrate on the part of international students. The
institution itself may serve to create natural
groupings of international students but not facilitate
integration between international students and British
students.

5. Discussion

This research discovered that people, including
students, from the same home country played a
crucial, positive, supportive, and helpful role in
international students’ socio-cultural life; especially
for ones who just arrived in the UK, or those
instances when they needed assistance. Students also
felt more comfortable sharing feelings and problems
with people from the same home country via their
mother tongue(s). In general, this research confirms
the findings of others [9], [10] that many students
feel more comfortable and gain more assistance or
support from interacting with colleagues or people
from the same home country.

However, at the same time, interaction with
people or students from the same home country can
lead to issues with cultural adjustment, such as
hindering local cultural adjustment and decreasing
opportunities to interact with host people or students
from other countries. Yan and Berliner [9]
discovered that interaction with co-nationals isolated
Chinese students from the host culture. Interview
participants in this mixed methods research also
commented on the loss of opportunities to improve a
host language when interactions were primarily with
speakers of the same language. Chinese students
were specifically mentioned by other students as not
seizing opportunities to know students from other
countries or to share their culture with other students.
Interviewee Steven indicated that communicating
with co-nationals via the Chinese language often
increased Chinese students’ English deficiency and
led to difficulties in communicating with other
students. Sherry et al. [12] also discovered that
“many international students [got] the impression
that any experiences of social isolation [were] due to
their own deficiencies in the English languages”. The
research findings suggest that there should be a
certain degree of relationship between host language
abilities and cross-cultural social interaction. How
much or how strong the degree of the relationship is
can be another issue for future research.

This research also found that international
students who acculturated better to a host culture
tended not to rely much on networks or interaction
with, or assistance from, people or students from the
same home country because they usually were more
independent to build up their new social network
with host nationals and were also more likely to
enjoy experiencing a new host culture. To the
contrary, international students who tended to use
more hybridized approaches for socio-cultural
adjustment usually had more interaction or
friendship with students or people from the same
home country because they also liked to maintain a
connection with their home country, including
friendships.

The aforementioned positive and negative effects
of people or students from the same home country
make international students themselves, educators,
researchers, and other relevant people reflect on what
the main and real purpose of studying abroad is.
Literature review shows that education abroad,
especially a short-term study-abroad program,
generally increases students’ intercultural sensitivity
[13]. For instance, Mazzarol et al. [14] discovered
that the opportunity for learning and increasing
knowledge about or understanding Western culture
played the most important role in motivating students
to study abroad. Therefore, Chinese students at USW
were advised to be aware of their tendency to favor
comfortable interactions and to try to interact with
students from diverse backgrounds, even though they
represented the largest student population by home
country at USW. Interviewee Kevin, a non-Chinese
Asian, stated his main reason for choosing to study at
USW was the small number of students from his
home country. This statement could be a very helpful
inspiration to international students.

Ideally, international students are expected to
have host community engagement and host cultural
interaction. Through host cultural engagement,
international students generally could experience
more host culture in addition to academic studies. If
students only or mainly interact with people or
students from the same home country, then their
experience during the term of their study abroad may
be quite similar to study at home because they do not
take enough or adequate advantage of the
opportunities to experience another culture or to have
interactions and friendships with people from
different parts of the world.

The findings raise a number of issues about the
experience of studying abroad. Questions which
emerge relate to the importance of experiencing the
host culture, the interest of the sojourner students in
the local culture and their willingness to engage with
it, the willingness of the sojourners and host people
te to interact with each other, and the availability of appropriate mechanisms to foster interest in the host culture and to engage with it. These questions encourage and allow people to reflect on the potential outcome or contribution that may be made or caused by studying abroad. They also suggest related subjects for future research, such as potential strategies for increasing multicultural understanding, causes of host cultural alienation, and reasons for host cultural engagement.

6. Conclusion

This research concluded that people or students from the same home country had positive impacts on the socio-cultural adjustment of international students. Students' self-identity tended to be re-shaped or re-enhanced in a multicultural society, and students were more likely to link to their culture of origin after perceiving cultural differences and experiencing uneasiness, distress, tension, or culture shock. The majority of the research participants tended to experience an 'international postgraduate student culture' as defined by Wu and Hammond [8], have more interaction with people from the same home country, and prefer their cultural heritages or home life styles even though they were open to socio-cultural adjustment and some also had opportunities to interact with host nationals through shared accommodation, personal leisure activities, or religious services. Cultural engagement was one of the initial expectations from international students; however, such engagement rarely happened because of the barriers they experienced and the choices they made while exercising personal agency.

The relevant research findings imply that, with generally good adjustment, international students’ interaction with host nationals needs to be improved because host friendships and cultural experiences benefit both international students [15], [16] and British people, and should be part of the experience of studying abroad. The research data also reveal that international students are not a homogenous community and that their differences require different kinds of adjustment and hence different kinds of support. Therefore, there is still some room for educational institutions to improve support mechanisms assisting international students to deal with various internal and external challenges. For example, Chinese students might need to be encouraged more to interact with people from different countries.

Finally, this research provides some recommendations or suggestions for future practices in the relevant field. For instance, international students and host nationals should be encouraged and have more opportunities to interact with each other. Opportunities or activities, such as host families and trips during vacations, could be provided more for increasing this interaction. The university student support staff may be able to facilitate relevant opportunities. Students in this research also positively expected to increase more activities for improving host cultural engagement and multicultural understanding. Currently, various support services for international students, such as orientation and counseling or advice services, may be provided generally by educational institutions; however, with more thoughtful attention and cultural understanding, students’ well-being, such as cultural engagement, can be ameliorated with greater success.

7. References


Session 2: Curriculum, Research and Development

Sixth-graders’ Ability to Understand the Texts of their History and Natural Science Schoolbooks
(Author: Tuula Merisuo-Storm)

Simulation in Plastic Surgery: A Research Agenda to Improve Teaching, Learning and Clinical Expertise/Professional Competence
(Author: Corné Nel)

Identification with Academics, School Motivation and AP Course in Preparing Students for STEM Majors
(Authors: Weihua Fan, Yali Zou)
Sixth-Graders’ Ability to Understand the Texts of History and Natural Science Schoolbooks

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Abstract

The aim of the study was to explore how well sixth-graders comprehend the textbooks used in history and natural sciences classes. 247 students took part in the study. Half of them read a text in their natural science book and the other half a text in their history book. After that, they each answered ten questions and explained ten words underlined in the text. The students had no difficulties in answering those questions to which the answers were directly found in the texts. However, questions requiring inference skills proved to be difficult. Explaining the meaning of words was an even more demanding task. It appears that there are many students who enter secondary school with poor reading comprehension skills. Therefore, students should be taught to comprehend texts related to different school subjects and strategies that help them to derive the meanings of unfamiliar words from textual contexts.

1. Introduction

Traditional textbooks are still a central source of information in today’s content area classes. To become academically successful, pupils have to learn to comprehend the contents of those books and find the main ideas contained in their chapters. Nevertheless, many students do not succeed at this task. Textbooks present limited information about several topics and use abstract concepts and vocabulary that is not always familiar to young readers. Consequently, they gain limited understanding and learn only superficial information. Even if the books include textual features that intend to help text comprehension, pupils are not aware of their purpose. They do not use the information that titles, sub-headings and pictures provide or pay attention to bold or italic print and coloured headings. In addition, as textbooks are often written concisely and state information as neutral facts, the pupils may find them uninteresting and tiresome. When they try to learn from texts that are too difficult and do not interest them, they become frustrated and their motivation to study declines.

Therefore, an important objective of teaching is to develop pupils’ skills in reading, interpreting and utilizing different textbooks. Moreover, teachers should supplement textbooks with other non-fiction texts to enrich the curriculum [1, 2, 3, 4].

2. Comprehension of non-fiction

Reading comprehension is a complex process. When readers aim to understand a text, they construct meaning using their previous knowledge and experience and the information the text provides. The more background information related to the text that readers possess, the easier it is for them to understand the text. Each text is unique as regards its structure, genre, vocabulary and language [5, 6]. Research has shown that during the first school years children do not have many opportunities for reading and writing information texts in school [7, 8]. Therefore, they are able to understand narrative texts more easily than information texts, which often have complex structures and include new concepts [9, 10].

The comprehension of each different genre does not occur in the same way. Consequently, a pupil who understands one type of text with ease may well have difficulties in comprehending another kind of text. In addition, it is possible that comprehension instruction in one genre does not transfer, either fully or perhaps even at all, to another genre. Instruction should be tailored more closely to the real comprehension demands that pupils face when studying different school subjects. An important goal is to teach them how to use their comprehension skills not only in the familiar context in which they have learnt them but also in future contexts in which they will need them. Therefore, classroom teachers and the subject-area teachers should include comprehension instruction in their curricula [11].

However, Parker and Hurry [12] and Duke and Martin [11] argue that teachers often do not have explicit knowledge of the most significant reading comprehension strategies. It appears that direct oral questioning is the dominant strategy for teaching reading comprehension. However, a few minutes of
asking and answering questions about a text passage is not enough. Often this kind of directive questioning produces answers that are correct but are also highly predictable and seldom assist children to develop more elaborated ideas. Even if the range of teachers’ questions is wide and appropriate, children’s role may still be too passive.

When reading expository texts, there are four key elements that are essential to comprehension processes: prior knowledge, inferential reasoning, self-regulation and motivation. When readers have prior knowledge of the topic and the structure of the text, it is easier for them to organize the text’s ideas mentally and remember them later. Inferential reasoning refers to the readers’ ability to read between the lines, making connections that are not clearly expressed in the text. The term self-regulated reading refers to self-questioning and repair processes. Skilful readers control their comprehension processes by choosing alternative strategies when others do not work [13].

According to Guthrie and Klauda [14] “the most overwhelming obstacle [to reading] is boredom”. Skilful readers may also find the contents of a textbook uninteresting. However, pupils’ interest in the topic of a text has a positive effect on their reading comprehension. When pupils consider the content of a text interesting, they actively want to understand what they are reading. This stimulates processes that are important in comprehension, such as making inferences based on the text and the reader’s previous knowledge. Since there will be several occasions on which pupils will have to read and understand texts that they find uninteresting, it is imperative to teach them suitable reading strategies [15,16,17].

As noted above, textbooks include abstract concepts and vocabulary that is not familiar to young readers. If a significant word or concept is unknown, it is possible that the meaning of the whole text passage remains unclear to the readers. Pupils should be taught to derive the meaning of an unknown word from the written context. Strategies for deriving the meanings of words from context focus on using pieces of information that the text provides to infer the meanings of unknown words. The pupils’ capability to derive a given word’s meaning improves if they have an opportunity to explain the reasoning behind their own definitions or the correct definitions of the words. Their skills also develop when they hear the teacher and other pupils think aloud during the word explanation process [18, 19].

School knowledge is constructed through expository language and pupils may need help to be able to learn from expository texts. After four school years, pupils are already expected to have good reading skills that enable them to use reading as a tool for acquiring new information in content areas. However, even after six school years some pupils have great difficulties in comprehending different texts when moving on to secondary school [4]. In secondary school, textbooks become even more demanding and pupils’ learning begins to rely more and more on their ability to read independently. Hence, it is essential that teachers at both the primary and secondary levels help pupils learn to comprehend the texts in their textbooks. They should discuss the typographic features of textbooks, such as boldface words, diagrams, maps and photographs with captions, with their pupils to make it easier for the readers to learn more content and meet the language demands of these more advanced and dense textbooks [2,14,20,21].

3. The study

The study has two goals: 1) how well sixth-graders (11–12 year-olds) comprehend the textbooks used in sixth-grade history and natural sciences classes and 2) how well they are able to derive the meaning of an unknown word from its written context. Altogether, 247 pupils (122 girls and 125 boys) from schools located in southern Finland took part in the study. About half of them read a text about whales in their natural science textbook and the other half a text about the Great Wall of China in their history textbook. Each subject was also divided roughly evenly between boys and girls.

Both chapters were four pages long; each page had pictures with captions. The chapter in the natural science textbook included information about the appearance and living conditions of whales and explained how they breathe and move. More detailed information was supplied about blue whales, toothed whales and dolphins. The chapter in the history textbook contained information about the ancient culture of China, such as the Great Wall, important Chinese inventions, Marco Polo and his long journey to China and how people in Europe reacted to his stories about China. After reading the text, the pupils answered ten questions and explained the meanings of ten words underlined in the text.

4. Results

The questionnaires related to both textbook chapters contained four questions to which the answers were found directly in the texts. Answering the next five questions in each case required combining different pieces of information from the text or making inferences. Answering the remaining question in each questionnaire required deeper understanding and reasoning.

In both groups, the pupils had no difficulties in answering those questions to which the answers were found directly in the texts. The easiest questions related to the history book text were, “Why was the Great Wall of China built?” and
“What were the inventions that the Chinese created?” Almost all pupils (98%) answered the first question correctly, while 82% knew the second answer. The easiest questions related to the natural science textbook were, “How long the whales can be submerged?” and “What are krills?” Almost all pupils (94%) answered the first question correctly; though the second proved a little more difficult, with only 77% giving a correct answer.

The questions that proved to be considerably more difficult required inference skills. For the pupils in the history book group, the most difficult question was, “Why did they not believe what Marco Polo related about China?” Only 2% of pupils succeeded in finding a correct answer such as “China was in many aspects more advanced than the European countries and their inventions were unfamiliar to the Europeans.” This question proved to be even more difficult than the question that required a deeper understanding of the text and a pupil’s own reasoning; “Why was it a heavy blow to Chinese culture that the Mongolians became the rulers of China?” This question was answered correctly by only 11% of the pupils. The best example of a correct answer was: “Chinese people had until then been able to live in peace, but then the Mongolians could change their culture and habits because the Mongolians held the most important offices.”

The most difficult question in the natural science group was, “In what way has the number of whales varied and what are the reasons behind that variation?” Only 9% of the pupils gave a correct answer that included all three pieces of information that were found in the text. However, one third of the pupils (33%) answered the question that required a deeper understanding of the text and their own reasoning correctly: “What does the title of the chapter ‘The Giants of The Pacific’ mean?”

Often, the same pupils gave correct answers to the questions that were the most difficult (r = .336**, p = .002). On average, the girls in both groups were significantly more successful than the boys in answering the questions (history book group t = 2.73, p = .008; natural science group t = 3.57, p = .000). In the natural science group, the two pupils who answered all questions correctly were both girls. In the history group, more than one third (37.5%) of the boys and 6.5% of the girls answered fewer than half the questions correctly.

The results show that for these sixth-graders the history text was more demanding than the natural science text, for both girls and boys. In the history book group, the best result in answering the questions was 17 out of 18 points, which was earned by a girl. There were four questions that less than one third of the pupils answered correctly. In the natural science book questionnaire, there was only one question that was equally difficult for the pupils.

Although most pupils in Finland have rarely if ever seen whales, many pupils, especially girls, are interested in animals. Therefore, they had background information that helped them comprehend the natural science text. Figure 1 shows the girls’ and boys’ success in answering the questions related to the history book chapter.

### Figure 1. Girls’ and boys’ success in answering questions related to the history book chapter

![Diagram showing girls' and boys' success in answering history book questions](image)

Given the results, it is obvious that the pupils need teachers’ guidance, especially when reading textbooks in history lessons. For instance, many would find it surprising that 61% of the pupils could not answer the question, “Where did Silk Road to China begin?” correctly, even though above that passage there was a map on which the road was clearly marked. It is equally surprising that, in the natural science group, two thirds (66%) of the pupils did not understand the meaning of the chapter title. As noted above, it is important for teachers to discuss all the features of textbooks, such as chapter titles, headings and sub-headings, boldface words, diagrams and photographs with captions with their pupils [21].

Deriving the meaning of words and explaining them proved to be a demanding task for many pupils. Sometimes, it was difficult for pupils to explain words even if they clearly understood what those words meant. However, the results show that it was largely the same pupils who succeeded best in both answering the questions and explaining the words. There is a strong correlation between these two tasks (r = .390**, p = .000). When explaining words, the pupils were instructed to consider how they would explain them to a friend who did not know what the words mean. When considering the results, one must take into account that there are differences between the Finnish and English languages. Consequently, different words may be more difficult or common in...
one or the other. The words on both questionnaires included four nouns, three verbs, two adjectives, and one particle.

The easiest words to explain proved to be the concept volaiden laulu [whales’ song] on the natural science group’s questionnaire, as 91% of pupils gave the correct explanation. Most pupils (86%) could also explain the word vaeltaa [migrate]. On the history book questionnaire, the easiest word was nuudeli [noodle], which 79% of pupils explained correctly. Almost as many pupils (77%) explained the verb sanella [dictate] correctly.

Both textbooks included words that were not familiar to most pupils, and they could not derive their meanings from the context either. However, it is possible that even if the pupils understood a word, they could not always explain it. In the history book text, the most difficult word was the verb perua [withdraw]. Only 27% of the pupils gave an acceptable explanation. Only one third of the pupils (34%) explained the word väkirikas correctly [populous; verbatim translation from Finnish ‘rich of people’] correctly. This was the only word that the boys explained slightly more successfully than the girls. The particle lähinnät [mainly] in the sentence, “At the end of the 10th century, gunpowder was mainly used in China for firework displays” was almost as difficult to explain. Only 37% of the pupils succeeded in that task.

In the science book text, the adjective virtaviivainen [streamlined] was used to describe the appearance of whales. Less than one fourth (23%) of the pupils could explain that word. The noun haaremi [harem] was used to describe the group of female whales that a male whale has around him. Only 28% of the pupils explained it correctly. In addition, the particle jopa [as much as] proved difficult to explain, as a little more than one third of the pupils (37%) explained it correctly. The results suggest that the pupils were not used to explaining words and concepts because often they used the same word in the explanation (e.g. “Withdraw means to withdraw something.”; “Withdraw means to withdraw his words.”).

The chapters of the textbooks that were used in this study included several other difficult words. In the history book wordlist, there were only two words that more than 70% of the pupils explained correctly. Four words were too difficult for at least half of the pupils and four words could be explained by 50–60% of the pupils. Only 3% of the pupils explained all the words correctly, while 5% of the pupils could not explain any of them, which could make understanding the chapter as a whole impossible or nearly so for that group. In word explanations, the difference between the two genders was not significant in the history book group. The girls’ results were only slightly better than the boys’ results (max. 10; girls: mean 5.4, SD 2.2; boys: mean 4.6, SD 2.4). Figure 2 shows the pupils’ success in explaining the words related to the history book chapter.

![Explaining the words related to the history book chapter](image)

**Figure 2.** Girls’ and boys’ success in explaining the words related to the history book chapter

However, in the natural science book group the girls were notably more successful than boys (max. 10; girls: mean 6.2, SD 2.20; boys: mean 4.58, SD 2.39). The difference between the two genders was significant ($t = 2.70, p = .008$). Although the words in the natural science book seemed to be easier to explain than those in the history book, many pupils still had difficulties in understanding them. In the natural science book wordlist, there were four words that more than 70% of the pupils explained correctly. Four words were too difficult for at least half of the pupils and two words could be explained by 50–60% of the pupils. Only 3% of the pupils explained all words correctly, whereas 2% could not explain any of them.

The pupils who succeeded best in explaining the words were the same ones that had good results in answering the questions. For instance, in the history group the correlation between the success in these tasks was significant ($r = .386**$, $p = .000$).

### 5. Conclusion

The results show that pupils need help when reading the textbooks that are used in content area classes. In this study, the sixth-grade history textbook in particular proved to be too difficult for many pupils. It is important that pupils be taught how to read and understand the textbooks in different school subjects. The pupils’ results indicate that they were not used to answering questions that require the ability to make connections and inferences. In
addition, many of them were happy to give an answer that was only one piece of information, although there were several relevant elements in the text. They were not able to use pictures as a source of information either.

Texts may be constructed differently and contain different vocabulary and concepts. Consequently, the pupils need to be taught how the text context helps to understand the meaning of an unfamiliar word. The results of the study showed that deriving the meaning of an unknown word from the written context was very difficult, indicating that the pupils had not had enough practice at that skill, because they often chose a meaning for a word that it carries in some other context.

As noted above, Guthrie and Klauda [14] argue that “the most overwhelming obstacle [to reading] is boredom”. An explanation for the fact that the girls were significantly more successful than boys in explaining the words in the natural science book may be that they found the text more interesting, just as it is possible that boys are more interested in history than in animals. The interest level of reading material has a stronger influence on boys than on girls [14]. When a boy considers the content of a text, his interest seems to be more important than in animals. The interest level of reading material be that they found the text more interesting, just as it was that “the most overwhelming obstacle [to reading] is boredom”.

As noted above, Guthrie and Klauda [14] argue that “the most overwhelming obstacle [to reading] is boredom”. An explanation for the fact that the girls were significantly more successful than boys in explaining the words in the natural science book may be that they found the text more interesting, just as it is possible that boys are more interested in history than in animals. The interest level of reading material has a stronger influence on boys than on girls [14]. When a boy considers the content of a text, his interest seems to be more important than in animals. The interest level of reading material be that they found the text more interesting, just as it was that “the most overwhelming obstacle [to reading] is boredom”.

The pupils who took part in the study moved on to secondary school the next autumn. There, the textbooks become even more demanding and pupils’ learning becomes easier and more interesting. The use of versatile learning materials beyond traditional textbooks could help to make learning easier and more interesting.

The pupils who took part in the study moved on to secondary school the next autumn. There, the textbooks become even more demanding and pupils’ learning begins to rely more and more on their ability to read independently. This study’s results make it clear that is important that the teachers in secondary school continue to help them to learn to comprehend the genres and terminology in the textbooks.

6. References


Simulation in Plastic Surgery: A Research Agenda to Improve Teaching, Learning and Clinical Expertise/Professional Competence

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Abstract

Changes in health care triggered major shifts in health sciences education, including a move to simulation in education and training. Simulation enhances student learning, provides controlled and safe practice opportunities, and shapes the acquisition of doctors’ clinical skills/professional competence. Myriad research opportunities exist in the field of simulation-based medical education (SBME). This research is aimed at presenting a research agenda to improve teaching, learning and professional competence in plastic surgery education. The methodology is based on the conceptualisation and contextualisation of SBME. The research agenda offers recommendations on the role and value of simulation in education; the enhancement of learning; integrating simulation-based education into training curricula; standardising plastic surgery training globally; the revalidation of competency in continuing medical education, and the engagement of teachers and students in educational research. Simulation has potential to play an integral role in developing better and safer health care services for patients worldwide.

1. Introduction

The role of simulation in surgical training is now beyond ‘proof of concept’ stages. The advantages of simulation in modern health care systems have been well described in numerous reports establishing the validity and transferability of skills learned in simulated clinical setting environments with demonstrable advantages to the system, and patients [1], [2]. Changes in health care triggered major shifts in health sciences education, including a worldwide move to utilising simulators in education and training [3],[4],[5]. According to Issenberg et al. [6], “... for instance, in the United States, the pressures of managed care are shaping the form and frequency of hospitalisations, resulting in higher percentages of acutely ill patients and shorter in-patient stays. This results in less opportunity for medical learners to assess patients with a wide variety of diseases and physical findings. Despite increased cost-efficiency, reductions in physician reimbursement and shrinking financial resources constrain the educational time that physicians in training receive. Consequently, at all educational levels, doctors find it increasingly difficult to keep abreast of skills and topics that frequently appear in practice”.

Evidence of the value of simulation in education ensued in increased reliance on simulation technology to facilitate teaching innovation and enhancement of student learning, to provide controlled and safe practice opportunities, and to shape the acquisition of doctors’ clinical skills/professional competence [5]. Students are empowered to make decisions regarding diagnostic and therapeutic procedures, and to experience the full impact of success and mistakes in a safe and authentic educational environment [5], [6]. Simulation-based medical education is an educational method that makes use of simulation to bridge the gap between theory and practice in medical education [7]. Regarding medical simulation, the word simulation means the “imitation of the operation of a real-world process or system over time” [8].

In medicine this may mean any process and system designed and planned to recreate an authentic clinical context and environment, which provide opportunities for a student to assume a role of responsibility. The intention is to facilitate meaningful clinical experiences in a safe environment that the learner can refer to and transfer to authentic clinical contexts [9].

Simulator means a model that encapsulates the key characteristics or behaviours of a selected process or system found in the real world [8]. A medical simulator therefore demonstrates a key clinical
characteristic or set of clinical responses that mimic real-life conditions and responses. Medical simulators include computer programmes, part-task trainers, human patient simulators (or full-scale mannequins), and standardised patients [10], [11], [12].

The problems caused by the increasing number of students entering medical schools, and the consequence of more students competing for clinical cases, as described by Maran and Glavin [13], as well as the number of conditions primary health care professionals are expected to deal with (case mix) lead to simulation being used to fill the gap in medical training. Patients nowadays are better informed, have greater expectations and may exercise their right not to be involved in student education [14], resulting in an even smaller teaching platform.

Issenberg et al. [6] identify five factors contributing to the increase in the use of simulations in medical education, namely problems with clinical teaching; new technologies for diagnosis and management; assessing professional competence; medical errors; patient safety; and team training; and the role of deliberate practice. Due to the pressure caused by these factors, the burden of proof for adoption need not consist of randomized control trials, but rather there is opportunity for a wide range of studies making use of simulation. Thus substantial opportunity exists for investigators to contribute new knowledge in the field of simulation-based medical education, and, more specifically, its use in Plastic Surgery education and training.

Scalese [15] highlights the trend to utilise simulators for teaching, learning and assessment. Ziv, Erez, Munz, Vardi, Barzuk, Levine, Benita, Rubin and Berkenstadt [16] posit that simulation-based medical education (SBME) plays a significant role in minimising risk to patients and enhancing medical training. These authors [16] also mention that medico-legal issues and demands for accountability can be critical driving forces for the incorporation of simulation training in health care education.

2. The problem statement and aim of the study

Training in plastic surgery is not exempted from these drivers. The increased competition for surgical exposure and practice, combined with smaller teaching platforms and shorter training times, might have an impact on the quality and surgical competence of the registrar leaving the training programme. Plastic surgery is falling behind other disciplines in adopting simulation-based medical education, as in many areas and disciplines great strides are made in implementing simulation in formal training programmes, with leaders in the field anaesthesia, emergency medicine and laparoscopic surgery.

A number of articles recently have been published on topics such as the use and potential use, as well as the importance of simulation in plastic surgery [17],[18]; on the integration of surgical simulation in plastic surgery residency training [19]; and skills transferred to the operating room by surgical simulation [20]. In response to these, two seemingly contradictory goals in education have been put forward as priorities. On the one hand, there is a push for further standardization of education. To this end, the Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS) have defined six core competencies required of all residents [17]. Standardization aims to increase patient safety by reducing surgical errors and improving the quality of care, while at the same time maximizing hospital resources. On the other hand, the medical education model ought to allow for individualisation to reflect the fact that people learn knowledge and master competencies differently. In this line of reasoning, there should be room for one student’s path to differ from another’s to best accommodate the student’s learning styles [18].

Satava [21] cites three concepts that will be key in revolutionising medical education, which exemplify these dual priorities: an increased efficiency of education by standardising curricula; an individualisation of education, and a shift from time-based training to competency-based training.

Substantial opportunities exist for researchers to contribute to new knowledge in the field of simulation-based medical education (SBME) and, more specifically, plastic surgery education. Medico-legal issues and demands for accountability are critical driving forces for the incorporation of simulation training in health care education.

The research reported here is aimed at identifying aspects to be included in a research agenda with the view to improving teaching, learning and professional competence in plastic surgery education. The methodology is based on the conceptualisation and contextualisation of SBME.

3. Residency programmes and simulation

Worldwide, different models exist for education and training in plastic surgery, including the models of learning through an apprenticeship relationship with senior clinical colleagues, own observation, or self-directed learning – motivated by a candidate’s
own internal drive. In some cases, registrars receive little guidance in terms of the knowledge, competencies, skills and attitudes that they are expected to acquire during residency. Residency programmes are responsible for producing technically competent surgeons, but not all of the necessary procedural skills are truly mastered during these training periods. “Classroom training” does not translate into effective procedural skills and competence does not always match confidence. Although residency programme directors are asked to attest to the competency of recent graduates, they are unable to evaluate the performance of every procedure by every resident. A further shortcoming is that systematic evaluation using structured objective criteria seldom is used to establish procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence, and except for a few procedures, it is not known how many times a specific procedure must be repeated to attain procedural competence.

The Accreditation Council for Graduate Medical Education (ACGME) and the American Board of Medical Specialties (ABMS) identify six core competencies for residents: “... Patient care, medical knowledge, practice-based learning and improvement, inter-personal and communication skills, professionalism, and systems-based practice” [17].

Training thus is shifting from traditional apprenticeship to more objective, standardized approaches. A shift towards competency-based surgical training comes with two key concepts: objective assessments and simulation laboratory training. The time thus has come for residency programmes to explore and expand their use of simulation.

A joint initiative of the ACGME and the ABMS, The Plastic Surgery Milestone Project, compiled descriptors and targets for resident performance, based on the above-mentioned core competencies and can be categorised at five training levels: Moving from Level 1 where the resident demonstrates the mastering of milestones expected of an incoming resident up to Level 5 where the resident has advanced beyond performance targets set for residency and completing graduation [23].

The American College of Surgeons (ACS) has decided to introduce simulation in training and education for general surgery in three phases: Skills training, procedure training, and team training. Mittal et al. [17] propose that plastic surgery should follow this simulation initiative with modifications appropriate to the specialty. Phase 1, Skills, is attended to in the resident’s general surgery training, but Phase 2, Procedures, focuses on the development of procedures specific to plastic surgery. For Phase 3, Competencies in teamwork, the competencies for plastic surgery resemble those for general surgery and include team-training simulators to improve communication in emergency departments, clinics, operating rooms, and hospital wards.

Arbogast and Rosen [18] in their article: “Simulation in Plastic Surgery Training: Past, Present and Future” propose that this three-phase strategy be adapted for plastic surgery residency by modifying it to address challenges specific to the field. They are of the view that a unified commitment by medical educators is required to use simulation “[t]o simultaneously standardize the training curriculum, individualize the method of acquiring information, and objectively evaluate the training process”.

4. Aspects of simulation

Simulation is a useful aid in a variety of teaching, training, learning, and assessment situations.

4.1. In which ways can simulation be of help?

Simulation can play a valuable role in improving patient safety, facilitating better surgeon-patient interaction, maximizing hospital resources, lowering risks through increased precision, improving results by necessitating fewer procedures and decreasing operating room time and procedure cost.

Simulation shows great promise to change teaching methods - the traditional model of see one, do one, teach one is an inefficient and risky approach to acquiring technical skills and competencies. This, coupled with public demand for patient safety and an increasing reluctance to be “practised” on, has created ideal opportunities for simulation-based medical education to improve teaching.

Simulation methodologies enable tailored training interventions in a low-threat environment. Limited exposure to patients with low-incidence and high- complexity conditions can be addressed by means of simulation and render competency as outcome. Simulation also can be used to evaluate the outcome of training in a more objective and
structured way. Harden [24] used this concept in the development of the objective structured clinical examination (OSCE). An adapted version of the OSCE was created to assess technical skills [25]. This is called the objective structured assessment of technical skills (OSATS).

4.2. Formative versus summative OSATS

Both formative and summative OSATS provide an excellent opportunity for feedback on observed performance. Some argue that the best predictor of the quality of performance is repetitive or deliberative practice - with supervisors providing corrective feedback until skill is mastered. This is an area in which simulation excels.

4.3. In which areas can simulation be implemented?

Simulation-based medical education can target different levels for intervention. It has a role to play at individual level (e.g. supplementing clinical experience, procedural simulation and task training), team and unit level (e.g. behavioural training, multidisciplinary team interactions, and debriefing), as well as at an organizational level (e.g. on-site simulation to identify vulnerabilities in specific processes as well as broader systems, and disaster management).

4.4. Studying and improving performance

A critical on-going issue is identification and remediation of individuals who are underperforming. The simulation laboratory setting may help determine if an individual’s deficits lie in history and examination taking, other data gathering skills, synthesis, decision making or prioritization. In this setting the following may also be determined: Physical ability, lack of practice, effect of fatigue, or other similar areas that may contribute to underperformance. This is an often-underutilised utilisation of simulation with ample opportunity for future research.

4.5. Priorities for simulation-based medical education in plastic surgery and recommendations

Based on the foregoing the following may, as an example, be regarded as priorities for simulation-based medical education in plastic surgery. After each set of priorities a recommendation is provided for the realisation of the priorities:

Integration into training curricula
- The formal integration of simulation into curricula: It does not suffice to use simulation on a voluntary basis without protected simulation time, very few students make use of simulation facilities if simulation is not formally integrated in the programme.
- Simulation should be synchronised with clinical training – there is little benefit if simulation time clashes with clinical teaching.
- Ideally, simulation should be implemented on multiple tiers, namely skills rotations (must be completed to progress to next block/year), independent study/practice opportunities to allow students to progress/become proficient at their own pace, as well as evaluation and assessment of competency.

In order for the above to be achieved, the research question that must be answered is: Can simulation in postgraduate plastic surgery education and training enhance the effectiveness of learning in this discipline?

Standardization of plastic surgery training globally
- SBME should be employed to standardise plastic surgery training, due to the large variation in scope of plastic surgeons worldwide.
- SBME should be employed to counter a lack of clinical exposure opportunities, or (especially in the Third-World setting) programmes overburdened by a specific workload (for example, burns and burn reconstruction), which limits the time and resources available for exposure to other areas of the discipline (for example aesthetic surgery).
- SBME should set a basic standard that might enable educators and researchers to compare and contrast different training programmes worldwide.
- SBME should be available at all training facilities for plastic surgeons to enable the discipline to determine a basic core skills and competency list, which every plastic surgeon should master.

To achieve this, research is required to determine if simulation might be useful in addressing the problem of a lack of opportunities for clinical exposure and practice.

Skill maintenance and validation
- Simulation should play an important role in revalidation of competency on a continuing medical education basis. Currently, in most CME programmes, focus is placed on theoretical knowledge, but there is a large gap in validating
and revalidating surgical competency. Simulation could fill this gap.

- Safe thresholds of surgical skill should be identified, validated and may then be used and implemented using simulation as the vehicle to help achieve this goal.
- On-going skills maintenance programmes should be developed where voluntary hours spent on simulators could be used to assist in skill maintenance, and with sufficient logging, could perhaps obviate the need to go for formal revalidation. In order to realize these priorities, further research is needed on the use of simulation to facilitate the transfer of skills to real world practice to assess the validity and reliability of procedural, clinical, and behavioural competency evaluation methods, and to determine the applicability of simulation to achieve these.

5. Challenges in simulation-based medical education and research

Simulation, like other methods in medical education, has some limits and pitfalls that should be kept in mind. These challenges provide ample opportunity for research, and we strongly advocate for research to be undertaken in these areas. The first challenge would be to utilise the wealth of opportunities for research in plastic surgery on procedural competence and to establish the benefit, if any, of deliberate practice in a simulation-based setting. The discipline also lends itself very well to research on defining minimum levels of competency, and the role of simulation in maintaining and validating this. The problem of availability of facilities for simulation poses a challenge in itself, as well as the general misconception that all simulation needs to be hi-fidelity, hi-tech, and expensive to be worthwhile. Given the resource demands of some simulation approaches, we should remain open to all solutions that meet desired educational objectives. Furthermore, simulation cannot completely substitute key clinical experiences and learning from actual surgical practice. This, combined with the possible perception from previously trained professionals, who might feel intimidated and vulnerable (‘Are they saying that our training was inferior?’) forms a formidable stumbling block, which will have to be addressed in order for simulation-based medical education to be incorporated in training curricula. The challenge to succeed in this regard would be engagement with both trainers and trainees before and after simulation-based medical education is implemented.

6. Future directions

Work needs to be done on developing case libraries of simulation scenarios, which have been peer reviewed. This will facilitate the spread of simulation further by encouraging multi-centre efforts, and providing the opportunity for educational mentoring. Multi-centre simulation research efforts will be required to further develop and share evaluation tools specifically developed for resident and fellowship evaluations, with priority emphasis on research on the transfer of skills into the real world, as well as the assessment of validity and reliability for procedural, clinical and behavioural competency evaluation.

7. Discussion

The research agenda needs to include aspects such as the role and value of simulation in education; the enhancement of student learning at different cognitive levels; the integration of simulation-based education into training curricula; the standardization of plastic surgery training globally; the revalidation of competency in continuing medical education and the engagement of teachers and students in educational research. Medical simulation promises to revolutionize health care education, and specifically education in plastic surgery – but more work is needed. Despite the development of various models and simulation-based learning tools in plastic surgery, the role of simulation in the specialty’s training curriculum is less well established. It is necessary for simulation-based training to be fully integrated and funded in formal plastic surgery training programmes. It is also necessary to develop a skilled faculty of educators in well-coordinated simulation facilities. Medical simulation techniques have shown great promise in other specialties - we have outlined here the challenges and opportunities of realizing this promise in plastic surgery.

8. Conclusion

Further research is required to expand the role of simulation in plastic surgery within training, performance evaluation, standardization, certification and revalidation. Simulation has the potential to become an integral part of the development of better and safer plastic surgery services for patients. Simulation in health care education provides ample opportunity for research. Medical simulation promises to revolutionise health care education provided that a skilled cohort of educators be developed in well-coordinated simulation facilities. Simulation has the potential to play an integral role in developing better and safer health care services for
patients worldwide. It is clear that a scientific proposal to express the need for research in the field of plastic surgery and simulation, with a clear agenda, proposing research topics in a systematic way is necessary. Aspects discussed in this article can contribute to this.

9. References


Identification with Academics, School Motivation and AP Course in Preparing Students for STEM Majors

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Abstract

The study utilized a nationally representative dataset from the High School Longitudinal Study of 2009 (HSLS:09), which surveyed more than 21,000 9th graders in 944 schools to understand students’ trajectories from the beginning of high school into postsecondary education, the workforce, and beyond. Path analysis was employed to conduct the data analysis. The primary findings of the present study demonstrated that students’ domain-specific self-efficacy and domain identity significantly predicted their plans to enroll in Advanced Placement (AP) calculus and science courses. Interestingly, domain identity was found to have a much stronger path coefficient compared to other constructs. The results of the study convey significant practical implications to educators seeking to improve students’ enrollment in advanced math and science courses.

1. Introduction

The fields of science, technology, engineering, and math, commonly referred to as STEM, are an integral domain of the United States infrastructure and have fueled economic growth in the US over the past decades. It has been increasingly recognized in the recent decades that US high school students are underprepared to choose and complete STEM majors in colleges, which leads to a major shortage of domestic students taking careers such as science and engineers. Recent results indicate that fewer than half of all high school seniors met college readiness benchmarks for math and science [1] and do not possess the essential fundamental skills in math and science to succeed in post-secondary STEM education and careers [2]. These solemn statistics demonstrate the critical need for offering more advanced classes in high school to prepare American students for STEM education and careers in order to boost the number of students entering post-secondary education and graduating as scientists, mathematicians, and engineers and strengthening the US’ competitive role internationally.

Although efforts are in place in rectifying the lack of preparation of US students for STEM fields, less focus has been given to the motivation of students to pursue post-secondary STEM disciplines. A good deal of evidence has indicated that students’ motivation plays an important role in student academic success. Existing research has also suggested that math and science interest greatly shapes students’ decision to pursue STEM fields [4] and that the majority of students who chose STEM careers make that choice during high school due to a growing interest rather than achievement [3]. Intent to pursue STEM disciplines of post-secondary education has also been found to be significantly and positively influenced by math self-efficacy beliefs in that students with greater self-efficacy beliefs are more likely to intend to pursue a STEM major upon college entrance [5]. However, research on how motivational factors and identification with academics may help prepare students for STEM majors is limited.

2. Objectives

Applying the expectancy-value theory, the goal of the present study is to examine how motivational factors (including self-efficacy, utility value, and interest in math and science respectively) and identification with academics (math and science identify respectively) predict whether students plan to take AP calculus and science courses while controlling for student’s social-economic status and achievement. Figure 1 depicts the conceptual model of the study.

3. Method

The study utilized a nationally representative dataset from the High School Longitudinal Study of 2009 (HSLS:09), which surveyed more than 21,000 9th graders in 944 schools to understand students’ trajectories from the beginning of high school into postsecondary education, the workforce, and beyond. Our study focused on a nationally representative sample of 21444 adolescents, among which 49.2% were female, and 50.8% were male; 55.3% were White students, 15.4% were Hispanic students, 10.3% were African-American students, 7.8% were Asian students, and the rest was other race(s).

A path analysis approach was used to examine how student domain-specific motivation (self-efficacy in math and science, intrinsic motivation in math and science, utility value in math and science)
and domain identity predict whether students plan to take Advanced Placement (AP) calculus and science courses while controlling for student’s socioeconomic status and achievement. The following criteria were used to assess model-data fit. CFI greater than .95, SRMR below .08, and RMSEA less than or equal to .06 indicate strong model data fit, and CFI close to .90, SRMR close to .10 and RMSEA close to .08 indicate acceptable model data fit.

4. Preliminary Findings

The primary findings of the present study demonstrated that students’ domain-specific self-efficacy and identification with academics significantly predicted their plans to enroll in AP calculus and science courses (see Figure 1). Interestingly, identification with academics was found to have a much stronger path coefficient compared to other constructs. The results of the study convey significant practical implications to educators seeking to improve students’ enrollment in advanced math and science courses.

![Figure 1. Hypothesized model](image)

Note. All presented paths are significant at .05 level.

5. Conclusions

A unique contribution of the present study stems from its empirical support for the conclusion that students’ domain-specific self-efficacy and domain identity significantly predicted their plans to enroll in Advanced Placement (AP) calculus and science courses. The study adds to the literature by providing specific information that domain identity had a much stronger path coefficient compared to other motivational constructs.

6. References


Session 3: Learning / Teaching Methodologies and Assessment

Using Design Thinking for Instructional Leadership
(Authors: Maria C. Guilott, Leslie C. Owen, Gaylynn A. Parker)

The Role of Practice Oriented Learning in Design and Creativity in an Irish Technological University
(Authors: Lynne Whelan, Carmel Maher, Colin Deevy)

Student Centered Learning Pedagogy and Assessment to Enhance Practical Learning and Employability Skills in the Engineering Disciplines: A Digital Approach
(Author: V. Evelyn Brindha)
Using Design Thinking for Instructional Leadership

Maria C. Guilott¹, Gaylynn A. Parker¹, Leslie Ann M. Owen²

Abstract

Leaders are expected to be transformational and catalytic. In the 21st Century, expectations on performance are at a record high. The idea of instructional leadership can be a daunting task and often feels like an add-on to many administrators who are working hard, wearing a myriad of hats on any given day. By using human-centered design thinking to create solutions based on a problem, a question, or a need; we have, through multiple iterations and perspectives, been able to develop processes that work. How does the instructional leader change mindsets that will positively affect learning? The report will provide participants at any grade level with specific processes and tools that connect theory to practice and have a high yield in the learning journey whether at a local, provincial, national or a multi-national setting.

1. Introduction

21st Century School leaders are expected to provide instructional leadership however, without practical tools or processes to help them they become good managers and tend to shy away from instructional leadership, which ironically is how they are held accountable in the 21st Century. While literature has provided some theoretical models that help, concrete, ready to use models that actually have a high yield are not readily available. With the emergence of IDEO’s Design Thinking since 1991, school leaders have been able to develop processes, structures and practices that are easily adaptable, flexible and useful.

2. A Practical Process and Tool Emerges

In 2008 Dr. Maria Guilott and Dr. Gaylynn Parker [1] developed a process, Collegial Learning Walks, which is totally non-evaluative yet promotes self reflection and can become a “game changer” in a school that uses the process with fidelity. With collaboration from Leslie Owen from the Rocky View School Division in Alberta, Canada, Dr. Guilott and Dr. Parker wrote A Value Added Decision, a book designed to help school leaders improve pedagogy in a non-judgmental and non-punitive manner. Table 1 from A Value Added Decision is an overall description of the process with a contrast description of what it is not. The book and the ideas promoted gained a following of school leaders that coalesced because they wanted to keep the idea alive and appreciated the resulting support from peers. Although not a product of design thinking, the process described in Table 1 gained support, as leaders were able to apply Design Thinking steps as needed. The possibility of being able to prototype, iterate and implement creative ideas over time using instructional leadership as the anchor concept became a central focus for improving teaching and learning.

The question of geography separating school leaders who wanted to have conversations with other leaders in similar roles was resolved with the idea of a virtual International Principals’ Center. With backing from the late Grant Wiggins, the group launched Principal by Design with school leaders from Canada, the United States, Honduras, Ecuador, and Chile who met monthly for one hour on Google Hangout, without having to leave their schools to discuss issues of concern.

The topics were predetermined based upon what leaders were interested in, allowing time to also discuss emerging issues. The conversation was robust and interesting. A Twitter hashtag was created along with a professional online curation of articles that were posted weekly under the public blog: Principal by Design.

This group met over the span of two years working through issues of interest always reaching suitable solutions. The process worked so well that school leaders in Canada decided to use design thinking to create an Instructional Leadership Academy in the Rocky View School District under the direction of Leslie Owen, Director of 21st Century Learning.
Table 1. A Collegial Learning Walk

<table>
<thead>
<tr>
<th>What it is</th>
<th>What it is not</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It is a process designed to look for what’s next in our learning about learning.</td>
<td>• It is not a process designed to find what is wrong.</td>
</tr>
<tr>
<td>• It is a collaborative, generative professional development process designed to support everyone’s thinking about instructional practice.</td>
<td>• There are no presuppositions that anyone is broken or defective in their practice.</td>
</tr>
<tr>
<td>• It is designed to raise questions and promote self-reflection.</td>
<td>• It is not putting anyone on notice of improvement.</td>
</tr>
<tr>
<td>• It is a process that will eventually promote a way of being in an instructional community, of sharing, of coaching, of examining practice with no particular agenda in mind other than improved learning.</td>
<td>• It is not designed for the implementation of any particular Improvement strategy.</td>
</tr>
<tr>
<td></td>
<td>• It is not designed to put anyone’s practice under scrutiny, critique, or improvement.</td>
</tr>
<tr>
<td></td>
<td>• It is not a static group or network.</td>
</tr>
<tr>
<td></td>
<td>• It is not designed to have a focus on a common “problem or practice.”</td>
</tr>
</tbody>
</table>

3. Design Thinking as Common Practice

Using Collegial Learning Walks as the focal point; this Canadian group was open to finding a design that worked and was willing to work through various iterations in the process. At the beginning, the group tried virtual meetings, which allowed them to stay at their schools. However, after applying the empathy process, listening to the client, and being willing to embrace ambiguity, the group decided that travel to a school to be a part of a Collegial Learning Walk process met their needs in ways they had not even imagined. A student-produced video on collegial learning walks entitled Learning Walks at SCHS, posted on the Rocky View School District website, helped everyone involved get a glimpse of the process. As with the International Principals’ Center, the big idea was to create space for leaders to have a conversation and call to action around instructional leadership. Keeping in mind the level of isolation school leaders suffer; the idea of time to discuss with clarity ‘hot issues’ was a primary goal.

This iteration of the original design had both an online component and a practical component. Google Hangout was still used and the participants had the opportunity to participate in a number of learning walks at different schools and levels. There was a Fall Academy and a Winter Academy. Participation in the Academy was totally voluntary. Ten leaders participated in each academy that year. The group met online for three sessions and participated in three learning walks at different schools. The design allowed for conversation and planning for learning walks to be implemented in the schools. The Instructional Leadership Academy was popular and ran for an additional year. The group unanimously wanted to spend more time talking face to face, thereby generating yet another iteration of the original model. The third iteration of the process was face to face with the primary focus on the dynamic use of learning walks. At the beginning of each Academy, there was time to learn about the process, participate in learning walks and at the end, there was space created for leaders to debrief.

Always the intention was an implementation phase for the schools/leaders participating. The adoption of Collegial Learning Walks was always voluntary. Over half of the participants implemented learning walks as a way of increasing their instructional leadership and used it on a regular basis. As individuals and group members they evolved into creative competence as they used design thinking to customize how they implemented Collegial Learning Walks in their respective schools. After the third iteration, the process became more ubiquitous in the Professional Learning offerings of the entire jurisdiction. As part of the adoption of the Design Thinking process in the Rocky View School District, Learning Walks became a focal point to various site visits across Alberta and the United States in the ‘define’ phase of design thinking.

Virtual learning walks were and still are used as part of the professional learning of teachers who are learning how to become design thinkers and designers of learning in their respective classrooms. Soon after that, all high schools in the Rocky View School District became a part of a Provincial initiative called, High School Redesign where the face of teaching and learning was starting to shift.

All Rocky View School District High Schools became involved in the High School Redesign
project (part of the provincial mandate from Alberta Education). As a result, the school jurisdiction was able to provide data to ensure the project was creating positive outcomes. During the first year, they met with large groups of administrators asking questions but it became very clear that while this was rich discussion, they were not getting into the classrooms to see if authentic positive changes were occurring. This turn of events called for another iteration of the original concept, increasing the capacity of government officials at Alberta Education as well as increasing the capacity of high school administrators who were responsible for the initiative. Leslie Owen recommended to the officials at Alberta Education that Learning Walks would be a great vehicle for everyone involved to increase their understanding and capacity around what 21st Century Learning should look like. With approval, Susan Poole, with Alberta Education, and Leslie Owen, with the Rocky View School District, organized a series of learning walks that included various educational stakeholders with a goal to look at actual learning in the classrooms to gain perspective and to triangulate the data that looked at the questions: “Is engagement in meaningful learning increasing? How do we know?” As this is the first year of implementation, and given the extensive territory covered by the province of Alberta, it will take time for the data to show the true level of its effectiveness. Initial discussions have been overwhelmingly positive. Human-centered design thinking coupled with the worthy endeavor of instructional leadership, honors people. This particular initiative has been iterated five times into a new and better process that fits the needs of “what’s next”. It is fully predicted there will be more iterations to come.

4. Significance to Participants Discussion

Feedback from participants has been positive as the design for administrator professional development evolved to meet the needs of the participants. Following are comments taken from administrators who participated in the many iterations of the Instructional Leadership Academy. Susan Poole, former principal in Rocky View School Division in Alberta, Canada and participant in the Instructional Leadership Academy said, “Learning Walks helped me to understand the importance of instructional design. If teachers don’t know how to design for learning, then it is problematic. For me, I needed to know how to do it. It helped me to understand it so I could provide better feedback.

Students need to know what they are learning and why. Now, in my work, I constantly ask, “What is the design?” “How are they engaging students?” Acquisition makes meaning transfer, and this is what I look for. The more I do it, the more professional growth there is for me. It provides an avenue to design professional learning that is personalized.” Heather Fansher, administrator in the Rocky View School Division in Alberta, Canada and participant in the Virtual Principals’ Academy as well as in the Instructional Leadership Academy remarked, “Having the student voice is vital to understanding student learning needs. Also, the debrief conversations as we step out of the classroom, are rich in content and insight. These exchanges are powerful as the group comes together to share and learn.” Deborah McLaren, principal in the Rocky View School Division in Alberta, Canada and participant in the Instructional Leadership Academy said, “I believe that Learning Walks is the most powerful initiative in professional learning thus far in the 21st Century, opening a dimension beyond current bounds of reflection to deepen thinking about ones practice. The way is slow, building trust is paramount and becoming skilled at facilitating is an ongoing process.” Sharon Rhodes, currently working as a Principal in the Rocky View School Division and formerly an Education Manager with Alberta Education in Canada was also a participant in the Virtual Principal Center. She said, “Involvement in our Virtual Principals’ Centre has given me the opportunity to field questions to colleagues who are in the “trenches”. I can bounce situations, ideas, etc. off a group of like-minded peers in a trusting way guided by an extremely knowledgeable facilitator. Sharing of ideas from all over the world puts the realm of education at our fingertips. When we ponder ideas, questions, and situations together and can speak about it, the synergy created is amazing.”

This level of feedback was carefully and regularly examined to improve on the design of the process and better meet participant needs. Each time a change emerged, student engagement in meaningful learning improved. As stated in A Value Added Decision, the agreements for the Collegial Learning Walks have not changed despite much iteration: 1. We’re all learners helping each other improve our own skills. 2. No one is “there.” 3. We are not here to judge. 4. We are not looking for anything in particular, just “effective” instruction leading to transfer. 5. We record nothing. 6. We refrain from talking to the teacher. 7. We maintain strict confidentiality. 8. We agree that the only thing over which we have control is the quality of the work we provide our students.

5. Conclusion

This process works when implemented with fidelity. However, since this is a process, it can be constantly improved upon using Design Thinking. The Learning Walks process reminds the group that designing for learning is not the same as designing for teaching. When instructional staff comes to that
realization, the school becomes a learning place for everyone in the learning organization, for students and teachers alike thrive.

6. References


The Role of Practice Oriented Learning in Design and Creativity in an Irish Technological University

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Abstract

The research work is focused on a Masters by research entitled ‘The Role of Practice Oriented Learning in Design & Creativity in an Irish Technological University’. The research sits within the context of the discipline of design within the emerging Technological University (TU). The project began with the development of a contextual timeline. This timeline captures and illustrates the development of the Irish Educational System from the emergence of Regional Technical Colleges through to the developing Technological Universities. Education in the higher sector in Ireland is inextricably linked to economic progress and throughout the timeline, a clear mirroring of economic drivers, influences and impacts can be witnessed on the technology sector education. The challenge for the next stage is in retaining the effective social and cultural values associated with technical education in Ireland whilst creating a future response to global competitiveness. The gap in the knowledge identified in the research to date is in the means of achieving this.

1. Introduction

Society is witnessing a paradigm shift in the drivers of economics. We are moving from the industrial age of production economy, to the knowledge age of innovation based economy. The European Union recognise education as being pivotal in creating a knowledge based economy. In Ireland, the Department of Education is responding to the drivers and has created and begun implementation of, a National Strategy to 2030 in Higher Education also known as The Hunt Report. The role of teaching and learning is being reviewed and attempts are being made to promote a climate of innovation and innovative thinkers for Ireland’s future workforce. The aim being to achieve an innovation based economy, growth and a competitive edge within EU and global markets.

In order to assist with our understanding of the strategy for our developing Higher Education sector, a contextual timeline was developed (see Figure 1). The context covers policy, social and fiscal influences on an EU and National framework which assists our understanding of the strategy for our developing Higher Education sector. This paper outlines and reflects on the significant events on this timeline which spans the development of the Irish Educational System from the emergence of Regional Technical Colleges through to the developing Technological Universities. The timeline charts firstly, economic drivers from T.K. Whitaker's first programme for economic expansion 1958 through to the launch of the action plan for jobs by Dept. of Jobs Enterprise and Innovation 2012. It marks a shift in economic drivers from a post-production economy to knowledge innovation based economy. Secondly the timeline maps the development of the technology sector in higher education in Ireland from Mulcahys [10] report on the development of Regional Technical Colleges through to the Hunt [7] report on current higher education strategy including the emergence of Technological Universities. The Hunt report promotes the creation of an innovative workforce to meet the demands of the economy. The timeline illustrates how a correlation between economic demands and educational strategy has and continues to be intrinsic to the model of technical education that exists in Ireland.

Having a future strategy for higher education in Ireland is therefore important; however, how it is interpreted, applied and implemented is equally important. Past methods of teaching and learning were primarily aimed at addressing industrial production. In order to address today’s demand for rapid knowledge based innovation, a new approach may be needed.

Currently the underlying concerns within the collegiate realms throughout the transition from IOT’s to TU’s, are the over influence of commercial drivers, the risk of funding cuts, efficiency drives, all within the face of higher participatory rates. The challenge therefore for the next stage is in retaining the effective social and cultural values associated with technical educational in Ireland whilst creating a future response to global competitiveness. The gap in the knowledge identified through the research to date is in the means of achieving this.
Figure 1. Timeline

Timeline: The Emergence of R.T.C.'s & Development towards Technological Universities

- T.J. Whitaker (Sec Dept. Finance) makes the bold move from protectionism to expansion through industry and export
- Taoiseach Sean Lemass requests EEC accession and is rejected due to Ireland's low industrial development
- Lemass commits in statement to Brussels to increase industrial expansion by up to 50% by 1970
- EU task force established including Rompuy, Rehn, Trichet, Junker, in response to fiscal crisis. Ire budget deficit reaches almost 1/3 GDP
- Ire economic fate tied to Troika, Bailout plans agreed

1958 - 1961: Vocational College
1962 - 1967: Regional Technical Colleges
1968 - 1970: Institutes of Technology
1971 - 2012: Technological Universities

- OECD request report 'Investment on Irish Education' (following EEC accession request)
- Mulcahy report to the Minister for Education on Regional Technical Colleges. Defines the strategy for increasing skilled workforce to promote Irish industry development
- Comptroller & Auditor General commissioned by OECD to produce a special report on Education. (prompted by fiscal crisis). Findings highlight a need for improved efficiency through amalgamations
- National Strategy for Higher Education to 2030 is produced for DES. The strategy advocates development of innovative thinkers. Also promotes clustering & amalgamations and development of TU’s
- Minister O’Sullivan publishes report by Michael Kelly on consultation & engagement on Technological University
- Prof. Simon Marginson produces benchmarks for designation of Technological University following from Hunt strategy

A report is produced by Department of Education providing a snapshot of Irish Education System.
2. Strategies of Irish Higher Education

In order to explore the changing strategies of Irish higher education, a visual timeline was created (See Figure 1.) which spans the period from 1958 to the present. It is through this journey that we uncover the rationale behind the emergence of Regional Technical Colleges and the development of the Technological Universities.

In understanding the initiative for developing technical colleges in Ireland we must start our timeline with a look back to the first programme for economic expansion 1958, driven by the vision of T.K. Whitaker which marks the beginning of Ireland’s industrial capacity being realised. The GDP which averaged 1% throughout the previous decade, had reached 5% by 1960 [8]. It was through this development that Ireland was in a position to apply for accession to EEC to avail of European integration and most importantly open markets. Ireland had for many years availed of open markets with the UK and were now in a position to seek the larger benefits of joining the open markets of Europe. Ireland had begun application for accession to EEC in July 1961 which was rejected. A following statement to Brussels on application to EEC by Irelands then Taoiseach Sean Lemass in 1962 acknowledges that agriculture is classed as the main economic significance to Ireland.

“Agriculture …has a particularly important place in our economy. It generates about one-quarter of the national income, employs over one-third of the gainfully-occupied population and it is responsible …for three quarters of our exports [8].

However, Lemass continues that it is highlighted that Ireland’s strategy is for an increase in industrial production. The aim is to increase industrial production in line with existing EEC members and that Ireland has the capacity to achieve this. “…a total increase in production of 50% by 1970 is within the capacity of the Irish economy, Ireland can reach the collective target …set by …Organisation for Economic Cooperation and Development (OECD)” [8]. This highlights the beginnings of Ireland’s relationship with OECD and our alignments to EU targets which continues today. The primary driver for economic expansion was the desire to join the expanding EU open market and increase Ireland’s industrial production to capitalise in doing so and to meet with OECD targets for members.

‘Investment in Education’ was a pilot study, commissioned by Dr Patrick Hilary Minister for Education, driven by Lemass, initiated by OECD the same year that Lemass put forward the statement to Brussels for accession to EEC. Europe and Ireland recognised the need to create the future work force for industrial expansion through improved educational strategies.

‘Investment’ (report) offered the essential rationale and blueprint for the transformation of the Irish educational system” [12]. The following decade saw the introduction of free education in Irish secondary schools, the publication of the ‘The Steering Committee on Technical Education’ also known as the Mulcahy Report and the opening of the first Regional Technical Colleges in Ireland.

The Mulcahy report was published in 1967 and clearly identifies the necessity of trained technical personnel in order to promote industrial development and how Ireland to date has not achieved this. “…the availability of increased technical knowledge and skill…is necessary…for further economic growth and the promotion of innovation and enterprise…..Ireland has largely failed to provide this” [10].

Interestingly, Mulcahy also points out the difference between need and demand. Irish education has never developed in this way before. The people themselves are not creating a demand for education but rather the government has recognised the need for a technically trained work force for the reasons of economic development. “if the demand for needed skills does not arise naturally, it must be stimulated artificially” [10].

The Regional Technical Colleges were seen as a solution. Leaving cert courses were also considered as provision in the R.T.C’s as a means of creating a greater transition to Higher Education at the early stages. Mulcahy and his committee now had to go about the task of assessing the current state of play and formulating a strategy to advise the Minister for Education, Donagh O’Malley, on technical education in Ireland.

Ireland was admittedly somewhat behind in relation to UK and Europe with regards its natural industrial development. “…For historical reasons, the industrial development of Ireland was retarded until well on in the present century” [8].

The reasons for Irelands lack of industrial development is seen by some as the result of British rule. However there would appear to be several contributing factors such as the Act of Union 1801 and the leap forward in transportation such as steam ships and railways. Both of these factors created a free market for trade between Ireland and Britain and through Britain to international markets. Daly [4] notes that a competitive market realises the most successful industries to the top and that this was the case in relation to Ireland, namely that it could not compete with British industry.

“the law of international comparative advantage dictates that when the single market came into being those Irish industries inefficient by British standards would be wiped out by their more efficient British counterparts” [5]
Ireland was competitive in a few specialised area which were successful such as the linen industry in NE Ulster, Harland & Wolf shipbuilders, Guinness brewery Dublin. Overall however it could be said that Ireland was in effect overshadowed by the industrial giant that Britain had become. It could equally be argued that the original cause of our inability to compete stems from the impact of previous generations of British rule.

The outcome remains the same; Ireland is behind the EEC members in industrial production which is recognised as key to economic development and therefore strategically must invest and drive forwards our industrial development including a technically educated and skilled workforce. The strategies which emerged were to cover general education subjects but also to include theoretical with the practical experience. There would be an input of skill knowledge, practice and theory in varying amounts depending on the trade. Nonetheless the main aim was always; to educate people from craft level to professional level in order to provide an industrial workforce.

"the main long term function…will be to educate for trade and industry…concerned with providing industrial manpower, particularly in the technician area” [10].

It was well recognised by Mulcahy that the committee was not in a position to quantify much of the future projections with the information available. The overall strategy put forward was for flexibility and most importantly the provision for growth. The committee actually requested the minister to provide outside consultancy to evaluate the demand for places in R.T.C’s. It was envisaged that some of the newly trained workforce would possibly travel abroad to find work and that it would be difficult to balance requirements against uptake and employment potential.

Mulcahy did embrace some forward thinking strategies and advised that colleges should not fall in to ‘fixed patterns’ but should be flexible to the needs of society, economy and regional industry. This thinking is as relevant today within the discussions of the developing Technological Universities in Ireland and the future strategies they will adopt albeit with an extended international and global market approach.

The decade between the early sixties through to early seventies in Ireland saw the vision of TK Whitakers free trade and move away from protectionism propel Ireland in a move from agriculture to industry and the creation of modern Ireland. The logistics of creating a technological industrial economy required a skilled labour force that emerged under the advice of Mulcahy and the Steering Committee, in the form of the Regional Technical Colleges (R.T.C’s) throughout Ireland.

3. Development towards T.U.’s

The emergence of R.T.C’s clearly mirrored an economic demand which has continued throughout the development and transitions that technical education in Ireland has witnessed to the current day. This is reflected in the Hunt report. “higher education will play a central role….for innovation, competitive enterprise….” [7]

Mulcahy’s view of the Institutes as a flexible educational provider which ‘must be capable of continuing adaptation to social, economic and technical changes’, has remained relevant as we witnessed the Regional Technical Colleges adopt the titles of Institutes of Technology in the mid 1990’s. This reflects the broadening, global markets that opened up as a result of the digital information technology boom which meant the Institutes had a wider impact on teaching and learning than a regional response as reflected in this name change. At this point in mid-1990’s, Ireland’s economic growth is reaching unprecedented levels as employment soars to 1.9 million and the country booms in what became known as the ‘Celtic tiger’. The economic success also saw Ireland openly acknowledge the value that is now placed on education. When we consider Mulcahys advice on having to artificially stimulate the demand for higher education we can mark the significance of this as a societal shift. It becomes recognised that previously held ideas of class distinction being the differentiator, no longer remains the case, that actually it is now the level of education attained that sets a person apart, regardless of social background. Conor Lenihan, the then Minister for Science, Technology and Innovation, in the Oireachtas debate 1999 notes;

“Education is the benchmark of progress in society….societal theorists have moved from that old Marxist perception and now hold the view that educational attainment is what designates a person as advantaged or disadvantaged….this indicates an important shift in thinking in liberal democratic states” [9].

The most significant impact however has come in more recent years as Ireland and indeed Europe responds to a fiscal crisis. By 2010 the budget deficit in Ireland is up to a third of GDP [1], this, the cost of bailing out Irelands banking system. Ireland faces economic collapse and with it harsh austerity measures. The bank debt added to an already substantial budget deficit meant that public services would require an ‘abrupt adjustment’. This was to have significant impact on all sectors including education. It is no coincidence therefore that a special report by the Comptroller and Auditor General(C&AG) was published for the Department of Education and Skills in the same year. The conclusions drawn from the audit and evaluation of
Higher Education by C& AG, very clearly advise for more collaboration;
‘‘similar projects were funded….leading to a risk of overlap….aim of the programme was to induce a greater level of collaboration between institutions’’ [2]. There is also a proposal that future funding will be based on ‘viable’ proposals with more measurable outputs. It is unambiguously linking collaborations and measurable outcomes with efficiencies albeit cautiously
‘‘…the full impact of collaboration in terms of improved efficiencies…has yet to materialise.” [2]

In the same year the ‘Report of the Innovation Taskforce’ was published by the department of the Taoiseach. The report was designed to inform Irish government in strategy for innovation which translates into high value jobs and sustainable growth. The strategy presented, identifies Ireland as a worldwide innovation hub and included is a number of recommendations such as, the clustering of companies and an education system that provides for an innovative economy;
‘‘the report of the innovation Taskforce sets out a strategy for positioning Ireland as an International Development Hub…. (with) an education system that is better connected with the needs of innovative enterprises” [11].

The National Strategy for Higher Education to 2030, published by Irish Department of Education and Skills, also known as Hunt Report, was being prepared at the same time and published in 2011. The Hunt report responds to and articulates the strategies of these government reports into an educational context. It is not surprising therefore that clustering, amalgamations, consolidations, are top of the agenda.

The recommended consolidations involve not only the education providers but also the bodies under the Aegis of Department of Education such as the Higher Education Authority (HEA). To date, since the 2004 report [6], the Bodies under the Aegis of the Department have been amalgamated from 27 to 16.
‘‘a reformed higher education authority should collectively meet the national priorities, without wasteful duplication ‘’[7]. The proposals for ‘clustering’ which we have noted from the C&AG and Innovation Taskforce reports is also presented in the Hunt report in the recommendations for the educational providers
‘systems should be strengthened by development of regional clusters of collaborating institutions” [7]. The emphasis however, the Hunt report places on the need to consolidate, is for enhancement rather than purely efficiency driven;
‘‘The emergence of stronger amalgamated Institutes of technology.’’ [7]. However, the overall strategy for amalgamation would appear to be in order to recognise the naturally occurring change within Higher Education to meet the demands for higher levels of education provision, for higher participatory levels. It is clearly interpreted by Hunt, the need to respond to an innovative economy through education to ‘provide sustainable employment opportunities’. In order to provide sustainable employment opportunities, in transitioning from Institute of Technology to Technological University, it must reflect the global shift from technology production driven economy to the knowledge based innovative economy.

In 2011 Ireland receives €85 billion in the form of a bailout from EU International Monetary Fund (IMF). The following year saw Irish people face huge austerity measures but the results were, according to European Commission; that policy conditions were substantially met and investor confidence restored. Ireland could begin to rebuild its economy and whilst doing so take the opportunity to assess and re strategize going forward. The government introduced the ‘Action Plan for Jobs 2012’ initiative which was produced by the Department of Jobs Enterprise and Innovation. The Action plan strategic ambition is for job creation, increase ranking in International competitiveness, stimulate employment in locally traded sectors, increase exports and build world class clusters in sectors of opportunity. By 2013 Ireland was in the position to officially exit the bailout. By 2014 the Department for Jobs Enterprise and Innovation (DJEI) produce a report of the Entrepreneurship Forum entitled ‘Entrepreneurship in Ireland – Strengthening the Start-up Community’. Funding is becoming available for Start-ups and SME’s are seen as a future model for Ireland’s competitive edge on innovation. The culture for funding entrepreneurs is nurtured with opportunities through Enterprise Ireland, reflecting the shift in economic drivers towards innovation.

The economic strategy and collegiate realms’, share the vision of the future H.E. as globally competitive, knowledge and innovation based. The C&AG, DJEI, Enterprise Ireland, all aim to increase entrepreneurship and innovation to assist with job creation and global competitiveness in a knowledge based economy. The HEA through the Hunt report and collegiate realm, equally aspire to the creation of knowledge transfer and development of new knowledge through extended research programs and enhanced pedagogical methods to create critical thinkers. The gap in the knowledge would appear to be in the methods of achieving the desired outcomes. As the collegiate realm defend the possibility of imposition of change which may have unintended consequences, coming from the top down. It is equally important that the collegiate realm step forward with frameworks and proposals from the bottom up. This will assist with informing and addressing the current gap in the knowledge as to the
methods of achieving the shared vision and desired outcomes for Ireland’s H.E. sector.

4. Conclusion

The timeline which we have explored has uncovered the rationale and macro influences on our developing Higher Education sector. As Whitaker drove forward Ireland's industrial production, so Mulcahy forged the strategy for developing Regional Technical Colleges to meet the demands of an industrial workforce. Ireland's economy boomed and as it did so, it was recognised by Irish government that education had become the benchmark for societal esteem as opposed to class distinction marking a shift in thinking and bringing education back as a core value in society and accessible to all.

The fiscal crisis in recent years has created the risk of eroded quality through efficiency drives but could also been seen as an opportunity for re-strategizing. The current strategy for Higher Education to 2030 strives to create a balance between investment priorities and the increasing participatory levels, whilst ensuring quality in research teaching and learning. The aims of investment streams is to create a workforce suitable for a new innovation based economy, mirrored in the aims of Higher education strategy for the development of creative innovative thinkers. The gap in the knowledge would appear to be the methods applied to achieving the aims of both the investment streams and Higher Education. It is recognised that knowledge transfer requires a broader and deeper concept than technology transfer and therefore the methods of both pedagogy and assessment must reflect this. The experience, culture and ethos developed since emergence of R.T.C.’s has a recognised value. It must be a combined top down, bottom up approach in achieving the desired outcomes.

Education in the higher sector in Ireland is inextricably linked to economic progress. The challenge therefore for the next stage is in retaining the cultural values associated with Technical educational in Ireland whilst creating a future response to global competitiveness. As difficult a task as this may seem it would be no less relevant to draw a reminder from the beginning of our timeline and T.K Whitakers original vision and founding ethos that saw the emergence of modern Ireland:

“Let us remember that we are not seeking economic progress for purely materialistic reasons but because it makes possible relief of hardship and want, the establishment of a better social order, the raising of human dignity, and, eventually, the participation of all who are born in Ireland in the benefits, moral and cultural, as well as material, of spending their lives and bringing up families in Ireland” [13].

5. References


Student Centered learning Pedagogy and Assessment to Enhance Practical Learning and Employability Skills in the Engineering Disciplines: A Digital Approach

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Abstract

“Children must be taught how to think, not what to think”. In its ultimate form, education should be socially progressive. In an engineering college we teach the next generation of scientists, engineers and medical researchers who will improve our quality of life: they will learn more about the world, fabricate better and safer modes of transport, treat diseases and surmount scientific boundaries. Acquiring practical skills in addition to experimental theory is crucial to ensuring student learning capability and employability. Particularly, the industries emphasis on developing practical skills to produce graduates who are “workplace ready”. This work emphasis on two areas such as Student centered learning pedagogy and formative assessment as an apt tool to enhance practical learning and employability skills to engineering graduates. The student centered learning pedagogy model proposed in this work and followed in our institute not only profound subject knowledge it also fosters the creative ability of the students in problem solving situations. It is widely recognized that formative assessment is an important tool to access on student learning, affecting engagement, motivation and effort. There is considerable scope for improvement in undergraduate practical assessment where concerns such as over assessment, authenticity and graduate skills are acknowledged. This work aims to develop a step by step process on the implementation of the student centered pedagogy and a digital approach for applying the principles of good assessment and instant feedback to assessment obtained to students. The work seeks to utilize the potential of digital technologies to facilitate peer and self-assessment, promoting greater self-regulation among students.

1. Introduction

A new ways of teaching and learning need has to originate that critically engage student in rich learning environments. As mature and more diverse types of students enter higher education, it is vital that the traditional role of the educator as one who offers content knowledge has to be broadened so that teaching is aimed at developing students’ capacity to create their own understandings and insights through participation, negotiation and dialogue. According to Bertrand (2003, p. 310), as a person matures, his self-concept moves from one of being a dependent personality toward one of being a self-directed human being; he accumulates a growing reservoir of experience that becomes an increasing resource for learning; his readiness to learn becomes oriented increasingly to the developmental tasks of his social roles; his time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his orientation toward learning shifts from one of subject-centeredness to one of problem centeredness.

2. Student Centered Learning Pedagogy

This work discusses on Student Centered Learning Pedagogy (SCLP) and Formative Assessment: Digital approach.

Teaching for understanding is a thought that reveals teachers as guides, mentors, and facilitators of student learning. This work, which provides tangible illustrations of what teaching for understanding necessitates, is divided into three major stages.

2.1. Stage 1: Evocation to the topic

If the taste of a particular candy bar suddenly whisks us back to an earlier time in our life? That's an evocation, the summoning, usually unconscious, of a memory or emotional state caused by a particular stimulus. This process of evocation is done in every class by using an ICT tool as an appropriate tool. The various means of doing this evocation are:

- Projecting a history and evolution of the topic.
- Projecting the future advancements of the topic.
- Projecting an application related to the topic and so on.
2.2. Stage 2: Objectives based teaching

Basic purpose of teaching is to enable learning. Objective based teaching is capable to bring transformation where student change from being passive recipients to knowledge to becoming active participant of the knowledge imbibing process. The most effective teaching is that which results in the most effective learning. Every class starts by stating the General objective and a few Specific objectives for the topic to be taught. These general and specific objectives should be in par with the revised bloom’s taxonomy. Objectives are the prior specification of what teachers intend to teach and what is hoped that the learners will learn. All the specific objectives apart from being mapped with Science, Technology, Engineering or Mathematics (STEM) they are also mapped with activities for clear understanding purpose. Activities involving students are included wherever possible to provide room for broadening the base in better understanding of the topic. A well-structured lesson plan is prepared for every class and it is well in advance uploaded and shared in Google drive with all the students in the class. Students can come for the class after glancing at the objectives for that particular hour. By doing this there are various upshots. Students can have access to the lesson plans by anyone at anytime and from anywhere. Defining the intended outcomes or the objectives has the following benefits such as choosing teaching/learning activities likely to lead to attaining the objectives, assessing students’ learning outcomes to see how well they match what was intended and arriving at a final grade. The objectives based teaching has thick ingredients for bridging gap between professional and liberal education improving employability of students, Promoting students’ thinking skill, inculcating clarity of thought and expression as well as nurturing team work. A sample general objective, specific objective and mapping of the objectives with Revised Bloom’s taxonomy are shown below.

General Objective:
Students will be able to understand the truth table and Boolean expression of 7 different logic gates and will be able to apply logic gate to draw logic diagrams for any combinational circuit.

Specific Objectives:
Students will be able to
1. Interpret the doping of impurities in semiconductors used to design logic gates. (S, E, M)
2. Construct the AND, OR and NOT gate using the 2 Universal gates. (E, M)
3. Compare the logic function of XOR and XNOR gate with one application each. (E, T, M)
4. Derive the logic diagram for a given application using logic gates. (E, T)
5. Demonstrate the concept of semiconductor and doping with an experiment and an animation video. (Activity) (S, E)

Table 1. Mapping of specific objectives using revised Bloom’s Taxonomy

<table>
<thead>
<tr>
<th>Knowledge Dimension</th>
<th>The Cognitive Process Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factual</td>
<td>Remember</td>
</tr>
<tr>
<td>Conceptual</td>
<td>1</td>
</tr>
<tr>
<td>Procedural</td>
<td>2</td>
</tr>
<tr>
<td>Meta Cognitive</td>
<td>5</td>
</tr>
</tbody>
</table>

The five specific objectives given above are mapped in the Revised Bloom’s taxonomy table as shown in Table 1. The Knowledge dimension cut across subject matter lines. The new Knowledge dimension, however, contains four instead of three main categories. Three of them include the substance of the subcategories of Knowledge in the original framework. But they were reorganized to use the terminology, and to recognize the distinctions of cognitive psychology that developed since the original framework was devised. A fourth, and new category, Metacognitive Knowledge, provides a distinction that was not widely recognized at the time the original scheme was developed. Metacognitive Knowledge involves knowledge about cognition in general as well as awareness of and knowledge about one’s own cognition according to Pintrich [1]. It is of increasing significance as researchers continue to demonstrate the importance of students being made aware of their metacognitive activity, and then using this knowledge to appropriately adapt the ways in which they think and operate. The four categories are shown in Table 1. According to Anderson [2], in the cognitive process domain when the objective of the instruction is to promote retention of the presented material in much the same form in which it was taught, the relevant process category is Remember. When the goal of instruction is to promote transfer, the focus shift to the other five cognitive process domain understand through create. Apply involves using procedures to perform exercises or solve problems and is closely linked with procedural knowledge. Analyse involves breaking material into its constituent parts and determining how the parts are related to each other and to an overall structure. Evaluate is defined as making judgments based on criteria and standards. The criteria most often used are quality, effectiveness, efficiency, and
consistency. Create involve putting elements together to form a coherent or functional whole; that is, reorganizing the elements into a new pattern or structure.

2.3. Stage 3: STEM in education

STEM is the acronym for Science, Technology, Engineering, and Mathematics, and embraces a vast collection of subjects that fall into each of those terms. According to James [3], Breiner [4] and Borrego [5], and substantiated by the multitude of disciplines, it’s lucid that STEM impinges on virtually every component of our daily lives.

Today’s students are tomorrow’s leaders. Employments in STEM-related careers are some of the fastest mounting and preeminent paid of the 21st century, and they often have the greatest prospective for job growth. As students strives to keep up with the current and projected demand for STEM output, it is imperative that our country remains competitive in fields of science, technology, medicine, and all of the other STEM fields. The best way to make certain future success and longevity is to make certain that students are well versed in these subjects. Building a solid STEM underpinning through a well-rounded curriculum is the best way to ensure that students are exposed to math, science, and technology all through their educational career. In this regard, the objectives taught in the class not only embrace revised Bloom’s Taxonomy but also fully integrates teaching the STEM concepts for the topic educated for the day.

2.4. Stage 4: Formative assessment

Formative assessment is the diagnostic use of assessment to provide feedback to teachers and students over the course of instruction. According to Boston [6], Yorke [7] and Harlen [8] the goal of formative assessment is to gain an understanding of what students know and don’t know in order to make responsive changes in teaching and learning, techniques such as teacher observation and classroom discussion have an important place alongside analysis of tests and homework. Formative assessment refers to a broad range of methods that teachers use to conduct in-process evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or course. This is a shift in the classic educational epitome. As stated by Wiliam [9] formative assessment allows students to concentrate their hard work on specific areas and hence develop overall performance. This formative assessment is done in all the classes by using a very effective and easy tool called Flubaroo. As avowed by Dutton [10] Flubaroo is a free tool that helps you quickly grade multiple-choice or fill-in-blank assignments. It is a boon for teachers. More than just a grading tool, Flubaroo also computes average assignment score, computes average score per question, and flags low-scoring questions. It also shows you a grade distribution graph and gives you the option to email each student their grade, and an answer key. Lets you send individualized feedback to each student.

3. Results and Discussion

After conduction of formative assessments a survey was conducted among our students and the following were the results obtained in the survey. The four questions asked during the survey and the corresponding results obtained are discussed in this section.

3.1. Overall satisfaction

As shown in Figure 1 after conducting a formative assessment test using the Flubaroo a survey was conducted among 3500 II, III and IV year students belonging to various engineering department. It is clearly evident from the pie chart that 59% of the students were satisfied and 11% were strongly satisfied in writing the formative assessment.

3.2. Constructive for future reference

As shown in Figure 2 the answer key will be mailed to individual students along with the overall score. These answers can be used for future reference and when it was surveyed 38.60% students strongly agreed and 47% students approved to the fact that it was useful for future reference.
3.3. Instant and Comprehensive

As shown in Figure 3 the conduction of formative assessment is easy, instant and all-inclusive not only for students but also for the faculty members.

3.4. Students Experience

From Figure 4 it is apparent that 27.90% students were strongly satisfied and 49.8% (almost 50%) students were satisfied and felt in high spirits about the experience.

4. Conclusion

The primary goal of this paper is to examine how teaching and assessing can be broadened beyond and exclusive focus on the cognitive process. With an eye of improving practical learning and employability skills, there are two main advantages of using Revised Bloom’s taxonomy. The first is it properly aligns objectives, activities and assessments. The second is to raise the learning targets in terms of cognitive complexity, type of knowledge (particularly metacognitive knowledge), or both. In addition to these general learning strategies, students can have knowledge of various metacognitive strategies and STEM concept that will be useful to them in planning, monitoring, and regulating their learning and thinking.

5. References


Session 4: Learning / Teaching Methodologies and Assessment

Methods of Self-regulated Learning and Democratic Education: How new Teaching Methods Can Encourage Primary School Children to Become Independent Learners (Author: Ana García Díaz)

Rethinking “Messy” Classroom Interactions in a French Grammar Lesson (Authors: Béatrice Arend, Patrick Sunnen)

Item Analysis of the Test for Interpersonal Competency by Diagnosis Cognitive Model (Authors: Seul-ki Koo, Mi-young Song, Tae-jae Seong)

Automatic Assessment and Immediate Feedback in Third Grade Mathematics (Authors: Einari Kurvinen, Rolf Lindén)
Methods of Self-Regulated Learning and Alternative Education: How New Teaching Methods Can Encourage Primary School Children to Become Independent Learners

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Abstract

Are traditional schools encouraging children to become self-sufficient learners? Are they taking into account pupils’ real needs? What are those needs? The work in progress is trying to answer these questions, with a comparison of the development of pupils’ self-regulation skills in democratic and traditional primary schools. This research is a multiple case study to discover which type of schooling is better at developing self-regulated learning skills and how this is achieved. Specifically, what are the differences that make one type of school develop these skills better than others.

1. Introduction

The latest Eurostat Report on academic failure from 2015 [1,2] saw Spain rank among the lowest countries with 21.9% of teenagers deciding to abandon school after having completed primary school. The same report in 2013 [3] showed a figure of 23.5% of early school dropouts. Even though the figures are showing an improvement, 21.9% is still twice as high as many other European countries.

This figure could explain why we have been witnessing, for the last four years, an increase in the number of alternative schools. Most of these schools have been created by groups of parents who do not agree with the traditional educational system because they feel it does not correspond to the needs and requirements of children in the 21st century. There are no official numbers yet, but lists of democratic school directories are growing fast and every year we can find new schools or traditional schools that have decided to change their pedagogical methods and outlooks on teaching. However, in Spain, most of these schools are not legally recognized by the government and so some become private schools.

In this kind of school, families expect their children to be given an alternative to the traditional method of teaching and learning. But education is not something that just happens in schools, the family is also an important institution for children’s learning which is why some parents decide to homeschool their children when they disagree with the educational methods and approaches in the current educational system.

2. Literature Review

In Spain, alternative schools are not just a general change in the teaching methods, but a change in the way we understand the educational institution, their principles and philosophy. The goal of these schools is to take into account children’s natural development processes and to adapt teaching strategies, materials, even the classrooms to their needs, which means learning will become something natural, allowing pupils to learn in a self-regulated way and promote meaningful learning.

In 1876 the Institución Libre de Enseñanza (ILE) was created in order to promote pedagogical reform. They were seeking an education that would encourage pupils to become critical, active, free and independent citizens. In order to achieve those goals they banished memory lessons and traditional lectures and relied on learning through the research process [4]. Molero [4] drew up guidelines for ILE’s teachers to strengthen students’ passion and motivation for learning. The aim was to turn lessons into fluent dialogues between teachers and pupils. Alternative schools are focused on developing the essence of being human (such as emotions, human/moral/critical thinking, communication skills, self-regulated learning), freedom and independence. This is why creative education is a vitally important part of the teaching in those schools. The teachers understand art, philosophy, music, and writing as a way for children to express and understand themselves. This way of learning can be used (and is used) to develop the knowledge of traditional subjects like language, mathematics and science. This teaching ethos is based on children’s central interests, so pupils are motivated to learn due to their interest in the subject, and teachers, in return, use their students’ passion for these topics to develop other skills.
It is important to remember that illustrious philosophers and pedagogues such as Montessori [5,6], Pestalozzi [7], Neill [8,9] and Rousseau [10, 11] asserted that the child has an inner curiosity and passion for learning as well as an inner need to learn. Thus, the role of school is to provide them with resources to satisfy those needs and also keep their passion and curiosity undiminished.

So the learning process is a creative journey where the children build their own knowledge in accordance with their own needs.

In general terms, creativity means the “ability to produce something new” [12]. Thus, humans and, especially, children are creative beings themselves. It is important to encourage them to feel confident with their own creative skills and to develop initiative. At the same time, becoming a self-regulated learner is directly connected with developing self-awareness, the ability to regulate their own emotions and to manage their own time.

Several authors [13, 14] define self-regulation as a “Self-managing process where students can materialize their mental activity in activities and skills required to operate in diverse areas”. To understand self-regulation it becomes vital to be aware of the elements that are part of it. Metacognition, cognition coupled with motivation, conduct and context are the ingredients to become a successful independent learner [15, 16, 17].

On the other hand, it is essential to reflect on what pupils will need to become successful in adult life. Based on a dictionary definition [12], success can be defined as the “achieving of the results wanted or hoped for”. Taking this definition into account, the definition of success used in this paper is:

“Satisfactory achievement of personal, professional, social and life goals. Success is the natural consequence of the personal effort to reach a goal of any kind, generating a feeling of happiness and satisfaction.”

Thus, success is the result of pursuing happiness and personal satisfaction. From this we can conclude that children do not need knowledge-based learning to be successful in their future adult lives, they will need creativity, personal and emotional skills. This is to say, the core of alternative education is to educate children towards developing self-consciousness, creativity, initiative, personal and emotional skills and critical thinking, as well as to encourage them to become aware of their responsibilities as citizens in a democratic society.

To achieve these goals, children must be respected, loved and appreciated. At the same time, this implies that we must respect their individual process of development as well as making them feel that everything they have to say is valuable

At the same time, respect implies we understand how important it is for a child to play. Play is learning per se for democratic educators. Thus, play is not penalised and it becomes the normal and basic way to learn. Play allows children to notice learning as something fun that they want to keep doing. Likewise, curiosity, research skills and creativity will be strengthening their learning. Similarly, knowledge that is acquired by research based on the person’s interests is meaningful for her/him and becomes easier to remember and to link with real life since it is connected with previous learning [23].

The adult plays an important role in pupils’ learning processes. They become a guide or a companion instead of an authority. The adult should be there to provide resources to fulfill children’s needs, encouraging them to reflect about everything they read or experience, as well as being a mediator when conflicts arise.

The adult needs to set an example for children of respectful communication, active listening and peaceful conflict resolution [5, 6, 7, 8, 9, 10, 11, 17, 18, 19, 20, 21, 22].

3. Research Rationale

The work in progress is a multiple case study, (not experimental), studying the variables in their natural context without trying to control them. In the comparison of two schooling types, the purpose is to create a complete and detailed overview of the characteristics of both types of school and study the results produced by the primary school pupils.

The research will attempt to establish relationships between the teaching methods used in classrooms and the level of self-regulation that pupils show in the research test.

The use of information gathering techniques will be mixed (qualitative as well as quantitative). The researcher will try to build a complete vision of both types of school mentioned earlier, complementing the depth of the qualitative information with the breath of qualitative data.

Therefore, two different data-collection instruments will be used:
-Quantitative data: Test to evaluate the state of skills
-Qualitative data: Observation notes and semi-structured interview with teachers.

The data has all been collected, from a Democratic School in Spain, an Active School in Scotland and a Traditional Catholic School in Spain.

4. Conclusions

This research is based on the following hypothesis: by developing skills connected with “learning to learn” or self-sufficient learning, schools
can enable the development of skills linked to creativity, entrepreneurial personality and social skills.

Everyone learns at a different pace and has their own way of learning: self-regulated learning gives children the independence needed to learn following their individual way and timing. This means the individual child will need a deep self-consciousness to help her/him understand herself/himself and to strengthen her/his own personal virtues.

Educating children in self-consciousness can provide tools for learning in an independent way while improving their social skills. If we can understand ourselves we will be able to understand others more easily.

There is limited research around self-regulated learning, as it is still an unexplored area. The research that has been read barely speaks about how to develop these skills in primary schools. Most of them have been centered in e-Learning or adult education. This research should enhance our understanding of the development of self-regulated learning skills in primary school pupils in different learning environments.

Democratic schools in Spain are struggling to rectify their legal status since the existing legislation is focused on content, instead of being child-centered, as these schools are. This means, it is not easy to gain legal recognition for alternative education (for example, homeschooling, democratic schools, forest schools). As a result, my findings should raise awareness of the need to have more educational choices as part of our rights in a democratic society.

Finally, this research compares the Scottish and Spanish Educational System [24] since there are schools from both countries participating in this study. The systems are very different, the first is more child-centered and allows families to choose the way to educate their children, while the second one is based on content and does not allow its citizens to choose what teaching and learning methods they want for their children. I hope this research will demonstrate the viability of a child-centered educational system, less worried about content and more focused on developing skills.

Democratic and alternative pedagogies can give children a personalized education, focused on their motivations and interests, based on their own research as a way to let them create their own knowledge and personal and emotional development. Namely, “integral” education [25] aimed at self-sufficiency.

5. References


Dialogic Teaching: Rethinking “Messy” Classroom Interactions in a French Grammar Lesson

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Abstract

In our paper, we will investigate classroom talk in terms of “dialogic teaching” [1], [7], [9] in order to rethink classroom interactions that appear to be “messy” at first sight. To do so, we will analyse a video excerpt taken from the film “Entre les murs” [4] that shows classroom interactions in a French secondary school. A fine-grained analysis of teacher-student interactions is conducted according to a conversation analytic approach [8]. With reference to the concept of “dialogic teaching”, analysing sequence organisation of the classroom talk occurring in the selected French grammar lesson opens up a new perspective on the event, i.e. it becomes possible to consider students’ utterances not as digressions but as enriching contributions to an expansion of the learning/teaching object.

1. Introduction

The concept of “dialogic teaching” as developed by Robin Alexander since the early 2000s leans on classroom interactions where teacher and pupils build on each other’s ideas and chain them into coherent lines of thinking and inquiry [1]. “Dialogic teaching” can be described as “that in which both teachers and pupils make substantial and significant contributions and through which children’s thinking on a given idea or theme is helped to move forward” [7].

Referring to “dialogic teaching”, we will analyse a video excerpt taken from the film “Entre les murs” [4] that is based on François Bégaudeau’s semi-autobiographical novel of the same name (Bégaudeau taught French in an inner city middle school in Paris). Although there is a screenplay that follows the novel, the film is often referred to as “authentic” as the movie displays instances of classroom practice in a rather realistic way.

We will analyse an excerpt of this film that shows a teacher and his students during a French lesson discussing a “thorny” chapter of French grammar: the correct use of subjunctive mode and more specifically the sequence of tenses when using the subjunctive mode. Looking at the teacher-student interactions, we may be quite tempted at first sight to say “there is no order” [6], in the sense that we would describe the students’ behaviour as somehow “disruptive”, or cast doubt on the teacher’s competence. But, relying on a fine-grained analysis of sequence organisation, we will point out that the teacher and the students engage in discussions, by that way exploring and supporting the development of their understanding [7]. Furthermore, we will show that the teacher and the children consider each other’s perspective and reciprocally construct questions and responses thus expanding the discussed object.

2. Theoretical framework

The study relies on the concept of “dialogic teaching” [1], [7], [9]. “Dialogic teaching” is inscribed within a sociocultural framework on learning and development [11] and draws on the work of Bakhtin [2].

3. Methodology

To investigate classroom talk, we conduct a fine-grained (film) video analysis by adopting an EM/CA based approach. Relying on Harold Garfinkel [5], we study methods of teacher’s and students’ concerted actions so as their methods of common understanding. To study talk-in-interaction in its sequential unfolding, we also refer to Harvey Sacks [10].

4. Conclusion

Grasping and visualising the deployment of “dialogic teaching” in an EM/CA based approach can shed a different light on a classroom activity that appears to be “messy” at first sight. In our analysis, we can show how the characteristics of “dialogic teaching” are articulated in the sequential unfolding of the teacher-student interactions. In the turn-by-turn analysed excerpt we may point out that the students’ utterances are quite enriching contributions rather than ‘digressions’. We may also highlight that the teacher and the students expand the learning/teaching object by mutually engaging in critical “co-construction of ideas” [9].
5. References


Item Analysis of the Test for Interpersonal Competency by Diagnosis Cognitive Model

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Abstract

It is important to check whether a certain questionnaire measures what it intended to measure and it measures question items accurately through item analysis of a test in a process of development and completion of a test. In other words, the process of item analysis through analysis method which is fit for data should be designed in the process of establishing procedures of test development. Therefore, the test for interpersonal competency should contain a process to verify its quality factor as well.

The purpose of this study is to investigate the suitability of the test of interpersonal competency by applying Diagnosis Cognitive Model and provide suggestions to make the test the higher quality one. I also want to know what they give additional information that may be compared with the analysis results by the classical test theory and item response theory for the validation of test for Interpersonal competency.

The data we used for analysis in the study was the answers of 16,283 participants from the inquiry on the test of interpersonal competency by the Career Net (http://www.careernet.re.kr/). The test for interpersonal competency is organized in five attribute, which are emotional bonds, collaboration, mediation, leadership, and understanding of organization, and consists of 55 items, 10~12 items for each category.

Study procedures are as follows. We chose the difficulty and low discrimination questions through the classical test theory and item response theory. I selected items with high slip value and guess value by Diagnosis Cognitive Model. I confirmed the additional information that can provide test item analysis tools commonly used in classical test theory and item response theory and cognitive diagnostic model to compare.

References


Automatic Assessment and Immediate Feedback in Third Grade Mathematics

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Abstract

This paper presents further results of improved learning performance from elementary school using the ViLLE educational tool. ViLLE includes multiple exercise types, which promote learning via automatic assessment and immediate feedback. Two third-grade classes participated in this research. One class acted as the treatment group and the other as the control group. Pupils in the treatment group used ViLLE in one math lesson per week and had homework in ViLLE as well. The treatment group used traditional math exercise books. Learning performance was studied using a pre-, mid-test from a period of 18 weeks. The difference between control- and treatment group was not statistically significant in the pre-test. After the 18 week treatment, the treatment group achieved a higher average from the mid-test than the control group. This difference was statistically significant. Using ViLLE clearly promoted the learning results of the pupils in the treatment group.

1. Introduction

The goal of educators is to provide the best education possible and improve their expertise constantly. Researchers and educators try to find new methods and means to improve their teaching and try to achieve better learning results. Finland is considered to have one of the best school systems in the world according to the Pisa (Programme for International Student Assessment) 2003 results [25].

However, according to TIMSS (Trends in International Mathematics and Science Study), the mathematical skills of Finnish seventh graders has declined drastically [20]. According to a European survey of schools [23] there are plenty of computers and other information and communications technology (ICT) at schools but they are not efficiently implemented in the curriculum.

Especially Finland has a lot of ICT equipment but the utilization rate is lower than the average in Europe. A lot of money has been spent on ICT but we clearly still lack the proper means to utilize them in everyday teaching. The same survey (Survey of schools) also lists head teachers' perceptions on why ICT is not used in schools: 1. out of date equipment/technical issues; 2. pedagogical reasons; 3. Using ICT is not a learning goal. The first two issues can be targeted by pedagogically designed learning material and using software that runs on multiple platforms. The third issue is a curricula or assessment issue, which is already considered at least in suppressed contry by the new national curricula [7]. Clements 2002 states that computers are appropriate and can be used even with young children in learning purposes. We have developed an educational tool called ViLLE in the University of Turku. ViLLE is a web based learning environment which utilizes automatic assessment and gives immediate feedback based on the assessment. Based on this simple interaction we have created many exercise types and exercises that can be used to teach and learn mathematics in the lower levels of primary school. ViLLE is described in more detail in chapter 3. Our previous work and the positive learning results are discussed in the next chapter.

2. Related work

Previously we have conducted several studies on computer-assisted mathematics learning in primary schools with ViLLE [15, 14, 13]. In 2012 we started with experimenting using ViLLE in primary school mathematics. The research paper [15] also covers the pedagogical aspects of using automatic assessment, immediate feedback, continuous evaluation and the role of generated exercises, thus these won't be covered in detail in this paper. After the encouraging results from third graders, we continued developing various math exercise types targeted for primary school. Next we conducted a ten-week-long study for first grade pupils [14]. Two classes participated in the study (N=43). One of the classes acted as a treatment group (N=23) and the other acted as a control group (N=20). The starting level of these two classes was again measured with a pre-test. The pre-test showed that there was no statistically significant difference between the groups. During the ten weeks, the treatment group had one math lesson transformed into a computer assisted lesson. The other class continued with traditional mathematics teaching.
Both groups received the same amount of teaching in mathematics. Ten weeks later we held a post-test to measure the difference in the learning performance of the two groups. Again, also in this experiment, the treatment group managed to improve their learning results statistically significantly more than the control group. The latest study [13] is also from Salo and belongs to the same project as the research reported in this paper. We conducted a similar controlled 18-week-long treatment in four first grade classes in two different schools. Each school had a treatment group and a control group. There were altogether 80 first graders who took part in the study: 38 in the treatment group and 42 in the control group. The pretest showed that there were no statistically significant differences between the classes; however in the posttest the treatment groups showed statistically significantly better learning results. A lot of research has been done on computer assisted learning and there is a lot of evidence of the effectiveness of computer-assisted learning [12, 24] but there is still doubt whether computer-assisted learning is effective or not. A two-year-long study [1] was conducted in the USA. 97 schools participated in the experiment. The schools covered grades one through eleven and were randomly assigned to treatment and control groups based on their geographical position. The researchers found little to no difference on the language skills in the treatment group over the control group. They argued that computers were not efficiently incorporated in to the curriculum. However [2] showed clearly improved math skills of high school students who were assigned to computer-assisted treatment group.

The research group presented a hypothesis that the improved result was caused by more individualized instruction. Also Linden et al. [18] found the positive impact of using computer-assisted learning in a study conducted in India. In light of these results, we can state that computer-assisted learning is not a shortcut for better learning results but needs to be planned and implemented carefully like any other method used in teaching. There is also evidence that computer-assisted learning has helped younger pupils to learn mathematical skills. Pre-school pupils improved their number skills [22] and the same positive effect is shown on 7–10-year old pupils too [26] [5]. A study on fifth graders shows that computer-assisted learning can be used to support problem solving and to decrease cognitive load of multiphased problems [3].

3. ViLLE

ViLLE is a web-based educational tool developed in the IT-department of department at the University of Turku. ViLLE is designed to be an exercise-based learning environment, which enables teachers to share exercises, courses and materials among each other. At the moment ViLLE has over 70 different exercise types divided into three categories: general exercises, programming exercises and math exercises. Most of these exercises are automatically assessed and they support giving immediate feedback to students. Teachers are free to use any of these exercise types to create their own exercises or they can select one of the existing exercises created by other teachers. At the moment there are over 20 000 exercises in ViLLE. All student interaction is saved for the teacher to inspect afterwards and to be used that information for assessing the students. This data includes for example the time usage, the submission count, and the content of each submission. We have published various papers on ViLLE’s positive effect on learning performance and students’ attitudes [9, 10, 11, 15, 14, 13, 16]. The exercise types in ViLLE follow the same design principles based on the same pedagogical groundings. When possible we use automatic assessment, which is a prerequisite for immediate feedback. In its simplest form the immediate feedback is correct or incorrect, but if possible, more elaborate feedback is given to support active learning. With the aid of immediate feedback, students are able to assess their own knowledge and focus on areas they need to practice either independently or with the teacher's intervention [17]. In the game-like exercise types, familiar elements from entertainment games try to increase students’ motivation and engagement. These include using time as a limitation, collecting points, giving lives and game-like graphic. The time limit keeps the students engaged in the game world and decreases other substitute actions. Time limits and point collection enables the students to compete with themselves or each other. Giving the students lives in the game ensures that one wrong answer does not necessarily mean losing the full scores, which is motivating for the students. The more traditional exercises use problem visualization to give a better overview of the problem. Visualization could mean for example visualizing numbers as amounts of blocks or plotting a function. Visualization is also used in some of the immediate feedbacks to highlight how the user’s answer is incorrect and to visualize better how the problem could be solved. One important factor in mathematics exercises is random or semi-random generation of problems. A normal mathematics exercise book has a limited amount of calculations. Using random generated calculations we can create various unique calculation sets. Even with semi-random calculations sets the calculations vary each time the exercise is loaded. In this manner it is meaningful to practice and try the exercises multiple times. Currently we are building a support into ViLLE’s mathematics exercises to automatically recognize student misconceptions in primary school mathematics. This feature has been piloted on third
4. Research

The research presented in this paper is part of a larger research project conducted in co-operation between the University of Turku and the municipality of Salo. There were in total six treatment groups and four control groups in three different schools. Each group took the pre-test at the beginning of their studies in September, the mid-test in February and the post-test in May. The aim of the project is to develop a so-called learning path for the first six grades of primary school. The learning path consists of one computer-assisted mathematics lesson per week that covers the same topics as a traditional math lesson. The learning path exercises are designed not only to promote learning but to enable automatic detection of learning difficulties from the pupils’ answers [19]. The aim is also in trying to find the best practices to arrange computer assisted learning sessions and to motivate the students in collaboration with teachers. This paper covers the results of the learning performance tests of third graders from two third grade classes from one school in the municipality of Salo.

4.1. Participants

Two different schools and altogether three third grade classes took part in this study. There were two treatment groups (N=15 and N=12) and one control group (N=22). The smaller treatment group was from a different school than the other two groups. The smaller group was left out of the analysis, because they were already statistically significantly better (p<0.001) in the pre-test compared to the control group when analyzed with the Mann-Whitney U-test. Therefore this paper concentrates on the classes from the same school. The pre-test lasted for one lesson, even though not everybody needed that much time. The test was carried out by the researcher. After the pre-test, the control group continued with traditional pen and paper mathematics teaching using mathematics exercise books, which is typical in Finland. The treatment group also followed the same pen and paper method using the exercise book, except for one weekly lesson which was transformed into a computer-assisted math lesson using ViLLE.

Each lesson lasts for 45 minutes in the Finnish school system. Pupils were assigned homework in ViLLE in addition to their homework from the mathematics exercise book. There was no extra teaching given to the pupils in treatment group. Each week the pupils had a set of exercises ranging from 7 to 18 assignments. In the beginning we had less exercises to familiarize the pupils with ViLLE. Also the number of assignments depended on the topics covered in particular lessons. There were more exercises in the lessons where the pupils practiced mental multiplication instead of to long multiplication (also known as grade-school multiplication or standard algorithm). During the autumn semester (first 12 weeks), the pupils were instructed to do as many exercises as possible during the lessons and encouraged to do the rest at home.

During the rest of the 7 weeks, pupils were given a minimum score limit that needed to be achieved during the week. The minimum score was set to approximately 70–75% of the maximum score. If the pupils did not achieve the minimum score it led to a mark in “forgot homework” list. There was also a “plus score limit”, which was typically...
approximately 90% of the maximum score. If a pupil managed to get over the plus score limit, they got a positive note. Both then forgot homework and the positive note lists were shared with homes via the school’s electronic messaging and student management system called Wilma. The exercises used in the ViLLE-lessons correspond to the topics and scope of the exercises in the math exercise book used by both classes. The only difference was that the exercise set used in the ViLLE-lessons contained more calculations than the math exercise book normally has for one lesson. Also ViLLE-lessons contained exercises from previous topics, which is not typical for Finnish math exercise books. After the 18th lesson, we held the mid-test. The mid-test was shorter than the pre-test and it took approximately 20 minutes to accomplish. After the mid-test pupils continued using ViLLE weekly.

5. Results

We examined the development of mathematics learning performance using computer-assisted learning compared to traditional math exercise book based learning. The comparison was done between the pre-test and the mid-test that was held 18 weeks after the pre-test. The results reported in this paper are a small portion of a larger research setup. The pre-test was held approximately four weeks after the school had started in the autumn semester. The treatment group had 15 pupils (N=15) but two of them were absent during the pre-test. There were 22 pupils in the control group (N=22) pupils but one of them was also absent during the pre-test. Table 1 shows descriptive statistics from the pre-test for both treatment group and control group.

Table 1. Descriptive statistics from the pre-test

<table>
<thead>
<tr>
<th></th>
<th>Treatment group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>Mean</td>
<td>13.67</td>
<td>10.65</td>
</tr>
<tr>
<td>Median</td>
<td>14.33</td>
<td>11</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>5.43</td>
<td>3.24</td>
</tr>
<tr>
<td>Min</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Max</td>
<td>24</td>
<td>15.67</td>
</tr>
</tbody>
</table>

As we can see from the Table 1, the mean and median of the pre-test score of the treatment group is higher than that of the control groups. Furthermore the standard deviation of the treatment group is higher than the one in control group, which means that the composition of math skills in the control group is more uniform than the composition of math skills in the treatment group. The minimum score achieved from the pre-test is same in both groups but the maximum score is considerably higher in the treatment group. The maximum score of the whole test was 43 points. The mid-test was arranged 18 weeks after the pretest. One pupil was absent from both the treatment group and from the control group during the midtest. The descriptive statistics of the mid-test are shown in Table 2.

Table 2. Descriptive statistics from the mid-test

<table>
<thead>
<tr>
<th></th>
<th>Treatment group</th>
<th>Control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Mean</td>
<td>25.20</td>
<td>20.33</td>
</tr>
<tr>
<td>Median</td>
<td>25</td>
<td>19.33</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>6.04</td>
<td>5.2</td>
</tr>
<tr>
<td>Min</td>
<td>12</td>
<td>12.67</td>
</tr>
<tr>
<td>Max</td>
<td>34.83</td>
<td>27.5</td>
</tr>
</tbody>
</table>

The mean and median of the treatment group’s results from the mid-test are still higher than the mean and median of the control group. Standard deviation has increased in both groups but the difference has decreased. The standard deviation of the treatment group is still higher compared to the control group. The minimum score from the mid-test was smaller in the treatment group but the maximum score of the treatment group is still higher than the maximum score in the control group. The maximum score of the mid-test was also 43 points. The statistical significance of the difference in test results was analyzed using the Mann-Whitney nonparametric U-test. U-test was chosen because the individual groups are too small to use the parametric T-test. In the pre-test the p-value is 0.073, which is greater than 0.05, hence we can conclude that the difference between the treatment group and the control group is not statistically significant. However in the mid-test the p-value is 0.0184, which is notably smaller than 0.05 and the difference between the groups is thus statistically significant. The results show clearly that both groups have learned but the learning performance of the treatment group was statistically significantly better.

6. Discussion and experiences

The goal of our research is to create a so-called learning path for primary education. The learning path means that one regular lesson will be transformed into a computer-assisted lesson per week. In this manner, we can divide the ICT resources of schools efficiently and benefit from the advantages of computer-assisted learning. The idea of a learning path is currently only being implemented in math but it can be expanded to cover other subjects too. Especially in math we have already started to implement automatic detection of learning difficulties to help teacher’s to allocate their
resources better. One of the complaints of using ICT in schools [23] was the lack of pedagogical reasons. With the learning path material we aim to overcome the pedagogical barrier of ICT usage in schools. The exercises are ready to use, cover all the topics in each grade and they utilize the benefits of computer assisted learning. The material also enables teachers to give more individually targeted teaching and let the student work at their own skill level. Previous studies suggest that computer-assisted learning has positive impact on learning performance of students [12, 24, 15, 14, 13, 18]. Our findings are in-line with these previous findings and support the idea that using ICT we can enhance learning results. The treatment group had a better average already in the pre-test, but differences between groups were not statistically significant in the pre-test. However the difference of averages in the mid-test was statistically significant. In previous studies we have shown that treatment groups have improved their results more than the corresponding control groups, even if the treatment group had weaker or equal results in the beginning [14, 13]. Using automatic assessment and immediate feedback we can create a meaningful learning experience which also develops pupils’ metacognition. When using a traditional math exercise book, the pupils are not allowed to constantly check their answers; whether they are correct or not. In the worst case scenario, one of the pupils might calculate all the calculations using a wrong strategy. Repeating the wrong strategy makes it harder to learn the correct way of solving the problems. Using immediate feedback, the pupil will immediately know, if the answer was wrong and with the aid of visualization and other cues in the feedback he or she might be able to deduce what went wrong in the exercise. Additionally the positive feedback was seen as a great way to encourage pupils, especially for the pupils who had difficulties in math. Immediate feedback also enables the pupils to become active learners who can try to figure out possible mistakes in their calculations by themselves. A normal math exercise book contains approximately 20–60 calculations for each lesson. In ViLLE the pupils calculated on average approximately 200 calculations instead. It is obvious that when we can get the pupils to work harder, they will learn more. It is even better if the educators can achieve this unnoticed by the pupils. In ViLLE we have tried to achieve this kind of immersion by automatic assessment coupled with immediate feedback. We have also created various game-like exercise types, which present the regular calculations in different forms to make them more interesting.

Many of our exercises have also a built-in support for differentiating the calculations. Mathematically skilled pupils can select harder calculations than their mathematically challenged peers. By our previous experiences coupled with findings presented in this paper, it is obvious that it is not only the technical solution that promotes the learning results but also the teacher of the class has a great role. Based on anecdotal evidence during the experiment, the level of involvement of the teacher has a major role on supporting pupils’ motivation. For example in this third grade case, the pupils were not used to have this kind of contract homework for the whole week. If the teacher remembers to remind the homework and possibly has small incentives for accomplishing extra work, the pupils will do a lot more than negative feedback or without any teacher involvement. When we introduced score limits for minimum required work and a plus score limit, the pupils knew better what they were expected to do and the majority aimed for the plus score limit. The result of this study would have been satisfactory even if the learning performance had stayed the same between the groups after the 18 week-long treatment.

There are other benefits of using computer-assisted learning that can be argued in favor of using ICT in teaching. Computer-assisted makes the individualization of learning easier and enables teachers to allocate their scarce time better. Continuous assessment of pupils’ school work also helps planning better lessons and achieve better learning results in that manner.

7. Conclusions and future work

The improved learning results of the treatment group strengthen and verify our previous findings that we can enhance learning results in mathematics using ViLLE. It is also worth noting that we only converted one regular math lesson into a computer assisted lesson, where we utilized the benefits of computer-assisted learning. In the future we will cover the results from the whole research and also analyze the learning behavior of the pupils using time usage and submission count data. This should give us a better insight into polishing the best practices to be used in classroom situations. We also need to study the automatic detection of learning difficulties more closely using our newly developed exercise sets from grades 1 to 6.

8. References


Session 5: Pedagogy

Teaching and Self-Development According to the Tri-Anthropo Type Paschalidis' Model
(Authors: George Paschalidis, K. Chiou, F. Mullen, P. Papathanasiou)

A Capsular Model for Developing Student Teachers' Pedagogical Content Knowledge for Nature of Science
(Author: Elaosi Vhurumuku)

Development, Reliability and Validity of an Academic Social Identity Scale (Psychology)
(Authors: Julienne McGeough, David McIlroy)

Boomerang Strategies
(Authors: Maria C. Guilott, Leslie C. Owen, Gaylynn A. Parker)
Teaching and Self-development according to the Tri-Anthropo-Type Paschalidis Model

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1st Secondary School of Aiginio⁴, Greece

Abstract

The purpose of this study is to investigate how a professional development programme for educators of primary, secondary and tertiary levels, based on the Tri-Anthropo-Type Paschalidis Model can contribute to the improvement of communication between teachers and students; how it can change the character of the educational process; and how it can create successful and happy students and educators. Thirty-eight educators from all levels of education participated in the study. Questionnaires were administered, relevant educational material was provided, and semi-structured individual and group interviews were conducted after the programme. Results showed that educators developed their self-awareness and improved certain behaviours. They also understood the personality traits of their students, improved their teaching style and encouraged an educational process based on the knowledge of the Tri-Anthropo-Type Paschalidis Model. Collaboration in the classroom was enhanced and all students arrived equitably to success and high performance. The relations among teachers, students and parents improved.

1. Introduction

Quality training and reflective professional development are essential parts of a teacher’s professional life. Undoubtedly, as Champion [1] mentions, regular opportunities for professional development over the past few years had yielded systematic growth and development in the teaching profession.

Today most professional training programmes focus on the development of the pedagogical role of the teacher, since the enrichment of academic knowledge or examples of expert teaching of subject matter do not seem to suffice. Professional development programmes should be closely aligned to teachers’ professional practice and, in addition to providing teachers with specific input, should include opportunities to enact certain instructional strategies and to reflect, individually and collectively, on their experiences [2].

The Tri-Anthropo-Type Paschalidis Model in education is a pioneering and multifaceted programme for the professional development of educators. It focuses on the notions of the educator’s self-awareness and of their awareness of the other (students, parents and colleagues) as the means that will lead each person involved to development, success, as well as personal and professional happiness. It provides educators with the necessary knowledge to transform the learning/teaching process into a source of pleasure for themselves and for their students, through their harmonious coexistence within an educational framework. Moreover, it proposes specific pedagogical and learning practices, related to the cognitive and psychological needs of the students.

According to the Tri-Anthropo-Type Paschalidis Model, there are three personality Types, A, B and C, which are classified according to certain psychological, neuroanatomical and neurochemical characteristics, are genetically specified and inherited by one’s biological parents. The fundamental differentiating element, though, is a distinct Type-specific brain function. It has been observed that a certain region of the limbic system determines the cognitive, emotive and behavioral functions of each one of the personality Types. This specific brain region of each Type becomes overactive under stress. Specifically: in Type A individuals, it is the region of the temporal lobe which forces them to react with agitation in movement; in Type B individuals it is the region of the amygdala gland that stamps their action by over-cautiousness; while Type C individuals function with the hippocampus and exhibit agitation in movement, cautiousness and perseverance in performing a task [3],[4].

Through the Tri-Anthropo-Type Paschalidis Model, educators develop in the following stages:
1. They identify their personality Type, their teaching style, their strengths and weaknesses.
2. They identify their students’ personality Types, each student’s learning profile, each student’s strong and weak points, their abilities and limitations.
3. They identify the Types of the students’ parents and are able to work harmoniously with them for the benefit of the children.
4. They identify the Types of their colleagues, so that they can work together efficiently for the benefit of the students.
5. They recognize the demands of their professional position and are trained to respond accordingly [5].

Here are some of the personality traits of each Type of educator (Table 1). Type A educators are flexible, impatient, spontaneous, quick-tempered, lose self-control easily, improvise and teach freely and creatively, follow the given curriculum but make adjustments according to the needs of their students. Type B educators are cautious, patients, over-analytical, have great self-control and a high sense of responsibility for the outcome of their teaching; they follow the given curriculum religiously. Type C educators are strict, demanding, systematic, have swift perception, perseverence and exercise too much control over their students; they follow the given curriculum religiously and at the same time add learning material to it [6],[7],[8].

Table 1. Behavioral traits of educators

<table>
<thead>
<tr>
<th>Type A</th>
<th>Type B</th>
<th>Type C</th>
</tr>
</thead>
<tbody>
<tr>
<td>They analyze only the key points of a lesson &amp; consider many details as obvious.</td>
<td>They explain the lesson very carefully and in detail.</td>
<td>They prepare and plan the lesson meticulously &amp; include every piece of relevant information.</td>
</tr>
<tr>
<td>Quick perception</td>
<td>Sequential perception</td>
<td>Quick perception and persistence</td>
</tr>
<tr>
<td>Productive reasoning</td>
<td>Deductive reasoning</td>
<td>Productive reasoning and persistence in detail</td>
</tr>
<tr>
<td>Visual</td>
<td>Auditory</td>
<td>Kinesthetic</td>
</tr>
<tr>
<td>They treat students as their equals &amp; encourage them.</td>
<td>They treat students as children and advise them.</td>
<td>They treat students as fighters and exhaust them.</td>
</tr>
</tbody>
</table>

Their evaluation of their students’ performance is based rather on the overall picture than on specific tasks. Their evaluation of their students’ performance is based rather on specific tasks than on the overall picture. Their evaluation of their students’ performance is based both on the overall picture and on specific tasks.

They encourage students’ self-motivation. They help only at difficult points. They do not encourage students’ self-motivation or initiative because of their tendency to provide them with ready solutions and advice. They encourage students’ self-motivation and guide them towards their own way of working.

<table>
<thead>
<tr>
<th>Impatient, tense, edgy</th>
<th>Patient, nervous</th>
<th>Persistent, perfectionists</th>
</tr>
</thead>
<tbody>
<tr>
<td>They prefer to use student-centered practices.</td>
<td>They prefer to use teacher-centered practices.</td>
<td>They combine student-centered and teacher-centered practices.</td>
</tr>
<tr>
<td>Spontaneous, quick</td>
<td>Cautious, slow</td>
<td>Quick, cautious, demanding</td>
</tr>
<tr>
<td>Practical, effective</td>
<td>Theoretical</td>
<td>Practical, theoretical and persistent</td>
</tr>
<tr>
<td>They improvise. They teach freely and creatively.</td>
<td>They teach according to plan. They are careful, worry about details and convey their worry to their students.</td>
<td>They teach according to plan. They used controlled improvisation, stick to detail and exhaust their students.</td>
</tr>
<tr>
<td>They easily trust, encourage and inspire their students.</td>
<td>They find it hard to trust their students.</td>
<td>They are too demanding of their students.</td>
</tr>
<tr>
<td>They reward generously.</td>
<td>They reward cautiously.</td>
<td>They reward strictly.</td>
</tr>
</tbody>
</table>

The purpose of this study is to investigate how a professional development programme for educators in the primary, secondary and tertiary levels, based on the Tri-Anthropo-Type Paschalidis Model can contribute to the improvement of communication between teachers and students; how it can change completely the character of the educational process,
to create successful and happy students. More specifically this paper studies how educators acquire self-awareness and how self-awareness improves pedagogy and teaching strategies and practices, thus enhancing satisfaction in the profession. It also studies how acquiring hetero-awareness, recognizing the Types of the students in an educational context, changes the educators’ attitude towards them and creates a climate of harmonious cooperation with observable results in student achievement and in the fulfillment of educational goals. Finally, it studies the influence of the Tri-Anthropo-Type Paschalidis Model in the three-way relationship of educators-parents-students.

2. Methodology, participants, materials

The study took place in three phases and lasted one academic year, from September 2014 to June 2015.

During the first phase, the teachers who participated in the programme, completed the Adult Tri-Anthropo-Type Paschalidis Model Questionnaire, so they could identify the personality Type they belonged to. Also they asked their students to complete the Children Tri-Anthropo-Type Paschalidis Model Questionnaire for primary education students, the Adolescence Tri-Anthropo-Type Paschalidis Model Questionnaire for secondary students and the Adult Tri-Anthropo-Type Paschalidis Model Questionnaire for tertiary education students.

During the second phase, which lasted from October 2014 to April 2015, we conducted experiential seminars, which aimed to familiarize educators with the Tri-Anthropo-Type Paschalidis Model, to help them study in depth the personality Types and to understand how these Types define the teaching style of each educator as well as the learning profile of each student and an individual’s parental behaviour. We supplied informational material regarding the application of the Model in education. We conducted group discussions for sharing experiences between the educators and George Paschalidis, the founder of the Tri-Anthropo-Type Paschalidis Model.

During the third phase three interviewers (researchers) conducted the semi-structured interviews after the end of the programme, with the aim to investigate: the influence of the Model in each educator’s self-development and self-awareness; the extent of job satisfaction; the extent to which each educator’s strong personality points were enhanced; the level of creativity in the classroom through identifying the Types of students; and the improvement of cooperation between teachers and parents.

Thirty-eight teachers participated in the study, 28 female and 10 male, representing all three levels of education (primary, secondary and tertiary). These educators applied the Model to 3,250 students in regular sessions during the school year.

For this study, we used George Paschalidis’ books on Psychology, Education and Personality Analysis. We supplied print and electronic materials on the Tri-Anthropo-Type Paschalidis Model, including detailed tables of personality traits, emotional profiles, behavioural patterns, teaching styles, cognitive skills, and images of non-verbal behavior.

3. Results

The semi-structured interviews as well as the questionnaires used, showed that 15, 79% of the participating educators belonged to Type A, 51, 63% to Type B and 32, 58% to Type C. Also 15, 47% of the students belonged to Type A, 24, 96% to Type B and 59, 57% to Type C.

The qualitative (thematic) analysis of the interviews that took place during the third phase of the study showed that:

During their training in the Tri-Anthropo-Type Paschalidis Model, 89% of Type A educators recognized the following weak points of their personality: loss of composure and loss of control of their words and actions; overly brief presentation of the subject; tension, impatience and irritability; adjustment of lessons to their own mood; tendency to give orders to the students. During the application of the Model, 86% of Type A educators observed that they improved their attitude by becoming more analytical, more patient and methodical, more persistent, more expressive and accessible; they learned to control their temper and their abrupt behavior, to maintain calmness in their words and movements.

Table 2. Strong and weak traits of Type A educators

<table>
<thead>
<tr>
<th>TYPE A</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>They easily bypass rules and regulations</td>
<td>Stress of panic of action, which leads them to unpredictable decisions and actions</td>
</tr>
<tr>
<td></td>
<td>Quick action</td>
<td>Irritable (petulant when facing facts)</td>
</tr>
<tr>
<td></td>
<td>Practical</td>
<td>Unpredictable</td>
</tr>
</tbody>
</table>
Effective in crisis management
Act spontaneously, enthusiastic
Instant decision making
They choose the easy way
Flexible
Good instinct
Entice others to action
Cheering, animating spirit
Critical ability for automatic stimuli comparison
Self-confident

Obedient
Cooperative
Resilient
Responsible
Conciliatory
Observant, scholastic

Inpatient
Reckless
Strict
Lose control of actions and words
Do not like to explain
Zero tolerance to stress
Quit easily
Short-term memory
Takes risks without thinking
Insecure
Lost in details, excuses and explanations
Non spontaneous
Restlessness and fear
Inhibitory, hesitant behaviour
Waver between two things

During their training in the Model, 91% of Type B educators recognized the following weak points of their personality: excessive attention to everything, in order not to cause problems; multiple repetitions in the teaching of a subject; putting too much emphasis on detail; lack of innovation; over-analysis of a single subject to the point of exhaustion; constant commenting and advising; strict adherence to the teaching plan, that leads to endless thinking, constant observation and control and as a result in a delayed outcome. During the application of the Model, 87% of Type B educators observed that they became less analytical and avoided repetition; they trusted, encouraged and rewarded their students more; they learned to manage their stress and indecisiveness, to overcome their anger and to try out new teaching techniques.

Table 3. Strong and weak points of Type B educators

<table>
<thead>
<tr>
<th>TYPE B</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
<td>Weaknesses</td>
<td></td>
</tr>
<tr>
<td>Ability to organize,</td>
<td>Stress of anxiety, which leads to endless thinking, constant observation and control and as a result in a delayed outcome</td>
<td></td>
</tr>
<tr>
<td>schedule and calculate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good management</td>
<td>Constant information processing in order to make a decision (indecisive)</td>
<td></td>
</tr>
<tr>
<td>Careful</td>
<td>Cautious</td>
<td></td>
</tr>
<tr>
<td>Patient</td>
<td>Argumentative, nervous</td>
<td></td>
</tr>
<tr>
<td>Stable</td>
<td>Dubious</td>
<td></td>
</tr>
</tbody>
</table>

| Obedient             | Insecure                                       |
| Polite               | Moody                                          |
| Cooperative          | Lost in details, excuses and explanations      |
| Resilient            | Non spontaneous                                |
| Responsible          | Restlessness and fear make them act cautiously and, as a result, they need time to realize a project. |
| Conciliatory         | Inhibitory, hesitant behaviour                 |
| Observant, scholastic| Waver between two things                      |

During their training in the Model, 95% of Type C educators recognized and acknowledged the following weak points of their personality: intractability; extreme strictness concerning the application of rules and the expected learning outcomes; dedication to absolute discipline and the observance of rules by students, with violations resulting in extreme punishment; the teaching of more material than mandated by the curriculum; confrontational relationships with students. They constantly demanded of students to become better and to always succeed. During the application of the Model, 82% of them observed that they became more flexible; they came to trust their students more and avoided punishing them; they conducted the lesson without pressure and strictness and managed their passion and persistence better.

Table 4. Strong and weak traits of Type C educators

<table>
<thead>
<tr>
<th>TYPE C</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
<td>Weaknesses</td>
<td></td>
</tr>
<tr>
<td>Committed, diligent</td>
<td>Stress of persistence of action, which leads them to the outcome through the most difficult route</td>
<td></td>
</tr>
<tr>
<td>Persevere in order to achieve their goal</td>
<td>Stick to problems in order to solve them</td>
<td></td>
</tr>
<tr>
<td>Persistent</td>
<td>Subversive</td>
<td></td>
</tr>
<tr>
<td>Disciplinary</td>
<td>Rigid</td>
<td></td>
</tr>
<tr>
<td>Effective, efficient</td>
<td>Pushy</td>
<td></td>
</tr>
<tr>
<td>Dynamic</td>
<td>Dogmatic</td>
<td></td>
</tr>
<tr>
<td>Faithful</td>
<td>Want to impose on others what they think is right</td>
<td></td>
</tr>
<tr>
<td>Ability to track mistakes and correct them</td>
<td>Risk-takers, daring</td>
<td></td>
</tr>
<tr>
<td>Great tolerance to pressure</td>
<td>Dominant</td>
<td></td>
</tr>
</tbody>
</table>
After applying the Model, all educators freed themselves from the weaknesses of their personality Type, stopped teaching on the basis of their Type and adjusted their teaching to the needs of their students' Types, and thus to their (the students') real emotional and cognitive needs. For example, 93% of Type C educators, recognizing the learning profile of Type B students, became less strict with them, so as not to stress them out. 90% of Type B educators, faced with Type A students, became less pedantic and analytical, so as not to tire them out and make them lose interest. 89% of Type A educators showed greater attention and interest to Type C students, so as not to make them feel rejected. Moreover, training in the Paschalidis Model helped 82% of Type A educators realize that their strong point is encouragement; 81% of Type B educators, that theirs is support and care; and 85% of Type C educators, that theirs is prodding and enhancing their students’ passion for the achievement of their goals. In the interviews it became apparent that these educators managed to combine the three strong points of each Type, that is, encouragement, support and passion, and responded comfortably to the needs of their classes. For example, children in the first grades of primary school need encouragement and joy in their budding education so as to continue their work, while children in the later grades need passion, persistence and prodding to complete school successfully.

The results of the study showed that after their training in the Model, educators came to realize the real causes behind their students’ behaviours and adjusted their own behavior according to their students’ Types, as they mentioned in the interviews. The educators (96%) said that by following the instructions in the Model for a friendlier and less strict approach to Type A students, they managed to motivate them more, as these students cannot tolerate pressure and over-analyzing and detest commands. Moreover, the suggestion for more freedom and personal initiative resulted in maintaining the interest of Type A students. They also observed that encouraging these students to revise their projects led them to fewer careless mistakes.

Teachers (94%) also noticed that, as the Model describes, Type B students respond better to a climate of security, familiarity and rewarding. With the Model’s instructions as their guide, the teachers created the suitable conditions to raise the profile of Type B students in the classroom and to remove their natural shyness. They encouraged them to avoid analyzing isolated sentences and details but to grasp the whole picture instead. In this way, these students were able to concentrate and began to respond faster without worrying about the possibility of making mistakes. The teachers avoided criticizing these students in front of others, so as not to feed their introversion. After the application of all of the above, teachers observed that all Type B students participated more in the classroom and were less likely to overreact verbally.

As far as Type C students are concerned, teachers (97%) noted that, as the Model describes, these students sought the acceptance of the teacher and when they were criticized harshly, they believed they were being rejected. This led them to irritability and vengeful behaviors. Educators confirmed that when Type C students became confrontational, the teacher had to smooth things over and placate the students, exactly as the Model proposes. When the teachers avoided emphasizing these students’ mistakes but showed them instead the easy way to reach their goal, the students could finally enjoy the learning process without hardship. The teachers followed the advice of the Model to pique the interest of Type C students, gave them creative and complex projects and acknowledged their achievements. This resulted in the students’ trust and respect for their teachers.

Concerning group work, 83% of the educators’ observations showed that when the student groups were comprised of all three personality Types in specific percentages, then the group functioned better and each student—regardless of their personality Type—could build on their strong points. The teachers noted that, through the application of the Model, relationships among students improved and, thus, in team work antagonism was eliminated. Students with higher achievements inspired weaker students to participate more. This was verified after processing student grades at the beginning and at the end of the school year: even the weakest students improved their grades by 35-40%.

After the completion of the training programme, teachers (96%) observed that the Model provided
them with quick and effortless solutions to everyday learning or behavioral problems. This process made them feel more efficient, less stressed out, gave them greater self-confidence, and made them more accepted and loved by students.

Finally, 86% of the educators reported that, when they came into contact with the parents of their students, they informed them of the Type of their child, gave them specific instructions and solutions as to how they can help their children study more efficiently and improve their interpersonal relations, but also how to approach their children anew in order to improve their relationship with them. The teachers advised the parents how to avoid provoking extreme behaviours in their children and how to help them maintain their calmness and enhance their psychological wellbeing.

4. Conclusions

The results of the study showed that the Tri-Anthropo-Type Paschalidis Model is an invaluable tool to educators, as it opens up the path to self-awareness and enables them to locate the root causes of their behaviour and teaching styles. At the same time, they can identify swiftly and clearly the learning profiles and behavioural patterns of their students. The Type of each educator does not limit them anymore, because by knowing and identifying personality Types, they minimize their weaknesses and adopt the strong traits of all three Types. This way, each educator manages to overcome the constraints of their position with the end result that the teaching-learning process becomes easy, joyous and creative.

Simultaneously, educators increase their teaching effectiveness by adopting the best possible strategy for each individual student. The relations between teachers and students improve and students become fonder of school. Both educators and students derive pleasure from the educational process. With the application of the Model, the collaboration between parents and teachers becomes meaningful and results in the fulfillment of the students’ potential and in high achievements [9]. All of the above constitute the most suitable soil for the cultivation of a positive and fruitful educational environment.

In a future study we propose the application of the Model in all classes of a single school, so that results can be investigated on a larger scale.

5. References


A Capsular Model for Developing Student Teachers’ Pedagogical Content Knowledge for Nature of Science

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University of Witwatersrand, Johannesburg, South Africa

Abstract

This paper reports the findings from trying out a capsular model for developing student teachers’ pedagogical content knowledge (PCK) for nature of science and nature of scientific inquiry. The study used a pre-test, intervention and post test design. The participants were a group of ten student teachers involved in a Post Graduate Certificate in Education (PGCE) Physical Science Methodology Course, for teaching Grades 10-12 of the South African Physical Science curriculum at a South African University. Participants’ gains in PCK for nature of science, nature of scientific inquiry and how to teach these aspects were ascertained through: pre and post testing their subject matter knowledge and assessing the qualities of the teaching plans they produced before and after going through the programme. The results show that the capsular model is effective way for developing student teachers’ pedagogical content knowledge for and abilities to craft pedagogical strategies for teaching.

1. Introduction

The development of teachers’ pedagogical content knowledge for teaching nature of science (PCKNOS) has been receiving much research interest and focus from science education researchers during the last ten years [24]. The nature of science (NOS) refers to the ideas, beliefs, perceptions and values about scientific knowledge and the processes through which it is developed and validated [25]. There appears to be consensus that the development of teachers understandings of the NOS and teachers abilities to teach about the NOS and the nature of scientific inquiry (NOSI) can go a long way towards promoting scientific literacy as a goal of science education. While this is so, Hanuscin et al. [12] point out that a lot still needs to be known regarding the sources, nature, and development of teachers’ pedagogical content knowledge (PCK) for teaching NOS. Drawing from the works of Bruner’s [4] influential work on cognitive psychology, Ausubel’s [2] Assimilation Theory of Cognitive Learning and Shulman’s [20] work on pedagogical content knowledge (PCK), Bartos and Lederman [3] examine what they call teacher knowledge structures for nature of science (NOS) and scientific inquiry (SI) and how these are communicated in teacher classroom practices. Subject knowledge structures are about the teacher’s knowledge of discipline knowledge and abilities to restructure that knowledge and present it in a purposeful, creative, comprehensive, open and dynamic manner [6], so as to make it meaningful and comprehensible to learners. While there appears to be agreement that for teachers to teach learners effectively about the nature of science (NOS) and scientific inquiry (SI), they themselves must have a comprehensive understanding of these constructs; research to date has failed to address the issue of how effectively that knowledge might be developed in teachers in order to develop appropriate knowledge structures and abilities to teach. Furthermore, research has failed to clearly delineate what it that must constitute appropriate teacher subject matter knowledge (SMK) for teaching NOS and NOSI.

The knowledge structure of a teacher and that which is essential for effective classroom practice comprises of a matrix of components including subject matter knowledge, professional knowledge, cultural, historical, philosophical, psychological, sociological and practical knowledge [6, 19], from which appropriate disciplinary wisdom, knowledge and technical knowhow might be distilled and crafted for presentation to learners. Additionally, the teachers own experiences in learning the subject to be delivered consciously or unconsciously bears upon the teacher’s mastery and presentation of the subject matter to learners [24]. This is irrespective of the disciplinary knowledge required, whether it is about chemical equilibrium in Chemistry, waves in Physics, genetics in Biology or about the nature of science (NOS) and scientific inquiry (SI). It is widely accepted that the manner in which teachers are prepared greatly influence both their subject knowledge mastery and abilities to deliver in the classrooms [7, 8, 13].

Accordingly the purpose of this study was to determine how a pre-service teacher preparation model developed teacher pedagogical content knowledge regarding the nature of science (NOS) and nature of scientific inquiry (NOSI). Specifically
the study was guided by the following research questions:

(i) To what extent was the capsular model development of pre-service teacher subject matter knowledge understandings of the nature of science (NOS) and the nature of scientific inquiry (NOSI)?

(ii) To what extent was the model effective in terms of teacher abilities to produce sound teaching plans for teaching learners about the NOS and the NOSI, as part of teaching Physical Science content at the Grade 11 level of the South African Physical Science curriculum?

2. Conceptual framework

Essentially, the capsular approach or model involves first teaching teachers about elements of the history of science, the philosophy of science, the sociology of science, aspects about scientific literacy and then introducing teachers to aspects of the nature of science and then introducing them to pedagogical aspects about how to teach learners about selected tenets of NOS and NOSI. Tenets of the NOS and NOSI are ideas about scientific knowledge and the processes of its development and validation which are generally held to be true by the science education community [23].

The capsular model Deriving from the work of Duschl [9], Duschl and Grandy [10, 11], and Van Dijk, [22], my capsular model is based on the premises that in order for teachers to teach NOS and NOSI effectively they also require substantive knowledge base of the history, philosophy, psychology and sociology of science; aspects of scientific literacy as well as the practice of science as a form of inquiry. When following this model, teachers do a module during which they are taught about aspects of the philosophies of Thomas Kuhn, Karl Popper, Imre Lakatos and Paul Feyerabend. Additionally various philosophies of science ranging from objectivist to constructivist are explored. They have lectures on the history of science- with major focus on development of atomic theory. As a part of the module they are required to do readings on the philosophers and the history of science including the development of atomic theory. An assignment is given requiring them to reflect on philosophical and historical aspects of science. Additionally, they are given lectures on what scientific literacy is and why it is an important goal for science education, required to read readings on the history of science education and papers on scientific literacy including by Laughkscck [14] and given an assignment based on these aspects. Lastly they are taught about NOS and NOSI tenets and given an assignment which includes preparing a lesson for teaching learners about a selected aspect of the NOS and the NOSI, at the Grade 11 level of the South African Physical science curriculum. As part of this they were asked to describe, explain, illustrate and justify how their teaching plan would explicitly bring about learners’ understanding of selected aspects as well as assess learners’ understandings.

The module is based on the premises that ensembling SMKNOS within a layered capsule, with the history, philosophy, psychology and sociology of science forming the periphery, moving deeper into inner layers of subject matter knowledge for scientific , can bring about better teacher understandings. Gains in both substantive and syntactic SMKNOS are anticipated. Figure 1 below shows a summary of the model.

![Figure 1. Capsular model for developing teachers’ subject matter knowledge for nature of science](image)

At the same time, the model proposes making sense of SMKNOS through a hierarchical curriculum and pedagogical approach as shown in Table 1. This approach can also aboard the spiral disciplinary structures taking elements from Bruner [4] and Ausbel [2]. My argument is that if understanding of the NOS cannot be separated from practicing and experiencing inquiry, then a pedagogical model as shown in Table 1 would be logical. The suggestion is that it is possible to map and develop SMKNOS content along the lines shown in Table 1.

<table>
<thead>
<tr>
<th>Group</th>
<th>Characteristics</th>
<th>Nature of knowledge focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOS/NOSI Heuristics uncoupled</td>
<td>List of tenets teaching independent of science subject matter no involvement in inquiry</td>
<td>substantive</td>
</tr>
<tr>
<td>NOS/NOSI heuristics content coupled</td>
<td>teaching of tenets coupled with specific concepts/topics in science with low levels</td>
<td>substantive</td>
</tr>
<tr>
<td>NOS/NOSI heuristics content coupling and practices of science</td>
<td>teaching of NOS/NOSI heuristics tenets coupled with specific concepts/topics in science together with medium practices of inquiry</td>
<td>substantive</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>NOS/NOSI heuristics content coupling and practices of science</td>
<td>teaching of NOS/NOSI heuristics tenets coupled with specific concepts/topics in science together with high level practices of inquiry</td>
<td>Substantive and syntactic</td>
</tr>
<tr>
<td>NOS/NOSI / scientific literacy /heuristics content coupling and practices of science</td>
<td>teaching of NOS/NOSI scientific literacy heuristics tenets coupled with specific concepts/topics in science together with high level practices of inquiry</td>
<td>Substantive and syntactic</td>
</tr>
<tr>
<td>THE CAPSULE NOS/NOSI/ Scientific literacy History, sociology, psychology, philosophy of science elements</td>
<td>teaching of NOS/NOSI scientific literacy heuristics tenets coupled with specific concepts/topics in science together with introduction to history, sociology, psychology, philosophy of science elements</td>
<td>Substantive and syntactic</td>
</tr>
</tbody>
</table>

3. Teacher abilities to produce sound teaching plans and aspects of NOS and NOSI

Teacher abilities to produce sound teaching plans and aspects of NOS and NOSI

In addition to determining student teacher abilities to produce sound teaching plans for NOS and NOSI the model specifically aimed to develop teacher knowledge of the following tenets as described by Bartos and Lederman [3]:

Aspects of nature of science (NOS) (1) scientific knowledge is empirically based; (2) observations and inferences are qualitatively distinct, in that the former are directly accessible to the senses while the latter is only identified through its manifestation or effects; (3) scientific theories and scientific laws are different types of knowledge; (4) the generation of scientific knowledge requires, and is a partly a product of, human imagination and creativity, from generating questions to inventing explanations; (5) scientific knowledge is theory-laden (i.e., influenced by scientists’ prior knowledge, beliefs, training, expectations, etc.); (6) scientific knowledge both affects and is affected by the society and culture in which it is embedded; and (7) scientific knowledge, while reliable and durable, changes. Aspects of scientific inquiry (SI)

(1) scientific investigations always begin with a question; (2) there is no single set or sequence of steps in a scientific investigation; (3) the procedures followed in an investigation are invariably guided by the question(s) asked; (4) scientists following the same procedures will not necessarily arrive at the same results; (5) the procedures undertaken in an investigation influence the subsequent results; (6) conclusions drawn must be consistent with collected data; (7) data are not the same as evidence; and (8) scientific explanations are developed through a combination of evidence and what is already known.

4. Methodology

4.1. Data collection

This study used a one group, pre-test-posttest design [5]. The group completed two pre-tests (questionnaires), namely, one measuring their understandings or beliefs about the nature of scientific knowledge and nature of scientific inquiry [1] and The Views About Scientific Inquiry (VASI) [14] at the beginning of a seven week programme. The two questionnaires were also completed by both groups at the end of the programmes. At the end of the programme the qualities of lesson plans developed to teach the selected aspect(s) on teaching NOS and on teaching NOSI were evaluated, using a rubric.

4.2. The participants

The group (n =10) who participated in the capsular based programme, were students studying for a Post Graduate Certificate in Education specializing in Physical Sciences Methodology. Six of the participants were female and 4 were male. All but two of the student teachers had no experience teaching Physical Science at the Grades 10-12 level of the South African Physical science curriculum. All the participants had never done anything on NOS and NOSI before and held B.Sc. degree. They had all taken Physical Science as their content major for this degree.
4.3. Data analysis

Quantitative data analysis on NOS and NOSI

For understandings or beliefs about the nature of scientific knowledge and nature of scientific inquiry questionnaire (BASSQ), student teachers’ responses were scored (with reverse scoring were appropriate) on the five-point Likert-type frequency response scale following the procedure used by[1]. Thus items were allocated 1, 2, 3, 4, or 5 points for the respective categories: Almost Never, Seldom, Sometimes, Often and Almost Always. In our case a higher score (>70% of the total score on the ten items on each subscale category) represents constructivist view or understanding of NOS or NOSI and a lower score a positivist or objectivist understanding. Results are only shown here for those who were constructivist, in the pre and post test computed as a percentage of student teachers. For example 3/10 translates to 33.3% of group scoring greater than 70 % on the ten items, i.e. classified as constructivists for the total score on the ten items added together, with reverse scoring. For the VASI, responses were analyzed to give an indication on whether the student teachers gave an informed, mixed or naïve understanding of the eight aspects of inquiry on each of the eight items listed above similar to what was done by Gaigher, Lederman and Lederman. For this paper only percentage shift for student teachers who had informed understandings from the pre to the post-test is shown as the interest was in determining the effectiveness of the model.

Qualitative and interpretive analysis of teaching plans

The qualities of teaching plans produced by student teachers in the post test were much higher than those produced by teachers in the pretest. For example all the teachers during the post test asked learners to reflect on their NOS and NOSI understandings.

4. Results from qualitative and interpretive analysis of teaching plans

Overall, our findings were that the qualities of teaching plans produced by student teachers in the post test were much higher than those produced by teachers in the pretest. For example all the teachers during the post test asked learners to reflect on their NOS and NOSI understandings.
e.g., talk/argument, models/representations; critique and communication.

5. Conclusions and recommendations

Overall the results suggest that the capsular model is effective way for developing student teachers’ PCKNOS – their SMK understandings of both the NOS and NOSI and abilities to craft pedagogical strategies for teaching. This supports suggestions by of Duschl [9], Duschl & Grandy [11] and Van Dijk, [22], who argue that in order for teachers to teach about NOS and NOSI effectively, they require substantive knowledge base of the history, philosophy, psychology and sociology of science; aspects of scientific literacy as well as the practice of science as a form of inquiry. It is possible that teachers who are exposed to these aspects develop much deeper knowledge and more organized knowledge structures for nature of science (NOS) and scientific inquiry (SI) [3] and are thus more capable to craft better and sound pedagogical strategies for teaching.

Thus, for purposes of preparing teachers to teach about NOS and NOSI, it is necessary that science teacher trainers in universities and teachers colleges when preparing teachers for achievement of the goals of science education for scientific literacy to approach content preparation following a layered capsule, with the history, philosophy, psychology and sociology of science forming the periphery, moving deeper into inner layers of subject matter knowledge for scientific literacy (SMKSL) and NOSI/NOS heuristics. This approach followed by introduction to pedagogical strategies for teaching these aspects could be more effective compared to simply teaching the NOS and NOSI aspects as heuristics to be passed on to the learners. The teacher training experience from the current study point towards teacher, gains in both substantive and syntactic SMKNOS and SMKNOSI following the disciplinary approach of the capsular model.

6. References


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Development, Reliability and Validity of an Academic Social Identity Scale (Psychology)

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Abstract

Psychological correlates of achievement at college, such as Academic Self-Efficacy and Academic Conscientiousness have indicated that performance is not solely related to intellectual ability [1][2]. Furthermore identity, with peer and subject, has also been considered as a factor of success at University [3][4]. Vreeland and Bidwell [5] argued that students not only change their study patterns as they progress through university but also change their attitudes to better fit within the academic group they belonged to and sought to affiliate themselves with. Additionally, research has been undertaken that indicates that during transition identification and socialisation is understandably important to a student’s well-being [6]. A model of transition forwarded by Maunder et al [6] places social comparison as a crucial part of the first year experience. Social Comparison [7] is an early theory loosely associated with the umbrella of social identity research and often seen as a precursor to Social Identity Theory [8][9] and Self-Categorisation Theory [10]. The current research uses Social Identity Theory, which is a multi-faceted construct composed of behavioural, cognitive and affective components. The Academic Social Identity Scale (ASIS - Psychology) has been developed to offer a means of measuring each of the sub-constructs as well as a global score of how closely a student identifies with their academic subject. Scale items were developed using focus groups and an extensive literature review of existing non-academic Social Identity Scales. A pilot study allowed the refinement of an initial 22 item self-report questionnaire with respondents asked to indicate surface reliability. A final 17 item-scale was developed and tested for reliability and validity on a sample size of 174 Psychology Undergraduate students in two North-West Universities. Reliability testing of the scale showed that the scale had good test-retest and good split-half reliability. Item-scale score correlations were all significant, indicating good internal consistency and construct validity. The final scale was analysed with a further Confirmatory Factor Analysis followed with an exploratory factor analysis using AMOS. Three sub constructs were identified; evaluation of the subject area, normative identification with peer group and emotional responses to identification with the subject area (summarised as evaluation, normative and emotion). These reflect strongly Social Identity Theory and Self-Categorisation Theory. Furthermore, the scale was able to distinguish between students who were single or joint honours, with single honours students scoring higher identifications scores with their Psychology. Additionally, final year students across both single and joint honours scored higher than first years. The implication of Academic Social Identity and Higher Education Attainment will be discussed. It is proposed that further research will be undertaken across different cohorts and intakes at various universities to establish reliability and validity outside of the two universities in the current research. Furthermore, research will be undertaken to study the effect that Academic Social Identity has on outcomes at undergraduate study.
References


Boomerang Strategies: Engaging Students in Learning

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Abstract

As educators, how many of us wonder daily if the material we are teaching is actually being retained for future use? We know that students retain information learned when they acquire knowledge, make meaning of that knowledge and are able to discern when to transfer that knowledge to a new situation. With the development of our “Boomerang Strategies” for our book, A Value Added Decision, we help our readers and session participants improve their pedagogical practice to make learning powerful and engaging for students, taking them from mere compliance to complete engagement and commitment to their own learning process. Our presentation is interactive and allows educators to leave with specific ideas that they can implement in their institutions immediately upon their return to any grade level and in every discipline.

1. Introduction

Have you ever considered why students are “zoned out” in some classrooms? Have you ever asked why the learning is not “sticking” year after year? Why are students unable to transfer what they have learned into new and different contexts? How does the teacher get students who are not “academically inclined,” as Schlechty [4] suggests, to engage in the work? Schlechty [4] provides the following definition of engagement: In education, student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. Generally speaking, the concept of “student engagement” is predicated on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise “disengaged.” Stronger student engagement or improved student engagement are common instructional objectives that educators desire in their classrooms. If we just examine the three phases of learning: acquisition, meaning making and transfer [8], we realize that we are not applying these phases to teacher professional development in spite of the fact that we are all learners throughout our lives. Perhaps that may explain why professional development for teachers has not delivered anticipated results, even after a sizeable investment of time, money and resources. Do you ever wonder why more teachers are not using the research-based strategies that they “learned” in a workshop environment? The problem is, in fact, multi-faceted. First, we have to consider that if they really learned the strategy well enough to use it independently, to be able to transfer it to their own pedagogical practice. Then, we must take into account whether it fits the teacher’s individual “style.” Finally, we recognize that just because a teacher worked through a strategy in a workshop does not mean that it will transfer into that teacher’s classroom without additional support. Consider a teacher’s busy life and the major adjustment that the teacher must undertake to make the new strategy with its multiple steps fit into what the teacher had already planned. The transfer is not only difficult; it is also not likely. That is not to say that it is impossible. With proper coaching and support, the teacher can actually make the research based strategy work in the classroom. Unfortunately, because the teacher typically does not get that kind of support, the workshop strategy or idea gets lost in the accumulation of workshop materials, binders, slide shows and handouts.

2. Method of Research

To begin the development of the Boomerang Strategies, we decided to use the approaches most teachers revert to when they get back in their classrooms, and we asked them to become learners again. In other words, they normally go back to using what is tried and tested, what they already know and what their teachers used to help them learn. In fact, Byrk [1] states that a previous approach has been to generate lists of what works. However, the new paradigm should be to “figure out how to make it work, with replicability as the new gold standard.” One of our common research-identified problems is that as teachers we do not typically transfer what we learn in a workshop into our practice. We also know that we all need feedback and want to be in charge of our own learning. We do not like someone else imposing their ideas unless we choose them and recognize them as ours. Teachers’
ownership of ideas is probably the most powerful component in teacher development. If someone gives the teacher “the answer” or “the strategy,” what will happen when neither works? Will the teacher assume an internal locus of control or blame the person that told him/her to use the particular strategy? These findings are critical to help us construct ideas that will actually improve learning and will be used by teachers in their classrooms. Another common challenge is trying to reach common understandings about our practice. In education, we typically introduce a concept or program until it becomes a household word, but we fail to commit to and build on what we already know collectively. For example, we expose the idea of differentiation and nod our heads in agreement because we know that it needs to be present in all of our classrooms. What we fail to do is to have meaningful discussions about what it means in my classroom and with my students. So, we make assumptions that we are all talking about the same thing when we really are not. In fact, in a room of ten teachers, if we asked each person to write a paragraph describing differentiation in their classrooms, we would end up with ten different scenarios that have little in common with one another. So how do we begin to address this common problem? Table 1 is a research tool which asks teachers to identify what they need as learners to make each learning situation an experience which leads to meaning making and transfer of knowledge. These twelve common strategies occur in classrooms from Pre-Kindergarten to the university level and in all disciplines, so we engaged teachers from all levels and from all disciplines to collect the qualitative data that steered our research.

Table 1. Boomerang Strategies Worksheet

<table>
<thead>
<tr>
<th>Learner Situation</th>
<th>What conditions must be present for you as the learner?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When is <strong>reading text</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>2. When is <strong>completing a worksheet</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>3. When is <strong>solving a problem</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>4. When is <strong>talking to a peer</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>5. When is <strong>classroom discussion</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>6. When is <strong>listening to a lecture</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>7. When is <strong>taking notes</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>8. When is <strong>writing a paper</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>9. When is <strong>working at the computer</strong> or some other form of technology engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>10. When is <strong>working on a project</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>11. When is <strong>doing homework</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
<tr>
<td>12. When is <strong>making a presentation</strong> engagement in meaning making, leading to transfer?</td>
<td>When…</td>
</tr>
</tbody>
</table>

3. Process Used

In small groups, teachers responded as learners. We call the process the Boomerang Strategies because it is what teachers revert to when they go back into the classrooms. We may not remember what we learned in a workshop or find it cumbersome to implement given our current situation, but we are already comfortable with our Boomerang Strategies because they are universally identified. They are the way we learned, and we typically emulate our teachers. So why not make these Boomerang Strategies the best they can possibly be given what we already know about
learning from our own experiences? A portion of the qualitative research that we have collected before and since our book, A Value Added Decision, was published has been included to illustrate the power of this process. Every conversation begins, preferably, with a small group (6-10) on what acquisition, making meaning and transfer looks like in our classrooms. How do we know when a student is making his own meaning? How can we tell when the teacher is working with students on transfer? Although deceptively simple, these processes are quite complex and difficult to pinpoint. In fact, that is why we praise a well behaved classroom full of compliant students on task. We delude ourselves into believing that these students are really learning; they are actually just memorizing or “learning it” for the test, not taking it to transfer for the long term. If we want to see students doing work individually that will endure beyond the test, we will need to change how we deliver instruction. Lesson plan design must be engaging and challenging for students; otherwise, it is just fun activity with no real and lasting learning taking place. Teachers are then asked to complete the Boomerang Strategies Worksheet. An example of what I may need as a learner to make reading a text meaning making leading to transfer is that I have to set my own purpose for reading the text. The teacher can guide me, but I have to decide why I am reading the text. Lecture is another one that students complain about not being engaging. However, as teachers we know that we have attended some lectures that were engaging. What then was it about these that made them engaging? We allow time for everyone to complete the sheet quietly and ask them to ponder deeply and not just say that it has to be relevant. Obviously, everything needs to be relevant. What is it that I need as a student is the question we want answered. In answering this question collectively, teachers “see” how their peers learn, identify deeply how they learn and what they need. First year teachers from Springbank High School in the Rocky View School System in Canada who participated in the Boomerang Strategies discussion had the following to say about the process. Teacher A: I found it helpful to be asked to consider what I am doing in the classroom from the perspective of the students. The variety of people involved helped to add a second opinion about what is relevant/engaging for everyone. I found it useful to remind myself that while I am trying to survive each day in the class, it would be easier if the students were excited/engaged with what we were doing. I think the key for me is to make sure that as a student I would be engaged in the activities. Teacher B: It was good to hear different strategies that people use in the classroom and also to hear how each of us learns and thinks differently, recognizing that our students would be even more diverse than our small group. It was also nice to know that we could discuss teaching strategies and not be evaluated on recognizing our own flaws, but instead we see them and think of how we could fix them.

4. Findings

Once everyone has completed his/her individual sheet, as a group we complete a blank version of Table 1. What conditions must be present as a learner in our tried and tested teaching practices? We complete the process by asking ourselves what we need to do as teachers to make those conditions happen for diverse learners.

Table 2. Qualitative Data

<table>
<thead>
<tr>
<th>Tired and tested teaching</th>
<th>Learning Needs: What conditions must be present for me as the learner?</th>
<th>As a Designer of Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>When is working on a project engagement in meaningful learning leading to transfer?</td>
<td>1. I need to know what our deadlines are.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. I need to know what the goals for the project are from the beginning.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. I need to know what my assigned role will be and why it’s an important role.</td>
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</tr>
<tr>
<td></td>
<td>4. I need to work with other students who respect me and value my opinion.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. I need to know what our product will be and how it will be assessed against a rubric.</td>
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</tr>
<tr>
<td></td>
<td>6. I need an exemplar that I can use as a model.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. I need to know whether I will have choice in product, process, and role.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. I need to have access to the necessary resources from the beginning.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. I need to make the project a progression in small chunks to insure success until students are able to do it on their own.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. I need to release responsibility at the right time and build that into my design of the work.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. I need to provide the students with a clear rubric.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. I need to provide examples of excellent work so that students may use them as models.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. I need to build in feedback along the way so that students have an opportunity to redo the work if necessary.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. I need to give the students a realistic timeline for completion of the project.</td>
<td></td>
</tr>
</tbody>
</table>
The representation we develop gives everyone a frame of reference and a set of reminders to make the learning experience a meaningful one. While each completed Table had variations of answers, and are too numerous to list, each illustration offered teachers and administrators insight into their own, and, ultimately, their students’ learning processes. When used within a school, the process built ownership and yielded a rich and generative conversation and new, but common, understandings. Table 2 is a qualitative compilation of responses from a group of teachers in Toledo, Ohio.

5. Conclusion

By having teachers and administrators complete this activity, we have them return to what they know and have done in their own classrooms. What they identify collectively are reminders of what they already knew intuitively. This collective thinking then becomes a reminder of what they need to do as designers of learning, individually and collectively, to make the learning experience one that engages the learner and will ultimately lead to transfer of learning. Since we know that task predicts performance and that accountability begins with the tasks students are asked to do, we have now provided teachers with real tools to include in their instructional design without being punitive or judgmental. Teachers come to the realization that planning for learning is not the same as planning for teaching. Having these tools at hand will lead to the creation of a powerful culture of instructional practice. As professionals, we begin to see our pedagogy as a collective and powerful practice leading to meaningful learning.

6. References


Session 6: ICT Developments and Diffusion

Indigenous Knowledge and ICT: Makings of a Virtual Learning Community to Preserve Ancestral Lore
(Authors: Gloria Flores-Fuentes, Yadira Navarro-Rangel, Emilio Soto)

Flipping the Classroom – A Resource for Learning in the Digitized School
(Author: Therése Haglind)

Cloud Computing in European Schools – An Analysis of 59 Case Studies
(Authors: Ingo K. Bosse, Niamh Armstrong, Daniela Schmeinck)

Barriers to Pre-service Teachers’ Preparation for Teaching and Learning of Computer Science Education in Nigerian Secondary Schools
(Author: Olusegun Ojo Bakare)
Indigenous knowledge and ICT: Makings of a Virtual Learning Community to Preserve Ancestral Lore

Gloria Flores-Fuentes, Yadira Navarro- Rangel, Emilio Soto-García
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Abstract

In present time indigenous lore is being recognized as a valuable system of knowledge that allows the development of native tribes. Unfortunately this kind of knowledge is at risk of becoming extinct. There are a number of reasons for this and so there is a necessity to retrieve and preserve it. One way to do it is through the tools that ICT offer. In this paper the proposition of creating a virtual learning community is explored, one that allows the construction of digital databases that keep said ancestral lore.

1. Introduction

The indigenous people have, throughout their existence, accumulated a series of traditional beliefs, this being from their interaction and understanding of nature, and of what they considered divine. The acquired knowledge is passed from generation to generation by means of oral tradition. Importance of ancestral lore is how fundamental it is in giving the indigenous people a cultural identity and their utility to preserve natural resources of vital need [1]. Unfortunately these traditions tend to disappear and, because of how necessary they are, it is imperative to preserve them [1, 2]. A way to this is with the aid of ICT, which will also help introduce the indigenous people to the digital era. Some research has demonstrated that it is possible to preserve all this with the sole participation of the same indigenous people [3-5]. What follows is a proposition made to recover and protect the indigenous lore in relation to medicinal plants through the construction of a Virtual Learning Community (VLC).

2. Development of investigation

2.1. Proposition

Knowledge related to the use of medicinal plants will be recollected by the young members of the indigenous community with the help of polls and multimedia productions (audio and video), furthermore they will construct the VLC. The Pedagogical Native Model (PNM) is proposed for this [6]. In the VLC there will be debate forums held where the diverse uses of medicinal plants will be discussed. Along with this the digital base will be upgraded to progressively store the knowledge, according to figure 1.

![Figure 1. Proposed model](image)

2.2. Participation and consultation forums

The participation of the indigenous community is an aspect with indispensable character, thus the consultations where the active participation of the community is proposed in areas of decision making and content of the digital bases, all of this in accord to their whole vision. Otherwise the risk of having the whole project completely meaningless to them [7].

2.3. Pedagogical Native Model

This is based on Native Wisdom and has been systematized by Cházaro [6], in her work she recognized 4 dimension that detail the pedagogy that indigenous people use to form proper individuals with a deep and strong bond with nature. This model is proposed to preserve all the indigenous knowledge and to create a VLC that gives cultural relevance to them and make it interesting to them [8]. It is important to point out that the VLC has among other goals the study of theories like social constructivism, online learning and located learning [9]. However the originality relies in the use of PNM.

2.4. Creating content

The inclusion of indigenous people to the digital era has to do with them being the intellectual creators
of all the content and not just as users [10]. The idea for young members of the community to be a part of this also has to do with them making the VLC theirs. The present work will be relative to medicinal plants and the content will be present in both Nahuatl and Spanish.

2.5. Virtual debate forums

These forums will focus on the diverse uses of the same medicinal plant so the members and participants of the VLC learn and acquire knowledge on the subject that can later be organized in databases. The forums will also serve to socialize and discuss other topics.

2.6. Digital database

The database will be made up of the multimedia productions made by the members of indigenous community on the subject of medicinal plants; it will be uploaded in Nahuatl and Spanish. The intention is to promote and preserve the native tongues of the community. In a way, cultural identity is also being encouraged.

3. Conclusions and future work

Creating original and innovative proposals using ICT to preserve ancestral lore is a necessity that arises from the rapid loss of knowledge and the growing technological developments. There are a number of ways to apply ICT, however in this work we consider aspects like the PNM, which give is it the original approach, along with the participation of the indigenous community.

4. References


Flipping the Classroom – a Resource for Learning in the Digitized School

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Abstract

Digital tools and other digital resources have in many schools become a part of the learning environment and to integrate ICT in teaching has become an important area for school development. This paper presents a case study about flipping the classroom as a way to integrate ICT in education. For this paper findings from a student survey, focus groups interviews with students, interviews with teachers and a group evaluation with teachers are being used and methodological triangulation has been applied. The flipped movies are in this paper identified as a resource, a tool, for the students to use. Both obstacles and hindrances for the teachers to flip their classroom are discussed and the students’ use of flipped movies as a resource for learning. The role of more able partners is raised and also the students’ perceptions of digital tools as resources for learning.

1. Introduction

The ongoing digitalization of the society changes the conditions for education. Digital tools and other digital resources have in many schools become a part of the learning environment[10] and a part of the school infrastructure. Schools in Sweden are generally technology-rich, which here means that they are well equipped with digital tools[5, 10]. Although there is high access to digital tools, studies show that the use of digital tools is relatively low. Hence, there is a gap between access and use[6, 9]. Studies also show that there is a need not only for technical support but also for pedagogical support in order for teachers to use ICT in their teaching [2, 3, 5, 21].

Modern technology is mandatory at both compulsory and upper secondary schools in Sweden [17, 18, 19]. In Sweden a majority of the teachers think that they do not have sufficient ICT support and state that need more service training in ICT and education [17]. A national IT-strategy for school in Sweden will be presented in spring 2016 by the Swedish National Agency for Education in order to ensure equal access to digital competence in school and to integrate ICT in education in order to support teaching and level up students’ results. The use of digital learning resources, tools and working methods will for example be in focus in this IT-strategy.

Developmental changes can be discussed from a top down or a bottom up perspective and the flipped classroom can be seen as bottom up initiative. To flip your classroom has become a rather popular phenomenon among teachers in Sweden, and it is to be concerned as an initiative from the teachers as a way to work with modern technology and to give the students opportunities to develop their digital competence.

The digital technology enables instructional learning to take place both at school and at home. A student can prepare the instructional part of a lesson at home, which opens up for more student-centered activities at school [7, 8]. According to Hwang, Lai & Wang [8] the students “play the role of active learners and make good use of assistance given by experts to elucidate relevant concepts” (ibid, p. 450). The Association of Flipped Learning Network [1] defines Flipped learning as follows:

“Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.”

According to Hamdan, McKnight, Mason, McKnight and Arfstrom[7] a concern about the Flipped classroom has been students’ unequal access to technology. This case study has been carried out in a 1:1 school, which here means that the school has equipped all of the students and the teachers with a laptop to use both at home and in school for school related work.

This paper presents a case study about flipping the classroom as a way to integrate ICT in education and it takes a starting point in a sociocultural perspective and in the understanding that learning is social and takes place in interaction with others and the world [15, 16] and that learning is enacted with mediating objects [16]. The ecology of resource model (EoR), which has its roots in the sociocultural perspective[13] is used as a theoretical lens. The Ecology of Resource Model (EoR) is a model that focuses on how technology can support and enhance learning in technology-rich
2. Method

The findings in this paper come from a case study where six teachers, in Swedish language at an upper secondary school in Sweden, worked together with a lesson design in order to integrate ICT in their teaching. The case study was documented and parts form that documentation are used in this paper and selected findings are presented in this paper:

- A student survey
- Focus groups interviews with students
- Interviews with teachers
- A group evaluation with teachers

For the analysis methodological triangulation was applied [4]. Four of the six teachers in the case study made some kind of flipped movies. In relation to that, survey answers and focus group interviews from four classes were selected. The students attend four different programs; the Technology Programme (TE), the HVAC – the Property Maintenance Programme (VF), the Health and Social Care Programme (VO) and the Vocational Introduction Programme towards Health and Care (VI). TE is a higher education preparatory programme. VF, VO and VI are vocational programmes.

The student survey was conducted during a lesson and answered on paper. 52 students answered these questions. 27 (52 %) were females and 25 (48 %) were males: 18/52 students attended the Technology Programme (TE); 12/52 the HVAC – the Property Maintenance Programme (VF); 11/52 the Health and Social Care Programme (VO) and 11/52 the Vocational Introduction Programme towards Health and Care (VI).

For this paper five questions from the student survey were used:

1. Are you a female or a male?
2. What programme do you attend?
3. What did you think about your teacher recording his/her own movie?
4. Did you watch the movie/ the movies that your teacher recorded?
5. If you did not watch the movie/ the movies, why did you not watch the movie/ the movies?

Question one and two were used as background variables. Question three and four had set responses and question five had open answers.

From the focus group interviews, the teacher interviews and the oral group evaluation with the teacher questions about the flipped movies were used.

Although this study could be concerned as a small scale study, the results can have a bearing on other similar contexts and. Lindberg & Sahlin[11] state that "Generalizing from a single case may not be possible; however, case studies can have general importance" [11]. Case studies give unique examples from the practice or area in focus.

3. Results

The results will be presented in two parts. First the results from the teachers’ perspective will be presented and after that the results from the students’ perspective.

3.1 Teachers

The teachers wanted to try the concept of flipping the classroom as a way to integrate the use of digital tools. Some of the teachers had heard of the concept before although none of them had tried it. They also wanted to do this because they identified educational benefits; (1) more time could be spent on discussions in the classroom and (2) the students could watch the movie more than one time.

The teachers also thought that it could be fun to try something new. Both benefits and obstacles were discussed beforehand. The two most distinctive obstacles for the teachers making the flipped movies were their own digital competence and time. They wrote a common manuscript both to facilitate the individual teachers’ work and to give the classes a common base of knowledge. The teachers also shared pictures that could be used in the movie. To solve the technical problems in the process the ICT-pedagogue at the school assisted and one of the teachers in the group also provided technical support to her colleagues.

Four of six teachers made one or more flipped movies or some kind of recording for the students. They chose different ways to do this; one teacher made a power point and recorded audio to it and another used Moviemaker to make a film. The movies were uploaded at the school learning management system (LMS). The school in the study did not at this point have software that enables making flipped movies in a more advanced way.
The ambition in the beginning of the project was for all of the teachers to record flipped movies as a complement to providing the students with subject content, but for different reasons some of them did not record a flipped movie within this project. Others recorded more than one and stated that they will continue to do so even after the end of the project. Almost all of the teachers were positive towards flipping the classroom; however they were a bit unsure of how the students perceived the movies as resources for learning [13]. The following excerpt from the evaluation is used to highlight this:

"During the first lesson I told the students about the project and that I had recorded four movies that they would look at, that this was their homework. But, when they came the next lesson, then none of them had watched the movie and they had not looked at it the next lesson either, and not the next after that" (Teacher 3, oral group evaluation with the teachers).

This is consistent with some of the findings from the students’ perspective.

3.2 Students

38, 5 % of the students answered that they thought it was very good that the teacher recorded their own movie as a learning resource for them. 31 % thought it was good, 17 % neither good nor bad and 7, 5 % thought it was a bad idea. But overall there was positive response to this question; 69, 5 % of the students thought it was a very good or a good idea that the teacher made a movie in order to flip the classroom (See Table 1).

Table 1. What did you think about the teacher recording his/her own movie?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>20</td>
</tr>
<tr>
<td>Good</td>
<td>16</td>
</tr>
<tr>
<td>Neither good nor bad</td>
<td>9</td>
</tr>
<tr>
<td>Very bad</td>
<td>4</td>
</tr>
<tr>
<td>No answer</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>52 (n.)</td>
</tr>
</tbody>
</table>

73 % of the students answered that they watched their teachers’ movie or movies. 23 % said that they did not do it (See Table 2). But to sum it up, the students showed a positive attitude to this question.

Table 2. Did you watch the movie/ the movies that your teacher recorded?

<table>
<thead>
<tr>
<th>Yes</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td></td>
<td>73 %</td>
</tr>
</tbody>
</table>

10/52 students answered the question “If you did not watch the movie/ the movies, why did you not watch the movie/ the movies?” The Table 3 shows their answers.

Table 3. If you did not watch the flipped movie, why did you not watch the movie?

<table>
<thead>
<tr>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1   &quot;We watched it in school, but it was pretty bad so I didn’t find it useful to watch it again.&quot;</td>
</tr>
<tr>
<td>A2   &quot;I couldn’t open it [the file].&quot;</td>
</tr>
<tr>
<td>A3   &quot;I have made many movies so I felt that I did not need inspiration.&quot;</td>
</tr>
<tr>
<td>A4   &quot;I already knew what to do... so why bother?&quot;</td>
</tr>
<tr>
<td>A5   &quot;I knew what we were going to do and did not think I needed an example. Apparently there were also technical problems with it.&quot;</td>
</tr>
<tr>
<td>A6   &quot;I forgot.&quot;</td>
</tr>
<tr>
<td>A7   &quot;I do not care.&quot;</td>
</tr>
<tr>
<td>A8   &quot;I prefer traditional teaching and if I am to watch it at home, I want overtime.&quot;</td>
</tr>
<tr>
<td>A9   &quot;I forgot to do it.&quot;</td>
</tr>
<tr>
<td>A10  &quot;I couldn’t.&quot;</td>
</tr>
</tbody>
</table>

Looking at these answers and other answers from the focus group interviews it is clear that the students did not understand why the teachers recorded the flipped movie for them and they did not perceive the flipped movie as a learning resource. The lesson design for working with sociolinguistics contained an assessment for the students to make their own movie and the students made a connection between their assessment and the teacher movie.

A correlation between the question “What did you think of the teacher recording his/her own movie?” showed that the students attending VO (the Health and Social Care Programme) were the most positive in regard to this question. 8/11 answered that they thought that this was very good and 3/11 that was was good. All of the 11 students in this group were positive towards a digital form of content instruction. This picture is confirmed with the focus group interviews and the LMS activity log. 9/11 of them also watched their teachers’ movie.

The following excerpts, shown in Table 4, are from focus group interviews with the VO students.
Table 4. VO students’ answers about flipped movies

<table>
<thead>
<tr>
<th>Excerpts</th>
<th>Quote</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>“You understood a bit more than during a regular lesson.”</td>
</tr>
<tr>
<td>E2</td>
<td>“It is more fun to hear your own teacher in a movie than any other movie.”</td>
</tr>
<tr>
<td>E3</td>
<td>“It is good with a movie because we can both see and listen.”</td>
</tr>
<tr>
<td>E4</td>
<td>“You learn more if you are familiar with the voice.”</td>
</tr>
<tr>
<td>E5</td>
<td>“It would be good if more teachers could do so (make a flipped movie) because I have trouble catching everything during a lesson.”</td>
</tr>
</tbody>
</table>

4. Discussion

The teachers flipped the classroom because they wanted to try something new that some of them had heard about, but none of them had tried before. The group gave them both time, opportunity and support to do this. Working together with a lesson design through collegial cooperation, the teachers also got something specific to have for example pedagogical and didactic discussions about. Hwang, Lai and Wang state that:

“Certainly, being a pioneer of flipped learning needs both time and effort. Teachers need to inspect the teaching contents and analyse the essence and objectives of teaching, which can use technology and teaching strategies more appropriately”[8].

The teachers also saw this as a way to implement ICT in their teaching and they could see educational benefits with it. When the students get the content beforehand, the teacher can use more of the time in the classroom answering questions and having discussions with the students; making the students more active and move from a teacher-centered to a more student-centered classroom.

In the process of flipping, both obstacles and enablers were identified. Most of the teachers did not know how to record a movie and this is here identified as an obstacle for flipping the classroom. One key factor was the school ICT-pedagogue at the school who helped the group with technical problems. Another key factor was that the members in the group helped each other. They who knew a bit more about recording, helped the others. This coincides with Vygotsky’s concept of the Zone of proximal development (ZPD) [20]. Luckin also argues for the role of the more able partners (MAP) to develop learning [13].

One other obstacle identified in this study concerns time. One of the teachers did not make a flipped movie because he perceived that there was no time for him to do so. The teachers who did record their own movie or movies raised that it took a lot of time making the flipped movie; first to figure out how to do it technically, then to decide the on the content and after that to make the actual recording or recordings. These teachers stated that they had to take time to do this from their working hours. An enabler was that the group created a manuscript for all of them to use and that they shared pictures that they could use in their movies.

The students were generally positive towards the flipped movies. 69.5% of the students answered that they thought it was a very good or a good idea that the teachers recorded their own movie and 73% of the students answered that they watched their teacher’s movie or movies. Among reasons for not watching the movies some of the student stated that they forgot it or that they did not feel that they needed it, in other words that they did not need the movie as a resource.

One of the four classes stand out a bit from the rest of the students and it was the students attending the Health and Social Care Programme (VO). All of the 11 students in this group were positive towards the flipped movie and 9/11 of them also watched their teachers’ movie. Looking at the excerpts from the focus group interviews with these students it shows that they think that there is a difference between watching a regular instructional movie or a movie created by your own teacher even though the content is the same.

In accordance with EoR, the Flipped movies are in this paper identified as a resource, a tool for learning [13] and both positive and negative filters are identified. The school has provided each student with a digital tool, which means that all of the students have access to a digital tool in order to watch the flipped movie any time, any place and this is here identified as a positive filter. Although having access to the flipped movie some of the students did not use it as a resource for learning because they did not think they needed to, because they had technical problems or because they did not want to. In this paper this is identified as a negative filter. One possible explanation for this could be how the students perceive digital tools as resources for learning.

5. Conclusion

The Flipped classroom could be a way to make the lessons more student-oriented even in a formal setting at the same time as furthering training the students’ digital competence. To enter the lesson prepared in formal education is nothing new, what is new is using modern technology to do it. Säljö [16] argues:

"Not even the most powerful information technology solves the problem of learning: it just changes the terms of it” [16].

Flipping the classroom can be seen as a developmental initiative bottom up and can be identified as a way to integrate the use of digital
resources in the classroom and also an opportunity for students to use digital resources.

Schools can build up digital infrastructures and provide a wide repertoire of resources, but it is crucial that the students also use the resources provided for them and here it is important to discuss aspects such as students’ access to digital tools, their digital competence and their perceptions of digital technology for learning purposes in a formal setting.

When integrating the use of ICT in teaching there is a risk that technical problems or issues get in focus and not the pedagogical aspects. It is therefore argued here that collegial cooperation in relation to teachers’ professional development where colleagues can take on the role as more able partner is beneficial.

6. References


Cloud Computing in European Schools Analysis of 59 Case Studies

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\(^2\)Mary Immaculate College, Ireland
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Abstract

Cloud computing can be a key driver for innovation and transformation in learning and teaching. The School on the Cloud network aims to explore new, dynamic ways to educate. The 57 partners involved in the project bring insights from 18 European Countries. They investigate how education should respond to the potential of Cloud-based tools and technologies, the impact they are having on education stakeholders and the longer-term impact they will have on the education sector as a whole. The network has published 59 case studies of good-practices based on their analysis of the perspectives of the role played by both teachers and learners. Firstly, the research explores the impact of the Cloud on the roles of learners and discusses how new technology can be used by teachers as a value-added component in education. Secondly, the study presents a manual on how to implement Cloud-related learning and teaching.

1. Introduction

As technology has become an agent of immense change, it has forced change upon the education system. In the future, Cloud computing is likely to have a significant ripple effect. Changes in Europe, and throughout the world, require students and teachers to adapt to new ways of understanding, new knowledge, attitudes and skills to work and live. Financial and cultural, especially multi-cultural, changes in society touch all levels of education including the diversification of the structure of curricula, the introduction of new subjects, and the adoption of new perspectives. In addition, these changes require the introduction of new teaching tools and approaches, which are adapted to new teaching methods in order to enhance the thinking process.

Children and young people now live and learn in two different worlds: inside and outside school. Bringing together these worlds in a way which focuses on learning will enhance learning in both settings. A considerable degree of learning takes place outside school, including learning about friendships and relationships, learning through games, sports and pastimes, learning by reading books, comics and magazines, as well as watching TV and/or surfing the internet. This kind of out-of-school learning is usually driven by personal interest or perceived needs, rather than the demands of the school curriculum, and is very important to young people.

There is a need to focus on:
- Investigating didactic processes via ICT;
- Strengthening the goal of each subject into an integrated curriculum;
- Taking into the consideration the target group and their cognitive background.

2. The i-Learner

In this new educational environment, personalised learning should take a central place. In order for this to happen it is first necessary to analyse what personalised learning exactly is. Although many definitions and interpretations exist, there is general consensus that personalised learning places the learner at the centre, actively designing the learning goals, deciding how to access and acquire information, and owning the learning. To make this possible, the existing virtual learning environment (VLE) must be transformed into real personal learning environments, using an adapted pedagogy that makes i-Learning possible.

Working Group 3 named i-Learner explores the impact of the Cloud on learners, focusing on how new technologies and Cloud applications can enhance personalised and individualised learning. Firstly, the group conducts an analysis of European and international literature on personalised learning related to Cloud-based learning. The state-of-the-art analysis and results of the group discussion is followed by the analysis of 59 case studies compiled by the members of the school on the Cloud network. Its analysis focuses on the key competences and characteristics of the learner of the future.

The first result that emerges from this process is a project-related definition of personalised learning. There are multiple reasons that have caused the personalisation of learning to become increasingly
important. The Organisation for Economic Co-operation and Development (OECD)" cites the following negative aspects, related to today’s teaching and learning approach (2006):

- Limitations imposed by physical space
- Teachers responsible for whole groups at any one time;
- Insufficient use of technology;
- Conservative nature of school organisation;
- Step-by-step progression for all children in an equal way;
- Teaching still not an evidence-based profession;

To put it in a nutshell it has been argued that the foundations of personalisation is “the moral purpose (...) of the conscientious teacher to match what is taught, and how it is taught, to the individual learner as a person” [2], an approach for future educational needs that fosters learning capacity among individual learners [2]. Research on the impact of personalised learning over time often include many different terms, causing confusion and conflicting or incomplete interpretations. However, all definitions and research agree on the following principles:

- Personalised learning starts with the learner and the learner is at the centre;
- The learner is active in designing their learning goals and processes;
- The learner decides how to access and acquire information;
- The learner owns and takes responsibility for learning, and is thus more motivated and engaged in the learning process;
- The learner has the capacity to critically monitor their learning outcomes.

Every learner has their own learning method/skills (speed, approach, interest and experiences), so they should have the opportunity to expand their skills and knowledge, exercise and adjust their learning rhythm according to interests in combination with the curriculum. As the protagonist of the learning process is the learner the learning should be adapted to their previous learning experience, and the learning process should be constructed on this basis. While it is useful to suggest creative activities to guide students towards improving their problem-solving skills, the starting point should remain the student previous knowledge.

In addition to being a tailored curriculum that ensures that teaching and assessment methods ‘fit’ the individual, personalised i-Learning also develops social practices that enable them to reach their full potential.

The basic idea of personalised learning is for learners to exercise ownership, responsibility and control over their experiences, rather than be constrained by centralised, instructor-controlled learning based on the delivery of pre-packaged materials [3, 4]. Participation is key to understanding personalised learning, as it is a personal process of meaning-making, in which each participant ‘constructs’ their own version of the process [5]. According to Verpoorten et al. [4], personalised learning relies on three interrelated theories:

- Constructivism: learning as a process in which the learner actively constructs knowledge, and competences by interacting with their environment
- Reflective thinking: instructional practice should aim learning as well at the level understanding and use as a meta-level of learning
- Self-regulated learning: the cognitive and communication processes through which learners control their learning.

It is important to note that in addition to having access to material to read, websites to explore, and assignments and tests to carry out, learners also have tools to monitor these activities. Several dimensions are interconnected in the notion of personalised learning experiences, which can be structured into the following core concepts: ownership, participation, diversity, regulation and reflection.

The next task was to define the term ‘i-Learner’, starting from the discussion about e-learning. E-learning is a set of models, technologies and processes aimed at the acquisition and use of knowledge through the use of information and computer technologies [6, 7]. The ‘e’ refers to an electronic component. The European Commission (EC) describes e-learning as “the use of Internet and new multimedia technologies to advance the quality of learning by providing access to resources and services as well as enabling remote exchange and collaboration” [7]. Its main characteristics are:

- The use of standardised and developed computer technology;
- Time and place independence;
- Flexibility in time-management;
- Interactivity and efficiency;
- Active participation;
- Different teaching and learning styles possible;
- Enhance collaborative learning through cognitive interaction among learners;
- Organisational support.

For this reason, it is often seen as an effective tool for distance learning. In this regard, i-Learning is an improved version of e-learning, as it uses e-learning tools and combines these with the basic aspects of personalised learning.

To date, research concludes that in order for personalised learning to come to fruition, students need not only to be able to choose and personalise
the tools and content that are available, but also to have access to the necessary framework to support their learning (McLoughlin et al. 2010). The balance between a student’s choice to meet their needs and preferences and an educational framework provided by the teacher to accomplish the educational goals is the optimum approach to teaching and learning.

3. The i-Teacher

Working Group 2 i-Teacher explores the impact of the Cloud on the role of teachers and trainers, and how to use new technologies and cloud applications to enhance the educational ecosystem. The group discussion focuses on defining what constitutes ‘an innovative teacher’, and the characteristics such a teacher should have. Results from the discussion include that an i-Teacher should be open-minded, creative, capable of critical thinking and problem-solving. An i-Teacher needs to have an understanding of curricular and cross-curricular issues. Sharing ideas, cooperating with colleagues and leadership are necessary skills.

Our next task was to define the competences and training needs of teachers at different stages in their teaching career. This discussion focused on the additional competences an innovative teacher should have, with particular regard to newly qualified teachers (NQT), teachers with experience, additional competences an innovative teacher would possess and competences needed for a team teacher. In the case of newly qualified teachers, it is important that they first acquire an understanding of content, develop appropriate assessments and integrate technology and Cloud services into their teaching practice. Practising teachers should have mastered all the NQT competences and developed competences in teaching students to analyse and synthesise, solve problems and apply solutions to real life problems. They also build reflection into their everyday work and formulate a personal development plan. Our research aimed to define the characteristics of an innovative teacher, covering all previous findings, and includes the application of Cloud and new technologies to ensure differentiation and advanced tools to support their pedagogy. They should also be open to sharing with peers and the community.

Presentations were developed on the impact of Cloud-based teaching on teachers, the use of social media, mobile devices and recommendations. The group is in the process of developing an online catalogue of recommended Cloud-based concepts (platforms, technology, applications and tools) for teachers. All group members have identified and shared concepts, tools and apps. This catalogue is expected to evolve as new products, applications and technologies emerge. Our research made use of a number of Cloud tools in order to get to know their added value, identify their flaws and integrate the Cloud within the workgroup.

The main conclusion to date is that the i-Teacher is a concept rather than a person. An innovative teacher can only be realised by cooperating with other people. The workgroup i-Teacher focuses on the team and its competences instead of the individual. We also note the importance of Cloud-training sessions to improve the Cloud-competences of teachers, and the necessity of providing accessibility and interconnectivity for each learner.

The projects analysis of 59 case studies presented the Cloud as a key driver for change and innovation in education, but predominately it appears to be piecemeal rather than coordinated. The themes of the case studies researched are e-books, e-portfolio, e-content, digital platforms, web-based knowledge sharing, digital repository, use of tablets/BYOD in schools, class management systems, online communities of practice and staff mobility and training. The predominance of e-resources, e-community and device use, indicates the need for an effective ecosystem to support teachers and trainers.

4. Conclusion

Digital-age students want an active learning experience that is social, participatory and supported by rich media. There is also a growing need to support and encourage learner control over the whole/entire learning process [8].

According to McLoughlin & Lee [3] many social software tools offer the possibility for the learner to organise their own learning experience (through collaborative working, monitoring, questioning and self-evaluation, various representations) and gives the learner a sense of ownership and control over their own learning and career planning.

To make this possible we need to redesign the existing course management systems (CMSs) and virtual learning environments (VLEs), which do not fully use and integrate the potential of social media in their current form. Although VLEs can be used to provide and track e-learning courses and enhance face-to-face instruction with online components, they are primarily used to automate the administration of learning by facilitating and recording learner activity. In fact, they are mostly a replica of the traditional classroom learning style, which are content-centric. Many instructors just move all their teaching materials to the system where it is presented uniformly to all learners regardless of their background, learning styles and preferences [9].

Therefore, personal learning environments (PLEs) have emerged as a concept associated with the adoption of a raft of Web 2.0 tools, based on their needs and circumstances that serve to integrate essential learning outcomes [3]. In learner-centric methods, learners are expected to actively engage in
the learning process to construct their own learning [9]. The role of teachers – who remain responsible for learners’ learning – is evolving towards the role of a “tutor” who guides the learning process if needed.

In order for personalised learning to come to fruition, students need not only to be able to choose and personalise the tools and content that are available, but also to have access to the necessary scaffolding to support their learning [3].

More work is required in this field and both a pedagogic change and a greater personalisation of learning are essential for student-centred, self-regulated and independent learning.

According to latest research, [2, 3] pedagogy must:
- Ensure that learners are capable of making informed educational decisions;
- See learners as active participants and co-producers of learning resources;
- Diversify and recognise different forms of skills and knowledge;
- Ensure that school and class organisation based around student progress;
- Create diverse learning environments; and
- Include learner-focused forms of feedback and assessment.

This smart PLE is able to learn the habits of an individual user and remember them so that the user’s experience is less repetitive and more closely tailored to their needs.

Future developments, related to required skills and competences, will change schools over the next 20 years. In the 21st century, a fundamental transformation in education is needed to address the new challenges and competences required.

5. References


Barriers to Pre-service Teachers’ Preparation for Teaching and Learning of Computer Science Education in Nigerian Secondary Schools

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Abstract

This study investigates the factors militating against the preparation of pre-service teachers’ training for the teaching of computer science education at Nigerian secondary schools. The study consisted of 165 pre-service teachers and 11 teacher educators from Osun State Colleges of Education. The study employed quantitative research design using survey research design. The results of the study reveal that the computer science educators teaching the pre-service teachers were qualified but inadequate in terms of number; computer facilities were inadequate and the available ones are obsolete; lecture method was mostly used for the training of the pre-service teachers; and the pre-service teachers have low proficiency in both hardware and software components. The study concluded that the CSE pre-service teachers in Osun State Colleges of Education were not proficient in computer software and hardware component because they had low level of computer software and hardware component proficiency. The implication and recommendations were drawn from the study that can help educational stakeholders as well as Nigerian education policy makers.

1. Introduction

The challenges confronting the preparation of pre-service teachers in teachers’ education have been investigated by numerous researchers both nationally and internationally. These challenges ranging from lack of ICT infrastructure, teachers’ ICT competency, ICT policy awareness, teachers’ ICT pedagogical development to lack of teachers’ computer efficacy [1-7]. On the bases of these facts, the study is set out to examine the barriers facing preparation of computer science education pre-service teachers in Nigeria Colleges of Education using Osun State Colleges of Education as case study.

The study will determine the quality and adequacy of staff as well as facilities in Nigerian teachers’ education; examine the strategies employed in training the pre-service teachers; and investigate pre-service teachers’ proficiency in specific Computer Education components involving software and hardware. Four research questions emanated from these objectives, namely:

RQ1. Are there qualified and adequate CSE lectures in the Colleges of Education?
RQ2. Are the computer facilities in computer laboratories for the pre-service computer teachers in the Colleges of Education adequate and has the quality required?
RQ3. What are the training strategies for the CSE pre-service teachers?
RQ4. How proficient are the pre-service teachers in computer software and hardware utilization?

2. Literature Review

Numerous studies have been conducted to examine different sources of challenge confronting ICT inclusion in education both locally and at international level. Take for instance in Odogwu [8], it was pointed out that the inadequate teacher to teach ICT in schools is a challenge in Nigeria. Similarly, Toscany-Academy [9] finding showed 87% unqualified computer lecturers in Nigerian schools. However, NCCE [10] document stipulated that, the minimum qualification of academic staff teaching at teachers’ education in Nigeria must be a Bachelor degree in Computer Science with at least a Second Class Lower (2/2) (Honours) degree in Computer Science and a professional teaching qualification or a minimum of Bachelor of Education Degree in computer Science with at least Second Class Lower (2/2) status.

In addition, the document specified that, there must be a minimum of eight (8) computer science education academic staff in a College of Education before it could be satisfied to have the right number of academic staff to operate. It further stated that the staff-students ratio should be 1:25. Goshit [11] found inadequate ICT manpower in the schools.

Oyelekan [12] finding shows inadequacy of ICT facilities for use in the two Colleges of Education in Plateau State. Similar finding of Yusuf [13] also corroborated this assertion, that in Africa, there is low access to basic ICT equipment, low internet connectivity, low participation in the development of ICT equipment, and even low involvement in software development. The available ICT facilities are obsolete [4]. This situation is still valid till date even after decades. The lack of these facilities hampers teacher’s use of ICT in schools [14-16].
However, Yang [17] argued that the use of ICT during learning practice would lead to competent and confident use of students, while lack of it would lead to their little use of ICT facilities for learning. The investigations carried out by Vanguard Learning showed, that many schools in Nigeria lack modern computer technology and that most available computers have lack electricity connectivity [18]. This underpinned the rationale for traditional method of teaching in most Nigerian secondary schools.

The NCCE document states that for Colleges to run a Computer Science Education programme, it must provide one computer for a group of not more than 2 students (1:2) as a minimum condition. In a study conducted by Warschauer [19] found that three students to use a computer in U.S. public schools as at 2008. In most developing nation like Nigeria this is far from reality.

Furthermore, Alade [20] submitted that there is an urgent need for a paradigm shift from conventional teaching to a practical demonstration. This was demonstrated in Bamidele [21] finding which reveals 65% of the students who used computers and had better result than the average students in the control class. Findings also showed that the effectiveness in the use of ICT to support learning is a determinant of curriculum content as well as the instructional strategy, such that, when appropriate content matches appropriate strategies, students and teachers will benefit immensely [22, 23]. This is truism because teachers targeted ICT training content is what, it is needed in Nigeria Colleges of Education to be effective [7, 24].

3. Materials and Methods

Survey research design was adopted for the study and data were collected using various instruments. These instruments seek information on the availability and adequacy of computer laboratory facilities in the Colleges, staff strengths and their qualifications, the strategies employed in training the pre-service teachers and students’ proficiency in specific Computer Education components involving software and hardware. The study sample comprises 168 (40%) of the final year students from the two colleges and 11 academic staff of the two colleges of education. The sample was drawn using random sampling technique. The final year students were selected because they would have had all the training expected of them. All the academic staffs from CSE Department of the two institutions were considered because of their small size. Data was analysed using simple percentages

4. Results

RQ1a: Are there qualified CSE lectures in the Colleges of Education?
To answer this research question, a departmental record was used to assess staff qualification in Computer Science Department from the two Colleges of Education in Osun State. The result was compared with the minimum qualification requirements of academic staff that must be employed to teach Computer Science Education courses in a College of Education. The result is as presented in Table 1.

From Table 1, 54.5% of the computer lecturers in Osun State Colleges of Education met the minimum qualification requirements, 18.2% had degree in computer but had no teaching qualification, while 27.3% of them are not qualified at all. It can be concluded that 54.5% of the CSE academic staff were qualified because they met the minimum requirements set by NCCE to teach as a computer lecturer at Nigeria Colleges of Education.

RQ1b: Are there adequate CSE lectures in the Colleges of Education?

To answer this research question, a Departmental record containing the list of staff was used to assess staff strength in each Computer Science Department at the two Colleges of Education in Osun State. The result was then compared with the minimum number of academic staff that must be employed to teach Computer Science Education courses at Nigeria Colleges of Education. The result is as presented in Table 2.

From Table 2, there are 5 computer lecturers from Osun State College of Education Ilesa while 6 are in College of Education Ila. Therefore, the ratio of total number of available computer lecturers to the population of final year Computer Science Education students is 11:420 (approximately 1:38.2). To compare the number of academic staff on ground that will teach Computer Science Education in each Colleges of Education in Osun State to the minimum number (8) computer lecturers expected in each Colleges of Education, it can be concluded that the computer lecturers in the two Colleges of Education in Osun State were not adequate.

RQ2a: Are the computer facilities in computer laboratories for the pre-service computer teachers in the Colleges of Education of the quality required?

This research question is divided into two aspects. The first part is to determine the quality of the computer facilities at the computer laboratories for computer pre-service teachers while the second aspect is to determine the adequacy of the computer facilities to answer the first aspect of the research.
Table 1. Qualification of Computer Lecturers in Osun State Colleges of Education

<table>
<thead>
<tr>
<th>Computer Lecturer Requirements</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree in Computer with Second Class Lower (2/2) only</td>
<td>2</td>
<td>18.2%</td>
</tr>
<tr>
<td>Degree in Computer with Second Class Lower (2/2) and Teaching Qualification</td>
<td>6</td>
<td>54.5%</td>
</tr>
<tr>
<td>Degree in none Computer Area</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HND with Teaching Qualification</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HND without Teaching Qualification</td>
<td>3</td>
<td>27.3%</td>
</tr>
</tbody>
</table>

Table 2. Computer Science Lecturers in Osun State Colleges of Education

<table>
<thead>
<tr>
<th>College</th>
<th>Staff Size</th>
<th>Computer Enrolment</th>
<th>Students’</th>
<th>Computer Staff Students’ Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osun State College of Education, Ilesa</td>
<td>5 (&lt; 8)</td>
<td>302</td>
<td>1:60.4</td>
<td></td>
</tr>
<tr>
<td>Osun State College of Education, Ita</td>
<td>6 (&lt; 8)</td>
<td>699</td>
<td>1:115</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11</td>
<td>992</td>
<td>1:99.18</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Components of Computer Facilities in Osun State Colleges of Education

<table>
<thead>
<tr>
<th>s/n</th>
<th>Computer Facilities</th>
<th>Numbers Available</th>
<th>Numbers Functional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Numbers of Computer</td>
<td>44</td>
<td>19 (43.2%)</td>
</tr>
<tr>
<td>2</td>
<td>Numbers of computers with INTEL PIV 3GHz (100 FSB) MMX</td>
<td>14</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>3</td>
<td>Numbers of computers with 2 GB RAM</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>Numbers of computers with 120 GBHID</td>
<td>14</td>
<td>12 (29.5%)</td>
</tr>
<tr>
<td>5</td>
<td>Numbers of computers with DVD ROM Drive</td>
<td>14</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>6</td>
<td>Numbers of computers with Flat Screen Monitor</td>
<td>14</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>7</td>
<td>Numbers of computers with USB Keyboard and</td>
<td>14</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>8</td>
<td>Numbers of computers with USB Mouse</td>
<td>14</td>
<td>14 (31.8%)</td>
</tr>
<tr>
<td>9</td>
<td>Numbers of computers with SUBMIDI PIV casing</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>10</td>
<td>Numbers of 650 VA UPS for each computer system</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>11</td>
<td>Numbers of 1000-Watt stabilizers for each system</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>12</td>
<td>Numbers of computers on Local Area Network</td>
<td>44</td>
<td>44</td>
</tr>
<tr>
<td>13</td>
<td>Numbers of computers connected to the Internet</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>Numbers of Scanners</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Numbers of Printer (Laser printers and DeskJet Printers)</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>16</td>
<td>Numbers of Computer projectors</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>17</td>
<td>Laptop Computer to each lecturer of the department</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>Local journals on computer studies education</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>International journals on computer studies education</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 4. Available Computer Facilities for Computer Student’s Practical demonstration

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Number Available</th>
<th>Number of Functional Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td>44</td>
<td>19 (43.2%)</td>
</tr>
<tr>
<td>Scanner</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Projector</td>
<td>2</td>
<td>2 (100.0%)</td>
</tr>
<tr>
<td>Printers</td>
<td>3</td>
<td>3 (100.0%)</td>
</tr>
</tbody>
</table>

Table 5. Computer Science Students in Osun State Colleges of Education

<table>
<thead>
<tr>
<th>College</th>
<th>Ilesa</th>
<th>Ilu</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year One</td>
<td>174</td>
<td>200</td>
<td>374</td>
</tr>
<tr>
<td>Year Two</td>
<td>67</td>
<td>250</td>
<td>317</td>
</tr>
<tr>
<td>Year Three</td>
<td>61</td>
<td>240</td>
<td>201</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>690</td>
<td>992</td>
</tr>
<tr>
<td>Ratio of Functional Computers</td>
<td>15.89474</td>
<td>36.31679</td>
<td>62.21063</td>
</tr>
</tbody>
</table>

Table 6. Strategies of Teaching Would-be Computer Teachers

<table>
<thead>
<tr>
<th>Methods of Teaching</th>
<th>N</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Method only</td>
<td>22</td>
<td>33.8%</td>
</tr>
<tr>
<td>Lecture Method and Others</td>
<td>18</td>
<td>27.7%</td>
</tr>
<tr>
<td>Discussion method</td>
<td>14</td>
<td>21.6%</td>
</tr>
<tr>
<td>Demonstration Method</td>
<td>2</td>
<td>3.1%</td>
</tr>
<tr>
<td>Project Method</td>
<td>8</td>
<td>12.3%</td>
</tr>
<tr>
<td>Computer (Practical)</td>
<td>1</td>
<td>1.5%</td>
</tr>
<tr>
<td>Total</td>
<td>65</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Table 7. Proficiency in Computer Software and Hardware Components

<table>
<thead>
<tr>
<th>Proficiency</th>
<th>Software Component</th>
<th>Hardware Component</th>
<th>% of Software Component</th>
<th>% of Hardware Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>155</td>
<td>112</td>
<td>92.3%</td>
<td>66.7%</td>
</tr>
<tr>
<td>Average</td>
<td>6</td>
<td>30</td>
<td>3.6%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Good</td>
<td>7</td>
<td>20</td>
<td>4.2%</td>
<td>15.5%</td>
</tr>
</tbody>
</table>

question, a facility checklist consisting of minimum computer facility that a College of Education running computer programme must processed, was used.

The inventories of all computer facilities in the Department of Computer Science Education in the Colleges were taken. The checklist rated computer facilities as: number available, number functional, and number not functional. The result is as presented in Table 3.

If quality of the facilities were rated such as between 0 and 39.4% to be ‘Poor Quality’, 39.5% to 49.4% as ‘Low Quality’ and 49.5% and above as ‘Good Quality’. Table 3 showed that, 43.2% of component of the computer facilities are functional, all computers are on local network, 31.8% of the
RQ2b: Are the computer facilities in computer laboratories for the pre-service computer teachers in the Colleges of Education adequate?

Computer facilities checklist was used to extract the total number of functional computers for pre-service computer teachers for practical demonstration. The result is as shown in Table 4.

According to information on Table 4 and 5, the ratio of available number of computers in the COE to the sample population of the study was 41:11 (approximately 4:1). This implies that, 4 students will be using one computer. However, the ratio of the functional computers to students is 168:19 (approximately 9:1). This translates to nine students on a functional computer. From Table 4 and 4.3e, the ratio of available number of computers in the Colleges to the population of computer science students was 23:1 (approximately 23:1). This translates to twenty three (23) students to use computer. While the ratio of functional computers in the two Colleges of Education to the population of computer science students in the Colleges is 52:1. That is 53 students to use one computer. It can therefore be concluded that the numbers of computers available for the use of the pre-service teachers’ practical demonstration in software programming were not adequate.

RQ3: What are the strategies employed by the CSE lecturers for training the pre-service teachers?

To answer this research question, a Computer Teaching Observation Checklist (CTOCL) was used to assess method used by each computer course lecturer to train the would-be computer lecturers in Computer Science Department at the two Colleges of Education in Osun State. The result was analysed and presented in Table 6.

From the Table 7, proficiency was rated 0-39.4% represented low proficiency, 39.5%-49.4% represented average proficiency and 49.5% and above represented good proficiency. Based on these scale the study reveals that 92.3% of the pre-service computer teachers had low proficiency in software components, 3.6% had average proficiency in software proficiency and 4.2% had good proficiency in software components. While 66.7% had low proficiency in computer hardware components, 17.9% had average proficiency and 15.5% had good proficiency in computer hardware component. It can be concluded that the CSE pre-service teachers in Osun State Colleges of Education were not proficient in computer software and hardware component because they had low level of computer software and hardware component proficiency.

5. Discussion

The results of this study showed different factors responsible from effective teaching of computer science education at Colleges of Education. These barriers also have ripple effect its teaching and learning in Nigerian secondary schools. The study shows that 54.5% of the computer lecturers in Osun State Colleges of Education were qualified while 18.2% of them could be qualified if enrolled in any of the tertiary institution for teaching qualification programmes. However, 27.3% of them were not qualified to lecture. Therefore, only 54.5% of the CSE academic staff met the minimum requirements set by NCCE for CSE lecturers. This finding was corroborated in the findings of Odogwu [8] and Toscany-Academy [9].

In addition, the study showed that there were 5 and 6 computer lecturers in Osun State College of Education Ilesa and Ila respectively. Based on this finding, staff-student ratio was examined and the result shown 1:60.4 in Ilesa, 1:115 in Ila and while the total overall staff-student ratio for the two COE was 1:90. According to NCCE document, there must be a minimum of eight (8) Computer Science Education academic staff in a College of Education. It further stated that the staff-students ratio should be 1:25. In view of the requirement of NCCE document, this study result implies that the lecturers were not adequate and more computer lecturers need to be employed in order to cope with the size of computer pre-service teachers of the two Colleges of Education. The findings in Goshit [11] corroborated the result of this study by concluding that the major challenge confronting Nigeria schools and its ICT programme is workforce training.

Furthermore, the study also showed that, 43.2% of the component of computer facilities were functional, 68.2% of the computers were on local network, while 31.8% of the available computers had the following components: computers with INTEL
from the reality in terms of computer facilities. So, it appears from this study that, the Colleges are far from the ratio one computer to two students for two Colleges of Education stipulated by NCCE document. 52:1. This implies that 52 pre-service teachers to use computer science students in the Colleges is the two Colleges of Education to the population of computer software. While the ratio of functional computers in COEs to the population of Computer Science education students is 23:1 (approximately 23:1). This translates to twenty three (23) students to use one computer. Furthermore, the ratio of available number of computers in the two Colleges of Education did not meet up to the quality expected. Based on this result, it could be inferred that most of the computer systems will be slow to run object oriented programming software. Even when run, practical self-efficacy of the learners in software will be low and the learners might not be able to connect to the Internet to get better understandings they needed. Oyelekan [12] found similar results in his study conducted in the two Colleges of Education in Plateau State. in addition, the findings [4, 13-17] also corroborated the result that in Africa, there is low access to basic ICT equipment, low internet connectivity, low participation in the development of ICT equipment, and low level of involvement in software development. Similarly, the study also revealed that the ratio of available number of computers in the two Colleges to the sample population of the study was 11:41 (approximately 1:4). This implies that, one computer will be shared among group of 4 students. However, as revealed in the study, the ratio of functional computers to the respondent was 19:168 (approximately 1: 9). This translates to a functional computer to a group of nine students. Furthermore, the ratio of available number of computers in the COEs to the population of Computer Science Education students is 23:1 (approximately 23:1). This translates to twenty three (23) students to use computer. While the ratio of functional computers in the two Colleges of Education to the population of computer science students in the Colleges is 52:1. This implies that 52 pre-service teachers to use one computer. Whereas, the NCCE document stipulated ratio one computer to two students for Colleges to run a Computer Science Education programme, as a minimum condition. It is therefore apparent from this study that, the Colleges are far from the reality in terms of computer facilities. So, it is definite that the learners will not have enough time to practice programming related courses before the end of their programme. However, Warschauer [19] study found out that the overall ratio of students to instructional computers with Internet access in U.S. public schools as at 2008 was 1:3.

The result showed that 33.8% of Lecture Method was used by the lecturers to teach computer pre-service teachers, while 27.7% of Lecture Method and other Teaching Methods was used, 21.5% of Discussion Method, 3.1% of Demonstration Method, 12.3% Project Method, and 1.5% Practical demonstration Method were used. With these results, it shows that some of the strategies that NCCE specified were poorly used such as practical demonstration method which shows 1.5%. It can be concluded that 61.5% of lecturer method was not appropriate to train Computer Science Education pre-service teachers, because this pure traditional way of teaching. With this, the pre-service teachers’ hardware and software programming self-efficacy will be low when eventually they are to start implementing CSE curriculum at Junior Secondary Schools. [20] opined that there is an urgent need for a paradigm shift from theoretical teaching and literary application to a practical demonstration application of knowledge necessary for employment and skill development. Finally, the study showed that 92.3% of the pre-service computer teachers had low proficiency in software components, 3.6% had average proficiency in software proficiency, 2.4% had good proficiency in software components and 1.8% of them had excellent proficiency in computer software component. While 66.7% had low proficiency in computer hardware components, 17.9% had average proficiency, 15.5% had good proficiency in computer hardware components and none had excellent proficiency in computer hardware components. Yusuf [25] finding also reported low involvement in software development. Based on this finding, it can be concluded that the CSE pre-service teachers in Osun State Colleges of Education had low level of computer software and hardware component proficiency.

6. Conclusion and Recommendations

The study concluded that the CSE pre-service teachers in Osun State Colleges of Education were not proficient in computer software and hardware component because they had low level of computer software and hardware component proficiency. It became apparent that there are factors responsible for the poor performance of pre-service teachers in the learning of computer science education in Nigeria teacher education. These barriers also created the setback experienced in the teaching of ICT in Nigerian secondary schools. It is therefore recommended that the education stakeholders in Nigerian teachers’ education to provide adequate modern ICT facilities, training opportunities for the teacher educators, as well review the teacher education curriculum to be able to drive the 21st century education effectively in Nigeria.

7. References


Session 7: Inclusive Education

Inclusive Education at Higher Level and for All? A Study Case in Portugal
(Author: Tereza Ventura)

Predictors of Behavioral and Emotional Disorders in Siblings of Children with War-Related Disabilities
(Author: Vivian Khamis)

Measuring Giftedness - An Ongoing Study
(Authors: Natalie N. Politikos, D. Tighe Cooke)

Attitudes of Kindergarten and 1st Grade Teachers, Regarding the Aggressive Behavior of Pupils in the Classroom
(Authors: Débora Medeiros Dias, Tereza Ventura)
Inclusive Education at Higher Level and for All?  
- A Study Case in Portugal -

Tereza Ventura  
Center for Philosophy of Sciences of the University of Lisbon, Portugal

Abstract

The recognition of human rights to education for all and to cultural diversity brings important consequences into schools as learning organizations. New publics for higher education schools, namely adults without regular education antecedents or with special educational needs, imply self-assessment of flexibility that answers these new audiences. The contextualized research project here presented formalized and tested a collaborative self-assessment methodology for flexibility on an inclusive university. We concluded that: the variability of academic results of students in each curricular unit was significantly explained, through linear models, by the variability of skill profiles, the variability of the results of entrance tests and by the variability of the results obtained on some other curricular units, simultaneously or antecedently taught (“reinforcing action on learning between Curricular Relative Units”). The individual follow-up of students with special educational needs revealed the deep gaps in collective understanding of inclusive education, in the analyzed context.

1. Introduction

The Universal Declaration on Cultural Diversity (UNESCO, [1]), assumes in Article 2: “In our increasingly diverse societies, it is essential to ensure harmonious interaction among people and groups with plural, varied and dynamic cultural identities as well as their willingness to live together. Policies for the inclusion and participation of all citizens are guarantees of social cohesion, the vitality of civil society and peace. Thus defined, cultural pluralism gives policy expression to the reality of cultural diversity. Indissociable from a democratic framework, cultural pluralism is conducive to cultural exchange and to the flourishing of creative capacities that sustain public life”.

The Salamanca Statement [2] begins with a commitment to Education for All, recognizing the necessity and urgency of providing education for all children, young people and adults ‘within the regular education system.’ That is to say, those children, young or adults with special educational needs ‘must have access to regular schools. And the Statement adds: “Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and improving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system”.

It is clear that European recognition of human rights to education for all and to cultural diversity brings important consequences into Schools as learning organizations. Favero [3] emphasizes: “Internationally, however, the concept [of inclusive education] has been understood in a broadly scope as a reform that supports and welcomes diversity among all the subjects of the educational process. Ainscow [4] points that the aim of inclusive education is to eliminate social exclusion resulting of attitudes and responses to diversity related with ethnicity, age, social class, religion, gender and abilities. Thus, it assumes that human right to education is a basic one and the foundation of a more just and fraternal society”.

That stems a vision of schools in different levels - from preschool to higher level - as open spaces to the widest range of publics, leaving to schools the responsibility of teaching them all.

And the consecration in the law that all citizens must have access to education in all levels and throughout life, modifying the conditions of entry in higher level education and giving to the universities the responsibility to define criteria of selection - namely of recognition of professional experience’s value - changed significantly the diversity of such publics. On the other hand, the extension of compulsory education to the 12th year grade reinforced, the possibility of access to this level, of more diverse people, namely of students with special educational needs.

These new publics constitute good opportunities in an increasingly competitive market of Higher Education. But one of the great challenges presented nowadays to managers of higher education schools, as to all learning organization’s management, is the search for the efficacy on implementing their strategy.

That has to be supported on a dialectic model of action-context that allows them to load and develop
the organizational knowledge simultaneously deploying their strategy, through the establishment of mechanisms of their cultures’ and contexts’ renewals.

The rising and the establishment of new publics for higher education schools, namely adults that have not finished regular education antecedent levels - in Portugal, aged 23 or more, here named “students 23+” - is a strategic vector of activities in the European Higher Education Systems. Thus, the self-assessment of flexibility, supporting a sustainable innovation in educative activity, as a creator of new cultures and contexts that answer new audiences is, therefore, essential and urgent. And the accuracy of such self-assessment requires adequate formalized support [5].

In fact, we assumed that the University is a social structure that combines the inter-subjectivity of mutually reinforcing interpretations [5], [9], with the generic subjectivity of institutionalized routines and that it is the oscillating motion between these two forms of permanent communication that keeps them alive and active.

Tensions between the innovation of inter-subjectivity and control of generic subjectivity animate both movement and communication. In this sense, one can say that, in educational organizations, the frequency of formative assessments and feedback given by the teacher or peers (in models of teaching / collaborative learning) are essential for passing on interpretations that can be mutually reinforcing, while summative assessments as institutionalized routines, guarantee the appropriate tension in the binomial innovation / control, promoting the development and sedimentation of learning - either individually or with organizational impact on the symbolic reality - strengthening the institutional and social profile of the educational organization. So, the self-assessment of flexibility has to evaluate and discuss the oscillating motion between the two forms of permanent communication above referred.

In a global point of view we assumed, with Mancuso, that adult education requires flexible responses combining [5], [10]:
1. A clear acknowledgment by the University, of its role in higher education of adults;
2. Decisions about the adult learner’s route, taken collaboratively, flexibly and quickly, with great informality;
3. The provision of a varied curriculum. And through initial preparation courses, the preparation of recognition of experience;
4. The availability of various teaching / learning methods, including evaluation methods;
5. The emphasis on collaborative learning based on experience of day-to-day of the student;
6. Decision on non-competitive but collaborative admission, between the institution and the applicant;
7. The encouragement of adult learners to plan their route and decide on it;
8. Offer of a mix of teaching and administration services with easy and ongoing access;
9. Technologies and blended learning used to improve learning;
10. Continuous efforts made to maintain a response to adults that is competitive and with great quality.

That is to say: the response of a learning organization to a significantly increasing diversity has to be a global one, adequately supported.

2. The Contextual Case Study

Based on a contextualized research project [6] support was given to formalize and test a collaborative self-assessment methodology for flexibility on an inclusive university’s education program. This program was applied to 320 candidates to Higher Education - adults that have not finished regular education antecedent levels. 230 of these students were approved on entrance tests and distributed over seven Licenses (Degrees), in Cinema and Audiovisual, Law, Architecture, Management, Informatics, Psychopedagogy and Information Engineering, constituting the segment of “students 23+” in an universe that included 3348 applications on Curricular Units, of students from regular access to studies (12th year completed and specific access proofs).

3. Methodology and procedures

The aim of the here presented action-research project was to create and justify the formal construction of a flexible collaborative self-assessment methodology to support a sustained innovation in educational activities.

It was claimed that such a methodology - to implement within a learning organization - had to be supported by a dialectical model of action-context, that would enable the understanding of how, while implementing strategy, it is possible to develop organizational knowledge simultaneously, through the establishment of renewal mechanisms of cultures and contexts.

The concept of flexibility applied [6] was the capacity of variation of speech acts creating the contextual innovation needed to understand the new discourses and behaviors by interlocutors with contextual different references. As such, given the diversity of public with access to higher education, to evaluate the flexibility of response appeared to be imperative, namely because it was important to determine whether a greater or lesser flexibility would be more appropriate to the total quality requirements.
The evaluation of the university global response, comprised the assessment of “Program 23+” - an educative program to apply to “students 23+”[6] - with all its processes.

The dimensions used to evaluate flexibility of this Program [6], [7], [8] were: student’s profile (age, nationality, family situation, vocational, communication and problem solving skills and earlier academic assessment results), methods (applied in teaching of each curricular unit, namely degree of attention to diversity), tasks (performed by the student within these units), time, type and results of assessment. Professional situation, professional experience and special educational needs were added to students’ profiles.

To identify and measure student’s vocational skills an adequate selection and application of intelligence tests, or assessment tests of vocational skills, was needed. Within the range of available tests - constructed, validated and adapted to the population concerned - we chose the ones that best suited the psychological assessment context (objectives, time and feasibility of their application). In fact, the knowledge of a less favorable profile of vocational skills was not mandatory of exclusion, but simply revealed a reality and it was necessary and fair to present opportunities to protect and support the development of such profiles, not excluding the student, a priori, of the natural development environment provided by the school. The performing of a complementary interview allowed the comparison between the results of such tests and the evaluation of relevant motivational and experiential factors.

The identification of cases of special educational needs (1% of the population admitted) was taken into account, not given their little impact, but because the type of subsequent follow-up, would have to be individualized.

As referred above, it was assumed to evaluate also critical literacy’s level (oral, written and multimedia communication skills and problem solving skills).

Academic assessment results of students and evaluation of the degree of programmatic formalization and attention to diversity from teachers, in each curricular unit, were gathered under regular self-assessment system.

The degree of programmatic formalization of a curricular unit was defined as the mean value attributed to the factors - definition, formalization, participation, diffusion, application, results, business object consistency, operational and strategic integration - in a 5 levels’ scale.

The degree of attention to diversity was defined as the mean value attributed to the factors - learning methodologies, assessment methodologies and resources proposed - in a 5 levels’ scale.

Finally the evaluation of consistency of “Program 23+” with the strategy of the university and with good international practices was performed.

Qualitative and quantitative methods were combined to perform data and information analysis. Namely, content analysis and statistical analysis of variance (ANOVA) to achieve the testing of hypothesis.

4. Data analysis’ results

In the context of the research carried out, the segment “students 23+” corresponded to 52% of total assessments and reached the overall success rate - in first year of study - of 50%, lower than the overall success rate achieved by students entered at university with 12th grade and specific tests (68%).

Both segments repeated unsuccessful units during the second year of studies with an average success of 75%.

Evaluated the potential relationship between the degree of programmatic formalization and the overall results obtained in the set of curricular units of the 1st year of all the Degrees, as well as the degree of attention to diversity, there was a strong positive correlation between overall student results, and the degree of formalization and attention to diversity displayed in the classes in all the Degrees.

For “students 23+”, none of the factors of the vocational skills profile, by itself, explained the variability of results of assessment in all curricular units of any of the Undergraduates Study Plans. This only occurred for a very limited number of curricular units, which were exceptions.

The vocational skills’ profile (set of observed values for all the profile factors of vocational skills) as a hole did not explain by itself the variability of assessment results in all curricular units of any of the Undergraduates Study Plans. This occurred only to a very limited number of curricular units, which were exceptions, for which it was possible to obtain a linear model, only based on the capabilities, explanatory of more than 50% of variability of academic results.

With rare exceptions, for all curricular units of all Study Plans, the results of the students’ assessment were consistent with its vocational and sociocultural profiles (multiple correlation coefficient close to 0.5 or higher), although the resulting linear model could be little explanatory (determination coefficient less than 0.5).

For all curricular units of all Study Plans we found strongly explanatory linear models of the variability of the academic results of assessment, including profile variables (vocational and sociocultural capabilities) and academic results of assessment on some specific curricular units on the syllabus, which acted as reinforcing learning units.
These models are not trivial: it was detected a strong reinforcement among disciplines with very different contents - contradicting the idea of hidden precedence’s between learning linked contents - although we identified as boosters vectors the similarity of teaching / learning methods, the similarity of evaluation methods used and fine synchronization between periods of instruction / examination.

In the context of the research carried out, the validity of hypothesis was verified: the significant increase of public diversity justified the demand for flexible responses; the variability of academic results of students in each unit of each degree was significantly explained, through linear models, by the variability of skills profiles and by the variability of the results obtained in evaluation of some other curricular units, simultaneously or antecedently taught (fact here identified as “reinforcing action on learning between Curricular Relative Units”).

The development of this work, inside the normal activity of the institution was recognized by the Dean and Academic Bodies as an added value to the pedagogical action and consistent with operational and strategic options of the institution.

So, the formalization of a collaborative assessment methodology, to evaluate flexibility in inclusive education, was possible, based on sharing the above information and collaborative innovation between Curricular Relative Units.

However, the realization of this possibility was not equally accepted by all teachers. Teachers in Management and Informatics, Psychopedagogy and Information Engineering Degrees showed strong preference for independent pedagogical action (non collaborative) in their curricular units.

The individual follow-up of students with special educational needs revealed deep gaps within the collective understanding of the concept of inclusive education, in the analyzed context where students with three different types of syndromes: motor disabilities, dyslexia and Asperger syndrome associated with schizophrenia were admitted, in different Degrees.

The results pointed out a differentiation in teachers’ attitudes that determined different results in success of inclusion. In fact, the inclusion of students with physical disabilities was complete and fully successful, the inclusion of students with dyslexia, held in appropriate adaptive education environment, was fully successful; the only student with diagnose of Asperger syndrome associated with schizophrenia did not reach a minimum level of success, despite his high level of cognitive skills, since the refusal of teachers on his Degree to differentiate evaluation environment, strongly increasing the stress levels during assessment, led the student to abandonment of University.

Qualitative analysis showed a strong acceptance of inclusion of students with special educational needs by teachers in Cinema and Audiovisual, Law, Architecture and Psychopedagogy, but there was a majority that rejected this inclusion in Management, Informatics and Information Engineering Degrees.

Six years later, a follow-up of the scholar success of these “students 23+”, after variation of institutional context (change of university) was performed. It was realized that levels of success had not significant variance.

5. Discussion of results

The study conducted researched the existence of explanatory linear models of the variability of the academic results in each course unit to test the explanatory power of the set of vocational skills, then the explanatory power of the overall set of profile results at entrance (including academic antecedent results) and finally the explanatory power of the total system consisting of input profile and results in other Curricular Units, running these as reinforcement learning.

As noted above, this analysis was not intended to predict future results from the models - especially because the evaluation conditions were of unrepeatable nature, but aimed to identify the most relevant factors in the context under consideration and from there, as a based guidance for action, to prepare proposals that would positively modify the context, amplifying the detected reinforcing action.

The choice of explanatory models took into account that, while a model with more variables could achieve a much higher degree of explicability, the combination of the actions of a major number of teachers for joint efforts in more Curricular Units, might be a maximalist goal quickly demotivating. In fact, it is known that innovation by small steps have higher viability of success. So, the goal was to improve the reinforcing action between the curricular units and not to predict a certain final overall behavior quantitatively measurable, through the results (grades) of the students.

This precarious use of predictive models in very complex and changeable environments, especially in social sciences and humanities and in particular in education, cannot devalue the importance of modeling in the analysis of the situation as such (as observed) and guiding grounds of action.

Only continued monitoring will overcome the limitations of projection. In fact, this continuous monitoring can and should lead to the amplification of progressive collaboration among a greater number of reinforcing curricular units and will thus constitute an explanatory framework with a higher degree of significance. Indeed, the proposed methodology shows a simplifying way but does not invalidate more global action frames.
Another important issue has to do with the adopted measure of success. This measure - percent of approvals - is minimal. But of course, from the factors that were considered, this was the first to take into account. In the discussion between teachers (or between teachers and students) for the preparation of reinforcing actions, nothing prevented the search for stronger criteria such as the median value, the maximum and minimum achieved, or percentiles which can subsequently be related with the actions of monitoring.

Yet, another limitation of the study, from the point of view of assessing the diversity of responses must be taken into account: when basing this assessment on an analysis of formalized programs, we avoided a broad view of teaching contexts - namely the variability of teaching methods not formally declared - and its spatial and temporal application. Neither institutional variability. But this lack of information, however, opened the richest theme for discussion by teachers of “Curricular Units Relatives” in search of a better reinforcing action.

6. Conclusions

The empirical study reinforces the conviction that it is possible to respond with quality to more diverse publics, with benefits to all: students and educative organizations.

We saw that, although an overall consistent approach from the educative organization was needed, the focus on students and pedagogical relationship with teachers and curricular course units teaching were nuclear.

In fact, we concluded that: the variability of academic results of students in each curricular unit was significantly explained, through linear models, by the variability of skill profiles, the variability of the results of entrance tests and by the variability of the results obtained on some other curricular units, simultaneously or antecedently taught (“reinforcing action on learning between Curricular Relative Units”). The individual follow-up of students with special educational needs revealed the deep gaps in collective understanding of inclusive education, in the analyzed context.

7. References


Predictors of Behavioral and Emotional Disorders in Siblings of Children with War-Related Disabilities

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Abstract

The study investigated predictors of post-traumatic symptomatology, emotional and behavioral difficulties in siblings of children who sustained war-related injuries that caused permanent disability. The sample consisted of 406 siblings of both genders with a mean age of 12.50 years. Results indicated that injury severity, gender and attributional style were related to emotional and behavioral difficulties and symptoms of post-traumatic stress, except for gender and post-traumatic stress. Siblings of children with severe injury appeared to be at greater risk for intrusive thoughts and avoidance as well as emotional and behavioral difficulties. Females exhibited more emotional and behavioral problems than did males. Siblings with more maladaptive attributional styles endorsed more emotional-behavioral problems and PTSD symptoms. Strengthening coping abilities to enhance cognitive control may be used with siblings at risk, particularly females and siblings of children who sustained a severe injury. Treatments such as trauma-focused cognitive behavior therapy may incur positive results.

1. Introduction

Children’s war-related injuries represent traumatic events with ramifications for those children’s social system [1]. From a family systems perspective [2] members of a family are interrelated, so what affects one family member will have effects across the whole system as well as the individual members of that system. Therefore, as an integral part of an injured child’s social system, siblings are affected. Because sibling relationships are both intense and intimate [3], the effect of the injured child on siblings is profound.

While there has been a plethora of clinical and social science research on the impact of war-related injuries on children and their families [1,4,5,6], there is a dearth of published research on the specific effects upon a child of serious injury to a brother or a sister. Research on Palestinian children who have sustained serious bodily war-related injuries [1,4,5,6] has indicated that injured children are at greater risk of psychological, behavioral and adjustment problems including post-traumatic stress disorder [PTSD] [4,5,6,7], anxiety and depression [6], and low self-esteem [5]. Research on political violence and Palestinian families suggests reasons for concern regarding the siblings of those who were injured. One large-scale study indicated that family members of who incurred intifada-related injuries are at greater risk for PTSD, psychological and behavioral problems [1]. Likewise, studies on combat-injured service members indicated that the disruption to families and children after a parent has been injured can be substantial reflecting greater child distress [8]. There is also evidence suggesting that siblings of children with illness and disability are more likely to experience depression, anxiety, and both internalizing and externalizing problems.

The Palestine Red Crescent Society estimates that from the onset of Al-Aqsa intifada in September 2000 to December 2007 there were 31,873 injuries among the Palestinians of which a large number were children under 16 years [9]. Many of these injured children have siblings, yet the effects of their injury on these siblings are not known.

One trauma-related factor which has emerged as a reliable determinant of PTSD is the occurrence of an injury during the trauma. Among Palestinian children who were injured in the first intifada [5], 50% were diagnosed with PTSD. Similarly, in a study of children who were injured in Al-Aqsa intifada, approximately 76.5 percent qualified as having PTSD with excess risk for chronic symptoms and co-morbidity with other psychiatric disorders such as anxiety and depression [6]. Research that investigated the relationship between injury severity, PTSD and emotional and behavioral problems has focused on the injured themselves [5,6], and their parents [1]. While some studies reported strong relationships between severity of injury and PTSD, other studies did not confirm any relationship [5,6]. Siblings of war-injured children may be at risk for increased distress and symptomatology due to the sudden changes in living arrangements, schedules, parenting practices, and the amount of time spent with their parents.

Psychosocial theories that have been applied to the effects of trauma and stress have indicated that gender is a characteristic that influences the stressors to which people are exposed [10], as well as the
personal and social mediating resources that can be utilized to deal with hardship. In general, research results on trauma-related symptomatology and gender have been inconsistent. While some studies found that females were more likely to suffer from PTSD than males [11], other studies have found that the prevalence of PTSD was higher in males than females [7]. Relatedly, how gender roles affect the outcomes of war–related injury in siblings may also be prompted by the findings that girls tend to report more affection and intimacy in their sibling relationships than boys [3].

Another variable that may influence the course of children and adolescents’ adjustment to war–related injury in siblings is attribution. Researchers have found that trauma survivors with PTSD often exhibit negative beliefs about self and others [12]. Maladaptive attributional styles have also been associated with other psychopathological reactions, such as depression. Given that higher levels of depression in children are more likely to be associated with more internal-stable-global attributions for negative events, and more external-unstable-specific attributions for positive events [3], one might expect that such maladaptive attributional styles may also be associated with other psychological, behavioral, and adjustment problems in children of siblings who incurred war-related injuries. Similar constructs have been proposed by social psychologists in dealing with victimization. Reactions to victimization may be affected by the desire to maintain a belief in a just world [13], the desire to protect oneself from blame [14], external locus of control and fatalism [6]. Research on the injured of the intifada indicated that fatalism was significantly associated with PTSD, depression and anxiety [6]. Accordingly, children’s attributional styles may be related to the psychological sequelae of war-related injuries sustained by their siblings. Research on gender differences in attributional style is also inconsistent. While some researchers have reported no sex differences in attributional style during childhood or adolescence, other researchers have found sex differences in the relation between attributional style and self-reported measures of depressive symptoms [12].

Studying the psychosocial conditions and attributional style of the siblings of children who incurred war-related injuries has various consequences for developing an adequate understanding of problems pertaining to their psychosocial adjustment and, therefore for instituting intervention programs that will effectively accommodate their needs. The purpose of this research, therefore, was to assess the prevalence of PTSD symptomatology and emotional and behavioral disorders in siblings of children who incurred war-related injuries. It was predicted that injury severity, gender and attributional style would account for a significant amount of the variance in PTSD symptomatology and emotional and behavioral disorders in siblings of children who incurred war-related injuries. Specifically, it was hypothesized that children with maladaptive attributional style who make more internal-stable-global attributions for negative events and more external-unstable-specific attributions for positive events report more PTSD symptoms and emotional and behavioral problems than do children with the reverse attributional style. In addition, it was hypothesized that symptoms of PTSD and emotional and behavioral disorders would be associated with injury severity and gender regardless of the child’s attributional style.

2. Method

2.1. Participants

The sample consisted of 406 siblings of whom 202 were males and 204 were females. They ranged in age from 11 to 14 years (M = 12.50 years, SD = 1.13). Fifty—one percent (n= 207) of the participants were in the mildly injured group where as 49% (n= 199) were in the severely injured group.

2.2. Procedure

The primary sample included 420 siblings of children who incurred war-related injuries. Of these, 406 were willing to participate in the study, for an overall response rate of 96.6%. These children were recruited from a list that included 3,267 persons who were injured during the year of 2008. These records are kept by the Palestinian Society for the Care of Families of Injured (PSCFI). To be eligible to participate in this study, siblings had to be free of war injuries and serious physical problems. They also had to have a brother or a sister who sustained a war injury. One sibling was selected from the three- and four-child families based on age (11 years and above), gender and severity of injury. Siblings were assigned to the severely injured group when their brother or sister had an injury that resulted in permanent disability such as paraplegia, and quadriplegia whereas those who were assigned to the mildly injured group had an injured brother or sister who recovered and did not incur any disability. Interviewers included two graduate students. Each interviewer received several hours of training prior to the initial family contact in order to standardize the interview techniques.

All families were initially contacted by phone or a home visit and asked to participate in a study about the psychological status of siblings of war—injured children. If the family consented, an interview with the sibling was scheduled at their home.
The three instruments used in this study were translated into Arabic, and the content validity of the translated Arabic versions was assessed by comparing the pairs of original and back-translated items. Overall, the back translation of each item in the scales closely reflected the content of the original item.

2.3. Instrumentation

*siblings Data Sheet*

The siblings data sheet provided information on gender, age and severity of injury.

2.4. Strengths and Difficulties Questionnaire (SDQ)

The SDQ [15] was used to detect childhood emotional and behavioral problems. The SDQ is a brief 25 item behavioral screening instrument designed for use with children and teenagers between 4 and 16 years old. The 25 items are divided into five subscales each of five items, generating scores for conduct problems, hyperactivity/ inattention, emotional symptoms, peer problems and pro-social behaviors. Internal consistency for each of the five subscales has been shown to be good with a mean Cronbach’s alpha of 0.73. The SDQ has been validated and used in previous studies among Palestinian children [15].

2.5. Impact of Event Scale (IES)

The Impact of Event Scale (IES) was used to measure the psychological impact of events [16]. The scale measures two dimensions of PTSD: trauma-related intrusion and avoidance. Previous research found good split-half reliability (.87) and one-week test-retest reliability (.87) for the total score [16]. In this sample Cronbach’s alpha is .89.

2.6. The Children’s Attributional Style Questionnaire –Revised (CASQ-R)

The Children’s Attributional Style Questionnaire –Revised (CASQ-R) was used to assess causal attributions. It includes 24 forced-choice items, half addressing positive outcomes and half addressing negative outcomes [17]. For the 12 positive events, 2 items tap the internal-external dimension, 7 items assess the stable-unstable dimension, and 3 items address the global-specific dimension. For the 12 negative events, 3 items tap the internal-external dimension, 6 items assess the stable-unstable dimension, and 3 items address the global-specific dimension. Positive, negative, and overall (positive minus negative composite) scores are divided. The lower the positive composite score, the higher the negative composite score and the lower the overall composite score the more depressive is the attributional style. The mean for the overall composite in the CASQ-R was 4.87 (SD= 3.39) at Time1 and 4.96 (SD=3.49) at Time2.

2.7. Statistical analyses

Pearson correlation coefficients were employed to examine the differences in perceived PTSD symptomatology and emotional and behavioral as a function of trauma severity, gender and attributional analysis. Then, separate stepwise regression analysis was used to examine the association between predictors and outcome measures. To further investigate the impact of injury severity, and gender on outcome measures, a separate multivariate analysis of variance (MANOVA) was performed for emotional and behavioral disorders subscales (SDQ) and PTSD symptomatology subscales (IES) using group (mild and severe injury) and gender (male and female) as factors.

3. Results

3.1. General relations between emotional disorders, PTSD symptomatology and predictors

Associations among the predictor and outcome variables were examined and are presented in Table 1. Each of the predictors was related to siblings’ emotional and behavioral problems (SDQ) and PTSD symptomatology (IES). Among the variables, trauma severity was associated with negative attributions indicating that siblings of children with severe injuries had higher negative composite scores than their counterparts in the mild injuries group. Also, positive and negative attributions were negatively correlated in the expected direction. Gender was not associated with positive and negative attributions nor with injury severity. Moderate positive correlations were also found between SDQ and IES.

3.2. Prediction of emotional disorders and PTSD symptomatology

Separate stepwise regression analyses were employed to assess the contribution of injury severity, gender and attribution variables (negative and positive) to SDQ and IES. The standardized beta weights and amounts of explained variance from the two analyses are presented Table 2. The results indicated that 14.9 % of the variance in SDQ and 10.6 % of the variance in IES could be predicted by the variables assessed. The models were statistically significant, $F$’s (4,391)= 16.87 and 11.60, $p$’s <
0.0001, for SDQ and IES, respectively. All the predictors in the SDQ model were significant predictors. Siblings of children with severe injuries who acquired a permanent disability reported higher levels of emotional and behavioral problems than did siblings of children with mild injuries. Females reported higher levels of SDQ than did males. Also the results indicated that positive and negative attributions were significant predictors of SDQ in siblings of children who sustained war-related injuries. Siblings, who reported lower positive composite score and higher negative composite score, had more SDQ problems. Among all the predictors in the IES model injury severity and

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Injury severity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Child’s gender</td>
<td>-.09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3) Positive attributions</td>
<td>-.06</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4) Negative attributions</td>
<td>.11*</td>
<td>-.08</td>
<td>-.31***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Emotional and behavioral difficulties (SDQ)</td>
<td>.16**</td>
<td>-.16**</td>
<td>-.26***</td>
<td>.27**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Posttraumatic symptoms</td>
<td>.21***</td>
<td>-.08</td>
<td>-.13**</td>
<td>-.26***</td>
<td>.32***</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 1. Intercorrelations of Predictor Variables and Outcome Measures

Table 2. Prediction of children’s SDQ and IES levels from injury severity, gender and attribution

<table>
<thead>
<tr>
<th></th>
<th>SDQ</th>
<th>IES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>beta</td>
<td>R²</td>
</tr>
<tr>
<td>Injury severity</td>
<td>.116</td>
<td>2.44</td>
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<tr>
<td>Gender</td>
<td>-.141</td>
<td>-2.97</td>
</tr>
<tr>
<td>Positive Attribution</td>
<td>-.203</td>
<td>-4.10</td>
</tr>
<tr>
<td>Negative Attribution</td>
<td>.189</td>
<td>3.79</td>
</tr>
<tr>
<td>Model</td>
<td>.149</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Means and Standard Deviations of Gender and Group by SDQ and IES subscales

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>Group</th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Male M</td>
<td>SD</td>
<td>Female M</td>
<td>SD</td>
<td>Severe Injury M</td>
<td>SD</td>
</tr>
<tr>
<td>SDQ</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conduct problems</td>
<td>2.78</td>
<td>2.19</td>
<td>2.80</td>
<td>2.20</td>
<td>3.07</td>
<td>2.25</td>
</tr>
<tr>
<td>Hyperactivity/inattention</td>
<td>3.12</td>
<td>1.90</td>
<td>3.86</td>
<td>1.86</td>
<td>3.65</td>
<td>1.90</td>
</tr>
<tr>
<td>Emotional symptoms</td>
<td>3.44</td>
<td>2.26</td>
<td>4.04</td>
<td>2.10</td>
<td>4.05</td>
<td>2.13</td>
</tr>
<tr>
<td>Peer problems</td>
<td>3.25</td>
<td>1.99</td>
<td>3.77</td>
<td>1.70</td>
<td>3.76</td>
<td>1.80</td>
</tr>
<tr>
<td>Prosocial behaviors</td>
<td>8.01</td>
<td>2.13</td>
<td>6.68</td>
<td>2.01</td>
<td>7.00</td>
<td>2.26</td>
</tr>
<tr>
<td>IES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrusion</td>
<td>11.18</td>
<td>8.29</td>
<td>12.92</td>
<td>7.77</td>
<td>13.55</td>
<td>7.76</td>
</tr>
</tbody>
</table>

negative attributions were the only significant predictors. Siblings of children who acquired a permanent disability reported higher levels of intrusive and avoidance thoughts than did siblings of children with mild injuries. Also, siblings with higher negative composite scores reported more IES problems.

3.3. Severity of injury, gender

Separate 2 (group : severe injury, mild injury ) x 2 (gender : male, female ) Multivariate analysis of
Lambda for group yielded significant multivariate effects (using Wilk's Lambda) for gender $F(5,394) = 12.95, p < .0001$, as well as for group $F(5,394) = 2.21, p < .05$ on total difficulties (SDQ) and subscales scores. The results revealed no significant interaction for group x gender on the SDQ subscales $F(3,394) = .34, p < .88$. Univariate results for the SDQ measures revealed significant group effects for emotional symptoms $F(1,393) = 5.67, p < .01$; conduct problems $F(1,393) = 6.75, p < .01$; prosocial behavior $F(1,393) = 5.54, p < .01$ and total SDQ $F(1,393) = 8.17, p < .004$ with siblings of children with severe injuries experiencing more emotional symptoms, conduct problems and total emotional and behavioral problems than siblings of children with mild injuries whereas siblings of children with mild injuries reported more prosocial behaviors than siblings of children with severe injuries. No significant differences were found between the groups on inattention and hyperactivity and peer problems subscales (see Table 3). Also, univariate results for the SDQ measures revealed significant main effects for gender on emotional symptoms $F(1,393) = 6.06, p < .01$; inattention and hyperactivity $F(1,393) = 13.94, p < .0001$; peer problems $F(1,393) = 6.11, p < .01$; prosocial behavior $F(1,393) = 39.55, p < .0001$ and total SDQ $F(1,393) = 9.00, p < .003$ with females experiencing more inattention and hyperactivity, emotional symptoms, peer problems, and emotional and behavioral problems than males whereas males reported more prosocial behavior than did females. No significant differences were found between males and females on conduct problems (see Table 3).

As for post-traumatic symptomatology, the results yielded significant multivariate effects (using Wilk's Lambda) for group $F(2,395) = 8.52, p < .0001$ on the total IES and its subscales. However, the results revealed no significant effects for gender $F(2,395) = 1.64, p < .19$ nor group x gender interaction on the IES subscales $F(2,395) = 1.24, p < .28$. Univariate findings for the IES measures revealed significant group effects for intrusive thoughts $F(1,399) = 11.54, p < .001$; avoidance $F(1,399) = 16.27, p < .01$; and total IES scale $F(1,399) = 16.56, p < .0001$ with siblings of children with severe injuries experiencing more intrusive thoughts and avoidance and PTSD symptomatology than siblings of children with mild injuries (see Table 3).

4. Discussion

Of all the siblings of war-injured children 21.6% were reported as having total difficulties score in the ‘abnormal’ range. The mean of the total IES rating in the Palestinian sample was 26.52, (SD=15.41) which falls in the moderate range.

As hypothesized, the three predictors injury severity, gender and attributional style were related to SDQ and IES, except for gender and IES. Siblings of children with severe injury (i.e., disability) appear to be at greater risk for IES and SDQ. Siblings of children who sustained a disability reported more PTSD symptoms and emotional and behavioral problems including emotional symptoms, and conduct problems compared to their counterparts. Perhaps the presence of the disabled child in the family engenders stress and as a result siblings become unable to cope with changes in family circumstances as well as the difficulties of transitions and crises and therefore were incapable of performing pro-social behavior, adequately regulating their emotions, and providing social support. The more severe the injury, the more the sibling is likely to report negative attributions.

Previous studies on the injured of the intifada indicated that the severity and visibility of an injury intensifies the process of assimilating the trauma by increasing negative self-concept, frustration, concern about stigma and passing, and feelings of being disapproved of by others [4]. Conversely, siblings of disabled children may endure stigma by association [18]. Research showed how a number of siblings perceive themselves as disabled simply by being a member of a family living with a disabled child [19]. It is noteworthy, however, that the context in which an injury is seen assumes special significance because the negative label associated with an injury seemed to fade to relative insignificance when it represents heroism and patriotism [4]. On the other hand, other feelings or experiences may be unique to siblings of children with severe war-related injuries such as the additional burden of shared care by siblings [19], the experience of severe disruption following the injury [4] disrupted schedules, separation from parents, altered living arrangements, and changes in parenting behavior all compound the stress of siblings to heighten distress [8].

In this study, gender differences were found in regard to emotional and behavioral problems but not posttraumatic symptoms. Consistent with previous findings [17], the results showed no significant differences in attributional analysis used by girls and boys. This would indicate that although both groups used the same attributional strategies, for females these attributional styles were not sufficient to overcome the traumatic event and most probably the demands placed upon them in their family life. Furthermore, the differential response between males
and females reinforces the case that emotional and behavioral disorders are certainly associated with gender, with females experiencing more emotional symptoms than males [20]. Although, the results are not in line with previous studies that indicated that inattention and hyperactivity, peer problems, and total difficulties were more exhibited by males rather than females [20], the findings may be at least partially accounted for by the predominantly male culture of the Palestinian society where girls usually shoulder most of the responsibilities and duties. Other possible explanations for gender differences in emotional and behavioral problems include the willingness of girls to express feelings more than boys. However, young females generally report or disclose more symptoms of distress, regardless of whether they have experienced trauma. While the absence of gender differences on IES was inconsistent with previous studies, it was consistent with other studies on children exposed to warfare.

Consistent with previous findings, the results revealed that siblings with more maladaptive attributional styles reported more emotional and behavioral problems as well as symptoms of PTSD [17]. Recently, researchers have argued that emotionally distressed individuals are more likely than non-distressed individuals to perceive events as stressful.

5. Conclusion

Studies of siblings’ responses to child’s war injuries provide a window to understand traumatic stress [4, 5, 6]. Greater understanding of the impact of children’s war-related injuries on siblings is required to better inform effective prevention approaches. As with any study, these results must be considered in the context of its limitations. The cross-sectional design leaves the findings open to questions concerning the potential effects of retrospective self-report bias. Any generalization of the results of the study may be limited by the fact that the sample comprised only those who were listed by the Palestinian Society for the Care of Families of Injured (PSCFI) and could not include cases of injuries not reported for reasons of safety. It would be important to recognize the need to explore additional areas that are not tapped by this study such as the daily stressors encountered by siblings.

The results of the study also bear practical clinical implications. First, the predictor variables identified in the study can be used to identify siblings at risk of emotional and behavioral problems and PTSD symptoms including females and siblings of the severely injured who sustained a disability. Second, the associations between maladaptive attributional styles and emotional and behavioral problems and PTSD symptoms make it likely that cognitive interventions such as trauma-focused cognitive behaviour therapy (CBT) may incur positive results.

6. References


Measuring Giftedness - An Ongoing Study

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Worcester State University, MA, USA²

Abstract

This project was developed out of a desire to identify cognitive profiles of children identified as gifted. It provides a forum for discussion of cognitive profiles of students attending a school for the gifted in an effort to streamline the admissions process. Professional literature provides a broad discussion of current practice when it comes to identification procedures for gifted youth. As definitions of giftedness lack consistency, so does any procedure focused on identifying children that function at the highest end of the cognitive spectrum. A discussion is provided with respect to the use of the Differential Ability Scales 2, the Kaufman Assessment Battery for Children-II and the Naglieri Nonverbal Test 2, the results of which will provide a partial framework for understanding the general learning profile of potentially gifted children within a learning environment that identifies itself as a school for the gifted.

1. Introduction

Engaging in the pursuit to identify students who display “gifted potential” early might well be a fundamental need for any culture. Many children who score in the highest 10% for general intellectual distribution, will have a large and disproportionately substantial influence on culture, economy, institutions and quality of life in the future [8]. Specifically, it is our ability to identify the next generation of potentially gifted individuals and link the assessment data to appropriate intervention, supports and guidance to educate and foster their development- that may well determine the quality of the future for all.

The basis of any assessment process is to answer a referral question and determine those interventions and resources necessary to support the successful development of the individual. Depending on one’s conceptualization of what it means to be gifted, be it individual, school system and/or governmentally based, there should be variation to the identification procedure that allows for potential to be discovered.

A fundamental question to ask of any conceptualization of what it means to be gifted is the interplay of genetic potentials and facilitative conditions that combine and interact to produce expertise and/or high-level creative achievement [2]. Once the question is asked, the discussion becomes one of identification of the host of variables that play a role in this developmental process. One only needs to review the many conceptualizations of giftedness to understand the daunting task of how to identify the vast number of potential variables in our quest to find these potentially gifted individuals.

The field of gifted education is engaged in a spirited discussion of who are gifted students and the conditions needed to meet the eligibility criteria set by the individual school or school system [9]. Typically, those are the students who have obtained a Global Intelligence test score that surpasses the threshold set-usually the top 3-5% when compared to same aged peers in general intellectual ability on a standardized measure. Then there are those that who wish to expand that thinking to include academically gifted students; those that are in the top 3-15% compared to same aged peers in a variety of categories such as general intellectual ability, performance in the classroom in one or more than one of the academic domains, as well as evidence of talent and creativity [6][7]. Gagne [3], while discussing the idea of prevalence (referring to the percentage of a subgroup within a larger population), proposes the Metric-Based system of Levels within the Gifted/Talented population. In this model, there are five levels of identified giftedness-mildly, moderately, highly, exceptionally and extremely, each with the associated IQ equivalent scores. His approach conceptualizes giftedness in terms of overall cognitive ability.
2. Body of Knowledge

In 2012, we were invited to engage in professional assessment of students at a school (Kindergarten-8th grade) on the east coast of the United States, identified as a school for the gifted and talented. The population of the school rarely exceeds 70 children, and has been in existence for about 35 years. Students, in their application to attend this school, were required to attend a day (or more) of classes for the purpose of observing interactions with other students already attending the school. These observations were critical to the acceptance process. The school wished to consider a more substantive application process and wished to collect data about the students already in the school. Of particular interest were student strengths, challenges and overall ability in an attempt to create a “profile” of current students. Future applicants would then be compared to current student performance and the resulting “student profile” in an attempt to predict success in this school milieu. In addition, teachers of current students would have access to assessment data and consultation to address differentiation of curriculum.

It was decided to administer both the Differential Ability Scales-2 (DAS-2) and the Kaufmann Assessment Battery for Children-II (KABC-II) as well as the Naglieri Nonverbal Ability Test 2 (NNAT 2). The DAS-2 [1] and the KABC-II [4] were both chosen because, not only do they possess strong psychometric qualities, they also reflect contemporary emphasis in measuring broad cognitive abilities that include fluid intelligence and crystallized intelligences as well as short term memory, processing speed, visual processing, auditory processing, quantitative thinking, reading, writing, decision speed/reaction time and long-term retrieval [5]. The NNAT 2, a measure of nonverbal ability, was included at the school administration’s request. Nonverbal measures have frequently been utilized as part of the identification process as they are perceived to be less biased than more comprehensive batteries. Furthermore, this instrument is currently being utilized to gauge giftedness and engage in eligibility decisions in a major state in the eastern part of the United States.

The DAS-2 and KABC-II were administered individually in two settings with the NNAT 2 being administered in a large group format.

3. Results

The first consideration of this preliminary data focused on the Global Scores patterns attained in the two individually administered measures. Of the KABC-II FCI scores attained by the subjects 87% (20/23) of the total number scored in the top 10th percent. The remaining number were in the solid average range. The DAS-2 GCA scores attained by the subjects 52% (12/23) of the total number scored in the top 10%. When considering cut off scores in the top 15%, the percent of students within this range would increase to 65%.

Broad cognitive ability data from the KABC-II scaled scores suggests a pattern that these subjects have particular strengths in their ability to perceive, store, manipulate and think successfully with visual patterns. Subjects were additionally successful at demonstrating the breadth and depth of knowledge acquired from their environment(s). A weaker pattern at this early point in study also suggests a relative strength to solving novel problems by using reasoning abilities such as induction and deduction.

Cluster Score analysis from the DAS 2 did not yield as strong a pattern as the KABC-II categorical data. A smaller percentage of subjects demonstrated a strength in their ability to receive, perceive, remember, and process information, verbal knowledge, verbal reasoning, problem-solving skills, nonverbal reasoning, both inductive as well as deductive.

NNAT 2 data yielded NAI scores within the 50-85th %ile range with only three subjects scoring within the top 10%

4. Conclusion

The first two years of a five year study have been completed. The preliminary findings report a pattern that suggests the KABC-II may well yield information that would expand the number of students eligible for services and might well provide more specificity for individual curricula differentiation.

It is interesting to note that 39% of the subjects assessed are from minority cultures and/or bilingual in orientation. Surprisingly, the Nonverbal measures administered did not seem to provide an advantage to this population.

Next Steps: Eighteen additional students are being assessed in the current academic year (2015-2016). All Grades 1-6th grade students will be completed by June 2016. Grades 7 and 8 will be
identified as the target group for 2016-2017 with the fifth and final year including any new students to the school and final results.

Two additional dimensions to this study might include (1) the addition of academic progress either through standardized measures already in place, or teacher measures and (2) comparing the nonverbal clusters of the DAS-2, KABC-II and the NNAT 2. For such a specific population (students attending a school specifically for the gifted), tracking academic progress over the course of five years may well prove enlightening when considering the developmental variables being discussed in the contemporary literature.

5. References


Attitudes of Kindergarten and 1st Grade Teachers, Regarding the Aggressive Behavior of Pupils in the Classroom

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Abstract

The present research aimed to ascertain if the teacher’s profile is correlated to aggressive behavior exhibited by their pupils and it analyses key aspects such as prevention, intervention towards the aggression behavior, the teacher’s role in its management plus their professional training. It’s a correlative, descriptive and non-experimental study supported by qualitative and quantitative research methods. The sample was of 202 kindergarten and 1st grade teachers, in primary schools in Ponta Delguda, Azores, at 2012/2013. As a result statistically significant differences were recognized between the teacher’s attitudes and the aggressive behavior of pupils displayed in the classroom, as well as between the preventive and punitive strategies and aggressive behavior of pupils. Furthermore we found statistically significant association between the formative needs of teachers and the aggressive behavior of their pupils as well as between the professional situation, level of education, years of service and the level of aggressive behavior of pupils.

1. Introduction

Aggressiveness is present in the human being from the earliest stages. It is one of the aspects involved in human development, structuring of human personality. Besides, aggressiveness is required to human’s survival, adaptation and growth.

Mielnik affirms the existence of two types of aggressiveness [1]: normal aggressiveness, therefore natural in children and assumed as an adaptive behavior, subject to all the modifications that are characteristic of the development process, with variations in terms of form and goals; and abnormal aggressiveness compatible with children who show excessive and frequent aggression patterns, representing a deviance standard of the expected behavior for a specified age, sex and culture, resulting from a poor construction of the human personality, mainly in childhood. Prior studies indicate that the lack of guilt, of compassion towards the victims and no regrets, emotional coldness, deficits in social skills, cognitive skills and attention, poor judgment, low tolerance to frustration and anxiety are some of the aspects that defines the behavior of an aggressive child ([2], [3], [4], [5]).

It seems that the central question is to know when the aggression ceases to be a healthy and adaptive behavior to become the main way of resolving the daily problems.

Aggressiveness is a complex and multidimension phenomenon, to the extended that biological, environmental, cognitive, social and personality factors can define the appearance or maintenance of aggressive standard.

As regards to environmental factors, some previous research established that variables like exposure to television violence, poverty, exposure to violence in the neighborhood, family dynamics, parental pathology, racial discrimination, association with juvenile and/or adult delinquents, the school environment and educational practices play prominent roles in the genesis of aggressiveness ([3], [4], [5], [6], [7], [8], [9]).

With different criteria, it is possible to classify the aggressive behavior as reactive, proactive, verbal and social.

When it takes place in school, aggressive behavior creates insecurity, anxiety and apprehension within the educational community, absorbing the time and attention of teachers that should be invested in the teaching practice.

According to Blaya "The school is not neutral in the creation of situations of violence, whose emergence sometimes promotes” [7]. Prior investigations has established that depreciation and disregard for social and cultural characteristics of students, the promotion of classifications methods of evaluation that leads to exclusion and accumulation of personal failures, the inability of school to avoid and cope conflicts plus the uniform way to treat students are some of
the situations which are pointed out as causing aggressiveness.

Furthermore in the daily work teachers are confronted with pupils, who, for multiple reasons, feel a need to draw attention, attack, provoke and defy. In this perspective, the teacher’s role is crucial. Above all he must be a manager of conflicts, emotions and interests ([17]), which requires that he had skills of persuasion, negotiation, combined with the willingness to listen and understand the pupils. In this way the teacher helps to discontinue aggressive pattern.

Former studies conducted by Santos refer some forms of aggression that occur in the relationship between teacher and pupil, such as the imposition of unclear and unjustified rules, to do mockery about the pupil in front of classmates, to call insulting nicknames, punishing, ignoring and accusing him to his parents [14]. To cope with these situations, that cause fears, anxiety and frustration, pupils create strategies, which may diverge for simple distraction in the classroom to frustration, pupils create strategies, which may diverge for simple distraction in the classroom to the expression of aggressive behavior towards peers and teacher.

Some previous research has also refer that insensitivity and unavailability of teachers to listen to their pupils, as well as poor relationship skills and the unskillfulness in dealing with the aggressiveness of their pupils are pointed out as instigators of aggressive behavior.

Nevertheless, there is the understanding that the school may discontinue aggressive cycle by an articulated and consistent intervention. This is done first and foremost investing in teachers’ training, to enable them to deal successfully with aggression issues in schools. It is crucial to develop preventive intervention programs, carefully planned in order to discontinue the child's psychosocial risk trajectory.

It is essential to modify the teacher’s attitudes towards aggression. Prior studies found out that those teachers who show an aggressive attitude towards the aggressive behavior of their pupils encourage similar behaviors. Then, after a period of acquaintanceship, pupils adopt as aggressive attitudes those observed and expressed by the teachers or they may manifest behaviors of withdrawal, because of fear of punishment [13].

Taking into account these findings from the literature, the main purpose of the present study was to analyze the influence between different variables such as teacher’s attitudes, intervention strategy, training and professional experience towards aggressive behavior of pupils in the classroom. Moreover, in a qualitative point of view, this study aim to identify the behaviors that kindergarten and 1st grade teachers qualify as being aggressive, how do they act towards the aggression in classroom, which causes they identify as being at the origin of aggressive behavior and what preventive and punitive strategies were adopted by them towards aggressive children behavior, as well as forms of control that they consider suitable.

2. Empirical Study

2.1. Methodology

This study is a descriptive, correlational and non-experimental one, supported by qualitative and quantitative research methods. In order to gather the required and useful information, teachers had to answer a questionnaire survey and to the Attitudes Towards Aggression Scale, developed by Jansen, in the Portuguese version, adapted and validated for the Portuguese population by Rosa [10].

2.2. Participants

Participants at the present study were 264 kindergarten and 1st grade teachers, in five public schools in Ponta Delgada, Azores, at 2012/2013. The sample was of 202 teachers that answered the questionnaire survey and to the Attitudes Towards Aggression Scale. The average age of the participants is 40.9 years old. The age range from 31-45 years is the most represented with 60.9% of the sample. In terms of gender the majority is female (88.6%), of which 61% are from the 1st grade and 38.6% are kindergarten teachers. Half of the sample (51.1%) has between 7 to 28 years of professional experience as teachers. About 74.3% of the sample didn’t attend specific training to deal with aggressive behavior in the classroom. Nevertheless 84.2% of teachers require specific training in management of aggressive behavior.

2.3. Procedures

The participants in this study were selected by convenience. The main criteria were being a kindergarten and 1st grade teacher in the public schools in Ponta Delgada-Azores. In each case these teachers were asked about their conceptions, attitudes and practices as professionals, without gathering information about the schools where they teach. The questionnaires implemented in an online platform were anonymous. The participants received oral and written information on the purpose of the study and their rights as respondents. Participation in the study was voluntary and the
respondent’s anonymity was ensured in all phases of data collection and analysis. The collection of data took place throughout the months of November, December 2012 and January 2013.

2.4. Measures and Instruments

In order to gather the required and useful information, teachers had to answer a questionnaire survey and to the Attitudes Towards Aggression Scale (ATA), in the Portuguese version, adapted and validated for the Portuguese population by Rosa [10].

The questionnaire survey contained closed-end and open-end questions. It was organized in three different but interrelated parts. The first part was intended for the collection of personal and professional data. In the second part participants had to indicate how often they observed aggressive behavior in the classroom and identify it in a descending order of priority, the preventive and punitive strategies implemented in their classrooms to answer to aggression behavior. Lastly, the third part of the questionnaire was intended to open-end questions; asking participants to share their views concerning the phenomenon of aggression in childhood and at the classroom.

The Attitudes Towards Aggression Scale was used to study individual attitudes of teachers towards aggression.

This 18-item scale includes statements concerning different aspects of aggression. To measure every statement agreement is given a Likert-type scale ranging from strongly agree (value 5), to strongly disagree (value 1). The ATAS consists of four aggression-related components: offensive (unpleasant and unacceptable behavior; statements: aggression 1. is an example of a non-cooperative attitude, 3. is unpleasant and repulsive behavior, 4. is an impulse to disturb and interfere with the objective of dominate or harm others, 5. cannot be tolerated, 7. is a verbal or physical act, powerful, wrong, not adaptive, carried out with no justification, 8. is a unnecessary and unacceptable behavior,11. in any form is always negative and unacceptable, 14. is destructive behavior and therefore unwanted, 15. is expressed deliberately except when committed by children with a prognosticate future psychotic behavior, 16. poisons the atmosphere on the ward and obstructs the learning process); communicative (in the sense of signals to enhance the pedagogical relationship; statements: aggression 2. is the start of a more positive relationship between teacher and pupil, 6. offers new possibilities in the learning process, 17. helps the teacher to see the pupil from another point of view); destructive (in the form of actual harmful acts; statements: aggression 9. is when a child has feelings that will result in physical harm to self or to others, 12. is violent behavior to others or self, 13. is threatening to damage others or objects) and protective (the defense of physical and emotional space; statements: aggression 10. is to protect oneself, 18. the protection of one’s own territory and privacy). Their fidelity is between .54 and .869.

The data were subjected to statistical analysis using the SPSS version 18 for Windows. For the open-end questions we applied coded analysis using the Microsoft Excel 2010.

3. Results

Descriptive analysis of the answers to the questionnaire, in terms of the frequency of observation of aggressive behavior in the classroom, show us [15] that teachers observed behaviors such as verbal abuse (36,6%), lying (46,5%), exclude pairs (43,6%), defy authority figures (32,1%), ignoring rules (35,6%) and physical abuse (33,7%).

With regards to preventive strategies to aggressive behavior, the results show us that teachers frequently implemented in their classroom the following strategies: 1. clarify the rules and expectations towards children (Cv 81.00); 2. Compliment the positive behaviors (Cv 64.07), 3. Maintain whit the child a safe and positive relationship (Cv 53.47); 4. Encourage positive behavior in solving situations of conflict (Cv 49.49) and 5. To value capacities and skills of the child (Cv 47.08). In the other hand, the punitive strategies frequently implemented by teachers in their classroom are: 1. verbal warning (Cv 77.24), 2. Elucidate the child about the feelings of another (victim) (Cv 61.40), 3. Remind and reinforce classroom rules; (Cv 61.08), 4. Elucidate the child about the consequences of his behavior (Cv 55.29), 5. To value capacities and skills of the child (Cv 41.89) and 6. Reprimand the behavior and not the child (Cv 36.90).

As for the descriptive analysis of the Attitudes Towards Aggression Scale the results show us that prevails among teachers the identification with an offensive and destructive attitude towards aggression. The table1 shows us the variation coefficient of types of attitudes achieved with the submission of ATA.
Table 1. Variation coefficient of the aggression-related components

<table>
<thead>
<tr>
<th>ATA</th>
<th>N</th>
<th>X</th>
<th>S</th>
<th>CV</th>
<th>min</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offensive</td>
<td>202</td>
<td>58.75</td>
<td>5.76</td>
<td>14.90</td>
<td>20-50</td>
<td></td>
</tr>
<tr>
<td>Destructive</td>
<td>202</td>
<td>12.16</td>
<td>1.7</td>
<td>13.98</td>
<td>7-15</td>
<td></td>
</tr>
<tr>
<td>Communicative</td>
<td>202</td>
<td>7.18</td>
<td>2.62</td>
<td>55.45</td>
<td>3-14</td>
<td></td>
</tr>
<tr>
<td>Protective</td>
<td>202</td>
<td>6.19</td>
<td>1.95</td>
<td>31.50</td>
<td>2-10</td>
<td></td>
</tr>
</tbody>
</table>

Thus they recognize the aggressiveness as a harmful, unpleasant and unacceptable behavior and a threat, an act of violence or physical damage.

To test the hypotheses the level of attitude towards aggressiveness of kindergarten and 1st grade teachers is directly correlated with the level of aggressive behavior of children in the classroom it was applied the nonparametric Kruskal-Wallis H test. We found statistically significant differences between the teacher’s attitudes and the aggressive behavior of pupils displayed in the classroom. As a result it is possible to conclude that the teacher’s attitudes towards aggressiveness affect aggressive behavior of pupils.

To test the hypotheses the type of intervention of kindergarten and 1st grade teachers is associated with the level of aggressive behavior of children in the classroom it was applied the nonparametric Kruskal-Wallis H test. In fact, statistically significant differences were recognized between preventive and punitive strategies and aggressive behavior of pupils in the classroom, confirming that the type of intervention is statistically associated with the level of aggressive behavior of children in the classroom.

In order to test the hypotheses the level of training of kindergarten and 1st grade teachers is inversely correlated with the level of aggressive behavior of children in the classroom it was applied the Chi-Squared test. The collected data established that there is no statistically significant association between the academic level of teachers and the level of aggressive behavior of children in classroom context. Moreover, although we found a statistically significant association between the academic curriculum of initial teacher training, including disciplines about the management of aggressive behavior and the level of aggressive behavior, this only occurs for two behaviors, which lays some restrictions to the generalization of the results obtained.

Also arises from this research, the fact that teachers who didn’t invest in training related to the management of aggressive behavior in the classroom are those who observe more often aggressive behaviors in their classrooms. And we establish statistically significant association between the teaching needs expressed by teachers and the aggressive behavior of their pupils in the classroom.

As for the hypotheses the level of experience of kindergarten and 1st grade teachers is inversely correlated with the level of aggressive behavior of pupils in the classroom, to test the different variables it was applied the Chi-Squared test as well as the ANOVA parametric test for the variable age. It appears that the age, the gender and the functions performed are not relevant to the level of aggressive behavior of pupils. There was a statistically significant association between professional situation, degree of education taught, years of service and the level of aggressive behavior of pupils.

As for the results of contents analysis of answers to the open-end questions of the questionnaire, the main outcomes are the confirmation of the presence of aggressive behavior in the classroom, which in terms of classification is mostly proactive and verbal aggression. As regards to their causes teachers pointed out mainly environmental factors to explain the origin of aggressive behaviour, such as parental dynamics, privation of a caring relationship between mother and son, exposure to violence in the neighborhood, exposure to violence in television programs and discontentment towards school.

Additionally, in what concerns to the preventive strategies, the results show an increased investment on strategies focused on teacher/student relationship. On the other hand, as regards to the punitive strategies, the results achieved provide evidences that the investment is largely made on strategies focused in the classroom dynamics. Therefore there is an evidently disinvestment on strategies focused on cooperation with other educational partners.

4. Discussion

It this study the concept of attitude is defined as a set of beliefs, opinions and feelings of kindergarten and 1st grade teachers regarding the problem of aggression in schools. It was confirmed that the way teachers feel, think and react against the aggression influences aggressive behavior in children. This indicates that the
attitude of teachers towards aggression is a potential predictor of their behavior towards the attitudinal object, which in the present case is the child’s aggressive behavior. The identification of teachers with an offensive and destructive attitude towards aggressive behavior led us to say that the way the teachers deals with the aggression in their classrooms is strongly influenced by their attitude towards aggression as well as there is a strong probability of teachers be aggressive towards the aggressive behavior of their pupils, according to Theory Reflected Action and Theory of Planned Behaviour. It was found that prevails among teachers an adverse opinion about aggressiveness. In their point of view, aggression is an abnormal behavior, so non adaptive and misfit that aims to cause damage to another deliberately.

This research has confirmed the presence of aggressive behaviors in classrooms. It is a disturbing outcome, because prior studies stated that the presence of aggressive behavior non adaptive in such an early age is a strong predictor of social and emotional maladjustment in adulthood, besides several longitudinal studies had shown that aggressive behavior is relatively stable during childhood and adolescence, revealing to be more constant when compared to other behavioral patterns.

There is an understanding among teachers that the phenomenon of aggression in schools is increasing. It is important to enhance that sometimes teachers agree to the fact that school plays a role on the intensification of aggressive behavior, mostly because it doesn’t know how to manage it properly. These results are similar to the one’s achieved in prior studies.

In fact, aggression is a product of internal and external factors to school. In order to explain and justify the aggressive behavior that took place in their classrooms, teachers mostly pointed out exogenous causes to the school and to themselves.

This reveals that teachers admit the existence of the aggression problem, but do not consider themselves part of the problem as well as do not recognize that their attitudes towards aggression also contributes to the growth of child’s aggressive behavior along with other factors.

Early childhood is the perfect period to prevent aggressive behavior. This study shows us that teachers do implement strategies to prevent aggression, mostly the clarification of the rules and expectations towards the child, the preservation of a safe and positive relationship whit the child, to compliment positive behaviors and to encourage positive behavior in solving conflict situations.

In cases in which the aggressive behavioral patterns are established, teachers implement punitive strategies such as verbal warning, elucidate the child about the feelings of others (victim), remember and enhance classroom rules, gradually eliminate privileges, elucidate the child about the consequences of his behavior and apply the loose of playground time, replaced it with school work.

Nevertheless the efficiency of punitive strategies is questionable, because its nature is based on coercive, punitive and inconsistent measures, whose effect is the maintenance of aggressive behavior. By applying punitive strategies teachers are intensifying the aggressive behavior rather than minimizing it.

The constant change in society requires that, as part of their initial training, teachers acquire and develop skills in order to enable them to prevent and manage aggressive behavior in classrooms. Likewise, throughout their carrier, they must invest in training in order to reactivate teaching and practices expertise, focused on change and innovation.

Our study reveals that teachers who haven’t attended training sessions to manage and deal with aggressive behavior, have higher values in terms of the frequency with which they observed these behaviors. They acknowledged that the lack of training sessions is a serious limitation on his performance. The recognition of their training frailties suggests that teachers show interest in attend specific training, in order to improve their capacity to manage pupils aggressive behavior in an effective way.

We found out that the frequency of observation of aggressive behavior in the classroom was lower in kindergarten, when compared to the frequency of observation that occurred in the 1st grade.

Previous studies in revised at literature point out the theory of the Inverted U to explain and justify the result achieved.

It also demonstrates that teachers with 7 to 18 years of professional experience are the ones who observed less frequently aggressive behavior of their pupils, followed by teachers with 19 to 30 years of professional experience.

5. Conclusion

The present research aimed to ascertain if the teacher’s profile is correlated to aggressive behavior exhibited by their pupils. We found statistically significant association between the formative needs of teachers and the aggressive behavior of their pupils as well as between the professional situation, level of education, years of
service and the level of aggressive behavior of pupils.

6. References


Session 8: Curriculum, Research and Development

Facilitating Reflexivity, Countering Presentism: The Role of Online Discussion in New Teacher Development
(Author: Adam Unwin)

Teacher as “Knowledge Worker” and the Paradoxes of Acting as Teacher in Self-Regulatory Situations in Higher Education – Results of a Study Experiment in Teacher Training
(Author: Doreen Cerny)

Academic Freedom vs. Guided Instructional Design for eLearning: A Tale of Two Models
(Authors: Chadia Abras, Christina Harnett, Christine Eith)

Outreach Strategies for Forging Partnerships to Improve the Quality of Student Learning Outcomes: Changing Roles for the Academic Librarian
(Authors: Michael Houck, Christina Harnett, Chadia Abras)
Facilitating Reflexivity, Countering Presentism: The Role of Online Discussion in New Teacher Development

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Abstract

This research concerns the professional development of teachers in their first year of teaching who were studying the Master of Teaching (MTeach). The research was interested in the views and experiences of the teachers’ participation in the online discussions (ODs) and how this helped them develop. The findings are that the ODs enabled new teachers to participate by writing for an audience of peers, and by providing a sense of community, with an underlying practitioner focus developed their criticality. These new teachers developed a collegiality, reflexivity and an engagement with wider and longer term perspectives. The research concluded that the gains from the ODs were the result of careful pedagogic design. The overarching finding is that by foregrounding the situated experiences and interests of the teachers, a ‘way in’ is provided for them to understand more fully the complexities, dilemmas and strategies encountered in their own and others’ professional practice.

1. Introduction

The Master of Teaching (MTeach) course was designed in 2000 to focus on the development of teachers in the challenging early phase of their teaching careers [3]. These were made up from teachers from different schools, phases (primary and secondary) and subjects. The DfES recognized that this new course aimed to provide a framework of ‘support for talented new teachers in urban schools’[4] encouraging high level professional learning to take place, nurturing an enquiry approach to ‘understanding teaching’ and raising levels of ‘research literacy’.

There are three main pedagogic ideas that illustrate the thinking behind what the course is trying to achieve and the way it operates. First, there is a clear focus on the participants’ own teaching, their students, their classrooms and their schools. It is a starting point for them to engage critically with practical and theoretical educational issues by trying to make sense of their situated practice [8]. Secondly, it is about participants communicating and reflecting on their own and each other’s practice. It is believed that this sharing and explaining of their experiences and ideas will not only deepen understanding of the complexities at play in teaching but also encourage reflexivity and analysis. What is important is that this communication fosters the development of a ‘community of inquiry’ [5] [6] within the online groups.

‘...a community where individual experiences and ideas are recognized and discussed in light of societal knowledge, norms and values’ [5]

This links to the third pedagogic idea that concerns the development of a deeper understanding of the role of research in education. This is not only about exposure to wider debates about teaching and learning than they might experience in their schools, it is also about them critically evaluating or ‘researching’ what is happening in their own classrooms.

The course is ‘mixed mode’ in the sense that both face to face (f2f) sessions and online components are used. MTeach course participants are arranged in tutor groups working with these peers both at f2f sessions and while taking part in the ODs.

2. Data and Analysis

The data gathered for this research was from five successive cohorts of new teachers. This included their accounts of participation in the ODs, written towards the end of the first year of teaching and interviews conducted with a selection of these teachers at a later stage in their career. Using this data enabled the research ‘to gain access to their accounts and articulations’[9]. The research was guided by the main question: how have the ODs facilitated new teacher development within the context of the MTeach? The theoretical perspective adopted for this research was interpretive with a methodological approach that used qualitative data. Coding utilized qualitative data analysis software (NVivo) and analysis was assisted via ‘thick descriptions’ [2]. Table 1 provides a summary of the themes that emanated from the research.
Table 1. Theme summaries

| Community: | It was apparent that participants felt that elements of community developed during the MTeach and that the ODs helped facilitate and sustain this community. This is something that sometimes contrasted with their experiences in school or was an additional support network for them. The value of these communities manifested itself in participants feeling less isolated, feeling safe, being able to honestly share and compare experiences in a non-judgmental way, feeling trust and being empowered and more confident about their teaching strategies. |
| Practitioner focus: | The ODs enabled a practitioner focus where participants could share information and experiences and seek advice. This centered on what was happening at school, in their department, in their classroom, with groups and with individual students. Often this involved discussing relatively short term issues and ideas but there was clear evidence of longer term strategies starting to develop and be considered important. These practical issues were not only about their classes and teaching but also about wider early professional development (EPD) matters such as support and power relations. |
| Criticality: | It was apparent that participants developed their skill of criticality. They were aware of this during their participation in the ODs, on reflection at the end of their newly qualified teacher (NQT) year and later when interviewed. This criticality took a number of forms. It was about questioning the status quo and practice; self-criticism / reflection; thinking deeply about what was happening and why; recognizing the complexities involved; seeing links between theory and practice; questioning theory and seeing a bigger picture (beyond school). |
| Writing (and reading): | Because the ODs are conducted as asynchronous text based exchanges it is unsurprising that participants found the integral reading and writing important aspects of the ODs. This theme considers these aspects but also looks at what participants felt the writing enabled or restricted within the ODs as well their wider thinking. For instance how did the need to be succinct and present personal contexts and thoughts clearly to others help participants? |

3. Summary of research questions and research findings

The overarching research question is ‘How have the ODs facilitated new teacher development within the context of the MTeach?’ The findings suggest that the ODs provided an environment and activities where participants developed a sense of community. This community allowed a safe space for them to share their practical experiences and concerns about their teaching and school lives. This participation with other new teachers provided support and development different from that in their school settings. The use of the ODs encouraged a deeper, wider and more critical understanding of participants’ classrooms. This is because the ODs were designed to make use of literature, have tasks that require reflection, and to frame discussions around participants’ own classroom experiences and responses to peer experiences.

‘What is the nature of new teacher development within this setting?’ was one of the sub questions. Analysis suggests that there was development within the groups and as individuals of ‘criticality’. This was a gradual development over time as participants used the ODs to look at their classrooms and situated experiences in different ways. Their participation included questioning literature, practice and policy and the adoption of an inquiry approach to situations and issues. This development was not phase or subject specific but seemed to foster transferability and adaption of ideas to participants’ professional practice as well as consideration of wider perspectives. This criticality included recognition of the complexity of factors at play in education and the limitations of short term and ‘quick fix’ solutions or strategies.

‘What aspects of the OD do participants see as important in enabling new teacher development?’ Was the second sub question. It was clear that participants valued the community made up of similar (all new) but different (schools, phases and subjects) teachers, where they felt they could be honest and open. The practitioner focus was important with the starting point for the ODs being their own classrooms and issues of concern and interest to them. This practitioner focus along with the structure and timing of the ODs made it manageable in the very busy first year of teaching. The requirement to write succinctly and for an audience of peers was both difficult and beneficial. It was difficult to convey contexts as clearly as face-to-face (f2f) discussions where an explanatory and clarifying dialogue can occur. The process of writing for the ODs made participants think carefully about their contexts and made them analytical about their practice and situation.

The themes can be considered outcomes of the ODs whereas the term ‘pedagogic design’ is used to refer to the strategies and processes that facilitate the ODs. It is about what participants were asked to do as part of the OD and how this was structured, set up and worked. The research process adopted the lens of pedagogic design to help understand better what was happening within the ODs.
‘How does the pedagogic design of the ODs underpin and enable new teacher development?’ was the final sub question. It is clear from the analysis that the pedagogic design of the ODs was key in facilitating the way they worked. This could be described as happening at both a macro level (course / module) and at a micro level (OD specific). For example, macro factors would include the length of the module over a whole NQT year, with a mix of half-termly ODs and termly f2f meetings. Also, that online tutor groups were small (no more than 15) and made up of a mix of phase and subjects teachers, whereas micro factors concern how the specific half-termly activities were designed: that literature was introduced with a concise briefing paper that set out the required focus in an accessible way; that ODs used frameworks, models and tasks to help participants think about issues in their own classrooms; that ODs required the starting point to be something that was part of each participant’s situated experience; and that there were clear, manageable timelines and word limits.

4. Reflexivity

What is significant about the MTeach ODs is that, despite the presence of pressures and barriers to deeper thinking, they allow and encourage reflexivity. The online tasks and activities ask participants to reflect on their practice, but not in a narrow, prescribed or formulaic way. The ODs require participants to explain and share their teaching contexts. By doing this these experiences are moved into a more public realm encouraging collective reaction and responsibility. So rather than being inward looking with a danger of self blame, the complexity of the classroom and the need to consider wider perspectives is foregrounded as valid and important. These teachers are at the very beginning of their teaching career with pressure to ‘get things right’ quickly (control behavior, meet induction standards). In contrast to this the ODs provide a more gradual approach and encourage longer term thinking to help them understand what is happening in their classrooms. Participants adopted a sustained evaluation of practice, revising their views and ideas as the year progressed. This was facilitated by being part of a community that exposed them to different practice and different ways of looking at practice, and the enquiry approach that was required within ODs and module coursework. This inquiry approach encouraged deeper, wider and forward thinking about practice rather than narrow, individualistic reflections about what has happened. These new teachers were starting to make what Moore called the ‘reflexive turn’ [10] becoming ‘authentically and constructively critical ... challenging rather than confirmatory’ [10].

They were experiencing a ‘pedagogy of discomfort’ [1] where their educational assumptions were challenged by themselves and each other. There is a sense that their evolving identities as teachers were linked and shaped by the MTeach and the ODs. It is the shared critical discourses, particularly within the ODs, that influence their thinking and practice at this early stage of their teaching career. Reflexivity recognizes the importance of community, collaboration and collegiality which is discussed in more detail below.

5. Collegiality

According to the findings, what is special for NQTs on the MTeach is that they have a space separate from work where they can raise issues of concern and interest and this is in a community of equals or peers. For example they can question school policy or micro-community practice without feeling vulnerable, judged and compromised. They can also be honest and explicit about their progress, what they fear, what has gone wrong, what has gone well, what they find frustrating and other challenges. In the ODs they are ‘listened to’ and receive feedback about issues specific to them and their context which provides a supportive community with a semi-cathartic role. This collegial process is underpinned by the way the ODs are designed, where participants initially present to the whole group issues (albeit framed within an area of focus) that are of contemporary interest to them. They subsequently receive feedback from others with threads of discussion often developing. What makes this process more empowering (and perhaps less threatening) is that the online group has the added dimension of an inter-subject and inter-phase collegiality, with participants benefiting from understanding beyond their school or subject micro-community. In the ODs teacher professional judgement is allowed and valued; by developing their criticality in this way at this early stage of a teaching career attributes of reflexivity are nurtured.

What is important is that the collegiality that the ODs facilitate is not confined to the MTeach group; if it were it would be limited in terms of teacher development. What happens is participants’ critical engagement with practice becomes integrated into their school contexts and communities. Participants explained how the development they gained via the MTeach was different from their experiences at school. They were often complimentary about aspects of school support, feeling that the MTeach supplemented this and gave them wider perspectives: neatly summarized by one participant as the ‘why’ not the ‘how’.

Their participation in the MTeach strengthens their school roles, giving them the self-assurance to suggest and introduce new ideas; contributions
which were often recognized as valuable and acted upon. Thus the practitioner focus and criticality that are intrinsic parts (and are outcomes) of the MTeach ODs gives credibility to the participants in their school communities.

6. Presentism

The concept of presentism drawing on Hargreaves’ work on ‘the persistence of presentism’ [7] was central to this work. Hargreaves identifies an over reliance on short term strategies which is in part due to a constant flow of policy initiatives and pressure for results. There is a concern that new teachers will adopt a survivalist approach [12] and concentrate on the immediate, especially if such short term strategies are part of school ethos and practice. In a similar way to utilizing competence based standards this short term focus will limit the development of reflexivity, of thinking more deeply about the complexities and longer term issues at play. There is the danger the strategies provided are ‘one size fits all’ and that new teachers are expected to implement these in a prescribed way, rather than the teacher experimenting with strategies that encourage teachers to question and revise their existing approaches to teaching and learning’ [7].

Hargreaves [7] suggests that presentism can be addictive and become endemic, whereas in the case of the new teachers on the MTeach the ODs are a crucial factor in reducing such tendencies. The criticality and practitioner focus central to the ODs counter and challenge presentism. The way the ODs are structured and evolve allows these teachers a longer time frame to engage in a more nuanced consideration about their teaching. The situated nature of the initial stage of the ODs foregrounds and considers the need of participants to think and act in response to the challenge of ‘rumination or reflection’ [7] where participants need to think analytically about what is happening in their teaching and then present this in a meaningful and succinct way to peers. The community and situated aspects of the ODs exposes these new teachers to different ideas and accounts of practice which by design often become focused on particular learners. This challenges the assumption that there is one way or a best way of doing something when it is apparent that contexts and learners can be so diverse.

7. Conclusion

What is important in the way the ODs operate is that they endorse an engagement with the ‘complexity of the classroom’ [11] and in doing so question simplistic solutions or strategies. They foster an enquiry approach, which by its nature is forward thinking and moves away from the immediacy of presentism. This future orientation means strategies become longer term, more holistic and grounded in why things happen as opposed to adopting approaches which are judgmental, formulaic and over focused on the negative. This forward thinking and enquiry although concerned with participants’ own contexts, are assisted by the community and by the artefacts that make up the online activities. These have an important formative role and demand engagement with theoretical concepts and wider perspectives that go beyond their subject, phase or school context.

NQTs are vulnerable to presentism; it can become part of a survivalist strategy especially if promoted within the school ethos and practice. The way the ODs are designed, the way they operate, the multi-faceted contexts of participants and the actual outcomes (the discussions) are all important in making them work in a way that counters the beguiling attraction of presentism. This combination of factors encourage a questioning a ‘reflective skepticism’ towards new initiatives, policy and best practice models rather than a passive acceptance.

8. References


Teaching as “Knowledge Workers” and the Paradoxes of Acting as a Teacher in Self-regulatory Situations in Higher Education – Results of a Study Experiment in Teacher Training

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Abstract

The presentation questions and examines the possibilities of self-regulated learning in teacher training programs from the perspective of university teachers. According to this teacher study, students are influenced by their professional biography. However, students also see university teachers in their professional productivity aspiration in higher educational institutions. This paper is based on a study attempt at the University of Teacher Education, in Salzburg, analyzing empirically, the focus group with university teachers, from 2013-2015. The following aspects will be discussed in this presentation: (1) Do teachers in self-regulated forms of teaching identify paradoxes in their actions, and if so, what are they? (2) Where do teachers see the challenges and limitations in self-regulated teaching forms? How do they see and perceive their “role” while acting as a teacher in higher education? The results will be discussed, following Foucault, including “power mechanisms” (e.g. timing, space, test procedures) in teaching methods that should lead to increased productivity in self-regulating learning environments in higher education.

References


Academic Freedom vs. Guided Instructional Design for eLearning:
A Tale of Two Models

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Abstract

The guided instructional design faculty development proposal is an evaluation of two models in instructional design preparation for online and blended learning (eLearning) at a local University. The proposed models currently implemented are geared toward: i) training faculty in instructional design practices, which gives them the autonomy to design and implement online courses using best practices in the field, or ii) assigning an instructional designer to each faculty member who will guide the design and implementation of eLearning content. In either model, faculty are trained on how to teach online and how to effectively manage their course and administer feedback that targets student improved learning outcomes. Both models target effective online design and delivery of eLearning events, however, they differ in faculty responsibility, freedom, and implementation of eLearning programs. The value of the proposed research is in shedding light on a potential model for facilitating faculty development for designing eLearning events that are tied to program goals and student learning outcomes. The discussion will include an overview of each model, the affordances and challenges in either model in delivering high quality and engaging eLearning courses and programs.

1. Introduction

Following best practices in instructional design (ID) in creating and delivering online eLearning courses and programs is receiving increased attention as accrediting bodies focus more closely on distance learning as an alternative mode of instruction delivery. Teachers in the information age already are or are expected to be designers [1]. When teachers are given a task to design, organize, and deliver content to students, they must choose a variety of techniques and technologies, while keeping in mind that each technology or technique may serve a specific learning objective and may elicit a specific learning outcome. Therefore relying on sound instructional design practices is important for their success; this is especially true when designing for eLearning events. Learning is an innate process best awakened by addressing learners’ reluctance to demonstrate, apply, and share collective experiences. Therefore, in eLearning, the design must be learner-centred and tailored to fit the content, student needs, and instructor teaching style. Effective eLearning designs have to be inquiry-based where agents are designing for active and effective learning. The nature of online instruction presupposes an active process in which the students are in charge of their own learning; they have to be directive and engaged learners in order to succeed. Active learning is a problematic concept, since, as some believe, learning and knowledge acquisition cannot occur in a passive state.

A collaborative approach to course design, is another layer that faculty have to consider because it is vital for the survival of the learning community. Creating community online is crucial to students’ success as found in research in eLearning effective best practices for course development and delivery [2]. These best practices stipulate that online courses within a program should follow usability heuristics, such as consistency of design, consistency of language, and accessible content. While sociability heuristics stipulate creating community, by effectively connecting student-to-student, student-to-faculty, and student-to-content and resources.

Given the complexity of instructional design for eLearning, and the importance of effective and creative designs in students’ success, it is crucial to offer faculty training in either instructional design, or support for eLearning course design through well trained instructional designers. The researchers proposed two faculty development models as seen in Figure 1.
The two models include an option for: i) training faculty on effective instructional design practices for eLearning, while empowering them to decide on best approaches to deliver their content; ii) creating a team of course and curriculum developers, that includes instructional designers, technology and media specialists, and faculty as the content expert. In either model the instructor is trained on how to teach online, manage the course, and deliver effective feedback.

Through observations, focus groups, and surveys of faculty, students, and program directors, the effectiveness of each model will be evaluated in light of student satisfaction, engagement, and increased learning outcomes, as well as faculty perceptions of their own freedom, control, and engagement. The researchers will employ quantitative and qualitative methods for the purposes of triangulating the analysis. In this research design, active learning strategies will guide the study and its outcomes. Results of this investigation will be utilized to evaluate the effectiveness of either model of faculty development in eLearning. Data analysis will focus on identifying specific themes to support the effectiveness of each model by using a constant-comparative technique [3].

2. Research Rationale

Faculty development and training according to Berge [4], is “…mainly concerned with developing the skills people use to solve problems within an already existing, well-defined system of knowledge”. He further stresses that for training to be successful, it has to guide the trainee to effectively distinguish when to use a prevailing knowledge and when to create an alternative activity to better suit the new delivery milieu. Therefore, training faculty on how to effectively design for eLearning is crucial to their success.

The anticipated advantages and disadvantages of each proposed model will be considered in light of best practices for eLearning and instructional design. Sugar and Luterbach [5] proposed the following best practices for instructional design eLearning using a Critical Incident Technique [6]: i) creating instructional products, ii) providing examples, iii) differentiating instruction, iv) establishing social presence, v) providing resources, and vi) collaborating with stakeholders as described by Dicks and Ives [7]. Their best practices are built on the assumption that faculty are collaborating with designers to create effective eLearning curricula. We are proposing that in addition, we can rely on the proposed best practices to empower faculty to design and deliver their own courses. Furthermore, faculty will have to be trained on instructional design processes using theory to inform practice [8].

The objective of the study is to create an effective faculty development model for designing and delivering high quality eLearning content.

3. Conclusion

The researchers intended outcomes for Model 1 are: i) consistency of design, ii) consistency of content across sections, iii) well-guided and informed student experiences. In Model 2, the intended outcomes are: i) to empower faculty through engagement, ii) ensure the design and content are guided by faculty need and style, iii) to reduce cost and resources in supporting a big team of designers and developers. In either model the one aim is to improve student engagement and learning in the eLearning space. The unintended outcome may be the emergence of a third model for faculty development.

4. References


Outreach Strategies for Forging Partnerships to Improve the Quality of Student Learning Outcomes: Changing Roles for the Academic Librarian

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Abstract

The research work describes an emerging trend among academic librarians to focus more closely on the quality and types of faculty partnerships within academia. This re-evaluation of the librarian’s role away from a vendor of resources to stakeholder in student learning outcomes better situates them as facilitators of learning and collaborative faculty partners. Recognizing this trend, the Johns Hopkins University Sheridan Libraries have been proactive in forging such partnerships between librarians and faculty by redefining and realigning the librarian’s role in light of calls for greater accountability of teaching and learning and the growing complexity of the information market. The current model utilizes the library professional’s strength in information discovery as a medium for delivering faculty development initiatives and for facilitating models appropriate for instructional design. Moreover, this shift in emphasis also targets stronger engagement of students in the use of library resources. The presentation provides an overview of the differing types of initiatives undertaken at the university to build alliances with stakeholders to include the use of an “embedded librarian” within an online format and potential methods for evaluating outcomes.

1. Scope

New technology and emerging technological advances have impacted the way students seek and identify information sources as well as the manner in which they are trained to search for such sources. Both identifying sources and retrieving information has direct implications for outcome quality. The term “information literacy” (IL) encompasses both the ability to retrieve information to address research questions as well as the ability to discern the quality of these searches.

While faculty recognize the importance of IL skills as mediators of student learning outcomes, research indicates that faculty may not include library instruction in their courses nor teach or assess IL skills within courses resulting in a disparity between desirable skills to support learning outcomes and skills that are directly supported through instruction. While faculty espouse the importance of these skills, they may not be a focus of development [1]. Given this state of affairs, DaCosta concludes that faculty may “need more of a push to truly embrace” strategies facilitating IL skill development within a disciplinary curriculum [2]. Perhaps part of this dilemma lies in the belief that faculty view these skills as emerging developmentally as a natural consequence of educational progression and not as skills in need of direct instruction; this tacit assumption implies that “an information-literate mind-set” may emerge haphazardly rather than intentionally resulting from guided instruction [3,4]. Indeed, it may be the own faculty member’s educational experiences that support this proposition [4].

To remedy the matter, researchers posit that initiatives focusing on IL skill mastery should be undertaken within a paradigm that promotes collaborative faculty-librarian partnerships. Such joint ventures may be encouraged by building faculty “trust” through (i) displaying information technology expertise, (ii) becoming more engaged in faculty activities, (iii) developing a stronger service orientation, (iv) the development of teaching/learning strategies, and (v) through curriculum development [2,3] and faculty-librarian coordinated efforts to integrate IL instructional strategies into courses [5]. McGuiness believes that, “these changes mark a welcome shift with regard to the way in which [librarians] roles in the academic community have traditionally been viewed by non-library colleagues, and the net effect has been to move them closer to the pedagogical structures that they have always supported.” [4]. Quite simply, librarians need to create a presence in the academy that highlights their expertise in facilitating curricular and mission outcomes [6].

2. Objective and Motivation

The Johns Hopkins University Sheridan Libraries enjoy a rich mission and history of supporting knowledge search and acquisition in facilitating academic outcomes across constituencies by “providing information resources, instruction, and services”. [7] However, 21st century librarianship also
faces additional challenges to surmount. According to Matthews, today’s librarians serve a wide spectrum of consumers with differing needs, face information-literate consumers emerging from the millennial age, and must embrace emerging technology while trying to find creative and engaging ways to incorporate it into library services. Moreover, he argues that they must focus on the development of new professional skill sets to include elements of business acumen such as marketing, service orientation, assessment and continuous improvement, and responsiveness to the environment [8].

Given existing needs within educational settings for the development of IL skills as well as emergent challenges, it is clear that innovative strategies grounded in business principles are needed. The Sheridan Libraries model uses multiple outreach strategies to reach constituents. Through these methods, librarians are better able to position themselves as information discovery experts in order to influence the manner in which IL skills are targeted in and outside of the classroom. In addition, the model attempts to assess the utility and impact of its market strategies. Strategies utilized include (i) campus outreach activities to heighten awareness of resources provided by the library and library staff, (ii) orientation events to showcase specific services and resources, (iii) course related and course-integrated interventions, (iv) information literacy workshops, (v) physical and/or virtual library tours, (vi) in-house sponsored thematic events, (vii) community outreach efforts, and (viii) the use of “embedded librarians” in online and web-enhanced courses.

This paper discusses each of the outlined strategies for increasing awareness of resources for developing IL skills as well as focusing specifically on the development of faculty-librarian partnerships to include the use of an “embedded librarian” in online courses. It also presents a paradigm for assessing intervention effectiveness.

3. References


Session 9: Learning / Teaching Methodologies and Assessment

The Concurrent Validity of the Penn Interactive Peer Play (PIPPS) and the Preschool Play Behavior Scale (PPBS)
(Author: Chi Hung Leung)

A Case Study of Student Engagement and the use of Innovative Technology Enhanced Learning Tools for Tourism and Hospitality Programmes in the Institute of Technology of Tralee
(Authors: Aileen Kelly, Valerie McGrath)

The Interaction of Self-regulation Skills and Advanced Content in a Technology-enhanced Postsecondary Music Course
(Authors: Patricia Boechler, Luis Fernando Marin, Mary Ingraham, Erik deJong)

Technologically Enhanced Lectures
(Authors: Teemu Rajala, Antti Aine, Peter Larsson, Rolf Lindén, Mikko-Jussi Laakso)
The Concurrent Validity of the Penn Interactive Peer Play (PIPPS) and the Preschool Play Behavior Scale (PPBS)

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Abstract

The purpose of this study was to investigate the relationship between the PIPPS-HK and the PPBS-HK in order to establish concurrent validity of both scales. A total of 1,622 children aged three to six and 152 teachers in ten kindergartens (about 160 students and 15 teachers randomly selected from each kindergarten) were selected to participate in this study. The PIPPS-HK correlated well with the PPBS-HK, providing further evidence of each measure’s validity. However, a different meaning of social withdrawal behavior in PPBS-HK was found in the two measures. The emic concerns regarding social withdrawal need to be further identified in the Chinese cultural context.
A Case Study of Student Engagement and the use of Innovative Technology Enhanced Learning Tools For Tourism and Hospitality Programmes in the Institute of Technology of Tralee

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Abstract

Having being involved in delivering tourism and hospitality programmes within the Institute of Technology on the trainee management development programme, the use of blended tools is very much promoted in delivering content to students. As part of the TMDP programme, students were required to undertake two online modules per semester. These modules were delivered in a synchronous manner with students participating in quizzes and question and answer sessions during their sessions. Asynchronous learning is also promoted to ensure that students engage with material throughout the semester.

This case study is from a practitioner perspective and highlights the advantages of using of using innovative technology learning tools such as Blackboard Collaborate in the classroom. It is hoped that this case study could further the promotion of innovative teaching tools for tourism and hospitality programmes.

1. Introduction

In recent years there has been a significant focus on promoting student engagement in the classroom. James et al cited in Wdowik [3] have identified that it is important that students should be encouraged to engage with their instructor and material both inside and outside the classroom.

2. Literature Review

However, student engagement in an online environment can be significantly more difficult if there is a lack of face to face contact. This is of significant importance since the Higher Education Authority, Ireland [1] have identified the numbers of blended and flexible learning programmes on offer in Higher Education institutions in Ireland are on the increase. This is evidenced in Springboard programmes that are offered in Irish Higher Education institutions. In 2012-2013, 24% of Springboard programmes that were offered through Higher Education institutions were offered through blended/flexible learning. However, with the use of information, communication technology (ICT) tools such as Blackboard Collaborate this can be made much easier.

Why use Blackboard Collaborate? Wdowik [3] has identified that if student engagement is to be effective in an online environment, the online platform should encourage students to interact and be actively involved in the learning process.

Blackboard Collaborate offers a number of useful tools such as Whiteboard, text chat facility, real time voice, ability to share learning material and automated voting, breakout room and recording option. Wdowik [3] the advantage of having these tools at hand is that the student can effectively interact in the same fashion that they would in a face to face classroom. For example the whiteboard facility on blackboard allows students to engage in class discussion and interact in activities by writing or adding to information posted on the whiteboard. If students are too shy to use the real time voice facility they can use the text facility to pose questions to the instructor. Also throughout the lesson the instructor can ask students to use the automated voting facility in relation to questions posed in the session. The session can also be recorded which is beneficial for those who want to revisit a session or for those who have missed a session.

3. Main title

Within the Institute of Technology, Tralee a blended learning approach is utilised in one particular undergraduate programme aimed at tourism students. The Trainee Management Development Programme hereafter referred to as TMDP has been running at Institute of Technology Tralee (ITT) for the last four years. This programme offers those currently employed in the Hotel Industry the opportunity to pursue a Degree in Hotel Management while simultaneously working with their sponsoring employer. Each year of the programme comprises of the delivery of sixty credits of study through a blended learning approach. This programme will require students to spend seven weeks per annum at IT, Tralee where they will complete six modules and meet assessment requirements as appropriate. In year one student will receive a comprehensive additional induction week.
where a range of workshops are arranged to assist students in the transition onto the TMDP programme. This induction week addresses areas such as online learning and engagement, work based learning, using Blackboard and also utilizing the college library resources and databases to enhance their studies and further research.

While in the Institute of Technology Tralee, students are exposed to a range of innovative teaching approaches and lecturers ensure all delivery is closely aligned with practical industry influences. Guest speakers from industry experts, live case studies, industry site visits and interactive workshops are all used to further emphasize the theory explored upon in class.

The remaining modules on the programme are delivered on-line using Blackboard Collaborate which is a simple, convenient, and reliable online collaborative learning solution. This application allows students to log into the virtual classroom and engage in a live online class controlled and delivered by the Lecturer. This method of delivering lectures is extremely benefit to our students as they are based in hotels throughout the country. Due to nature of their work environment, these students are unable to attend face to face classes on a daily or weekly basis. Therefore, by using technology students are receiving the same experience as the traditional day students on the campus.

Collaborate delivers a level of engagement that provides learners with an environment that feel as if they are together in the same room via collaboration and conference tools. Students are assigned tasks to complete each week and utilize online interaction tools such as discussion board forums, multiple choice questions, live website links and debates with other class members. Today’s learners want new ways to engage and collaborate. Instructors assigned to the module ensure that students engage and collaborate during the week. Depending on the stage of the programme that the student is at, they may be required to log in and engage in class discussions a number of times during the week. Students may also be required to collaborate as part of team to complete a task. Virtual classrooms and online professional development delivery offers new opportunities to interact and engage with students who are at the same time gaining valuable practical skills working in industry. This mode of flexible learning and online delivery suits the hospitality industry as it gives students options especially for those who are unable to commit to full time studies. Utilizing innovative teaching styles and bridging the gap between the hospitality industry and what is being taught in the classroom has received much attention in recent times and is a major challenge today for Higher Education in Ireland. According to Higher Education Authority of Ireland [1] who are responsible for devising the National Strategy for Higher Education for Ireland “In the years ahead, students will choose to learn in a variety of ways – full-time or part-time; on-campus or off-campus; classroom based, blended, online or accelerated learning. Some of this learning will take place through open and distance learning; some will take place in the workplace; and some will take place in outreach centres.

4. Conclusion

It is critical that higher education institutions now ensure that there is flexibility within our programmes is essential to open up participation and offer inclusive programmes with a range of learning styles to students who are unable to attend classes in a traditional classroom. In a study conducted by Lopez-Perez et al [2] their results identified that students displayed a high degree of motivation and satisfaction with a blended learning experience and as a result these students held a positive stance in relation to learning. While the TMDP programme is a relatively new programme, the mode of delivery of the programme could be replicated in other programmes across the institute. As this is a practitioners’ perspective of how the implementation of the TMDP programme within the Institute of Tralee, further qualitative research could be undertaken in the further to gain a deeper insight into students’ experience of the programme.

5. References


The Interaction of Self-regulation Skills and Advanced Content in a Technology-enhanced Postsecondary Music Course

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Abstract

This study is an extension of our previous research on the infusion of technology into a postsecondary music course to promote the skill of close listening of music. Due to many in-class hindrances (e.g., time, equipment, acoustics, class size) students in postsecondary music courses do not often experience quality listening opportunities to be able to detect important musical elements. For this study, we developed on-line, supplemental listening activities using Articulate Storyline, Adobe Connect and the virtual world Open Sim. We pretested students on music experience, computer experience and self-regulation. At the end of the course, students answered a survey on their enjoyment, tendency to recommend, engagement, perceived increase in understanding of material and whether or not the activities were worthwhile. In a comparison of 2014 and 2015 results, we found that students with high self-regulation levels rated the above items more positively when the content included more advanced musical concepts.

1. Introduction

Due to many in-class hindrances (e.g., time, equipment, acoustics, class size) students in postsecondary music courses do not often experience enough quality listening opportunities to be able to detect various important musical elements [1]. To attend to these difficulties, we have developed a series of technology-based supplemental asynchronous listening activities that are implemented on-line, outside of the classroom.

According to Akilli [2], one of the most substantive obstacles to the optimal integration of technology into educational activities is the lack of a guiding development model that is based on learning theory and supporting research. To address this problem, we took great care in developing a theoretical framework to guide the development of our technology-based educational activities, specifically targeted at music content [3].

This was accomplished in two steps: 1) Understanding the cognitive processes involved in the close listening of music, and 2) employing a knowledge acquisition theory that aligned closely to those cognitive processes.

For step one, we relied on Honing’s description of the cognition of music [4]. His theory is based on the premise that all humans are born with the innate ability to distinguish different musical elements but through the process of learning our own cultural music conventions this skill becomes implicit, that is, not available to our conscious awareness. Therefore, what is needed is an approach that moves this implicit skill towards conscious awareness, making it explicit and accessible. For step two, we looked to Karmiloff-Smith’s Representational Redescription (RR) Model [5] which explains, through a series of four stages, how knowledge moves from implicit to explicit.

Combining these two theories to create our guiding framework, each technology was chosen to increasingly move the learners’ cognitive processes from implicit to explicit allowing for communication and sharing of their understanding of the musical concepts. Our first on-line activity used interactive presentations authored with Articulate Storyline to allow the students to listen to pairs of music and make judgements about the musical elements they hear. This independent and self-paced listening experience is our first step in the RR Model, where the students’ innate ability to hear different musical elements becomes available to their conscious awareness through repetitive listening. The second listening activity made use of Adobe Connect web-conferencing software for instructor facilitated discussions. In these sessions, students use the labels for musical elements they learn from the Articulate sessions and begin expressing their understanding of the elements and their connections to the socio-political context from which the musical examples emerged. The last technology, the virtual world simulator Open Sim, allows for a series of peer-based discussions in an immersive environment.
where students, as avatars, experience cultural aspects and artefacts in multiple forms (e.g. video, audio, historical images and documents, musical scores) from the place and timeframe from which the music originated. These sessions stimulate further linguistic competency in using musical terms while students discuss their knowledge and interpretations with others.

2. Background

2.1. Advanced music content

Understanding the role of music in cultural contexts is a complex, interdisciplinary activity. Materials incorporated into this project were diverse and represented a complex environment for student investigation. The goal of the project was to build an understanding of the ways in which multiculturalism is expressed in music, such as the use of texts, songs, genres, or instruments from other cultures, or by incorporating musical features of these cultures such as their melodies, harmonies, rhythms or timbres. In order to identify such features, students must be able to distinguish highly nuanced differences in musical sounds and styles. In the Articulate listening activities, therefore, we introduced the concepts of meter, timbre and listening for multiple styles of cultural expression.

Recognizing meter is a fundamental skill in music education and refers to the ability to hear patterns of stressed (strong) and nonstressed (weak) beats; nonmetrical music is described as not having a regular underlying pattern of strong and weak beats. For first-year music students, hearing the difference between metric and nonmetric music is the primary goal; in advanced listening activities, students are required to listen for groupings of strong and weak beats, and to identify whether the meter is grouped into duple (multiples of two) or triple (multiples of three) meter.

Timbre, or tone colour, defines the quality of a musical sound. The ability to recognize timbral difference requires students to hear sometimes nuanced sounds produced by different musical instruments. Such distinctions result from both the material from which the instrument is made as well as the manner in which the sound is produced and whether electronic enhancements are evident. While most students can (and do) hear general timbral difference, they often cannot identify the actual instrument or articulate how or why this difference is produced.

Identifying multiculturalism in musical expression is similarly complex in that it requires students to listen to individual features of music and to hear and comprehend the combination of multiple cultural traditions within a single work. Here we asked students to listen to and compare musical examples in which a single culture was sounded with those in which more than one cultural tradition was expressed. Without specific contextual information, students were not required to identify which cultures were heard, but rather to listen for the timbral, rhythmic, melodic, and other distinctions that could be heard as expressing one or more cultures.

Adobe Connect and Open Sim were used to present multiple cultural objects to students for discussion and comparison and to engage them in considering multiple textual, audio and visual sources across two different platforms. Here students were given materials to consider on their own, and asked to respond to questions relating to each object or to compare two or more of these objects in formulating an understanding of how musical works fit within a specific cultural context. Historical and traditional forms of expression were compared with newer ones to assist students in understanding the migration of cultural expression across time and place and to situate these within a Canadian context.

2.2. Self-regulation skills

Self-regulation refers to the capacity for self-guidance, the management of voluntary action [6], and to the self-generated thoughts, feelings, and actions that are planned and cyclically adapted to attain personal goals [7] [8] [9]. Academic self-regulation refers to students’ abilities to be proactive about their own learning through their choices of motivational self-talk, strategies, learning environments and behaviours that move them toward their academic goals. Higher levels of self-regulation have been linked to higher academic achievement [10].

Self-regulated learners are reflective about their learning processes and environments, and monitor the effectiveness of their own thinking and strategies, including the types and degrees of instruction that they need [11], their active approach to learning results in activities, thoughts and feelings that help to create connections between current information and prior learning [12].

In the context of on-line learning, even stronger self-regulation skills are required to maintain motivation and engagement, and to direct effort and planning [13]. In on-line learning, although significant differences in grades of high and low self-regulators may be inconsistent, Artino and Stephens [14] report that low self-regulators experience less cognitive and reflective engagement as well as less satisfaction and willingness to participate in subsequent on-line experiences.

For these reasons, as in our previous research [3] we included a measure of self-regulation in the 2015 study.

This paper is a report of a new analysis of our 2014 articulate data and a comparison between the 2014 and 2015 articulate data, which denotes
differences in student’s perceptions when interacting with more advanced musical concepts in the on-line listening activities.

3. Methods

In each study, the students completed several surveys before starting the listening activities. General demographic information was collected (e.g., program, year in program, gender and age) as well as: 1) a music experience survey [3], 2) a self-regulation questionnaire (SRQ) [15], and 3) a Computer Experience Questionnaire [16].

The music questionnaire asked about the music courses students may have taken and activities students engaged in outside of their coursework.

The Self-regulation Questionnaire asked students to rate statements on a 5-point Likert scale. Both positive and negative statements are included in the 63-item questionnaire such as “I usually keep track of my progress toward my goals” and “I get easily distracted from my plans”.

The Computer Experience Questionnaire has three parts: 1) the Software Recognition Test (SRT), a measure of general exposure to computer applications and digital materials, 2) the Educational Activities Checklist (EAC), the number of education-related computer activities students have carried out (e.g., writing html code, using a formula in a spreadsheet, using a library database), and 3) the Recreational Experience Scale (RES), the number of hours per week students spent playing video games or social networking in Elementary, Junior High, High School and University.

After all on-line activities were completed, students filled out a survey of student perception of value based on a 5-point Likert scale (e.g., I enjoyed... I would recommend... I would engage in more of these activities... These activities helped my understanding... These were worthwhile activities).

4. Results

In a new categorical analysis on the dataset from our first study, using +/- one standard deviations from their group mean as cut off points, SRQ scores were categorized into high, moderate and low self-regulation skills. For the 2014 sample (N=86 students in a first-year undergraduate general music history course) we found that, as far as students’ perceptions of the listening activities, there was a significant difference between students’ perceptions across different levels of self-regulatory capacity: students more skilled in regulating themselves perceived less value in highly structured activities. Using a Likert scale where 1 equaled total disagreement and 5 total agreement, students with higher self-regulation (SRQ scores => M = 213.95 + 1 SD = 13.787) on average disagreed that they enjoyed, would recommend, or would engage in more listening activities [M = 2.77, SD = .928; F(2,63) = 3.877, p = 0.026 < .05]; that these activities had helped them improve their levels of understanding [M = 2.5, SD = 1.41; F(2,63) = 3.613, p = .033 < .05]; and that these were worthwhile activities in the course [M = 2.25, SD = 1.28; F(2,63) = 5.539, p = 0.006 < .05].

For 2015, again we used articulate listening activities and Open Sim Virtual Reality discussions but we also introduced an Adobe Connect Virtual Classroom discussion to present students with a variety of musical materials that would help enhance their listening and critical thinking skills. This class, a third-year undergraduate music history course, was significantly different in size (n=16) and composition from the 2014 dataset. On average participants were further in years of their programs [M = 4, SD = .81; F(1, 97) = 34.421, p = .000 < .05], and more experienced in music [M = 7.23, SD = 1.878; F(1, 97) = 17.288, p = .000 < .05], software recognition [M = 10.77, SD = 3.219; F(1, 97) = 15.225, p = .000 < .05] and self-regulatory skills [M = 223.69, SD = 14.494; F(1, 97) = 6.201, p = .014 < .05]. Again, based on their SRQ scores we classified our sample of students (n=13) into three categories (low, middle and high) using +/- one standard deviations (SD = 14.494) from their group mean (M = 223.69) as cut off points.

Since students who were more skilled in regulating themselves in our first sample had perceived less value in these highly structured activities, we would have expected similar or even lower results if we had used the same Listening Activities with the introductory concepts of Rhythm and Meter. After all, our second sample was significantly more experienced and with higher levels of self-regulatory ability. To put it in context, if we had used our first sample’s cut off points to categorize our second sample; our data would have only loaded into middle and high levels of self-regulation. Therefore, we decided to create an additional challenge and increase the content difficulty, using more advanced concepts for the listening activities.

We now used three activities including 1) again, the introductory concept of Meter and we added two new more advanced musical concepts: 2) Texture and 3) Multiculturalism in music. We developed these new activities using the same structure of interaction, feedback and repeated opportunities for practice as the listening activities in the first study. Our results show that using these more advanced musical concepts removed differences in perceptions between students of different levels of self-regulatory capacity. On average high SRQ students (SRQ scores => M = 223.69 + 1 SD = 14.494) no
longer disagreed but enjoyed, would recommend, or would engage in more listening activities \([M = 3.6, SD = 0.282; F(2,9) = 0.335, p = 0.724 > .05]\) (see Figure 1); they agreed that these activities helped them improve their levels of understanding \([M = 3.5, SD = 0.707; F(2,9) = 0.110, p = 0.897 > .05]\) (see Figure 2); and that these were worthwhile activities in the course \([M = 3.5, SD = 0.707; F(2,9) = 0.124, p = 0.885 > .05]\) (see Figure 3).

Even though there are no significant differences between students’ perceptions across different levels of self-regulatory capacity, it is interesting to observe not only the increase in favourable perceptions of students with higher self-regulatory capacity but also a slight average decrease in students with lower SRQ capacity overall perceptions of the listening activities now that we used more advanced musical concepts (see Figures 1a, 1b).

5. Discussion

In this study, we found an interaction between self-regulation skills and the level of complexity of content in on-line listening activities. High self-regulators were not as satisfied with or engaged by basic musical content as were low and intermediate self-regulators but were equally satisfied when advanced content was presented.

We have referred to the overall results of the final student survey as the students’ perceived value of the activities. This is comparable to what Eccles and Wigfield [17] refer to as task value, the degree to which students rate an activity as engaging, relevant, and beneficial. In on-line activities specifically, task value has been positively correlated to academic achievement and satisfaction, and the use of cognitive and metacognitive strategies [10].

Given that high self-regulators are strategic and reflective about what activities are more effective for reaching their academic goals, perhaps the on-line activities with basic content did not represent a high enough task value to be rated as worthwhile. To further understand the differences between high and
low self-regulators in the context of music education, we will undertake subsequent analyses that address such questions as: “Did high self-regulators repeat the listening activities more than low self-regulators?” or “Did low self-regulators abandon the activity as the material became more difficult?”

6. Conclusions

Understanding the role of music in cultural contexts is a complex, interdisciplinary activity. In our undergraduate music history curriculum we lead students through four competencies at all stages of their course work, encouraging them to develop the skills for communicating their understanding of music as a unique form of cultural expression. In our first study, we focused on cultivating the fundamental competency of listening in first-year university music history students; developing other competencies in reading music, critical thinking and communication were also built into this study, but were largely presented as methods for enhancing listening skills. However, in consideration of the interdisciplinary nature of cultural studies, students interested in music must also be able to ‘hear’ the impact of visual materials – to interpret their meaning(s) in connection with musical sounds – and to understand connections between written documentation and sounds produced within a specific social and political context. A 2007 study by cognitive psychologist Willingdon suggests that critical thinking must be taught within the context of the discipline in which it is applied in order to be effective in bringing students to higher-level abilities [18]. Our experience in music education classrooms supports this position, and we have set out in these two studies to develop technology-based learning materials that would both encourage critical thinking in understanding music’s place in a wider cultural context and that would provide opportunities for students to communicate their discoveries through peer discussion and written communication.

Alongside the challenges of teaching the complex role of music within specific cultural contexts, we need to be aware of the interactions between individual differences in students and the level of complexity of the content that we present. In this instance, advanced content produced different results than basic content in relation to students’ self-regulation skills.

7. References


Technologically Enhanced Lectures

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Abstract

In this paper, we describe how technology enhanced learning activities including student pre-lecture assignments, lecture voting, lecture feedback and lecture attendance were utilized in a commercial law course. The hypothesis was that by introducing these additional activities, the attendance rate in lectures would get higher and that the lectures would become more interactive learning events. After the course, students were given an extensive feedback survey concerning the activities and tasks provided in the electronic platform. Based on the student feedback, the students thought that the pre-lecture assignments, lecture voting and lecture feedback features should be more widely used. They also agreed to the statement that the pre-lecture assignments helped them to better understand the topics presented in the lectures. By completing all the new activities and tasks, students could receive five bonus points to their final exam. One of the most notable consequences of these new activities and the small bonus to the exam score was that almost all students attended the lectures with the new additional activities. There was a great difference in the attendance percentage when compared to the lectures that weren’t included in the test scenario.

1. Introduction

Traditionally lecture is understood as a scheduled event where learners assemble in some space where the lecturer tries to present ideas and concepts in a form that allows the learners to understand them as easily as possible. Usually interaction (learner-learner, learner-instructor or learner-content) is desired and discussion encouraged. However, in many cases depending for example on the learning culture of the country or the educational organization, the person giving the lectures or the audience, the lectures is a one-way channel to convey information. The lecturer talks and the audience listen. From educational perspective, it would be good to find some means to encourage both the learners and the instructors to be more active during these learning sessions. To be active doesn’t necessarily mean that the learners have to participate actively by discussing and asking questions, but that they actively try to understand the topics taught.

Thus, we wanted to find out how few selected technology enhanced activities to support the traditional lecture activity affected the behaviour of students, and did the students think the new activities were useful and worthwhile.

Although, the research literature about the experiences and effectiveness utilizing pre-lecture assignments as the sole subject of the research [2, 3] is almost non-existent, there are lot of papers that report the usage of pre-lecture assignments as a part of some research [4]. The basic idea of utilizing such assignments is that the students would have some understanding about the topic of the lecture beforehand, which would help them to more easily concentrate on the learning activity during the lectures. Additionally, the previous knowledge would allow the lectures to be more interactive, as answering to the assignments might have raised some questions in the learners’ mind that they would like to ask the lecturer.

One of the new activities utilized were polls that were given during the lectures. The teacher had prepared some questions related to the topic of the lecture and they showed them to the students at some point during the lecture. The students then answered to the questions after which the teacher showed the answer distribution and the result was discussed. This type of activity has been utilized in educational settings for decades with various types of audience response systems (ARS) [5,6,7]. However, the development of technology and the fast growth of mobile device coverage means that the hardware requirement for ARSs has greatly diminished. Audience can now use their own mobile device as the “clicker” to answer to the questions and the organizer is only required to have the software (and possibly some server) to handle the audience responses. Nowadays smart phones can have quite complicated and “smart” software to allow answering the questions. Before smart phones, short message service (SMS) [8] was utilized to answer the questions presented, which caused some of the audience discontent, as each sent message cost the sender some money. Today it is a less of a problem as the answers can be sent via internet and the...
Traditionally student feedback has been collected with end of course surveys or to get more general feedback, with end of the semester or study year surveys [9]. Quicker feedback might have been given by commenting on lectures, discussing with the lecturer or for example by sending an email to the lecturer [10]. The new technologies have sometimes been utilized to give feedback or to ask real-time questions with mobile devices, which might or might not be shown to the whole audience with a video projector next to the slides or other learning resources presented during the lectures [11, 12]. In this study, each lecture had a corresponding survey where lecture attendees could write what they found positive about the week’s lecture, what remained unclear after the lecture and how they would like to improve the lectures. Thus, this was an easy channel to find out if there was some topics several students didn’t understand after the lecture and the lecturer could react accordingly by re-explaining those issues at the beginning of the next lecture.

2. Technologies

A collaborative learning tool called ViLLE was utilized in this study. The tool has been successfully used in teaching various topics in various fields of study [13, 14]. In the study presented in this paper, we utilized both the learning tool’s main web application and a separate stripped-down mobile application version of the tool.

ViLLE learning platform is a web application which allows teachers to create various types of automatically or manually assessed exercises for their students to solve. All the exercises are shared with all the teachers registered to the platform. Thus, teachers can easily utilize already existing learning content in the platform, either by selecting suitable exercises or courses which are collections of tens or even hundreds of exercises and other learning resources. Teachers can rate and comment all the learning resources, which should help users to search and browse for the best content. The tool also provides features to gather and store data on various tasks and activities related to studies including lecture attendances, demonstrations (sessions for presenting solutions to homework assignments) and lab projects. More thorough description of the tool can be found in [15].

The mobile application is a stripped-down version of the ViLLE learning tool. The application supports the most widely used mobile platforms including Android, iOS and Windows Phone. The mobile application shows list of all the courses a student is registered to. It notifies the user about course deadlines for example related to some set of assignments that need to be solved. It also shows all the news posted by the teachers of the courses and the users can use read and post to course forums with the mobile application. Additionally, the mobile application can be used as an audience response system (i.e. clicker) in lectures. Teacher can prepare polls for the lectures and show them to the students. Students can then use their mobile device and the installed mobile application to cast a vote to the poll.

3. Course description

ViLLE was used as a collaborative education platform in the Basic Course (Master of Law Degree) of Commercial Law (including Company Law, Intellectual Property Law, Competition Law and Public Procurement Law) at the Faculty of Law, University of Turku, Finland. The pedagogical aim of this project was to activate law students to improve their specific, commercial law-related skills and generic, especially learning, skills. One of the main challenges of the Basic Course is the high number of students (approximately 120 students) participating in the lectures. In these circumstances, collaboration between students and teachers is a great challenge and it is, in practice, difficult to find out ways to activate students to prepare for each lecture. ViLLE provided a unique opportunity to find effective solutions to the above-mentioned problems.

At the beginning of the course, the students were given a short introduction to the platform, a RFID tag to show to the RFID readers in the lecture halls to record the lecture attendances, and they were given instructions on how to install the mobile version of the learning platform to their mobile devices in order to use the device to cast votes during lecture voting activities.

4. Research design

The idea of the research was to test how well the selected technology enhanced tasks and activities support lecture based teaching. There were three different activities that we introduced to the lectures in this research.

Pre-lecture assignments: before each lecture students had to answer to two open answer questions as a preparation for the lecture. The assignments were distributed and answered in the learning platform. As the questions were open answers the lecturer assessed the answers.

Poll voting during lectures: the lecturer prepared polls for the lectures. They could use the polls to ask for students’ opinion about some question or statement. After the students’ had casted their vote to a poll, the teacher could show with the tool how the answers were distributed.

Lecture feedback surveys: after each lecture the students had the possibility give feedback on the questions “What did you learn during the lecture?”,
“What was unclear in the lecture?” “How would you like to improve the lectures and teaching?” At the beginning of a lecture the feedback from the previous week’s lecture was discussed. At least the topics reported to be unclear by the students were discussed.

The technology enhanced activities were utilized in the last component of the course (competition law), which included three lectures, so the students had the possibility to take part in each of the activities three times.

5. Results

In this section, we present the results from the post course survey given to the students after the last lecture. The survey began with some questions about the background of the students including study year, gender, study credits achieved, what earlier studies (or courses) students thought would be the most useful in taking this course and estimation about the grade they would achieve from the course.

In the next part of the survey, the students were asked three questions concerning each topic handled in the course. The results are shown in Table 1.

Based on the results shown in Table 1, students gave close to average answers to most of the questions. However, the results from the competition law part where the new lecture activities were utilized show that the students estimated it to be the most difficult one but thought that they understood the topic better than the other topics after the course. Additionally, they reported that the competition law part of the course was the most interactive one.

After that the students were asked to give feedback on the different new activities added to the courses. The same four questions (statements) were asked for all three new activities. The questions and statements were “The activity helped me to better understand the topics presented in the lectures”, “The activity was educationally useful”, “Should this activity be more commonly used in courses?”, “Your opinion about this activity?” Additionally, the students were asked how long it took to answer to the pre-lecture assignments, was there too many or too few pre-lecture questions and lecture polls, and does the lecture feedback feature improve communication between the teacher and the students.

Based on the answers, the pre-lecture assignments were seen as extremely useful with the answer average of 4.47. Lecture voting and feedback were not seen as either useful or not useful (averages 2.95 and 2.88). Students also reported that the pre-lecture assignments should be utilized in other courses as well. The last five questions in the survey concerned the learning platform utilized. Firstly, the students were asked if the possibility to view the scores achieved from the platform improved participation in the competition law part of the course. The results are shown in Figure 1.

Clearly students thought that the new activities introduced and the accumulation of scores that could be monitored in real-time motivated them to attend the lectures. Almost half of the students selected that there would be a significant improvement in the attendance rates. Figure 3 also supports this as it shows that almost all students in the course attended the lectures in the competition law course.

Figure 2 shows how the students liked the learning platform in general. Although there were some technical problems with the mobile application during the voting activity in the lectures, half of the students had a positive attitude towards the tool. Only few students had a negative opinion about the tool.

Figure 3 shows the number of students attending the lectures in the course. The last three lectures were the ones utilizing the new activities and the learning platform, and in these instances the attendances were recorded automatically to the learning platform when the students showed the RFID tag given to them in the introductory lecture to the RFID reader in the lecture hall.

Clearly, there is a difference in the attendance rates between the instances with no activities and instances with activities. The attendances before the use of the platform were calculated by the lecturer. Unfortunately some attendance numbers are missing from the beginning of the course. The missing attendance numbers (30.9. – 2.10.) Were from the intellectual property law lectures. The topic of the 5.10. – 7.10. lectures was company law and the 8.10. lecture was again about the intellectual property law.

6. Discussion

Based on the user feedback, the new methods were well received. Although only the pre-lecture assignments got mainly positive opinions from the numeric questions, the comments in the open answers were mostly positive about the other two activities as well. Some of the students had problems with installing and using the mobile application utilized during the lectures as the clicker machine to cast votes. This was also mentioned several times in student feedback and might be one of the reasons why the poll voting didn’t get any higher marks.

The students have noticed that ViLLE is a useful platform to support their individual learning activities and to have feedback from the teachers during the lecture period. From the teacher’s perspective, ViLLE has shown its potential. Students have been more active to prepare in advance for each lecture and even the learning outcomes seem to be improved. Additionally, practically no technical problems have occurred when using ViLLE.
Table 1. Student opinions about the different parts of the course

<table>
<thead>
<tr>
<th>Question</th>
<th>Intellectual property law</th>
<th>Company law</th>
<th>Competition law</th>
</tr>
</thead>
<tbody>
<tr>
<td>How difficult did you find this part of the course (1 – difficult; 5 – easy)?</td>
<td>2.92</td>
<td>2.75</td>
<td>3.14</td>
</tr>
<tr>
<td>I understand the topics taught after I attended this part of the course (1 – not at all; 5 – well)</td>
<td>2.83</td>
<td>3.03</td>
<td>3.35</td>
</tr>
<tr>
<td>The interaction in this part of the course was (1 – passive; 2 – active)?</td>
<td>2.72</td>
<td>3.06</td>
<td>3.63</td>
</tr>
</tbody>
</table>

Figure 1. Did the visibility of scores achieved improve the attendance rates in the competition law component of the course (1 – no improvement; 5 – significant improvement)

Figure 2. How students graded the ViLLE learning platform based on usability, functionality, usefulness, etc.

Figure 3. Lecture attendances in the course. The last three bars visualize the attendances in the competition law part of the course.
The new methods used as additional activities supporting the lecture activity seem to be useful based on the student feedback and lecture attendance rates. Naturally one main reason for better activity levels should be the bonus points the students could receive to their exam score by completing sufficient amount of these new activities. But that can’t explain all the positive feedback and results, particularly as the amount of bonus points received was quite low.

7. Conclusion

Based on the promising results achieved in this study, we will continue to use this new lecture format in the future, and study the effectiveness and viability of the method further by exposing instructors and learners of other fields of study to it as well.

8. References

Session 10: Learning / Teaching Methodologies, Evaluation and Assessment

Specifics of Online Performance Control in High School
Authors: Sitnikova M.V., Zagorsky V.V.

The Effect of Peer Collaboration with an E-assessment Tool on Success in Financing Mathematics in Higher Education
Authors: Matti Kuikka, Mikko-Jussi Laakso

A New Methodology of Musictherapy/Gardentherapy and Environmental Education in the Experimental Pedagogy for the Physical Disability
Authors: Adriana De Serio, Donato Forenza

Effects of Outdoor Activities on Students’ Academic Performance in Physics in Senior Secondary School in Ekiti State, Nigeria
Author: Adebisi Omotade Awodun
Specifics of Online Performance Control in High School

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Abstract

There are different methods of knowledge control: written assignments, oral questioning, discussions and so on. But there is no ideal method for everyone. The choice of teaching and control forms depends on many factors such as the subject, the initial motivation of students, their age, aims, etc. There are some features in chemistry teaching for students specializing in physics and mathematics. That’s why we are developing new methods of assessment, such as a combination of traditional methods (for example, written work in the classroom) with online control (assignments, tests). We have tested this method on groups of students specializing in physics and mathematics. In our opinion this combination has some advantage.

1. Introduction

Advanced Educational Scientific Center (AESC), so-called Kolmogorov School, one of M.V. Lomonosov Moscow State University departments, was found by Acad. A.N. Kolmogorov in 1963 [1].

The aim of the school is to select talented students (15-17 years old) from all-Russia and prepare them to enter Moscow State University and other top Russian universities. Each student chooses an advanced track out of Chemistry, Biology, Computer Science, Mathematics and Physics.

The main task of our work is development of efficient methodology of chemical teaching for final-year school students specializing in physics and mathematics. They attend AESC for only one year. Chemistry is not the primary subject for them, although a few students from the class regularly participate in chemistry contests. They study chemistry for one or two hours a week. The time limitation and the level of education make us to change the style of teaching and knowledge control in compare with groups of students specializing in chemistry [2]. In our opinion, in this case checking students’ knowledge through the Distance Education System (DES) in the Internet is quite efficient. This system developed at the Chemistry Department of the M.V. Lomonosov Moscow State University. It applies to work with students of MSU and high school [3].

Online learning is growing prolifically in all levels of education [4]. The combination of online learning and classical technologies shows high efficiency if we have limited time for course.

2. Methods

Format of our lessons is lectures with regular written tests in the classroom as well as students have to solve tests in the DES.

The total number of the DES task sets is 29 (14 for first term and 15 for the second term).

Each set can include the calculated tasks, tests and video-tests. On the page of the task there are all necessary data and formulas, as well as links to the presentation of lectures, photos and videos.

DES has a log of task solving for each student so we can obtain the statistics of work and performance for students. In our investigation we choose two groups of students of 2014-2015 schoolyear. Total number of students is 42 (11E – 19 students and 11J – 23 students). All of them are specializing in physics and mathematics.

The students have two weeks to complete each task. A special feature is the unlimited number of attempts to do the homework, but if they delayed for a week, their rating decreased by one point (5-point scale). The result directly has an influence on the final rating.

3. Discussion

At the beginning of the school year, students were full of energy and performed online assignments strictly within deadlines. All of the students performed the first few tasks successfully. At the end of every term and at the end of the school year the number of backlog increased and quality decreased.

At the second term attendance suffered due to a lot of competitions, mock exams, conferences, more effort aimed at studying the core subjects and preparing for exams. In this case distance learning...
and online solving of homework are really good methods. Students can perform work anywhere at a convenient time. They just need to have a computer, tablet or smartphone which has an Internet access. However, even under these circumstances during term attendance decreased both at chemistry lessons and at the DES. Test scores also decreases because of most of the students stop at middle points and don’t attempt to improve rating.

Several times in the year we gave written tests to the students in the classroom to verify the independence of solving the online tests. These tests are similar to the tasks in the DES. The results correlated with student’s activity in the DES.

To compare the efficiency of DES we gave the same tests to group of students specializing in physics and mathematics (11V, 27 students). This group didn’t use the DES.

Analysis of the results showed that students having high activity at the DES get higher score for classroom control tasks compared to 11V-group.

Distance learning of high-school students has some specific features. While it has a number of positive aspects, online learning requires a stricter time-management, self-discipline, motivation and efficiency, adaptation and methodical work.

4. Conclusions

We can find that distance education in chemistry is very applicable in our case. The described method has the following advantages and drawbacks.

Advantages:
- The possibility for students to perform work anytime and anywhere. Especially it is actually when lessons are missed because of illnesses, competitions, mock exams, conferences;
- Students have a lot of time before deadline;
- The number of attempts is unlimited so the student can plan his own schedule. He hasn’t to arrange with a teacher about retaking a task;
- Solving tasks in the Internet helps students to work efficiently in classroom in compare with ones who didn’t do this.

Drawbacks:
- It is complicate to track if the student solves the tasks himself;
- Work in the Internet requires self-discipline, motivation and methodicalness.

So these methods are very valuable because it is allows us to use the limited time of our course more efficiently.

5. References


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The Effect of Peer Collaboration with an E-assessment Tool on Success in Financing Mathematics in Higher Education

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Abstract

In this paper, we describe how collaborative use of an electronic assessment tool improves students’ learning results in Financing Mathematics in higher education. Financing Mathematics was taught as part of the Business Mathematics course in the first year studies for Bachelor’s degree students in the International Business program at Turku University of Applied Sciences. The assessment was carried out with the collaborative educational tool ViLLE.

The Business Mathematics course consists of Business Statistics and Financing Mathematics. The Financing Mathematics course component was used for the purpose of this research. In the Business Statistics course component, the students worked independently, whereas in Financing Mathematics, the students also worked in pairs with the tool. The independently working students formed the control group and the students working in pairs formed the treatment group in this quasi-experimental study.

The paper reveals that students working in pairs with the ViLLE tool achieved better exam results than the students working independently. This finding is in agreement with the findings of similar research studies on programming.

1. Introduction

The use of assessment is important in order to evaluate students’ learning. Students may verify their skills in formative assessment while studying. The formative assessment may be performed in the classroom sessions with teachers’ feedback. However, nowadays a large amount of formative assessment is carried out with the help of electronic tools. Electronic assessment (e-assessment) tools are capable of performing instant marking of the assignments, enabling students to receive feedback on their learning while studying.

Students may also collaborate while studying. Electronic tools offer new possibilities for collaboration. Assessment of pair work can be carried by individual students (self-assessment), by pair students (peer assessment), or by teachers.

Conejo et al. [2] use the term Collaborative Testing to describe the situation where students do tasks together utilizing an e-assessment tool.

A wide range of studies on collaborative learning has been carried out. The collaboration may be enhanced with the help of electronic tools. Several papers have been written about pair work with electronic assessment tools [2, 3, 5, 8, 9]. These papers have mostly focused on the effect of pair work in order to learn to program. Collaborative use of electronic tools has been shown to improve learning in programming. However, there is hardly any research addressing collaborative work with electronic assessment tools for business mathematics in higher education.

This article describes how collaborative testing with the e-assessment tool ViLLE affects students’ learning results in financing in a Business Mathematics course. The course was run at Turku University of Applied Sciences in the spring of 2014. This article provides an answer to the following question: Does working in pairs with the e-assessment tool affect students’ success in exams?

The paper is structured as follows: First, the relevant related work is presented, followed by an introduction to the ViLLE tool. Then the methods used, the research set-up, and the procedures are described. Finally, the results, discussion, and conclusions are presented.

2. Related work

The benefits and methods of performing collaborative computer-based learning and assessment have been discussed in several publications [1, 4, 7, 10]. In addition to learning, collaboration improves students’ skills in areas such as communication, critical thinking, creativity, decision-making and problem-solving. The success of pair work as such is not widely discussed in these publications.

Hahn et al. [3] studied how pair programming could be assessed. They compared how the student’s own evaluation, peer evaluation and the teacher’s marking correlated with that of students working in pairs. The students did work in rounds where
students first self-evaluated their own work. Then the peer evaluations by the students working in pairs were performed. In the first round of the assessment, the pairs’ markings were better than the students’ own markings, but after working in four assignment rounds in pairs, the students’ self-evaluations were in line with the peers’ evaluations. This indicates that after students have become more familiar with peer assessment, the students start to provide more realistic evaluations for their pairs. Due to the usage of the peer assessment, the students also worked together more and, therefore, achieved better results in the actual exams conducted by the teacher. Therefore, it can be concluded that pair work improved the learning in programming.

Maguire et al. [8] studied collaborative learning with pair programming as well. They used a method where random pairs are changed weekly. They did not find any clear correlation between pair programming and learning for all students, but they found that female students seem to benefit more from pair programming. Additionally, they found that if the students working in pairs have similar skill levels, they learn better compared to the pairs in which the students have large differences in skill levels. Therefore, Maguire et al. suggest that pairs should be created randomly within clustered groups where the clusters are formed based on students’ skill levels.

Conejo et al. [2] researched collaborative testing in a web-based environment called Siette (siette.org) with various course subjects ranging from Computer Sciences to Botany. Conejo’s study used the following method: the students first individually answered a question in the system. Then students working in two-student or three-student groups discussed the questions and answers. Then the students completed the same task individually. Conejo et al. remarked that the students’ second answers received higher scores than the initial ones and the final answers correlate significantly with the actual correct answers. They also found that low-performing students benefit more from the collaborative work.

Rajala et al. [9] studied how the usage of program visualization in collaboration with the ViLLE tool affected learning in programming. They found that students working in pairs with the program visualization spent more time on assignments than students working independently. The amount of discussions students had about the assignments seemed to be the reason for the time increase. Therefore, the students working in pairs achieved better results. This was most effective for difficult exercises, and, therefore, pair work should be applied especially for demanding assignments in order to gain better learning results.

Kaila et al. [5] studied how students’ results were improved after an introductory programming course was redesigned. The redesign in the course included the usage of the ViLLE tool. Half of the lectures were replaced with sessions where students worked in pairs with ViLLE tutorials. The results were compared with those of the previous version of the course that was run with lecturing and without pair work. The results of the paper demonstrate that the students’ pass rates in the course were improved significantly. However, the average grade remained the same in comparison with the previous course.

It is worth noting here that there is a publication in press about the effect of the ViLLE tool on Business Mathematics learning using the course described in this study [6].

3. The ViLLE tool

ViLLE (villeteam.fi) was used as the electronic assessment tool for the Business Mathematics course examined in this paper (see Figure 1). ViLLE is an exercise-focused learning environment created for research and learning purposes originally for programming at the University of Turku. Teachers can create courses, exercises, tutorials and exams with ViLLE. The created exercises can be used for all kinds of assessments either independently or collaboratively.

![Figure 1. Usage of ViLLE for Financing Mathematics](image)
4. Method

The Business Mathematics course belongs to the curriculum of the Bachelor’s degree program in International Business at Turku University of Applied Sciences. The course consists of two course parts. Part 1 deals with Business Statistics and Part 2 covers Financing Mathematics. The course components were originally two separate courses. These courses were merged in one single Business Mathematics course in 2011. However, the course components are still studied separately. For instance, there were separate courses in ViLLE for both components and students received separate grades for Statistics and Financing in addition to the overall grades for Business Mathematics. In the Business Statistics, the students worked independently with the exercises.

The data collected from Financing Mathematics was used for this study. This course component covered mathematical calculations for trading, interests, investments, loans and annuities. In order to evaluate the effect of ViLLE on pair work, the grades and the results of the completed assignments of the students who worked independently were compared with those of the students who worked in pairs.

4.1. E-assessment with the ViLLE tool

The exercises in ViLLE were used for formative and summative assessments during the course. All the assignments were provided using the tool.

Concerning the exams, in ViLLE there were separate exams for each evaluation level: Satisfactory skills: grade 1 exam, Good skills: grade 3 exam, Excellent skills: grade 5 exam (see Figure 2).

![Figure 2. Course examination process](image)

The students were able to try the grade 1 exam three times, the grade 3 exam two times and the grade 5 exam once. The students also needed to pass the previous level exam before they could attempt the exam at the next level.

The students were able to improve their grade by doing assignments. For instance, if a student passed the grade 1 exam (but not the grade 3 exam) and completed 80% of the assignments, he/she achieved grade 2.

4.2. Participants

Totally 73 students took part in the 2014 Business Mathematics course, but 71 students completed the Financing Mathematics component. In addition to the Bachelor’s degree students, exchange students took part in the course. Around half of the students were international students. The course participants consisted of 40 males and 31 females, and the age range of the majority of the participating students was between 20 and 23 years. Most of the students were students in the Degree Program in International Business.

When the students worked with Financing Mathematics in Part 2, they had the opportunity to choose to work in pairs with the assignments instead of doing them independently. The pairs were selected by the students themselves.

4.3. Procedure

The exam successes of the students working independently and in pairs were compared to find the effect of collaboration (see Figure 3). The independently working students formed the control group and the students working in pairs formed the treatment group. The students were able to change pairs between the exercise sessions, and the students working in pairs were also able to work independently with the exercises.

![Figure 3. Comparison of the effect of pair work](image)

First, we analyzed how the students succeeded in the exams by comparing the ratio of the students passing the grade 5, the grade 3 and the grade 1 exams. We also examined the ratio of the students failing all the exams, and the average percentage of assignments completed by the groups.

In addition, the differences of success of the control and treatment groups at the first attempts for the grade 1 and 3 exams were analyzed.

5. Results

Thirty-one students worked in pairs and forty students worked independently in Part 2. The students working in pairs achieved better results
measured both in terms of number of assignments completed and success in the exams (see Table 1).

Table 1. Effect of pair work on passing the exams for Financing Mathematics

<table>
<thead>
<tr>
<th>Working independently (N=40)</th>
<th>Working in pairs (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>%</td>
</tr>
<tr>
<td>Students failing all Part 2 exams</td>
<td>3</td>
</tr>
<tr>
<td>Students passing grade 1 exam</td>
<td>37</td>
</tr>
<tr>
<td>Students passing grade 3 exam</td>
<td>20</td>
</tr>
<tr>
<td>Students passing grade 5 exam</td>
<td>1</td>
</tr>
<tr>
<td>Average percentage of assignments completed</td>
<td></td>
</tr>
</tbody>
</table>

All the students working in pairs passed the grade 1 exam. The students working independently did not achieve the same success. Instead, three of the independently working students failed the exam. The same trend occurred for the grade 3 exam: 87.1% of the pair working students passed the exam, but for the independent workers the ratio was 50%. For the grade 5 exam, three students passed the exam, two working in pairs and one independently.

When doing assignments in pairs, both students working in pairs passed the assignment when one of them did it in the ViLLE system. The average percentage of assignments completed was 86.4% for the pair workers, compared to 35.2% for the independently working students.

The distributions of the exam grades between students were also analyzed (see Table 2). The Mann-Whitney U Test with significance level of 0.05 revealed that the distributions of the Part 2 exam grades between the students working independently and in pairs were different (p=0.001).

Table 2. Distribution of exam grades in Financing Mathematics

<table>
<thead>
<tr>
<th>Student working</th>
<th>Exam Grade</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Independently</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>In pairs</td>
<td>0</td>
<td>4</td>
</tr>
</tbody>
</table>

We also compared how many students passed the grade 1 and 3 exams at the first attempt (see Table 3). Table 3 shows that in the case of the grade 1 exams there was approximately 10% difference, but for the grade 3 exams the difference was almost 30%. That is, the students working in pairs outperformed the independently working students at the first attempts of the grade 1 and 3 exams.

Table 3. Comparison of students’ pass rates in the Financing Mathematics exams at the first attempt

<table>
<thead>
<tr>
<th>Exam grade</th>
<th>Students working independently (N=40)</th>
<th>Students working in pairs (N=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n)</td>
<td>%</td>
</tr>
<tr>
<td>Grade 1 exam</td>
<td>31</td>
<td>77.5%</td>
</tr>
<tr>
<td>Grade 3 exam</td>
<td>17</td>
<td>45.9%</td>
</tr>
</tbody>
</table>

For the analysis of the gender distribution, we found that the male students were divided quite evenly between the students working independently and in pairs (see Table 4). However, the female students mostly worked with the assignments independently. Additionally the table presents how the exam grades were distributed between students working independently and in pairs in Part 2.

Table 4. Gender distribution in Part 2 exams for independently and pair workers

<table>
<thead>
<tr>
<th>Exam grade</th>
<th>Female</th>
<th>Male</th>
<th>SUM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Independently</td>
<td>In pair</td>
<td>Independently</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>SUM</td>
<td>20</td>
<td>9</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 4 reveals that for both genders, students working in pairs succeeded better than the independently working ones.

6. Discussion

The students working in pairs achieved better results in the exams than the students working independently in the Financing part of the Business Mathematics course. All the failed students worked independently. The ratios of the students passing the grade 1, 3 and 5 exams were also better for the students working in pairs. This difference was the most significant in the case of the grade 3 exams. Accordingly, 74.2% of the students working in pairs passed the grade 3 exam at the first trial compared with 45.9% of the independently working students. This confirmed the hypothesis of this study that by working in pairs with ViLLE, students achieve better exam grades in Financing Mathematics. This
supports the research findings about pair work for programming [3, 5, 8, 9].

The main reason for the improved results seemed to be the increased amount of the work the students working in pairs did with the assignments compared with the independently working students. The students working in pairs completed 50% more assignments than the independently working ones. The amount of the collaborative work seems to be the key reason for the better success rates in exams for the treatment group.

Concerning the gender effect on the success of the pair work, we have not found evidence similar to the Maguire study [8] that females benefit more from the pair work. Instead, both males and females seemed to benefit from the pair work. Mathematics as such might be the reason for the different result as males typically tend to succeed in Mathematics better than females.

There was no pre-test in the research. However, the sample size in the research data was over 70 students, and therefore the pre-test was not needed to prove the results. Nevertheless, a pre-test could improve the reliability of the study. Additionally, pairs could have been assigned randomly to further improve the reliability and validity of this study.

6. Conclusion and future work

The goal of this paper was to analyze the effect of collaborative testing with the e-assessment tool ViLLE on students’ success in the Financing Mathematics exams. This study confirmed the effect: students working in pairs attain better grades.

We compared the exams’ grades and the exam success rates of students working independently and in pairs with ViLLE. We also compared the ratio of the assignments completed by the student groups. We also analyzed how the gender affected success in exams.

The amount of assignment work completed seems to be the key reason for the better success of the pair working students. This may be attributed to the collaboration between students which is stimulated with the use of the ViLLE tool.

It would be interesting to carry out more research into the effect of collaborative testing with the different group sizes and verify how the students’ initial ability levels affect the learning results.

7. References


A New Methodology of Musictherapy/Gardentherapy and Environmental Education in the Experimental Pedagogy for the Physical Disability

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Abstract

In this experimental research the Authors introduce a new methodology of Musictherapy / Gardentherapy and Environmental Education in the Experimental Pedagogy for the Physical Disability (MusGar-EnEdExPe). The MusGar-EnEdExPe can help the musictherapist, the pedagogist, the gardentherapist and the environmental specialists on with some safe hooks to promote the patient’s motivation to learn to face the physical disability and to overcome distress, psychological weakness and social seclusion. The aims of the MusGar-EnEdExPe are to strengthen the patient’s identity and the mental and physical abilities and resilience to face the congenital / acquired disability. The patients (91%) show the musictherapy and the gardentherapy inside Green-Zones and ecosystems meet with their approval. After the musictherapy treatment the pedagogist facilitates the group narration process. In this way it is possible to reduce the patient’s stress and every trauma can be processed. The MusGar-EnEdExPe promotes patient’s psychophysical activation, better mood/affective-tone and relationships and contributes significantly to improve the life quality.

1. Introduction

In this experimental research the Authors introduce a new methodology of Musictherapy / Gardentherapy and Environmental Education in the Experimental Pedagogy for the Physical Disability (MusGar-EnEdExPe).

The Musictherapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship. The Musictherapy is addressed to physical, emotional, cognitive, and social needs of the individuals and provides avenues for a better communication and productive social relations by treatments including creating, singing and listening to the music.

The research in musictherapy supports its effectiveness in many areas such as the psycho-physical rehabilitation, increasing patient’s motivation to become engaged in the treatment and providing an emotional support for the patients and their families and an outlet for the expression of their feelings.

As regards the gardentherapy, already in 1778 the curative effects of the cultivation of the land on patients with mental disorders were well-known. In 1879 there was the first case of a greenhouse built in the United States, in Pennsylvania, just for the care of hospitalized patients suffering from mental diseases. The same therapy was applied to relieve the war veterans.

The gardentherapy decreases physical and mental tensions (about 70 %), reducing anxiety and stress, facilitating the connections between the cerebral hemispheres, thus also improving the mental and intellectual performances.

The gardentherapy shows the benefits even on diseases such as autism and schizophrenia.

The psychological well-being that comes from the contact with the plants directly affects the essential functions of the body, improving the circulation, regulating the blood pressure and reducing the cholesterol levels.

The gardentherapy can provide for healing gardens, therapeutic gardens, horticultural therapy, and in this way can contribute to improve self-confidence and mood, to relieve depression, to increase motor skills and problem-solving skills, to promote social interactions and relationships [13].

The experimental pedagogy explores new ways of education and exceeds all unilateral and one-dimensional pedagogical theories.

The birth of the experimental pedagogy is due to the adoption of an empirical experimental approach based on the use of an inductive method, in order to study the events inside the various educational activities.

The experimental pedagogy regards researches founded on a method of scientific work that allows you to progress with the knowledge critically.
The experimental pedagogy enables the teacher to learn, explore and apply new educational horizons with the patients too, that benefit by these scientific findings.

The Musictherapy joined in the Gardentherapy and the Environmental Education carried out by some experimental pedagogic methods give considerable opportunities for the psychophysical rehabilitation and an improvement in the cognitive process in order to promote the patient’s autopoiesis [9].

2. Aims

The methodology of the MusGar-EnEdExPe can help the professionals as the musictherapists, the pedagogists, the gardentherapists and the environmental specialists on with some safe hooks to promote the patient’s motivation to learn to face the physical disability and to overcome the distress and the psychological weakness and the social seclusion [3].

Therefore the aims of the MusGar-EnEdExPe are to strengthen the patient’s identity and the mental and physical abilities and resilience to face the congenital/acquired disability [4].

3. Materials and Methods

In this research work the Authors create several methodological algorhythms that give rise to thematic matters in relation to different temporal stages.

The MusGar-EnEdExPe is carried out by an integrated therapeutic plan and in different spaces. The musictherapy treatments (MT) take place inside:

- closed spaces as residential therapeutic centres for children, adult and old people (A1); nursing home (A2); hospital (A3);
- open spaces provided with Green Zones.

Then the methodology of the MusGar-EnEdExPe is carried out in Green Zones (GrZy) and in various ecosystems of the environment GrZy; where the field of variability is: 

\[ y = 1,2,..., 9 \]. Therefore:

- **GrZ1**: urban green spaces, peri-urban green spaces, public green spaces;
- **GrZ2**: natural rural zones, rural green spaces;
- **GrZ3**: designed gardens, designed green spaces;
- **GrZ4**: cultivated woods, natural woods;
- **GrZ5**: agricultural farm-house, country-house;
- **GrZ6**: natural parks, polichromatic forests;
- **GrZ7**: parks of hospital, public spaces close to the nursing home, public spaces close to residential therapeutic centres for children, for adult people; nursing home;
- **GrZ8**: botanical gardens, vegetable gardens;
- **GrZ9**: gardens close to the schools, vegetable gardens close to the schools.

The musictherapy treatment is articulated according to the following steps:

- Sonorous-Musical Anamnesis of Patient (PSMA) and his Family (FSMA) in order to draw up the Musictherapy Assessment Document (MAD);
- Some Patient Observation Sessions (POS);
- Recorded / live – Sonorous – Musical - Energy (SME);
- Production of SME and Bodily Environmental Rhythmic Sonorous Vocal Energy (BERSVE) through recorded classical music and modern songs the patient listens to;
- Production of Sonorous Environmental Energy (SEE) and Motor / Visual / Olfactory / Taste / Tactile Energy through environmental and landscape sounds (receptive musictherapy);
- Bodily Environmental Rhythmical Sonorous Vocal Energy (BERSVE) production by the musictherapist and the patients (active musictherapy);
- Use of Conventional and Non Conventional Sonorous Musical Instruments (cSMI and ncSMI) and some SMI made by the Author/musictherapist with savage (SSMI) and some foods (Edible SMI: ESMI) [7], [10], [11];
- Use of the musictherapist’s voice and canto; use of the voice of the patient’s relatives and friends (Sonorous-Vocal Energy: SVcE) [5];
- Formulation of three/five Protocols for each BERSVE and SEE administration; formulation of the patient’s Somatic and Graphic Pattern (SOMPAT) [2];
- Administration of Patient-Environment - Music Index (PEMI) at time \( t_1 \) and \( t_n \) in order to estimate the patient’s behaviour evolution and the Musictherapeutic Advancement Index (MAI). [1] The test score is from 0 to 100, in order to set up the patient’s Recovery Advancement Index (RAIn).

The Authors have carried out the research presented in this scientific work in the spaces A1 and GrZ1.
The teamwork is made by a music therapist / pedagogist, a sound / landscapist / gardentherapist.

The patients are set in three groups: PG1: children; PG2: young / adult people; PG3: old people.

The patients of the three groups (PG1, PG2, PG3) are eighteen; six people within each group.

Therefore the Authors set up the matrix [PG (3;6)].

There are weekly-sessions (55') for six months.

A Questionnaire (Q) is administrated at t₀ time, during the treatment (every two months) and at tₖ time at the end of the treatment.

There are three methodological phases that have the temporal structure F1, F2 and F3.

Phase F1.
- Music therapy treatments (MTF1) for each group PG (1, 2, 3) in Δₖ_t time (where k = 1, 2,….., n) in the indoor environment (A1).
- Questionnaire (QA1) for each patient (ten items / liking-indices) at t₀ time and at tₖ time.
- Assessment scale (S) of Q with the structure: [S: 0-10] gap-range.

At the end of the F1 phase the therapeutic behavioural responses of each patient are monitored and set down in the matrix {μ₁[(A1)],μ₁[Q(A1)]}.

Phase F2.
- MTF2 for PG (1,2,3) in Δₖ_t time (where k = 1, 2,….., n) inside the Green Zone 7 (GRZ7).
- Questionnaire QGRZ7 (with reference to GRZ7) for each patient PG (1, 2, 3).

Moreover at the end of the F2 phase the therapeutic behavioural responses of each patient are monitored and set down in the matrix {μ₂[GRZ7],μ₂[Q(GrZ7)]}.

The Music therapy treatments are proposed in different cycles inside the F1 and the F2 phases.

The methodology of the MusGar-EnEdExPe is articulated by an interconnected structure too in order to get a further therapeutic advancement founded on the contribution of some seminars of the environmental education joined to the methods of the experimental pedagogy.

The integrated rehabilitation process is individualized in relation to the features and the pathologies of the patients.

The Environmental Education is articulated according to some moduli of information, professional training and practical activities involving the plant-growing and multisensorial stimuli.

The Environmental Education is carried out by seminars as to the structure of the plants and their benefits and the plant sowing that the patients can bring into effects. Afterwards they can cultivate these plants inside some spaces/greenhouse that are settled close to the A1, A2, A3 spaces.

4. Results

The results of the matrix{μ₁[(A1)],μ₁[Q(A1)]} and the matrix {μ₂[GRZ7],μ₂[Q(GrZ7)]} are set down in a system by tables and graphs in relation to A1 and GrZ7 during the temporal structure t₀ – tₖ time.

In the Phase F3 the results are set down in the final matrix {μ₃[(A1),(GRZ7)],μ₃[(Q(A1), (GrZ7))].

For each patient the Authors analyse the PSMA, the FSMA, the MAD, the SOMPAT, the MAI, the RAIn, and set down the final system comparing the results:

{MT₁ (Δₖ₄); (A1)} and {MT₁ (Δₖ₄); (GrZ7)}.

The secretions of the peptide hormones endorphins and the endogenous opioids enkephalins increase and bring a state of patient’s tranquility and a better mood.

The patients (91%) show the music therapy, the environmental education and the gardentherapy inside the Green Zones and the ecosystems meet with their approval.

After the music therapy treatment the pedagogist facilitates the group narration process.

In this way it is possible to reduce the patient’s stress and every trauma can be processed [6].

5. Conclusions

It is important to consider the symbolism, the rituals and the myths and the mythologies of the patient’s culture or group work.

The immigrants are increasing, and they need to recreate their fractured identity using music, integrating past and present experiences.

At the same the women are over represented among the group people suffering from long-term illness. In addition to their illness, the suffering long-term sick-leave leads up to economical restraints as the well social distress [8].

To give significance to the life is a prerequisite to the health [12].

The MusGar-EnEdExPe must perceive and grasp the contextual, symbolic and functional meanings of the music that the patient brings from his culture, in order to strengthen his identity and sense of social belonging.

The MusGar-EnEdExPe promotes the patient’s psychophysical activation, better mood/affective-tone and relationships and contributes significantly to improve the life quality.

6. References


Effects of Outdoor Activities on Students’ Academic Performance in Physics in Senior Secondary School in Ekiti State, Nigeria

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Abstract

The study investigated the effects of outdoor activities on students’ academic performance in Physics in Senior Secondary School in Ekiti State, Nigeria. The study was a pretest, posttest, control group quasi-experimental design. Purposive and stratified random sampling techniques was used to select a total sample of 80 SS I Physics students (40 each experimental and control group respectively) from four senior secondary schools in Ekiti West Local Government Area, Ekiti State. Three null hypotheses were formulated and tested at 0.05 level of significance. The instrument for this study was Physics Achievement Test (PAT) and the treatment package used for the study was tagged: Outdoor Instructional Package (OIP). The data collected were analysed using t-test and ANCOVA statistical analysis packages. The results of the analyses showed that no significant difference existed between the performances of students in experimental and control groups involved in the study at pretest. However, students’ achievement in the experimental group at post-test level was found to be significantly better than that of the control group. The implications of the results on students’ academic performance in Physics were discussed and recommendations were also made.

1. Introduction

Almost all aspects of life science (both living and non-living) have something to do with Physics, ranging from engineering to Mathematics, Biology and Chemistry [1]. Physics is one of the prerequisite subjects for the study of engineering, technology, medical and other applied science courses in the university. She stressed that Physics is at the heart of almost every face of modern life. Physics provides training for a vast range of careers, where it is either employed directly, or where the skills developed can be applied in innovative ways in other fields.

Also, according to [17], “Physics is the most utilized basic science subject in most technology and technology-related profession”. This merely indicates that the enormous role that Physics plays in the technological growth of any nation must not be undermined. Physics is the study of matter and natural events, based mostly on empirical observations and quantitative measurements [10]. Physics, according to [11], also dealt with the study of laws that determine the structure of the universe with reference to the matter. Many technical or basic tools and equipment surrounding us, work according to the laws of Physics.

In spite of the enormous role that Physics plays in Nigeria national development and the efforts of government in the provision of necessary science equipments in schools with good teachers and parents/guardians in providing for their children/wards educational needs at improving science education, Physics results in the examination conducted by most certified examination bodies like the West African Examinations Council (WAEC) and National Examinations Council (NECO) have not been satisfactory. In particular, reports on WAEC results of Senior School Certificate Examination in Ekiti State over the years often revealed low performance of students in Physics. A fluctuation trend was recorded in the performance of students in Physics in the past six years (between 2008-2013) in May/June WASSCE (Table 1 below).
A cursory look at table 1 revealed that, in 2008, out of 3,385 candidates examined for Physics in MAY/JUNE WASSCE, only 1,274 (37.6%) scored A1 to C6 grade, 797 (23.5%) got pass and 1,314 (38.9%) candidates failed. In 2009, 4,289 candidates were examined for Physics, only 2,296 (53.5%) recorded A1 to C6 grade, 1,036 (28.7%) scored pass and 937 (17.8%) failed. Also, in 2010, out of 5,459 candidates that were examined for Physics, only 2,569 (49.8%) had A1 to C6 grade, 1,825 (31.6%) scored pass and 1,065 (18.6%) failed. In 2011, out of 6,859 candidates that were examined for Physics, only 4,020 (58.6%) had A1 to C6 grade, 1,124 (16.4%) scored pass and 1,188 (23.4%) failed. Furthermore, in 2012, 5,081 candidates were examined, 2,514 (49.5%) recorded A1 to C6 grade, 1,379 (27.1%) scored pass and 1,188 (23.4%) failed. Finally, in 2013, out of 5,483 candidates examined, 1,857 (33.9%) scored pass and 1,939 (35.4%) failed.

Furthermore, a cursory look at the analysis revealed that not very many of the candidates had credit pass in Physics over the period of observation. In addition, very many of the candidates that were examined over the period of observation scored below passes level (i.e. A1 to C6) grade required for admission purpose to read science based courses in the tertiary institutions. This situation is disturbing and not in the best interest of the technological growth and development of the country.

Some of the factors inhibiting the learning of Physics and leading to students’ poor academic performances in Physics have been identified. These factors, according to [13] include; poor teaching methodology, students’ negative attitude towards Physics, students’ lack of interest in Physics, school location, gender inequality and poor quality of Physics teacher.

Since sense of hearing alone easily leads to forgetting, more effective learning goes on when many senses are involved. However, this could be improved upon by combining it with other more effective methods and strategies that are activity-based. The search for methods and procedures for effective teaching and learning has engendered the birth of many procedures and methods that include outdoor activities. A variety of natural settings can be used for science investigation on out-doors, such as: school yards, playgrounds, gardens and amusement parks [19].

Teaching Physics through outdoor activities may reduce the perceived abstract nature of Physics to a vivid reality by exposing the students to the practicality of Physics [5]. In the outdoor Physics activities, learning objects are real material objects in the surrounding with their properties reflected in scientific principles, laws and theories of Physics. The learner performs actions on the learning objects, transforming the objects in intellectual and/or practical ways and changing him or herself in that process. Different forms of activities like object manipulation/transformation, sport and play activities can dynamically contribute to the development of learning Physics activity outside of the traditional educational context.

Outdoor teaching activities could allow for better acquisition of knowledge by students, as the activity could be experienced with different senses as a result of their physical interaction with nature within their environs, this would make them to form their personal opinion about events [18]. The students was exposed to the original/actual materials instead of bringing the dummy to the classroom to demonstrate. The students need activity-oriented lesson for them to master most concepts in Physics.

This study therefore intends to ascertain whether the use of out-door activities, as a teaching and learning approach, would stimulate students’ interest in Physics.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>No EXAMINED</th>
<th>CREDIT A1-C6</th>
<th>PASSES D7-E8</th>
<th>FAILURE F9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>TOTAL</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1,786</td>
<td>1,599</td>
<td>3,385</td>
<td>1,274 (37.6%)</td>
</tr>
<tr>
<td>2009</td>
<td>2,439</td>
<td>1,850</td>
<td>4,289</td>
<td>2,296 (53.5%)</td>
</tr>
<tr>
<td>2010</td>
<td>2,949</td>
<td>2,510</td>
<td>5,459</td>
<td>2,569 (49.8%)</td>
</tr>
<tr>
<td>2011</td>
<td>3,815</td>
<td>3,044</td>
<td>6,859</td>
<td>4,020 (58.6%)</td>
</tr>
<tr>
<td>2012</td>
<td>2,872</td>
<td>2,209</td>
<td>5,081</td>
<td>2,514 (49.5%)</td>
</tr>
<tr>
<td>2013</td>
<td>2,843</td>
<td>2,640</td>
<td>5,483</td>
<td>1,857 (33.9%)</td>
</tr>
</tbody>
</table>

Source: [6].
2. Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. There is no significant difference in the achievement mean scores of students in experimental and control groups before treatment.
2. There is no significant difference in the achievement mean scores of students in experimental and control groups after treatment.
3. There is no significant difference in the achievement mean scores of male and female students in each of the experimental and control groups.

3. Methodology

The research design adopted in the study was Pretest-Posttest Quasi-experimental. The sample for the study was 80 Senior Secondary One (SSI) Physics students (this sample was divided into the experimental and control groups in ratio 1: 1 i.e. 40 in each group), selected through the multistage sampling technique from SS I students offering Physics in all the public Senior Secondary Schools in Ekiti West Local Government of Ekiti State.

The instrument used to collect relevant data from the subjects was Physics Achievement Test (PAT). The reliability of the instrument was determined through the split-half method with the reliability coefficient of 0.84.

The administration of the instrument was in three stages: the pre-treatment stage (two weeks), the treatment stage (four weeks) and the post-treatment stage (two weeks). Eight weeks altogether were used for the whole study. The experimental group was treated with outdoor instructional package (i.e. the students were taught outside the classroom with the package) while, the control group were taught with the same concepts but through the conventional teaching approach.

Three null hypotheses were tested at 0.05 level of significance. The data collected were analysed using inferential statistics of t-test and Analysis of Covariance (ANCOVA).

4. Results and Discussion

Hypothesis 1

There is no significant difference in the achievement mean scores of students in experimental and control groups before treatment.

Hypothesis 2

There is no significant difference in the achievement mean scores of students in experimental and control groups after treatment.

Table 2. t-test analysis of achievement mean scores of students in experimental and control groups before treatment

<table>
<thead>
<tr>
<th>GROUP</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>t_cal</th>
<th>t_tab</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>40</td>
<td>5.84</td>
<td>3.53</td>
<td>78</td>
<td>0.062</td>
<td>1.65</td>
<td>NS</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>5.79</td>
<td>3.66</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P > 0.05 (Result Not significant at 0.05 level), NS = Not Significant

As shown in table 2, when the mean score of students in the experimental and control groups before the treatments (pre-test) were statistically compared, a t-value ($t_{cal} = 0.062$) with $p > 0.05$ alpha level was obtained, which was not significant at 0.05 level. This implies that there is no significant difference between experimental and control groups in pretest achievement mean score. Consequently, the null hypothesis which states that there is no significant difference in the achievement mean scores of students in experimental and control groups before treatment was accepted.

Hypothesis 3

There is no significant difference in the achievement mean scores of male and female students in each of the experimental and control groups.

Table 3. T-test analysis of achievement mean scores of students in experimental and control groups after treatment

<table>
<thead>
<tr>
<th>GROUP</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>t_cal</th>
<th>t_tab</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>40</td>
<td>21.53</td>
<td>4.67</td>
<td>78</td>
<td>7.174</td>
<td>1.65</td>
<td>*</td>
</tr>
<tr>
<td>Control</td>
<td>40</td>
<td>14.91</td>
<td>3.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P < 0.05 (Result Significant at 0.05 level), * = Significant

As shown in table 3, when the mean score of students in the control and experimental groups after the treatments (posttest) were statistically compared, a t-value ($t_{cal} = 7.174$) with $P < 0.05$ alpha level was obtained, which was significant at 0.05 level. This implies that there exists significant difference between the control and experimental groups achievement mean scores after the treatment in favour of experimental group. Consequently, the null hypothesis which states that there is no significant difference in the achievement mean scores of students in experimental and control groups after treatment was rejected.
Table 4. Summary of ANCOVA analysis on the achievement mean scores of male and female students in each of the experimental and control groups

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>SS</th>
<th>df</th>
<th>Ms</th>
<th>F_cal</th>
<th>F_tab</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected model</td>
<td>682.198*</td>
<td>4</td>
<td>220.549</td>
<td>49.68</td>
<td>2.42</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Covariate (pretest)</td>
<td>22.446</td>
<td>1</td>
<td>22.446</td>
<td>2.65</td>
<td>3.89</td>
<td>0.106</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.860</td>
<td>1</td>
<td>.860</td>
<td>0.10</td>
<td>3.89</td>
<td>0.750</td>
<td>NS</td>
</tr>
<tr>
<td>Group</td>
<td>623.497</td>
<td>1</td>
<td>623.497</td>
<td>91.77</td>
<td>3.89</td>
<td>0.000</td>
<td>*</td>
</tr>
<tr>
<td>Gender *Group</td>
<td>11.823</td>
<td>1</td>
<td>11.823</td>
<td>1.40</td>
<td>3.89</td>
<td>0.239</td>
<td>NS</td>
</tr>
<tr>
<td>Error</td>
<td>127.542</td>
<td>45</td>
<td>8.466</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>909.740</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>52705.000</td>
<td>80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P > 0.05 (Result Not significant at 0.05 level), NS = Not Significant , and * = Significant

As such, the conventional method of instruction used for control group can be said to be less effective compared with outdoor activities approach used to teach the experimental group.

Hypothesis 3

There is no significant difference in the achievement mean scores of male and female students in each of the experimental and control groups.

Table 4 showed that the computed F-value (F_cal = 0.10 < F_tab = 3.89) with a P-value (P > 0.05 alpha level) obtained from the analysis of the students’ gender was not significant. Hence, the mean achievement scores of male and female students were not significantly different. The table also revealed that the compared F-value (F_cal = 1.40 < F_tab = 3.89) with a P-value (P > 0.05 alpha level) obtained for the interaction of gender and group was not significant as well. The null hypothesis was thus not rejected. It, therefore, implies that there is no significant interaction between gender of students and outdoor teaching approach applied. In other words, gender of students has no significant influence on either the effectiveness (or otherwise) of the method of instruction applied.

5. Discussion

The first finding of this study revealed that the performance of students in both experimental and control groups in pretest were low and do not differ statistically. This finding established the homogeneity of the two groups involved in the study prior to the experiment. In other words, it could be said that the knowledge baseline for the two groups involved in the study are equal. Consequently, any significant difference recorded afterwards would not be ascribed to chance, but to the specific treatments applied. It also revealed that the mean scores was very low for the two groups (experimental and control), this may probably be due to the possible ineffectiveness of the conventional method of instruction generally adopted by Physics teachers in the nation, which might not have been potent enough to help students in solving their learning problem in Physics. This assertion is supported by [16], [3], [4], [9], [2], and several other researchers, who were of the opinion that the use of the conventional method to teach Physics students in school diminishes their interest and ability to grasp relevant underlying concepts because this approach to teaching Physics encourages Physics students to be passive, more direction followers and without personal initiative.

Second major finding of this study was that the achievement means scores of students in experimental and control groups were statistically different after the treatment. By implication, therefore, the outdoor teaching approach was more effective in improving students’ performance in Physics than the conventional mode of teaching. This finding is consistent with that of [14], [20], [21], and others, who reported that taking students outdoors can give both the teacher and students a new outlook and improve the academic performance of the students. The result of this finding also corroborated that of [15] who found that integrating everyday phenomenon into Physics teaching could impart positively on students’ attitude towards Physics and their achievement in Physics.

The findings of this study also revealed that: there was no significant difference in the interest of male and female students in Physics in each of the experimental and control groups before and after the treatment. In other words, the interest of male and female students exposed to outdoor teaching approach did not differ significantly as female students were found to have similar interest in Physics as their male counterparts in the two groups involved in the study. The implication of this result
is that gender was not a significant predictor of students’ interest in Physics. The finding, however, was at variance with the findings of [22], [7], [12], [8], who in their separate studies reported that gender is a major factor that influenced career choice and interest of students in subjects.

6. Conclusion

Based on the findings of this study, it can be concluded that outdoor activities teaching approach is more potent in improving students’ academic achievement in Physics in secondary schools than the conventional method in vogue in the nation. It can also be concluded that the effect of teaching approach on secondary school Physics was also found not to vary with gender of students. This simply implies that performance of students taught using different teaching approaches is not in any manner affected by their gender.

7. Recommendations

Based on the findings of this study, the following recommendations were made:

(i). Since the hitherto commonly used conventional method of instruction in formal schools had been empirically discovered in this study to be less potent and less effective than out-door activities mode of teaching in improving secondary school students’ academic achievement in Physics, the conventional method presently in use by Physics teachers should either be improved upon, modified or replaced with an activity- based teaching approach (as appropriate).

(ii). Physics teacher should be encouraged to adopt outdoor teaching approach in order to: demystify Physics in its entirety; simplify the perceived abstract nature of Physics by abstract concepts for improved students’ academic achievement in Physics for improved academic performance and subsequently create an environment where people would realize that Physics is neither an ‘abstract’ nor ‘esoteric’ subject that cannot be understood by diligent learners as many currently erroneously presume.

8. References


Session 11: ICT and Art Education

From Everyman’s Right to Everyman’s Possibility
(Authors: Merja Meriläinen, Maarika Piispanen)

Social Representations during a Pedagogical Intervention in Technology Education in Schools of Bogotá and Cundinamarca
(Authors: Laura A. Díaz, Fredy A. Olarte, Ligia Ochoa)

(Author: Sara Curran)

A Structuring Project of Artistic and Cultural Education Tries to Apprehend Pupils’ Activity: Body Experimented in First and Third Person
(Author: Pairis Nadine)
From Everyman’s Right to Everyman’s Possibility

Merja Meriläinen & Maarika Piispanen
Kokkola University Consortium Chydenius, Finland

Abstract

This article describes a blended learning study module that was carried out in class teachers’ adult education. The goal of the planning of this module was to create a learning environment that would give a student an optimal learning experience in versatile, authentic, e-learning environments. In the study, the ubiquitous learning model was based on the principles of transformational pedagogy (OED). The module was carried out in flexible and versatile learning environments based on transformational pedagogy, where knowledge also included command of the 21st century teaching skills 21. The theoretical framework of the study module followed the model of contextual-pedagogical model [18]. The study module that was based on a strong pedagogical ground offered the students a possibility to not only choose a suitable time for studying, but also to acquire transversal competences which are linked to transformational pedagogy, as a part of an authentic learning experience.

1. Introduction

Digitalization challenges traditional qualification structures and hierarchies. Competition in educational market is increasingly global as top universities offer free online lectures anyone can watch at home. The relationship between physical participation and distance learning is an essential question of attractive education today. Honkonen [8] urges education providers to think when it is useful to bring people physically together and when a well-planned virtual connection is enough. Crucial is, which makes a better learning context.

The researchers of virtual education have noticed that although educators know what the elements of an active learning process are, those elements are not always applied in teaching [11]; [17]; [19];[26] Hodges and Repman [26] state that in university teaching, the learning environments of virtual courses are rather information channels built around technology than virtual learning environments based on methods that enhance and enable authentic learning. Studies show that learning environments that utilize technology in versatile ways and thus make it possible to act in authentic real-life learning contexts are seen as a possibility for developing teaching.

In this research project, the starting point was to offer class teacher students a possibility to do a six-credits’ study module (Comprehensively towards context and experience-based learning) utilizing the possibilities of modern e-learning in a versatile way. The project included planning and carrying out a learning process that was linked to authentic learning contexts and utilized virtual possibilities and e-pedagogy innovatively. The virtual possibilities enabled expanding the learning environment into informal and authentic learning contexts.

The study module was based on socio-cultural and situational views of learning, as well as transformational e-learning pedagogy. According to Hodges et al. [6] planning and carrying out pedagogically appropriate learning environments especially for e-learning was seen as the most important objective of the project. The study module was carried out as an intervention and its objective was also to give the students a model for working and learning in authentic learning environments, and developing transversal competences. This learning environment can easily be transferred to different learning contexts also in basic education, where the students will later be working.

2. Comprehensively towards context and experience-based learning

The world has changed and as educators we should admit that so have students and studying. The choices we make as regards learning environments and pedagogy should be guided by learners’ experiences and approaches.[21] We approached the planning process from the contextual-pedagogical framework [18], [23], [22] which guided towards authentic learning as described by Herrington, Reeves and Oliver [5]. Here, authentic learning is seen as an approach
which links together real-life strategies and learning and education that utilize e-learning. Authenticity also means planning such learning environments, situations and processes that give the learner a possibility to think and act like professionals and experts. Authentic learning tasks were central in the planning of this study module and, as Purser, Toundrow & Arangui [25] state, planning and choosing authentic learning tasks has a great influence on the quality of education. This is true whether the implementation of the virtual study module is traditional or follows the latest trends, as in this research project.

In this research project, the objectives of the study module –to perceive basic education curriculum from the point of view of interdisciplinary integration; to expand one’s comprehension of learning environments to include versatile contextual environments; to apply innovative teaching methods in the planning and implementation of teaching - invited to implement the module from the starting points of transformational pedagogy. They also challenge us teacher educators to expand our views of learning environments and to apply innovative teaching methods in the planning and implementation of an e-learning environment.

Piispanen [21] highlights that in the contextual-pedagogical approach pedagogy and learning context are seen meaningful to each other; they are planned so that they support one another, utilize the students’ experiences and knowledge, and stimulate several senses. Both the context and pedagogy have a crucial meaning in learning. This meaning is especially linked to allowing room for the student, his experiences, knowledge, and ways of learning. Leppisaari, Meriläinen, Piispanen and Pulkkinen [16] note that acquiring future metaskills requires also new teaching methods. This means that pedagogical models and methods, rich and authentic contents and teaching materials should be paid special attention to in education. According to Leppisaari [13], e-learning is changing as learner-centred and communal learning environments challenge prevailing views of learning.

According to studies [10], [28] the approach of authentic learning, rising from the idea of situational learning, can help to find pedagogical solutions that support the acquirement of 21st century skills. A national assessment of online education, made by the Finnish Higher Education Evaluation Council (FINHEEC), showed that there is a need to increase authenticity of online education of universities of applied sciences [15]. In the same way, authenticity is a central development area also in the planning and implementation of e-learning environments in Class teacher adult education. This point of view guided the development work of the study module presented in this article.

The decision to change the implementation of instruction of an existing study module entirely form contact instruction to distance learning was rather thought-provoking among the teachers. However, central and important was that the planning would be guided by pedagogically legitimate teaching arrangements and an inspiring e-learning environment that would enable the student’s to reach the objectives of the study module and to use their competencies and strengths. It was also important to follow the principles of authentic learning. When we were planning the study module, the teachers’ topics of conversation were pedagogy and learning environments, whereas matters related to technology were clearly not a point of concern. Also Puenteur’s [24] SAMR model includes this insight to the relationship between learning tasks and technology in planning learning processes that utilize technology. According to Puenteur’s [24], in learning environments that make use of technology, the nature of the learning task either stays the same while the media that is used changes, or the learning tasks are refined and change because of the possibilities provided by technology. This was also the case in the study module discussed in this article.

In the end, if you really think about it, is it anything more than creating a pedagogically suitable learning environment? –That’s right, the same questions guide the planning process in contact teaching and distance teaching, because the idea of learning does not change even if the learning environment changes. -That’s it! – Somehow I cannot help thinking how we will get Ida to participate in this, I have to remind myself not to fall into that kind of thinking! –Now, let’s challenge ourselves and plan an inspiring learning environment that enables reaching the objectives of the study module in a way that is motivating and makes use of students’ knowledge, skills, and strengths.

According to Impiö, Meriläinen and Piispanen [9], in planning an e-learning environment crucial to learning is not where the students are and when they are there. Instead, important is how learning and reaching the objectives is enabled independent of time and place, making use of students’ competencies and the knowledge of people’s everyday life [9]. This view is supported by Bonk, Kim and Zheng’s [3] study, according to which strengthening the possibilities of authentic learning requires teaching and working methods that are
compatible with real professional situations and expertise, and thus utilize the possibilities that virtual teaching and the development of educational technology offer.

The framework for the e-learning environment discussed in this article is the contextual-pedagogical approach to planning and implementing teaching. According to Piispanen and Meriläinen [22], it is based on comprehensive and transversal pedagogical knowledge, the learner having a central role in processing and building information. The researchers [22] emphasize that learning happens in active interaction with the environment, the learner taking the role of an authentic actor and building new information with others using real-life working methods.

Congratulations! Your group has been chosen to a Project planning competition that starts right NOW! Your task is to plan and implement a contextual, experienceful PRODUCTION on the basis of Basic education curriculum and interdisciplinary integration. The culmination of the production will take place in May as an experienceful POP UP School Day around Finland in cooperation with local businesses.

When the phenomenon, the topic of learning, is taken from real world, the working methods follow those of real life and engage the students to the task that is implemented in an authentic situation [3]. As a pedagogical model the contextual-phenomenal learning means using learning tasks that challenge students to solve problems and think as professionals of a certain field. The starting point of this try-out study module was to implement cognitively realistic learning tasks in ubiquitous learning environments that made use of the possibilities of e-learning.

The central questions in planning the try-out module were rather usual in all planning of teaching: What is good pedagogy? Where does learning best take place? What kind of information is needed in order to gain new understanding? How to motivate and inspire students to find and organize information? How to process, structure and shape information into new information? What are the roles of the teacher and the student in the learning situation? In addition to these, we had to ponder how to carry out the learning environment in the contextual-pedagogical framework and enable authentic learning in ubiquitous learning environments.

In the study module comprehensively towards contextual and experience-based learning, the students were supported and encouraged to plan phenomenon-based, authentic, and experienceful learning wholes for, and together with, basic education pupils. The learning wholes were implemented in schools chosen by the students in different parts of Finland.

In the study module the students went through a contextual-pedagogical learning process phase by phase in learner’s role. During the process they planned and implemented a contextual-pedagogical learning process with a class of pupils, following the principles and methods of project work.

According to Rule [27], authenticity in learning includes an inquiry-based approach that supports the acquisition of thinking and metacognitive skills, and increases discourse within a community of learners, and the learner’s choice.

The learning environment thus plays an important part in a successful e-learning experience. Therefore, planning a learning whole must be guided by pedagogy, and working methods must be chosen so that they support it. Lombardi [20] points out that a well-planned, learner-centred, and authentic e-learning environment prepares learners for working life.

3. Planning and implementation of the study module

The development of a new pedagogical education model began with defining pedagogical and technical issues in January 2014, and the work went on for the entire year. The basis for planning was the contextual-pedagogical learning approach [18] which emphasizes transversal competences (pedagogical, substance, and 21st century teaching and citizenship skills) as part of a teacher’s pedagogical abilities. Planning the study module was guided by Curriculum content and performance descriptions, which helped outline pedagogically legitimate, authentic learning tasks to achieve curriculum objectives. The objectives were not only content-related, but also transversal competencies and generic skills were included.

The e-learning environment included several elements, through which the learning process became visible. Table 1 presents the connections between the learning tasks and performance descriptions. Students were given instructions for each task of the learning process on the course web pages, as well as provided with examples from earlier years’ plans, instructions for making presentations, iPad applications, instructions for AC meeting rooms, and current and related articles to deepen the study module’s theoretical framework.
Table 1. Contextual-pedagogical e-learning environment

<table>
<thead>
<tr>
<th>Curriculum contents</th>
<th>Learning tasks</th>
<th>Performance descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning a Basic education curriculum-based, contextual and experienceful learning whole with interdisciplinary integration</td>
<td>• Writing a project plan according to given instruction</td>
<td>Perceives Basic education curriculum from the viewpoint of interdisciplinary integration</td>
</tr>
<tr>
<td></td>
<td>• Familiarising oneself with articles, discussing concepts, making comments (web discussions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Carrying out and documenting the project</td>
<td></td>
</tr>
<tr>
<td>Networking, cooperation, internationality, and shared expertise in planning and implementation of the learning whole</td>
<td>• Choosing the class of pupils for the project</td>
<td>Expands his/her concept of learning environment to include versatile contextual environments</td>
</tr>
<tr>
<td></td>
<td>• Presenting the class and the learning environment (web discussion)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Creating and updating a blog throughout the project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Familiarising the teacher of the project class with the project</td>
<td></td>
</tr>
<tr>
<td>Expanding learner-centred pedagogy into the surrounding society</td>
<td>• Pitching the project and working as an opponent</td>
<td>Applies innovative teaching methods in planning and implementation of teaching</td>
</tr>
<tr>
<td></td>
<td>• Planning and arranging a pedagogical afternoon, reporting it in a blog</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Writing a press release and arranging a press conference</td>
<td></td>
</tr>
</tbody>
</table>

The six credits’ study module was carried out during a period of three months, during which all students and teachers got together in an e-learning space four times. Holmes and Gardner [7] link learning with the concept communal constructivism, which describes the student’s role not only as an active knowledge builder alone and in cooperation with others, but also as an active developer of information for oneself and the community of learners that he is a part of. When planning the study module we paid great attention to the contents and implementation of the four web seminars. The starting points for planning were Holmes and Gardner’s [7] shared communal expertise, and we wanted to enable this with challenging and inspiring working methods. Web seminars made use of the flipped classroom strategy, so that the students were well prepared for the e-meetings, and it was possible to share and deepen knowledge in aversatile and multi-channel way.

As most of the study module was carried out ubiquitously, according to the student groups’ own schedules, the students had to take responsibility of their learning. The learning tasks guided the students towards the learning objectives. An authentic task that guided the students to plan and implement a contextual-pedagogical project with a group of pupils, their teacher, and the school staff, engaged the students to the learning process and the responsibility of one’s own learning was taken quite naturally as the project proceeded from one phase to another [21] as presented in Table 2.

Table 2. Contextual-pedagogical tasks of the study module

<table>
<thead>
<tr>
<th>4h</th>
<th>Familiarise the class teacher with the contextual-pedagogical approach and ideology. Material for this is provided on the course web pages. Get to know the pupils in the class and find out their interests and inspiration and the levels of knowledge and skills needed in the project.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8h</td>
<td>Prepare well for the web seminar. Create a multi-channel presentation of your project and plan a pitching of the project plan according to the collegial reflection schedule. Send your presentation to the opponent group by the scheduled date. The opponent group: prepare for your task well according to given instruction.</td>
</tr>
<tr>
<td>6h</td>
<td>Arrange a pedagogical afternoon (or a parents’ evening) in the school. The target group may be teachers or some other suitable group. Your task is to work as an expert and promote contextual-pedagogical culture among the target group. You can choose your approach to the pedagogical afternoon.</td>
</tr>
</tbody>
</table>
Biggs[1], [2] emphasizes that pedagogically good, legitimate planning consists of perfect consistency between curriculum contents and performance descriptions, chosen methods and learning assignments, learning environments, and assessment. The objective of planning the study module presented in this article was to plan a pedagogically sensible learning environment that is independent of time and place and enables achieving the learning objectives of the study module for every student in the best way possible. This can be seen in the discussion between the teachers:

These are the important words that guide the planning: PEDAGOGICALLY SENSIBLE LEARNING ENVIRONMENT, plus motivated adult students. Can you think of anything else? – A pedagogical manuscript is important, and the whole study module, and all the paths and oasis that are linked into it, must be explained and described clearly so that everybody knows what is expected of them. – Did you notice that nobody has said anything about technology – I would have expected it to have a bigger role in this discussion. – Well yes, it does play a part in distance learning, but one should not get stuck to it when planning a study module.

Biggs’ [1], [2] ideas about planning a high-quality learning process confirms that the teacher’s responsibility is to plan the learning assignments so that a student can show his performance by committing to the assignments, whether the learning environment is a classroom, an online environment, a mixture of these two, or ubiquitous, as described in this article. Dillon et al. [4] describe learning that happens in an e-learning environment with open and closed development paths: formal and authentic learning that happens in the moment can be planned so that it is a closed, strictly defined, and uniform learning path, or, as in the study module presented in this article, it can be planned so that authentic learning assignments enable an individual and communal learning path that opens new perspectives and ideas.

4. Conclusion

It is advisable to plan one’s first study modules with a pedagogically sensible and flexible learning environment that is based on socio-cultural approach of learning and is independent of time and place, on cooperation with another teacher. The possibilities the internet provides may activate one’s thinking and narrow down options in implementation. Collegial cooperation helps change the focus away from technical things, and flexible learning help achieve curriculum performance objective at least as well as teaching that happens physically in the same place. A successful study module needs a good manuscript and a clear timetable that each participant commits to. Co-planning and sharing expertise openly are possibilities of university education.

According to the feedback from Class teacher adult education students (spring 2014), students hope for more possibilities for distance learning, and that the good methods that have been used during the on-going project period would be used more. In addition, providing the students with personal, modern technology in the beginning of studies enables the expansion of learning environments outside classrooms. If teachers’ work does not change, education does not change. Independent, motivated and highly educated teachers are the heroes behind Pisa success. Finnish teachers have great autonomy and power to decide what and how they teach. A part of the teachers are enthusiastic and passionate about learning new things and they also develop teaching and learning boldly. But teachers’ autonomy also enables them to close the classroom door and go on as if nothing in the world had changed. That may end up with great differences between schools and classes. Some teachers use technology, experiment new assessment methods and give up on desks. Others stick to the old ways. [12]

This is the core of the whole thing: it does not make a difference in learning where we are and when, the point is, like you just said how learning is made possible and planned so that it is possible to achieve the objectives in a sensible way.

5. References


Social Representations During a Pedagogical Intervention in Technology Education in Schools of Bogotá and Cundinamarca

Laura A. Díaz, Fredy A. Olarte, Ligia Ochoa
Universidad Nacional de Colombia, Colombia

Abstract

Appropriation and innovation of technology and its integration in the school curriculum are popular topics in Colombia because they have produced significant changes in the teaching-learning process. The Ministry of National Education proposed in 2008 a guideline for technology education [1]. This paper seeks to explain the social representations of teachers and students participating in the project “Regional Innovation Educational Centers - Center area” because it is essential to design tools that serve as a guide for teaching – learning of students in the technology area. It also presents some approaches about the pedagogical intervention developed and the methodology used to establish the social representations, in order to propose alternatives to improve the quality of the technology area in Colombia.

1. Introduction

In Colombia, the Ministry of National Education includes the study of technology as a subject that should be taught in primary and secondary education. For teaching this subject in the country, it proposed the "Guide Series No. 30. To be competent in technology: a need for development", a document that presents the general guidelines for education in technology [1].

Probably because it is a relatively new subject, compared with others, teachers do not use the technology area guidelines to develop their classes. Another major shortcoming is the fact that about 70% of teachers in this area have not been trained in technology and that the orientation in secondary and high school education is mainly technical [2]. Therefore, each institution may have a different approach in the area, according to the teachers training, the institution emphasis and its resources.

Another problem for technology education in the country is that, in some cases, programs financed by government agencies are not evaluated in terms of participant’s perceptions and this makes difficult to suggest changes that would eventually improve the pedagogical intervention implementation.

The Guide Series No. 30 has been taken as a basic document for the program that seeks design, implement and evaluate strategies for the development of technological skills of students, through the creation and the educational use of ICT tools. Whereon the present study was based to determine the participants social representations. Although the Guide Series No. 30 aims to serve as a guide for teaching in technology, it has failed to be a unified approach to guide teachers in their work, probably because the guidelines are less clear and precise compared with another subject’s guidelines.

2. Technology Education

Through the study of technology, people will become more enterprising, innovative, skillful, knowledgeable, adaptable, critic, resourceful and able to face new challenges [3]. Technology education develops students’ capabilities with the processes and should involve a reasonable balance of theoretical and practical information that reinforce conceptual understanding, by increasing on student interest in addressing real-world situations and getting involved with creating, constructing, discovering and problem-solving [4].

The book “Technology Education for Teachers” presents a description of four basic domains of technology, taken from the American philosopher Carl Mitcham. The structure he proposes is based on four different ways of conceptualizing technology: as a collection of artefacts, as a knowledge domain or discipline, as a set of activities and as a field of human and social values [5].

A technology education programme provides a motivating and attractive stimulus to a learning environment in which students can develop skills
that will increase their abilities to solve practical problems, make decisions and interpret the technology impacts on society [4]. Different countries have worked in the technology area and use different terms to describe technology education. Also they present the way they have developed educational programs and national curriculums [5].

Rasinen [3] presents an investigation developed in six countries: Australia, England, France, The Netherlands, Sweden, and the United States, in which technology education programs have developed rapidly over the past ten years. The aim of this study was to find information that could be used in establishing a theoretical basis for planning the technology education curriculum [4].

The Latin American Network of Portals aims to become a world leader in educational content management through communication projects and experiences developed in the community. That is why since its creation and in a relatively short period it has made changes in the educational scenario with regard to the technology area, including computers in the classroom, increasing the equipment acquisition and improving the connectivity of educational institutions through national infrastructure investment plans [6].

In Colombia researchers have not worked extensively in the field of technology education. Within the current studies may be mentioned the document “Education and Society: Reflections and Case Studies in Ibero-America”, which refers to competences in technology through differentiation between two conceptual levels: e-skills and digital literacies. The document’ aim is to promote the use and appropriation of new ICT technologies [7].

Despite this, in Colombia many schools have low possibilities of access to technological resources, especially in rural areas where there is a limited government action in the educative institutions. Additionally, some conditions such as limited infrastructure generate little or no influence of ICT and leave teachers in technological backwardness. But it is not a difficulty exclusive of teachers, because although for students, technology gives possibilities of social ascension, they do not have access to it.

3. Social Representations

The main interest of this work focuses on the perceptions of technology education of teachers and students in the tenth and eleventh grades in four schools of Bogotá and Cundinamarca. The lead author who has studied perceptions is Serge Moscovici, with his theory of social representations, which designates the broad social beliefs about some aspects of society. These representations are presented in different ways: categories for classifying the circumstances, images, phenomena, individuals, theories and referral systems [8].

To study the social representation of an object allows knowing the constitution of thought processes, through which people construct and reconstruct reality and social identity and their "world view" and with which act and take positions on different social objects [9].

For Moscovici four constituent elements rise of social representations: the image connected to what I "see"; information related to what I "know"; the views referring to what I "think" and the attitudes related to what I "feel" [8]. These categories presented by the author will be the guide for the analysis and categorization of the perceptions identified in this investigation.

4. Methodology

To fulfill the investigation purpose, a study of mixed cut was posed combining quantitative and qualitative data. These data were obtained in three stages: at the beginning, during and after the pedagogical intervention to know the participants’ perceptions. For this study I will describe only the results obtained during the intervention [10].

The participants sample were teachers in the technology area and their students in the tenth or eleventh grade of four institutions in Bogotá and Cundinamarca belonging to CIER Center: Pedagogical Institute Arturo Ramírez Montufar (Bogotá), Educational Institution Santa Ana (Soacha) Educational Institution Diego Gomez Mena (Tabio) and Departmental Educational Institution Bagazal (Villeta). These schools were selected through a call made by the Ministry of National Education.

Data collection was performed in two moments: in the first, closed surveys were made and focus groups were formed to collect the students’ views on the matter. The surveys had 15 questions and could be answered according to the Likert scale from 1 to 5, where 1 corresponded to "it does not describe me" and 5 to "it fully describes me". On the other hand, the two focus groups were made in each institution approximately with five students chosen randomly [10].

In the second moment, two focus groups were conducted in order to investigate about the way in which the strategy had been implemented so far [10] and to understand the perceptions of technology teachers.
5. Results

The student surveys results were organized by institutions and by the categories stated above. Also, some interventions of the students in the focus groups supported the polls’ results.

“What I think”

In the first category, the students consider that if the technology class methodology were applied in other subjects they could learn better. They also said that the current methodology could help them to solve problems in daily life.

The Figure 1 presents the results obtained in the surveys for the questions 1, 5, 6, 14 and 15 located at the bottom of the image. On top of the image are the corresponding colors to the levels assessed in the Likert scale.

P4: “Sure, in class a problem is posed and we try to fix it. In your everyday life you will have many problems, therefore this methodology does serve” (Student, second focus group).

“What I feel”

Students strived to learn on the technology class, they like the methodology and feel a higher level of commitment to the area.

P12: “Well, as for myself, I do like the content, in general I like it” (Student, second focus group).

P11: “Ehh! Perhaps, they like the class; we like the subject, technology and learn about it” (Student, second focus group).

“What I see”

The students said they could relate the topics of the technology class with others, learned previously, and that the proposed activities helped them to think critically and creatively.

The previous Figure exemplifies the responses marked by students in the Likert scale for questions 3, 4 and 9.

P15: “We are beginning to move from the theory that we had learned over the years, to practice. Then, as we already have the theoretical bases, now we raise the issue, and try to solve the problem in a practical way. It is like the second step” (Student, first focus group).

Regarding the results of teachers’ focus group:

“What I know”

Teachers mentioned that the main difficulty they had in the project development was the number of students who were in the classroom.

P1: “The difficulties I have had are: logistics, overcrowding and lack of time; I think that PBL requires working with a few students” (Teacher, first focus group).

“What I think”

Teachers said that has been difficult to assess individual learning because most of the work was done in groups. And they are not sure if a given student is learning or not.

P1: “But to truly assess each student, that is the problem that I have because you can evaluate the group but not individualize each student” (Teacher, first focus group).

“What I feel” The teachers felt they had a good relationship with their students during the project.

P3: “I emphasized on the motivation that I can give to the students to research and to be creative. It
is one of the few areas in the institutions’ curriculum that gives the teacher the opportunity to focus and motivate the child to the knowledge and explore their ideas” (Teacher, second focus group).

"What I see" The teachers mentioned that they saw the strategy as something new and they liked the project based learning.

P3: “Well, look to the mere fact that we already have a new strategy, that it is new, at least for those who did not work for projects” (Teacher, first focus group).

6. Conclusions

As a conclusion, although the population with which we worked does not include all the schools in the area, is a representative sample. Through the analysis categories we obtained images, information, opinions and attitudes of students and teachers about the current situation in the technology area in the country.

Students in tenth and eleventh grades showed a high interest in the technology class that should be increased through appropriate teaching strategies.

It would be desirable to train teachers in the Guide Series No. 30 use. Also, further assistance from the government is needed, in terms of infrastructure and social factors associated with education. This, in order to provide more facilities for the proper development and exploitation of the technology implementation as a knowledge area in the country.

7. References


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Abstract

Secondary school music curricula often alienate pupils because of the disjuncture between the latter’s experiences of music outside and inside school. Moreover, music continues struggling for its place in secondary schools. With an objective of expanding music educational thinking and increasing music’s relevance, parallel case studies were used to explore, among other concepts, teachers’ engagement in two integrative secondary mainstream-special school musical projects. Small’s concept of ‘musicking’ underpinned this research. In exploring the notion of an inclusive form of musicking, achieved through the musical integration of secondary mainstream and special school pupils, this paper outlines some of the hierarchical relationships in the projects influencing participating teachers’ engagement. Mainstream and special school teachers’ sense of self-efficacy was found to be important in enhancing or limiting the possible future application of similar integrative projects. Suggestions for augmenting teachers’ self-efficacy and for future research in this under-researched field are offered.

1. Introduction

Despite the increased inclusion of pupils with special educational needs and disabilities (SEND) in UK mainstream classrooms, pupils with severe learning difficulties (SLD) in special schools are still largely excluded from working with their mainstream peers. The participation of pupils with SLD in music may be increased by providing opportunities for them to work together with mainstream school pupils on a music-based project, potentially also fostering the latter’s understandings of learning difficulty. My recently completed doctoral research explored two mainstream-special school integrative music projects in terms of the engagement of the teachers leading each project (the ‘lead teachers’), the interaction between mainstream and special school pupils, and the feasibility of such projects in secondary schools. Small’s concept of ‘musicking’ [1], which asserts the centrality of ‘relationship’ in musical performance, underpinned this research.

The projects themselves involved mainstream and special school pupils working together for one hour a week for ten weeks, and being taught by teachers from both schools. This paper focuses upon the lead teachers’ engagement with their respective projects, found to be crucial in determining each project’s perceived success. The research is set in context with a brief review of mainstream and special school music education and documented music-based studies of mainstream and special school pupils working together.

2. Background

Mainstream secondary school music has long been documented as problematic [2; 3]. Pupils often engage willingly with music outside school but find school music in authentic or even boring [4]. Despite a wide range of music’s being introduced into the formal curriculum, the inherent values of Western ‘classical’ traditions (underpinning much of trainee music teachers’ education) are still promoted, resulting in many pupils becoming alienated from music in school [3]. Relatively few teachers engage with popular or non-Western music’s that more closely reflect many of their future pupils’ musical experiences and preferences [5]. While there is some room for creativity, the requirement for accountability across the secondary age range means that teachers are under sustained pressure to demonstrate pupil achievement [6], often through improved levels of musical performance. The auditioning and selection of pupils for school concerts this often necessitates can leave some pupils feeling inadequate and unmusical [1].

In special schools music plays an important part in the lives of most pupils [7], yet music education for pupils with SLD is a largely invisible area in terms of relevant research and literature [8]. Many generalist teachers placed in charge of music in special schools have little or no musical background or qualification [7]; it is possible that such teachers may, as do many generalist primary school teachers [9], lack confidence in teaching music. Mainstream teachers too, have their own concerns about teaching pupils with SLD, with many lacking...
the knowledge and understanding of how to match their instruction to such pupils’ learning characteristics [10], significantly limiting these pupils’ participation [11]. Although integration is closely linked with participation [12], very little empirical research exists on secondary school integrative music projects involving pupils with SLD working with their mainstream peers [13]. In 1992 Moger and Coates reported briefly on such a project, which aimed at greater involvement of special school pupils in their local community and mainstream pupils’ increased sensitivity towards their special school peers [14]. Its brevity meant that it lacked much methodological information. A much later study explored changes in mainstream pupils’ perceptions of disability after working musically with a group of special school pupils with SLD [15]. Otherwise, performing arts projects aiming at fostering inclusion and examining pupils’ changes in perception have involved drama [16; 17] and dance[18], both included in Small’s concept of musicking [1].

3. Music and musicking

Music is widely held to be beneficial for people of all abilities, ample evidence existing to permit the likelihood of universal musicality [19]. Every baby in the womb experiences the rhythm of the maternal heartbeat, of movement, and the musicality of its mother’s voice [20]. For special school pupils working with their mainstream peers, music thus forms an accessible, fundamental channel of communication, and a medium through which meaning may be shared even where spoken language is not possible [21]. School-based projects incorporating music, musical performance and dance (all encompassed within the concept of musicking) can give pupils with SLD the opportunity to develop their creative and artistic potential, both for their own benefit and for the enrichment of society, advocated by the United Nations [22].

Small considers music as something people do, and his concept of musicking places performance (including practice and rehearsing) and relationships in pivotal roles when exploring, and analyzing different forms of music-making [1]. From a starting point of universal musicality, the meanings of making and doing music – what Small calls musicking – are located both in the relationships between the musical notes and within participants ‘ideal relationships’ as they imagine them to be during performance [1]. The relationships are described as ‘ideal’ because they are right for the participants, as they themselves perceive them at the specific time and place where the musicking happens. ‘Ideal’ does not imply moral rightness here; musicking is not inherently concerned with valuation:

*It is descriptive not prescriptive. It covers all participation in a musical performance, whether it takes place actively or passively, whether we like the way it happens or whether we do not…[1].*

Small attaches great importance to gesture in the articulation and consideration of interpersonal relationships, making musicking an opposite framework for the analysis of teachers’ engagement with work, colleagues and pupils, where several pupils’ use of verbal language was either limited or absent.

4. Methodology

Following ethical review, two partnerships, Project A and Project B (involving four schools) were arranged. Project consisted of a co-located mainstream and special school, while Project B’s schools were separated by a distance of three miles. Project B’s teachers had never met; those in Project A had worked together previously on a short (three hour) music workshop. Both projects’ mainstream lead teachers were music specialists, with the special school teachers having some musical experience but no formal musical training. Qualitative interpretive case studies incorporating ethnographic and narrative elements were conducted in parallel over one year, with the study being divided into three phases.

Before the projects (Phase 1), video-recorded observations of ‘regular’ music lessons in the individual project schools were carried out each week over a period of ten weeks. During the projects (Phase 2), a further ten weekly video-recorded observations of project sessions were carried out. Semi-structured interviews were conducted with lead teachers before, during, and after the projects (Phases 1-3). This enabled comparison of the teachers’ practice as they worked in their individual schools in ‘regular’ music lessons, prepared for the project, and worked together in the projects themselves. Phase 3 allowed teachers to reflect upon their project and validate their responses to the research findings. The mainstream and special school lead teachers in each project chose its content, and planned and led project sessions, each one of which was considered as a musical performance. Data obtained from the above methods were considered together with those obtained from support staff interviews, pupil interviews and focus groups, obtaining a triangulated picture of the projects from several perspectives.
Table 1. Project content

A: Integrated whole class and group work (percussion, singing, rap and keyboards) involved pupils learning and practising a popular hip-hop song based on Pachelbel's *Canon in D*. Teaching approaches used a 'rehearsal model,' aiming at correct notes and timings.

B: Pupils worked in integrated groups incorporating music technology, dance, percussion, songwriting and sign language, practising group performances. Project sessions began with whole class singing and signing, ending with groups sharing their work.

4.1. Engagement

Teachers’ cognitive engagement was reflected by their willingness and motivation to exert the effort to master new skills [23] and their behavioral engagement, by effort, participation, and sociable collegial and teacher-pupil relationships [24]. Teachers’ emotional engagement was demonstrated by their affective ties with others, and their attitudes towards, interest in and commitment to their respective projects [25]. Potentially, these components differed in intensity and duration.

4.2. Data collection

Video-recorded classroom observations allowed repeated review of the project sessions and enabled the capture of important non-verbal (gestural) data in context. The amount of textual data, including field notes from classroom observations and interviews, was extensive. To facilitate data management, NVivo qualitative data analysis software was used [26].

Textual data were coded (‘tagged’ with coding references) in three stages, at first using codes derived directly from the data and from Small’s musicking framework. The second and third stages increasingly categorized these references into themes as they emerged from the findings.

5. Findings

The number of coding references describing each lead teacher’s observed cognitive, behavioral and emotional engagement during their respective projects provided strong indicators of the nature of their engagement. These coding references were associated with the criteria described in section 4.1.

A brief summary of these findings is shown in Table 2. Project A’s mainstream lead teacher retained her focus on assessment for her own pupils in project sessions and saw music specialist training as important in such projects (reflected to some extent by her special school colleague). Project B’s lead teachers showed high expectations of all pupils’ behavior, were autonomous in taking responsibility for project planning and activities, were clear in directing these, and viewed musical training as less important.

Table 2. Lead teachers’ cognitive engagement, Phase 2

<table>
<thead>
<tr>
<th>Lead teacher and project</th>
<th>Focus on assessment in teaching</th>
<th>Accepts/assumes responsibility</th>
<th>Clarity</th>
<th>Importance of music specialist</th>
<th>High expectations of pupils</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special school A</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Mainstream school A</td>
<td>19</td>
<td>2</td>
<td>1</td>
<td>27</td>
<td>1</td>
</tr>
<tr>
<td>Special school B</td>
<td>0</td>
<td>7</td>
<td>18</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Mainstream school B</td>
<td>0</td>
<td>13</td>
<td>12</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 3. Lead teachers’ behavioral engagement, Phase 2

<table>
<thead>
<tr>
<th>Lead teacher and project</th>
<th>Working together well</th>
<th>Proactivity</th>
<th>More alert to context</th>
<th>Relationships: openness</th>
<th>Relationships: Positive</th>
<th>Modelling Positive Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special school A</td>
<td>2</td>
<td>11</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Mainstream school A</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Special school B</td>
<td>8</td>
<td>12</td>
<td>7</td>
<td>7</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Mainstream school B</td>
<td>8</td>
<td>6</td>
<td>25</td>
<td>12</td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 4. Lead teachers’ emotional engagement, Phase 2

<table>
<thead>
<tr>
<th>Lead teacher and project</th>
<th>Conveying appreciation</th>
<th>Passion for subject</th>
<th>Positive affect</th>
<th>Positive attitude</th>
<th>Respect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special school A</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mainstream school A</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Special school B</td>
<td>20</td>
<td>12</td>
<td>19</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Mainstream school B</td>
<td>25</td>
<td>9</td>
<td>27</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 3 shows that project B’s lead teachers worked well as a team and were more alert to what was happening around them in project sessions, dealing quickly with situations as they arose. Both projects’ special school lead teachers were generally more proactive in project sessions in addressing pupils’ needs. Project B’s mainstream lead teacher not only modeled positive behavior for pupils in project sessions but also cultivated open, dialogic relationships with pupils and colleagues.

Table 4, below, indicates the lead teachers’ emotional engagement. There are clear differences between the two projects in terms of the lead teachers’ observed passion for their subjects (music and SEND), in conveying appreciation to all pupils for effort, achievement, and their attitude towards the project. This fostered a generally positive affect in the whole project. The coding reference, ‘Respect’, refers to teachers’ use of this word to pupils in class and in their interviews, where they referred positively to their partner school colleague’s specialist knowledge and expertise. It thus indicated not only respect but also appreciation.

6. Discussion

Small [1] states that ‘…somebody’s values are being explored, affirmed, and celebrated in every musical performance, at anytime, anywhere.’ This school-based study inherently involved power relationships between teachers and pupils. Several other hierarchies influencing each lead teacher’s engagement became apparent within each project as each teacher’s ideas, attitudes and professional practice reflected her values concerning music education, and education generally. This notion of hierarchy provided a way of associating teachers’ reconciliations of their inner values with the external demands of accountability and the interpersonal requirements of relationship. The hierarchies discussed below include their prioritization of activities, and hierarchies of knowledge and of curriculum.

Batt-Rawden and DeNora [27] state that ‘music’s affordances are constituted through the ways music is framed or prepared for use’. In Project A, approximately 20 minutes were spent on pre-project preparation, and over three hours in Project B, indicating the importance teachers attached to it. While all teachers planned these preparation sessions carefully, the time, empathy, and in particular, humor, shown by Project B’s lead teachers helped everyone taking part to work together confidently. Staff seniority was also significant. Project B’s special school lead teacher, an assistant head teacher, was able to ensure that the particular support staff she wanted to attend each week could do so. Project A’s special school lead teacher’s relatively junior status did not permit this.

It is well documented that music teachers’ identities fall on a continuum between musician/performer and teacher. Project A’s mainstream lead teacher classed herself as a music specialist and her special school partner as a non-music specialist, establishing an unequal power relationship within a project that the mainstream teacher considered as defined by its musical nature.
Her special school partner appeared to accept this, and remarkably, never mentioned her own specialist ability. Implicitly this not only diminished its status, but also her own perceptions of her ability (self-efficacy, described by Bandura [28] to contribute musically to Project A. In this way, subject specialism was prioritized over pupils’ wider educational and social development. In contrast, Project B’s lead teachers saw curricular music’s primary role as helping to increase pupils’ confidence and co-operation and for them, the prioritization of musical expertise did not arise.

Project A’s content was determined by its mainstream school lead teacher who remained primarily concerned for her own pupils’ musical attainment throughout, then demonstrated by National Curriculum levels: a form of hierarchy. Project B’s mainstream lead teacher willingly laid aside her regular way of working and its demands of assessment in favor of a creative form of musicking that privileged the importance of social relationships among all pupils taking part. Unusually for a music teacher, she was concerned with outcomes other than musical ones:

[Musical outcomes were] never for me the main goal which was thinking about them working together, breaking those barriers down and producing something that the students were proud of.

Where forms of hierarchy were less visible or even absent, notions of parity came to the fore. These were articulated strongly by Project B’s lead teachers in their collegial equality. There was a parity of effort, similar levels of engagement, and a sense of ‘give and take’ as they worked during their project. Project B featured far fewer instances of apparent hierarchy than did Project A, whose teachers not only appreciate one another’s expertise but also the constraints they were working within. Importantly, they treated each other’s pupils as equals.

7. Conclusion

The power relations described above need to be addressed through the fostering of mainstream teachers’ willingness and ability to see pupils with SLD (and their own music educational practice) differently. Certain characteristics in teachers from both settings may need development for them to participate actively in similar projects. Addressing mainstream teachers’ concerns about implementing inclusive practice is crucial in developing their sense of self-efficacy, which strongly influences their engagement not only in such projects but also all their teaching.

Further research is required to determine the most effective way to develop such characteristics as self-efficacy when teaching pupils with diverse abilities.

Mainstream-special school partnerships may enhance generalist specialist school teachers’ confidence and self-efficacy beliefs in teaching music in the context of music-based integrative projects. Mainstream music teachers’ perceptions of their ability to work with pupils with SLD may also be addressed in this way. Their comfort levels in working with such pupils can be increased through appropriate training and working with such pupils. While integrative projects demand considerable confidence in participating teachers, they should not be ignored or laid aside because of the challenges they undoubtedly pose. The obstacles are not insurmountable, given teachers’ willingness to try.

8. References


A Structuring Project of Artistic and Cultural Education Tries to Apprehend Pupils’ Activity: Body Experimented in First and Third Person

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Abstract

Our research justifies in addressing the issue in the current context of school improvement through education and creativity. This is also part of equal rights for all. This article focuses on mediation in an experimental class of arts and cultural education developed as a tool for school mobilization. We studied pupils aged 7 to 9 in a school of a difficult district. This study concerns pupils’ activity operated from the theoretical and methodological framework of data analysis of the "process of action" [1] supporting on activity tracks (what is emerging from the pre-reflexive consciousness) and video recordings proceeded with individual interviews questioning the actors about their work [2] : creation of albums and theatrical performances. The analysis of pupils’ activity puts into perspective the impact of artistic and cultural practices on learnings and the movement as means of expression and cultural fact [3] thereby offering extended access to identification of feelings and various types of pupil’s body commitment during reading and writing activities, visual and body arts. They are also ways to identify their perceptions and practices. With this device, the understanding of pupil’s activity answers the hypothesis of getting to work and overcoming challenges through creativity [4].

References


Session 12: Higher Education

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(Author: Giovanna Carloni)

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Analysis of a CLIL multi-level course in Higher Education

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Abstract

This study analyzes the effectiveness of a CLIL multi-level course at the University of Urbino, Italy. The strategies used to cater to a CLIL multi-level class taught entirely in English are examined. Students’ reactions to the strategies implemented are also investigated.

1. Introduction

Content and Language Integrated Learning (CLIL) entails teaching content subject through the medium of a foreign language; this dual approach aims to promote both content and language acquisition [10]. The language dimensions, namely content-specific and academic language in particular, play a pivotal role in CLIL [22], [10], [21], [19]; within this theoretical framework, language is instrumental to knowledge construction [27], [28] foregrounding both language and content acquisition. CLIL has been researched from different perspectives [10], [6], [12], [25]. Although the effectiveness of CLIL has been openly challenged [2], a reply to this criticism has been promptly provided [20]. However, further studies are necessary to evaluate thoroughly the effectiveness of CLIL in general and the degree of integration of content and language in particular.

CLIL in higher education has been increasingly implemented and researched in recent decades especially in view of the internationalization process occurring at the tertiary level of education across nations [9], [3], [4], [14], [16], [7], [5], [13].

2. CLIL in a multi-level university class

This study aims to investigate the effectiveness of the strategies used to implement a first-year CLIL English Sociolinguistics course in a multi-level class in the Department of Foreign Languages and Literature at the University of Urbino, Italy.

The CLIL course examined introduced first-year university students to pivotal issues in English sociolinguistics. The results of the Oxford Placement Test, which learners took before classes started, showed that 8% of the students had a C1 proficiency level – on the grounds of the Common European Framework of Languages [8] – in English as a Foreign Language (EFL), 23% a B2 level, 45% a B1 level, 19% an A2 level, and 5% an A1 level.

Owing to students’ wide range of English language proficiency levels, the 30-hour CLIL Sociolinguistics course, taught entirely in English, was devised to cater to a multi-level class. First of all, to avoid causing cognitive overload especially for learners having A1 and A2 as well as low B1 language proficiency, the course schedule was spread over three weekly one-hour lessons. Furthermore, within a CLIL theoretical framework, the instructor devised course-tailored activities instrumental in teaching content knowledge as well as subject-specific terminology. In particular, the activities aimed to foster the acquisition of domain-specific vocabulary enabled students to tackle first and master afterwards a wide range of technical lexicon, which was likely to be a challenge particularly for less proficient learners. Discipline-specific vocabulary-focused awareness activities were especially implemented since:

In the case of immersion and content-based classrooms, metalinguistic awareness has the potential to serve students as an indispensable tool for extracting linguistic information from meaning-oriented input and thus for learning language through subject-matter instruction. [...] Awareness activities require learners to do more than merely notice enhanced forms in the input and instead to engage in some degree of elaboration [32], [33]. Such elaboration may include inductive rule-discovery tasks and opportunities to compare and contrast language patterns, followed by different types of metalinguistic information [22].

On the first day of class, besides introducing the course syllabus, the instructor explained to the students the pedagogical rationale underpinning the CLIL approach and all the teaching strategies that would be implemented; learners’ meta-cognitive awareness as well as active participation in class were thus enhanced. Concurrently, students were invited to make clarification requests and voice their ideas either in Italian or English; as a result, code-switching, that is “switching between two or more languages” [23], was introduced to cater to a multi-level class successfully. Furthermore, since Italian
learners often find it difficult to speak in front of their peers in class for fear of showing a lack of knowledge or understanding and therefore losing face, the instructor informed the class that they could also ask for further explanations and clarifications by email, during office hours or just writing their questions on a slip of paper they could leave on a chair at the back of the class on their way out.

The course was based on conceptually-sequenced units of instruction that is on “a series of lessons organized around a single theme, topic or mode” [26]. About a week prior to introducing a new unit of instruction, the following online resources were made available to students on the class website: content objectives; language objectives; a glossary of all the key concepts, that is the “organizing ideas including generalizations and principles” [24], featured in each unit of instruction; a list of subject-specific terms students were expected to master to manage the topic successfully; technology-enhanced matching activities focusing on domain-specific vocabulary and concepts; required readings, such as book chapters and authentic materials; further reference materials. In class, before starting a new unit of instruction, the lecturer illustrated content objectives, language objectives, and the required readings to the learners to raise their awareness with regard to the outcomes, that is the declarative and procedural knowledge, expected. On the same occasion, the instructor presented the unit outline, namely a chronologically organized list of the “organizing concept[s] [and] […] related generalization, principles, and facts” [24] on which the unit of instruction would focus. Furthermore, the instructor encouraged students to read the slides uploaded on the class website before coming to class to start processing domain-specific input in advance and, as a result, to be able to make hypotheses and predictions on the topic of the lesson. Previewing the content to be dealt with during lectures was instrumental in the promotion of a more thorough understanding of the topic/s presented in class since top-down and bottom-up processing were thereby enhanced. Learners, and those less proficient in particular, were consistently invited to do their readings prior to class. Being asked to go over the learning materials beforehand was quite a new experience for Italian students who are used to learning materials beforehand was quite a new experience for Italian students who are used to learning first to the instructor’s explanations of new content in class and then reading reference materials at home during exam preparation.

During the first unit of instruction, the lecturer started lessons providing learners with highly structured warm-up activities, to be carried out in pairs and in English, aimed at activating students’ prior knowledge on the topic of the lesson. However, starting from the second unit of instruction, the lecturer decided to begin lessons reviewing in Italian the subtopics previously introduced to help the low proficiency group catch up with difficult concepts. The decision was made on the grounds of the written feedback learners had provided soon after the first unit of instruction. As a result, at the beginning of each lesson, before warm-up activities, a five-minute recap in Italian was carried out: “Understanding are scaffolded when you stop and briefly summarize, along with students’ help, the key content covered to that point” [15]. Code-switching was pivotal to make the recap of content suitable to students’ multifaceted needs. In addition, in an attempt to provide comprehensible input also suitable for less proficient learners throughout the lesson, the instructor began to control her speech rate further as well as repeat and rephrase explanations and instructions consistently.

To introduce new units of instruction, the lecturer often asked students to make predictions and formulate hypotheses on the grounds of the research questions provided. Learners would then check their predictions and/or hypotheses while tackling the different unit subtopics.

As previously mentioned, the instructor showed the outline of the organizing concepts of the units of instruction right at the beginning of each unit. The outline was presented to the students again and commented on by the instructor before moving on to the next unit subtopic. This practice, instrumental in linking previous and new knowledge, was adopted to help learners trace the way organizing ideas were sequenced; students thus managed to map the subtopics within the overarching architecture of the unit of instruction gradually but effectively.

In class, every new theoretical subtopic was broken down into smaller parts. Explanations of new organizing ideas, consistently scaffolded by means of PowerPoint presentations, were provided orally by the instructor for fifteen minutes at the most; while listening to these brief lectures, students carried out highly structured activities. Post-listening highly structured activities, delivered through PowerPoint presentations, were also provided. Learners carried out the post-listening activities in pairs negotiating meaning in English. In particular, the structured activities, mainly in cloze, multiple choice, and matching formats, were designed to foster recalling, which “involves producing accurate information as opposed to simply recognizing it” [24], and monitor clarity, that is “determining the extent to which an individual is clear about specific aspects of knowledge” [24]. PowerPoint presentations were adopted as an instructional strategy to scaffold the whole teaching/learning process thereby catering to a multi-level class and students’ different learning styles, such as sensory channels and cognitive styles.

After highly structured activities, learners were provided with more challenging tasks tailored to activate “the analysis processes [which] involve examining knowledge with the intent of generating
new conclusions” [24]. Activities of this type, devised using authentic materials, were targeted at fostering matching, which “involves identifying similarities and differences” [24], classifying, which “involves identifying the superordinate category in which knowledge belongs as well as the subordinate categories (if any) for knowledge” [24], and generalizing, which “involves inferring new generalizations and principles from information that is known or stated” [24]. All the activities were scaffolded with PowerPoint presentations and graphic organizers.

At the end of each unit of instruction, students were provided with hands-on tasks aimed at activating “the knowledge utilization processes requiring students to apply or use knowledge in specific situations” [24]. Decision-making tasks fostering higher-order thinking skills were mainly implemented; learners were thus required to “select[…] among alternatives that initially appear equal” [24].

At the end of every unit of instruction, a review of the key organizing ideas and subject-specific vocabulary items was promoted by means of concept definition maps students worked on in pairs or in small groups: “The Concept Definition Map is a great way to learn and remember content vocabulary and concepts[29]. Even though it is a simple graphic, it can be used to discuss complex concepts” [15]. Self-correction followed. Concept definition maps were instrumental in activating symbolizing, which “involves depicting the critical aspects of knowledge in some type of nonlinguistic or abstract form” [24]. Symbolizing is a fundamental part of the comprehension process:

Comprehension involves the related processes of integrating and symbolizing knowledge. Critical to both of these processes is that students are able to identify the critical or essential information as opposed to the noncritical or nonessential information [24].

Furthermore, concept definition maps, which were expected to help learners conceptually, organize the knowledge and skills acquired to that point, were also meant to make students’ exam preparation easier:

Definition Map is also an excellent prewriting activity for summarizing. Students can begin the summarizing process by organizing content concepts in the graphic organizer. Then sentences can be created from the information in the Concept Definition Map and subsequently written into paragraph form [15].

At the end of every unit of instruction, learners carried out a self-evaluation by means of course-tailored grids. Students ranked the extent to which they felt they had reached the unit content and language objectives. In other words, learners self-evaluated the degree of declarative and procedural knowledge developed up to that point. Soon afterwards, students provided the instructor with written feedback focusing on self-perception of the knowledge and skills acquired, positive aspects of the methodology implemented, problems encountered, and suggestions to tackle difficulties experienced during the unit of instruction.

3. The study

3.1. Research questions

The present study aims to address the following research questions:

1. How effective were the teaching strategies implemented in catering to a CLIL multi-level class?
2. How did learners react to the interactive approach adopted?

3.2. Participants and data collection

The Italian instructor, a non-native speaker of English, and about ninety Italian first-year university students, aged nineteen, participated in the study.

Upon completion of each unit of instruction, learners provided the instructor with written feedback. On this occasion, students wrote down what they had learned in the unit, described how comfortable they felt with the teaching methodology implemented, mentioned the difficulties encountered, and made suggestions to improve the course.

3.3. Results and discussion

On the grounds of learners’ feedback, the effectiveness of the teaching strategies implemented to cater to a CLIL multi-level class emerged clearly. As previously mentioned, thanks to students’ initial written feedback, the instructor decided to recap in Italian right at the beginning of each lesson the issues covered during the previous lecture; this practice was greatly appreciated by the entire cohort. Indeed, this instructional strategy requiring the instructor to code-switch proved essential to make content available and suitable to all language learners before moving on to new subtopics. Beginning each lesson by reviewing in Italian the organizing ideas previously introduced seemed to suit Italian students’ study habits perfectly and caters to a CLIL multi-level class effectively.

Code-switching also occurred when learners asked the instructor questions in Italian during class; this practice was encouraged to get students accustomed
to asking for explanations and voicing their opinions in front of a large group of peers. Overall, as mentioned above, Italian learners are not used to speaking up in class and participating actively in the co-construction of knowledge; thus, getting students to express their ideas, even if in their native language (L1), was a good result. As time went by, more and more learners started to ask questions, first mainly in Italian and then gradually in English, and to answer the instructor’s questions, almost always in English, in front of the whole class.

It is noteworthy that during the second unit of instruction a less proficient student started asking questions in English for the first time. These interactional patterns represented a great success because they revealed the occurrence of a paradigm shift in learners from a mainly Italian educational value system, where asking clarification questions is often perceived as negative – since it usually conveys the idea of a lack of understanding in the speaker rather than an attempt to cooperate in knowledge construction – to a more active and participatory approach, which sees asking questions as a way to generate and co-construct knowledge.

The instructor answered students’ clarification requests in English most of the time; however, when some especially difficult vocabulary questions were asked, answers were sometimes provided in Italian to make sure that even less proficient learners would immediately understand the meaning of the lexical items targeted. In this context, code-switching was operationalized as a positive and effective strategy:

Codeswitching in the L2 classroom should […] be considered as a valuable communication strategy, perhaps of equal value as input modification by the teacher and even, possibly, approaching the value of interactional modification between teachers and learners. Forbidding learners to codeswitch will result in them not being able to learn how to use it sparingly and in a principled way [23].

As previously mentioned, students who were too shy to ask for clarifications in class were invited to write their questions on a slip of paper and leave it on a chair on their way out, although no one did so. When a less proficient learner, during office hours, said that some students like herself happened to find some subtopics a bit difficult but did not dare to make clarification requests in class for fear of losing face, the instructor further encouraged learners to write their questions on a piece of paper and leave it in a small box on their way out. Some students followed the advice this time. Furthermore, on the same occasion, the lecturer illustrated in greater depth the pivotal role played by questions in the co-construction of knowledge in order to get learners better acquainted with a different way of conceiving knowledge building. At the same time, the instructor started to move much more in class while students were engaged in pair work so that learners would have more opportunities to ask her questions semi-privately and not in front of the entire group. As a matter of fact, this practice turned out to be quite useful because an increasing number of students, especially those less proficient, started making clarification requests in English on a one-to-one basis.

Learners greatly appreciated the authentic materials, such as videos, used in class to explain theoretical concepts, to promote analysis processes, and to carry out hands-on tasks. In particular, students seemed to enjoy analysis-focused activities and hands-on tasks so much that they consistently asked for more. The instructor highly valued learners’ request for further tasks requiring higher-level thinking skills since the request was likely to imply that students probably felt quite comfortable tackling challenging domain-specific tasks in English. However, it is important to mention that the instructor did not know whether the request for more analysis-focused activities and hands-on tasks was also made by the low proficiency group since learners were not asked to write down their level of proficiency on the feedback form.

In terms of peer interaction, although one student felt that too many pair activities were carried out during class time, all the other learners seemed to appreciate the highly interactive approach greatly. This piece of information was confirmed by students’ second feedback which strongly requested more pair work and thus dialogic interaction in the target language.

Overall, breaking down content into smaller parts and providing learners with a wide range of gradually less structured activities and tasks, to be carried out in English and in pairs or small groups, seemed to be rather effective in terms of subject-specific vocabulary and content acquisition. It is also noteworthy that students rated making predictions on the grounds of the research questions the instructor provided them with as highly motivating. Learners became quite talkative when asked to make predictions especially in relation to controversial issues. This is the reason why this instructional strategy was used whenever possible. On the other hand, students found concept definition maps challenging at the beginning but definitely very helpful in organizing the conceptual architecture of each unit of instruction and in reviewing subject-specific terms. In addition, this practice helped learners activate monitoring accuracy, which “involves determining the extent to which an individual is correct in terms of his understanding of specific knowledge” [24]. Promoting metacognition was pivotal in managing a CLIL multi-level class effectively.
Overall, the analysis of the data seemed to suggest that students’ self-efficacy, that is “the extent to which individuals believe they can improve their understanding or competence relative to a specific type of knowledge” [24], was gradually but consistently enhanced, which was likely to rank as a key achievement especially for a CLIL multi-level class. Promoting self-efficacy was one of the macro-objectives of the CLIL course since it is of paramount importance to a foreign language learner:

...to perceive [...] the knowledge component as important, [...] to believe [...] that he or she has the necessary ability, power, or resources to learn or increase competence relative to the knowledge component, or [...] to have a positive emotional response to the knowledge component (or both 2 and 3) [24].

Furthermore, it is worth mentioning that learners explicitly stated that, thanks to the teaching strategies employed in class, very little work was required at home. This was quite a new experience for Italian students who are used to participating in almost exclusively teacher-fronted classes and spending a lot of time at home memorizing facts. Interestingly, learners’ feedback showed that the activities targeted to help students transform declarative into procedural knowledge were largely successful. Noticeably, learners seemed to realize how easily they had learned content and developed cognitive skills concurrently thanks to interactive class work.

Overall, dealing with more context-reduced and, at the same time, more cognitively demanding topics and activities in an academic setting represented a critical moment for the low proficiency group:

The relationship between language proficiency and academic achievement has been described in terms of two continua [...]. The distinction between context-embedded and context-reduced language proficiency relates to the range of contextual support for expressing or receiving meaning. Context-embedded language proficiency refers to students’ ability to achieve their communicative goals in situations where the linguistic message is embedded within “a flow of meaningful context” [31] i.e. supported by a wide range of situational and paralinguistic (e.g. intonation, gestures, etc.) cues. Context-reduced proficiency, on the other hand, refers to students’ ability to handle the communicative demands of situations where the range of extralinguistic supports is very much reduced (e.g. reading a difficult text, writing an essay). [...] The vertical continuum refers to the degree of active cognitive involvement in the task or activity; in other words to the amount of information that must be processed simultaneously or in close succession by the individual in order to carry out the communicative activity [1].

Likewise, tackling an ever-increasing range of new technical language in the content area seemed to cause further cognitive overload to the same group at this stage. However, even after the second unit of instruction – when more theoretical concepts were being addressed and increasing difficulties were encountered by less proficient students –, the instructor decided not to recap the content covered during class in Italian, for a second time, at the end of each lesson because more proficient students already perceived, as the second feedback suggested, that too much Italian was being used in class, although only five minutes a day out of a 50-minute class were allocated to summarizing content in students’ L1. In this respect, the different needs and perceptions expressed by the various proficiency groups were discussed with the whole class. In particular, the instructor explained why Italian would not be used again after each lesson to recap the issues covered, and that other kinds of scaffolding would be implemented to help the low proficiency group tackle the difficulties experienced while dealing with more theoretical organizing ideas and complex technical words. As a result, much more visual scaffolding was provided in class by means of graphic organizers targeted at helping learners process the input and conceptually organize intake more easily. Further activities were also devised to help students “review key vocabulary periodically throughout a lesson” [15]. In addition, more subject-specific terminology-focused awareness activities were devised and made available online before and after class along with the graphic organizers generated during face-to-face instruction. Furthermore, translangaging, a teaching practice often used in bilingual programs [11], was occasionally employed to scaffold access to content knowledge further:

Cen Williams coined the term [...] translangaging to refer to a language education pedagogy where students heard or read a lesson in one language and developed their work in another [34]. Baker clarifies that translangaging is not about code-switching, but rather about an arrangement that normalizes bilingualism without diglossic functional separation [34].

The use of translangaging is also supported by Cummins[30]

When students’ first language is involved as a cognitive and linguistic resource through bilingual instructional strategies, it can function as a stepping stone to scaffold more accomplished performance in the second language [30].
Bearing in mind that a high percentage of learners, precisely 24%, had A1 and A2 language proficiency levels is important to understand why dealing with ever-increasing theoretical domain-specific concepts seemed to entail a certain degree of difficulty. The low proficiency group fell within the BICS (Basic Interpersonal Communicative Skills) level, which “refers to cognitively undemanding manifestations of language proficiency in interpersonal situations” [1], while a first-year university sociolinguistics course definitely requires CALP (Cognitive Academic Language Proficiency), which is pivotal to tackle “decontextualized literacy-related functions of language” [1]. While trying to cater to the low proficiency group, which also included students having low B1 language proficiency, the instructor was aware that content knowledge could not be presented too simplistically because by doing so the other learners would have probably found the course too easy and therefore neither motivating nor challenging enough. Trying to balance such a wide range of language proficiency levels was a constant challenge for the instructor.

4. Conclusion

Overall, the good degree of self-efficacy achieved by students proved the effectiveness of the CLIL approach implemented, although some difficulties still remained especially for the low proficiency group. In particular, the amount of subject-specific language learners were expected to master seemed still overwhelming for some less proficient students. However, the wide range of in-class and out-of-class activities provided was likely to help all learners tackle the topics gradually but effectively.

Soon after the first unit of instruction, students seemed to be much more active in class and aware of the value of co-construction of knowledge negotiated in the target language. The interactive approach implemented was thus instrumental in catering to a CLIL multi-level class effectively. Furthermore, as data revealed, by the end of the course, more and more learners, including those with lower language proficiency levels, asked questions in English in front of their peers. However, some issues were still very sensitive, such as to what extent and how the students’ L1 can be used in class.

To sum up, some of the macro-objectives of the CLIL course, that is enhancing students’ active participation in class, use of the target language, content and language acquisition, and sense of self-efficacy, seemed to have been reached to a rather satisfactory degree.

5. References


An Investigation into the Experiences of Muslim International Students in an Irish University

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Abstract

At a time when universities are rapidly globalising, the need to respond to this growth in Ireland as an English speaking country has become only more significant in recent years. ‘National Strategy for Higher Education to 2030’, launched by Higher Education Authority in 2011, puts an emphasis on internationalisation of third level education and incorporation of student experience into the design and delivery of higher education [1]. In addition to this, current debates on campus diversity and internationalisation of higher education include a need to understand and accommodate Muslim students in Western campuses [2]. With that in mind, this PhD research project aims to explore the experiences of international Muslim students in an Irish university. The study employs grounded theory approach using semi-structured, in-depth interviews. 23 international Muslim students (male and female) from Dublin City University (DCU) were interviewed as part of the project. The on-going data analysis indicates that DCU is perceived as a multicultural site respecting and embracing cultural diversity. The presence of an approachable and active International Student Office besides the availability and location of a multi-faith centre on campus are identified as positive impacts on psychological adaptation of the students. The emerging findings also suggest international students are expected to assimilate into the Irish higher education system, albeit, the inclusive campus creates a favourable environment for Muslim students’ transition. The relationship development on campus and the reported challenges students encounter in the Irish education system are also reviewed.

References


Protecting Social Identifies: Institutional Self-Comparison by Undergraduates

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Abstract

Widening participation has led to a growth in university places across the Higher Education Sector. Alongside this, there is greater public scrutiny of the quality of both degrees and institutions. Additionally, students have a greater awareness of the potential quality of the institute they are attending via league tables and the annual NSS. While research has been undertaken exploring how students make choices there has been less focus on the experience of students at “lower status” universities. Three focus groups of N = 19 Psychology students from a North-West university were conducted to discuss issues of identity. Thematic Analysis was used to explore issues of Social comparisons and Identity processes. The main themes to emerge were transitional issues, threats to identity and identity protection as students developed narratives around their perceptions of status of student and institution. These findings are discussed in relation to enabling students to develop a stronger identity.

1. Introduction

The University system within the UK has seen rapid changes within the last few decades with a growth in the number of students attending [1], [2], [3] but also an expansion in the diversity of universities with degree awarding powers [3]. Additionally league tables, often published within national newspapers, allow for easy comparison by students of one institution to another. It is often the case that a city will have differing types of universities within a short distance of each other. Research has shown that students at traditional red-brick universities express a sense of privilege derived from the prestige of the institution [4], [2]. Additionally graduation from higher status universities has been subsequently linked to increased earning power [4]. There has been a focus within the literature of the possible reasons behind the choices of type of university made by prospective students, for example race or social class [5][6].

However, there has been little research undertaken which explores the experience of undergraduates at newer universities, i.e. institution that are perceived to be of lower status. This current paper will use the narratives of existing students at a new university identifying experiences and perceptions of their institutions and possible impact on student identity.

Festinger’s Social Comparison Theory [7] states that people are driven by the need to evaluate themselves in comparison to others around them. The theory additionally argues that comparisons are both upward and downward, that is they consider themselves to be superior or negative to others in comparison to their own opinions and abilities. While Festinger’s theory describes the individual’s need to maintain an accurate self-view further research has been undertaken which explores the individual within a group. Social Identity Theory [8] proposes that the individual derives their sense of self and identity from group membership [9]. Furthermore, unlike Social Comparison Theory, SIT is motivated by self-esteem protection via enhancing the status of the in-group (i.e. their social group) above that of out-groups. Importantly, enhancing the status of an in-group leads to higher self-esteem within individual members [10]. It is proposed by the current study that students from post-1992 universities and newer institutions will engage in upward social comparisons. As a result, therefore students will display in-group enhancements in order to maintain a positive self-image and protect self-esteem.

Transitional periods throughout the school career result in identity change [11] and challenges to self-concept [12]. The move into Higher Education brings further challenges with research indicating high dropout rates for those students who fail to integrate socially [13], [14], [15]. Furthermore, Krause and Coates [16] place the struggle to find ones-self and develop a new identity as central to the challenge of successful transition into Higher Education. The drive to integrate socially and develop a new self-concept can be understood within the theoretical frameworks of Social Comparison and
Social Identity processes. Cinerella [17] proposed the concept of possible future social identities with individuals engaging in social cognition processes as they stand on the edge of a new setting surveying a myriad of social groups. While it can be assumed that this process will occur at the start of university, the current study also explores transition at the other end of the undergraduate experience. As students prepare to graduate, reflecting on their university days and contemplating the future Social Comparison and Social Identity behavior will emerge.

2. Method

Focus groups discussions guided by questions of identity and categorization were analyzed using thematic analysis. While some researchers consider that group dynamics reduce the purity of the data collected there are ways to deal with this at interview and analysis stage [18][19]. Indeed others argue that focus groups add to the quality of the data [20] by shared experiences [21]. Interview questions were loosely developed around an existing social identity questionnaire, which covered the cognitive and affective components of Social Identity. Importantly it allowed for measurement of different social groups closely aligned within a school setting, that is pupil identity and institution identity [22]. A typical question was “would you think it was accurate if you were described as a member of?” Participants were asked to consider questions from a student, institutional and subject perspective.

Thematic analysis has a degree of flexibility that means that not only can the data be used to reflect the reality on the surface of the data but also be used to dissect this surface [23] looking underneath at themes and patterns that emerge. The analysis will take both a deductive theoretical approach as well as inductive which will allow the data to be analyzed within Social Identity and Social Categorization Theories. This technique is supported by Hayes [24] in her paper on theory led thematic analysis. Additionally, template analysis as described by a number of researchers allows for a mixed inductive and deductive approach to thematic analysis [25][26]. This approach tests the theoretical basis of the research while also allowing for open coding and the text to speak for itself. As is normal with theoretical approaches the data will be coded at a semantic level, the interpretation of the phenomenological is introduced when previous research is discussed. As the interviews were focus groups, the data were explored for topics that were independent or had been prompted by more vocal group members and identified these on the transcripts, with the focus on direct answers. The initial round of coding is used to develop a code book.

Once the coding of the data is complete the next stage is to analyze across the full set of data, identifying codes and themes that emerged, drawing out possible interconnections or those that are disjointed and different to that which was expected. Finally, the codes are examined by reviewing the previous stages and includes a series of reiterations from text to codes and corroboration on existing themes and also to ensure that themes are fully represented within the coding table. Clustering is also a crucial part of this final stage with a final set of core themes emerged.

Participants were recruited via email with the first years receiving a course credit for attending. The groups ranged from 4-8 in number and were composed of first and third years who all were taking Psychology as either a single or joint honors. The institution studied was a previous teacher training college. The institution was granted degree-awarding powers in 2012 and added University to its name 10 years ago.

4. Results and Discussion

Social Comparison, Identity and Categorization processes emerged from the data in each of the focus group interviews. Additionally, self-esteem effects followed from inter and intra-group comparisons with an interaction based on their perceptions of high or low social identity status of these groups. Furthermore, the dynamic of student, subject and institutional identity indicated that participants were ambivalent about their student identity while generally positive about identification with the subject. However, institutional identity emerged as the domain, which was most at risk thereby leading to identity and enhancement protection narratives.

The analysis will be presented as three broad themes. These themes displayed each of the processes already identified (Social Comparison, Categorization and Identity).

4.1. Challenges of transition

A number of participants reflected on the first few months at university and expressed how initially they had found it hard to leave behind their previous friendship group and develop a new identity. Added to this a few mentioned “pressure from work”, “fear of not fitting in” and “having felt uncomfortable” prior to the start of their degrees. Peel [27] proposed that students had naive images of university prior to the commencing degree study with the result of increased anxiety amongst prospective students [28]. A few students who did not live on campus or had returned home frequently felt that they had not yet integrated, this was especially true for Abigail:

“...like I wouldn’t say I’d come here and - like I go home every weekend um, and I have
done since I’ve been here ‘cause I don’t feel - it’s not that I don’t feel comfortable, I just...would rather spend time with people at home than here yeah.”

However, this was not universal and while almost all had mentioned struggles, the majority had settled and were enjoying student life. For some students they felt that university had allowed them to find “their identity”. Past and Possible social identity struggles are seen in the quote below by Katy who struggled with balancing old friends and their new life but also mentioned that being independent had been important. She talks of her life prior to university as “you were yourself” and how at university “everything changed”

“no I think um I think just before um like you were conformable with the friends you had and you were them and like you were yourself kind of but before you came to uni like think everything changed and I was a more independent when I came here because I wasn’t relying on anybody”

As can be seen for Katy life was thrown into flux at the changes but for one student (Tom, quoted below) the contrast between his previous life and student life had been underpinned by having to reflect on life choices

“yeah especially when you're just before uni because that’s when you want to decide what you want to do for the rest of your life so it’s like when you’ve got to make a decision on who you are...that’s when you make your decision”

Students had a narrative which spoke of the tension between past identities and the desire to immerse themselves into their new identity. This was further enhanced by the need and importance of undertaking degree study, as can be seen with Tom above. Once a cognitive decision had been made to study at degree level then it was important that you made a success of it and esteem enhancement of their student identity can be evidenced by not only comparison of “self” prior to university but also of peers who had chosen not to attend Higher Education. Mikel displayed cognitive dissonance with non-university friends and his own student identity. In the first quote Mikel highlights exposure to negative influences. However, it can also been later in the interview he strongly identified as being a student he and had internalized the negativity to show that he fitted into the category student:

“Mikel: like just saying like ‘our taxes are paying for you’ and all that sort of thing like”

“Mikel: Er.. well some people say they’re like, lazy and you know that they should get a job and all that sort of thing

Mikel: I um, I’d probably say I fit the stereotype quite a lot like

Interviewer: in what way?

M: um just constantly like perhaps, I blew me money on something like stupid or and err just going out a lot that sort of thing”

Social Categorization and Social Identity Theories allows for an understanding of the cognitive processes involved as Social Comparison occurs. The first stage of any categorization is to develop an understanding of the social group, to do this it is necessary to establish cognitive images, as can be seen above students have images of being a student that they have internalized. The next stage is to decide how close they themselves compare to the group. Comparison of self to a group can occur by distancing themselves from the outgroup (non-students) while also engaging in deindividuation to establish they themselves are in fact a typical member for the social group in question. Deindividuation is a loss of self in order to merge with a larger group.

“Susan: yeah I get the same of um, my fiancée doesn’t like students

Interviewer: oh doesn’t like students?

Susan: yeah,

Interviewer: you do get that actually, can you explain that a bit more?

S: ‘cause they're all like, they all go out and erm, they're all like big groups of people and he thinks that he’s paying for them ‘cause he works and stuff

Interviewer: Ok

Susan: he’s jealous

Interviewer: he’s jealous?

Susan: yeah (laughs)

Interviewer: so you think people who stereotype students and are negative are jealous?

S: they were lazy in school and they just didn’t get to university”

While feeling ambivalent at times about the student status the participants, as seen above, engaged in esteem enhancements to protect the student identity label.

Students differed in their identifications according to transition period (first or third year). As it was proposed the early stage of movement into higher education is characterized by categorization and
comparison, however within the third years there was evidence of a more complex social identity.

By the final year a more intricate and nuanced view of student identity and comparisons were emerging. Not all aspects of student behavior was seen as negative and Tom talked about a list of behaviors which he perceived fits the category “student” and how he compared himself against it.

Tom “...yeah. Well I, would say like you - you are a typical student ways because I have, a couple times I have sitting down going ‘yes this is student’. Yes, yeah by living in halls, living in campus and sort of there’s things you do, well I do come from the tiniest little place in the middle of nowhere which has absolutely nothing to do so even going to like a cafe and sitting down and reading books or doing sketches is being a study for me...and being quite different from how most people are back home”.

The quote by Tom is an example, not only of social comparison in terms of self-categorisation with the group “student” but also social comparison with an out-group; the people back home in this case. Self-Categorization was also evident in the words used by Alex who was a male third year student:

“...I think um RMS is very important and um it’s uh you know it’s this idea, psychology’s domain um, you know promoting um like critical thinking and scepticism and you know the concept of hypothesis testing rather than just going with your feelings or something um these values um because I assimilate these values because you know it’s part of psychology so I guess I am assimilating a typical psychology student because of this I identify with these values”.

Alex’s identity was a more complex identity than those of the first years and was focused in the quote above in the codes and behaviors he thought typical of a typical psychology student. In his own words he was “assimilating” what he saw as Psychological values, internalizing them and then accepting this identity.

4.2. Threats to identity

An unexpected finding was how insecure the students were about their institutional identity. While the majority of students seemed to have had a positive progression a number of issues reduced their levels of identity, this occurred particularly with in domain of institution.

Two possible causes for this were identified; the first came from the external evaluation of the group. The students own evaluation of the group was correspondingly low and therefore they showed low attachment to the group. Social Identity Theory has established that members of the group derive emotional self-esteem from their belonging when high value evaluations are present. As will be seen from the quotes presented below the low value from external sources resulted in low attachment to the group. A number of students cited that being a small university in a city with larger universities and the impression that the institution was not as academic was spoken about on social events amongst other students. Robin had previously attended York University.

“...many like all my friends in York are like oh my God I can’t believe you go to (institution name) but like, your never do anything with your life…”

When asked if they would feel it was accurate if they were described as a typical (institution name) student distancing from the in-group was found. This is in contrast to that of general student identity as discussed in the transition section when students distanced the out-group. This distancing from their in-group indicates low attachment:

Matthew: “...um in some way yeah probably but in ways probably not ‘cause it tends to get looked down a bit from like the other two unis”.

Anna showed the same distancing when asked if she would introduce herself as a (institution name) student:

“...um yeah, I don’t think I’d really that I was a (intuition name) student unless asked and also if they say where do you study I would usually say in (city name), not (intuition name).”

It could be argued that a smaller university within a city that has two larger ones can be classified as a minority group. Distancing is not unusual amongst minority groups, who often report ambivalence about their status and identity [29].

Another threat to identification with the institution was that of some traditions within the University, particular those that centered on Christianity. Tom, who would identify as a student over that of institution, suggested this was due to the religious aspects. This was heightened when he felt there was a level of compulsion to take part, for example having “to stand up during grace”, he explains his reaction to this below:

“...made me incredibly angry so...um because of the religious part of it I find that quite annoying as being part of that type of uni I don’t want to be associated with being at a religious uni but as a general course type I think it’s really good.”

Not only did the religious aspect lower identification with the university as seen above for some it threatened the internalized image of what it was to be a student. This is further evidence that the student identity, even if sometimes negative, had been internalised.

Ruth “...I went to like an all girls catholic school so it didn’t bother me like, as much, but I still thought it was like, really strange that it’s
university like, everyone’s meant to be moving to becoming an adult and everything it was just really strange, it was kind of forced upon everyone.”

Tammy “yeah, that’s the thing it’s like when they’re act - they’re actually still you know, making you do that sort of thing at this point you’re meant to be adults, you’re meant to be able to make your own decisions about it and they would still sort of really confront you”.

The two students above actively engage in first categorising the Institutional behaviours and beliefs in order to develop an image of what being a member of this group identity entails. Secondly comparison of themselves and evaluating their desire to belong.

4.3. Identity Protection Engagement

It was interesting to note that there was one dynamic which buffered this interaction between self-esteem membership of the institution group. The art students who lived at a small campus known as the Creative Campus and located nearer to the large city centre universities. The students talked of the culture of “being different” amongst students from the other two universities in the city, that they “were known to party”. When asked if they would describe themselves as a typical (Institution Name) student Tom replied with a statement showing his self-categorisation of belonging to the in-group using “us” and “they” language.

“I think not as a (Institution Name) student, more as like the creative campus, I’m a lot more patriotic about being from the creative campus than anything else um, it seems that be more the way that I am defined, at least when you're out and stuff, ‘cause the stereotypes I’ve heard about it, heard other people- other students at other universities about (Institution Name) are stereotypes of the creative campus not (Institution Name) because it, they don’t like us because we're artsy and creative.”

Brewer [30] proposed that this dynamic between a minority group and larger groups “optimal distinctiveness” which postulates that individuals need to attain a balance between how distinctive their group from others while not risking exclusion. It further states that minority groups, contrary to previous research, can be a source of well-being and high self-esteem resulting in greater satisfaction. Furthermore, a number of researchers have explored how members of minority groups show higher identification than majority group members [31][32]. The quote above is particular interesting as Tom later went onto say that he disliked his art subject as opposed to his psychology subject “disliking how they [arts theorists] think”, it can only be assumed that his high attachment was to the Creative Campus not the art subject. Additionally it is interesting to note that students were very attached to their subject identity (see quote by Anna on the previous page) while downplaying their institution label.

Hurtado and Carter [33] measured conditions that could increase a student’s sense of belonging and identification, such as academic behaviors. This was confirmed by a number of students who discussed at the subject identity level that working in groups, being with other students and work that challenged them increased their identification with their subject. A few students expressed how group-work in particular increased their identity:

Matthew “I didn’t mind too much the poster side of things it was the start and you got to know people a bit more because of that.”

Anna: “I quite the first year it was a diff - getting into groups, talking over it like going over your own experiments that sat doing an essay, doing your own individual research and the fact that you were sharing with other people and I met more new people in that group as well so I like that assignment with the poster.”

It was during these parts in all interviews that students showed a degree of pride about their chosen subject, especially with the image they felt it portrayed to out-group members. This was one of the few themes that was constant across the interviews and although not all students agreed there was a majority consensus. Anna (quoted previously) would willingly identify as a Psychology student but would distance herself from the institutional label. Research has indicated that minority groups can increase self-esteem by showing the strong attachment to one aspect of their social identities as discussed above. Crocker and Miller [34] propose the effects of comparison by a lower status group against those that they perceive as higher status is buffered by members also identifying with successful groups in another arena. For example, a member of a minority ethnic group supporting a successful sporting team. While this research included ethnic groups, it is proposed that the participants (members of a perceived lower status institution) identified strongly with their perceived high status subject group to buffer the effects of low status membership.

Internal self-evaluations of the subject re-confirmed their identity and this internalization of the identity was apparent even in part of the course they disliked. Alex above had previously stated that he didn’t like RMS but at the quote below shows his how it had encouraged his identification with Psychology:

“I think um RMS is very important um it’s uh you know it’s this idea, psychology’s domain, um you know promoting um like critical thinking and
This can be explored on another level, that of the journey as a student. Cathy is a third-year student and the quote is far more developed than quotes about identity with first-year students. This was generally the case across all interviews with 3rd-year students expressing a high level of identity with the subject, though this was mirrored by one student in the first year who explained she had grown into the subject from semester 1 to the end of semester 2. Anna: “I’d say I acknowledge more that I’m a psychology student now at the of the year also at the beginning of the year as I going in and like introducing myself to everyone and finding my lectures, when in the middle I would maybe not acknowledge it as much.”

Before moving on to summarize the research it is worth nothing that additional to the strategies outlined above students also found that taking part in extra-curricular team-based activities such as playing sports on behalf of the university or working with the SU also had a buffering effect. However, this was not as strong as some other aspects and is not widely engaged with by students. Nonetheless this has been well documented finding in school and university engagement [35]

5. Summary

The data indicated that while students had negative external influences about two of the possible social identity groups, that of student and institution, they had different effects on the students categorizing and comparison behavior. With student identity they engaged in distancing themselves from the out-group (non-students), however from the social group of institution they actively distanced themselves from the in-group. This is made even more interesting when we consider that the participants readily accepted the negative comments of the out-group about the student identity, acknowledging this typified them as students themselves. However, the institution label led to a distancing themselves from it and was less obviously internalized. Indeed students were found to hide behind their subject identity, enhancing that identity to overcome what could be seen as deficiencies in the broader institution.

A further possible explanation for the difference in acceptance of student or institutional identity is the external information regarding each of these social groups. For example, the cultural information for institutions is that of quantitative ratings as discussed in the introduction (i.e. NSS and league tables). However, student identity has a narrative, which talks about a rite of passage for young adults into adulthood. This narrative allows for the student behavior identified in this article such as drinking and laziness as a period of testing boundaries. The institutional identity is that of worth bound up in future objectives and expectations. Further research should consider whether differences in transitional groups could further explore the role of cultural norms attached to possible student identities.

Perceived low status institutions should acknowledge that students may be exposed to external negative evaluations. However, this study indicated that it is possible to overcome these by strong subject identities in which students were given opportunities to engage academically with each other. Furthermore it is possible for smaller sub-groups of students who felt that they had a unique identity to rebuff the external negative influences and comparisons of the larger institutions.

In order to fully understand the dynamics, further research is required, which explores the identity patterns of students attending traditional and large universities. Future research should also consider the impact of identity patterns on attainment levels.

6. References


Potential International Outcomes as Response to Local Necessities

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Abstract

This presentation is framed within a doctoral dissertation in the field of higher education focused on the process of internationalization. The objective of this paper is to show how both academic agreements and executive authority its articulation is the initial and essential step to introduce an international dimension into the institution.

The research context of this study is the Northern Region University Center (Centro Universitario del Norte, CUNorte), University of Guadalajara, México. One particular challenge of this institution is looking internationalization efforts outcomes as response to local necessities and to institutional demands.

ALFIN CUNorte-BUJaénis a Program Information Literacy implemented at CUNorte in collaboration with the library of University Jaen (BUJA), Spain. The initiative has the objective to contribute the preparation of Mexican students’ master dissertation improving their research skills using the virtual learning environment.

This paper aims at investigating the potential to academic collaboration between universities from different countries at dealing both similar necessities. The findings of this study show the main challenges to implement courses into curricula even though both universities have signed specific international agreement to support the initiative.
Session 13: Educational Foundations, Teaching Methodologies and Professional Development

Pupils’ Perceptions of the Transition from Primary to Secondary School with a Focus on Modern Languages: Views from Saxony-Anhalt
(Author: Gary N. Chambers)

Taking Innovative Approach to Educational Institution in Post-modern Societies
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The Development of Communicative Competences – An Imperative of Modern Education
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Sharing Practices that Lead to Academically Successful Habits
(Authors: Marlene Zakierski, Alice Siegel)

Title: Teachers’ Role in Motivating Language Learners: The Case of Arab Teachers of English in Israel
(Author: Faris Keblawi)
Pupils’ Perceptions of the Transition from Primary to Secondary School with a Focus on Modern Languages: Views from Saxony-Anhalt

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Abstract

This British Academy funded study accessed the views of German pupils on the experience of making the transition from primary to secondary school, with special reference to modern languages. By means of semi-structured interviews with the same sample of 34 pupils in Year 4 (age 10) and again in Year 5 (age 11), we learn that pupils enjoy English lessons at both primary and secondary school but are conscious of the step up in challenge following transition. Consistency is a key underpinning factor to provision in both primary and secondary schools. English is the language taught in all primary schools. Pupils are taught by teachers who have undergone English-specific training, including time spent in England. Pupils are aware of their attainment in English as a result of regular assessment. Whilst transition, as reported by the pupils, appears to be well managed and anxiety-free, this study identifies areas where improvements could be made, not least in relation to communication and collaboration between primary and secondary colleagues.

1. Introduction

The voices of pupils have been largely unheard on matters relating to primary modern foreign languages (PMFL) and how transition impacts on provision. In parallel to a similar study carried out in the north of England, accessing pupils’ views on PMFL and transition, the study reported on in this paper gave a small sample of pupils in Saxony-Anhalt the opportunity to share their thoughts on how schools’ practices in relation to transition impacted on their foreign language learning experience. The outcomes inform how primary and secondary schools might amend their practices to serve better the needs of pupils in this German province and other countries too, subject to the caveat articulated below in relation to the status of English in Germany as opposed to that of foreign languages in countries where English is the first language.

2. Background

Transition between primary and secondary school is a challenge for teachers and pupils. Getting it right can make the difference between a happy transfer to the secondary school experience and an unsettling beginning fraught with concerns about what the future may hold. Partly because of its relatively recent advent to schools in England, transition in relation to primary modern foreign languages (PMFL) brings challenges of its own (e.g. [3]). It is the purpose of this article to look abroad in the search for guidance from countries with greater experience in this area. Chambers [4] reported on a qualitative study conducted in Saxony-Anhalt, Germany, which focussed on the views of secondary school teachers on pupils’ transition from primary school to secondary school, with particular reference to modern languages, in this research context, English. It was hoped that lessons could be learned which might be transferable to the UK context where (the latest incarnation of) PMFL is still in its introductory stages. Various studies have concluded that there are still many problematic issues to be addressed in England (and elsewhere: [8]; [9]; [10]) in relation to transition: lack of communication between secondary schools and feeder primary schools; absence of collaboration; little consistency across primary schools relating to language/s taught, number of lessons, teaching activities; pupils and parents having little awareness of pupils’ attainment in PMFL; the common practice of starting the language learning experience from scratch in the secondary school, with little acknowledgement given to learning at primary school.
What was learned from the teachers in Saxony-Anhalt [4]? Interestingly, in spite of a longer history of teaching PMFL there (it was introduced in 2005), the problems relating to transition from primary to secondary school are similar. Communication between secondary schools and their feeder primary schools is, at best, patchy. There is little evidence of collaboration. Although primary schools provide secondary schools with a grade for each pupil’s overall attainment in English, there is no detail relating to particular skills and competences. Many teachers do not feel that they can rely on the accuracy of the given grades, and carry out their own diagnosis in the initial weeks of the first year of secondary school. On the positive side, however, there is ample evidence of consistency of provision across primary schools. They use a textbook approved by the Kultusministerium (ministry of Education for Saxony-Anhalt); teaching content and methods are determined by a scheme of work, again which is approved by the Kultusministerium. With each passing year, the number of teachers trained to teach English in primary school increases. Saxony-Anhalt, in spite of its position as the poorest Land (province) in Germany, invests heavily in this.

The purpose of this article is to give the pupils in Saxony-Anhalt a voice. What are their perceptions of their English learning experience? What are their views on their transition from primary to secondary school? What can these 10 and 11 year olds tell us which might be useful for transfer to the English context and indeed further afield?

With reference to England, a straightforward transfer of good policy and/or practice may be hampered by the differences in the cultural, foreign language learning reality between the two countries. In Saxony-Anhalt, Germany as a whole, and most other countries, where English is not the ‘first language’, (see [11] for a discussion on appropriateness of ‘mother tongue’, ‘first language’, ‘own language’) English has the status of the ‘global’ language, a prerequisite for advancement in education, career and extremely useful in other aspects of social and work life. The status of foreign languages, however, in England and other countries where English is the ‘first language’, is lower, with rather less importance given to them [12].

3. Research questions

The pupils’ perceptions were accessed in relation to the following questions:

- Does pupil experience in English reflect consistency between primary schools in relation to what is taught and how?
- How do pupils say they prepared for the transition to the secondary school English classroom? Is this sufficient?
- To what extent are pupils aware of their attainment in English as they leave primary school?
- To what extent are pupils aware of any exchange of information between their primary and secondary schools relating to what they have learnt, how they have learnt it and their attainment in English?
- Does pupil enjoyment of English change in the course of years 4 (the final year of primary school in Saxony-Anhalt; most pupils are aged 10) and 5 (the first year of secondary school, when most pupils are aged 11)? If so, in what way? What do pupils think the possible causes of any change might be?

(These research questions are almost identical to those addressed in a study carried out in the UK [1] around the same time.)

4. Research design and methodology

Given the age of the pupils in the sample (10-11 years), it was decided that a semi-structured interview, conducted in German, would be the most appropriate data collection tool (Appendices 1 and 2). This would allow the interviewer flexibility [13] to adapt the order of questions to meet the needs of the individual pupil, whilst, at the same time, ensuring that all the pre-considered issues were covered.

The purpose of the interview was to gain insights into the pupils’ view of their experience of foreign language learning towards the end of primary school and in the first year of secondary school. Whilst the broad areas of questioning were similar, primary- and secondary-specific questions were included. The topics addressed were informed by earlier research and PMFL-specific publications (e.g. [14]). The findings of the earlier study carried out in Saxony-Anhalt on teachers’ perspectives [4], were also pertinent. The following issues were discussed with primary interviewees, for example:

- Languages provision (i.e. languages taught; number of lessons); lesson content (i.e. activities and tasks)
- Teaching of English (i.e. who taught the lessons; use of target language etc)
- Assessment; attainment; recording (including whether pupils were conscious
of their attainment and how they were progressing

- Preparation for transfer to secondary school (i.e. what transitional links did the primary school have with the secondary school; whether Open Evenings were offered; whether English-specific information and activities were provided; whether primary pupils felt anxious at the prospect of transferring to secondary)
- Likes and dislikes re: English (i.e. whether they enjoyed languages lessons and what factors impacted on this)

Under each heading were possible sub-questions, in the event of these being needed. (Appendices 1 and 2.)

To make sure of the comprehensibility of the questions and their capacity to provide the targeted information, the interview schedule was piloted with three native German pupils aged 10, 11 and 13, relatives of the appointed research assistant (RA), also a native speaker of German. In the light of this experience, some small changes were made to the wording of a number of questions.

A convenience sample [15] of schools was identified in Saxony-Anhalt, exploiting teaching contacts and relatives of the RA. Permission to approach the schools was sought and obtained from the Kultusministerium. The headteachers of the schools were then written to, informing them about the research to be conducted, seeking their cooperation and inviting them to identify pupils to be the interview subjects. This resulted in a convenience sample (Brymon, 2008) of nine primary schools for the first phase of data collection (see below) and six secondary schools for phase 2. (See Appendix 3.)

Headteachers identified a purposive sample [15] of 34 pupil participants (14 boys; 20 girls). They used as their selection criteria, the pupils’ willingness to participate, their capacity to articulate their thoughts clearly and fully and their parents’ approval of their participation. All parties were thoroughly informed, in advance of each phase of data collection, in writing (and again orally just prior to the interviews) that they could terminate their participation at any time without any need to provide a reason for this.

Data were collected in two phases, in February 2013 and January/February 2014. The same pupils were interviewed in each of the two phases so that any change or development in their thinking might be identified.

The duration of the interviews varied, depending on the detail provided by the pupil. In each phase they lasted between 15 and 20 minutes.

5. Analysis of the data

All interview data were recorded and transcribed. Translation of the transcriptions was not necessary, given that the principal investigator and RA both had native/near native speaker competence in German. The transcriptions were read through on numerous occasions to allow the identification of themes [13], which, predictably, were closely related to the main areas of questioning. This led to the development of a coding framework, facilitating more detailed interrogation of the data, using the MAXQDA [16] analysis instrument. This produced some basic descriptive data as well as comparative data relating to differences in findings between schools and between boys and girls.

6. Limitations

Before presenting the findings, it is important to place them in the context of the limitations of the study.

The study is small in scale in terms of sample size and geographical compass. Although a number of data collection points had been planned originally, only two rounds of data collection, one year apart, could take place. By necessity, the sample of schools was a convenience sample and the pupil sample was a purposive sample. This has implications for generalisability.

Despite these limitations, however, the findings are important to deepening understanding of what pupils think about their PMFL learning experience and the transition to secondary school.

7. Findings

- Does pupil experience in English reflect any consistency between primary schools in relation to what is taught and how?

Immediately striking was the class size in the primary school. This varied from as few as eight pupils (a reflection of the demise of industry in the area and families moving elsewhere to find work) to as many as 24. Most schools had numbers in the teens (substantially fewer than is the case in most primary schools in the UK and Ireland).

There was notable consistency of provision across the sample primary schools. English was the foreign language taught in primary schools and continued in secondary schools. Each primary class had two English lessons of 45 minutes duration per week. When pupils transferred to secondary
schools, this increased to five lessons of 45 minutes duration per week.

All primary schools used one of two textbooks (approved by the Kultusministerium) and covered the same themes, such as: numbers; colours; parts of the body. English lessons were taught by an English specialist in each school. In only one of the nine schools was the class teacher also the specialist English teacher. Pupils did not report any English teachers from the local secondary school providing support in lessons (as is often the case in England [1]).

Lesson content had a common pattern across primary schools, with an emphasis on variety of activities such as singing, learning of rhymes, writing and kinaesthetic activities such as cutting and pasting:

Well, Mrs B comes in and we say, “Good morning” to each other. And then she tells us what we are going to do. Mostly we sing in English, we write in English and do some sticking-in. Sometimes we do worksheets. (P.29.P. i.e. Pupil 29, interviewed at Primary school. A final ‘S’ indicates that the interview was held at Secondary school.) (1. i.e. identifier for the original German version in Appendix 4.)

There was also some evidence of a combination of less and more formal activities. This included translation and use of the dictionary:

Usually we sing a song, an English one, continue with the topic or learn a new one. We use the textbook, look up the dictionary for English words and also have to translate texts. (P.8.P) (2)

Pupils did not report any use of computers or video material in primary school, although use of CDs was commonplace:

Yes. We have a workbook. Sometimes it includes a CD. There is a square with a CD in it. We have to listen to it and then circle or cross something or draw something out. (P.28.P) (3)

Pupils were required to complete English homework.

Practices which were common to all of the primary schools were regular tests, reporting and recording of attainment as well as substantial use of the target language in lessons:

Well, my teacher speaks English for the whole lesson. (P.2.P) (4)

In the study on teachers’ perspectives on PMFL in Saxony-Anhalt [4], some teachers reported exploiting the European Languages Portfolio [17], designed to allow learners to record their language learning achievements and their experience of learning and using languages. None of the pupils in this sample had any awareness of its use.

- How are pupils prepared for the transition to the secondary school English classroom and do they feel that this is sufficient and appropriate?

Primary school pupils were invited to attend Open Days held in local secondary schools. Only three pupils did not take advantage of this opportunity, one because of illness and two because they claimed not to have received the invitation. A variety of activities were on offer, including a tour of the school, observation of experiments in the science laboratory and even dancing and a magic show:

Well, you can do dancing there. There’s a teacher who does that. A couple of girls danced. And then there was a magic show. I watched it with some friends. And we also saw some classrooms. (P20.P) (5)

There were very few reports of English-related activities, however. One pupil painted an ‘English’ flag and another saw the English teacher and visited the English classroom. Interestingly, there was evidence of other foreign language activity, although the language was not clearly recognised by the pupil:

I watched the fairy tale of “The three little pigs” as a shadow show – it was in some foreign language, French, I think. (P.13.P) (6)

None of the pupils in the sample articulated any anxiety at the prospect of moving to secondary schools. All looked forward to it, not least because their friends from primary school were mostly going to the same secondary, the opportunity to meet more friends and taking a wider range of subjects, not to mention the bigger and better facilities:

My brother told me that there was a big playground. Half of the pupils in my class are going there too and they include my best friends. I’m looking forward to it. (P8.P) (7)

Pupils were conscious, however, that the learning experience was going to be different, certainly harder, with the likelihood of more writing, more speaking of English and more homework:

Yes, it will be harder, because, so far as I know, we’ll have to speak English all of the time. And because we’ll also have more homework there. (P.12.P) (8)

One pupil expressed a slight concern, the product of conversations with his sister, that
teachers might not be quite as nice as their primary school teachers:

For example, they’ll just come in and speak English right away. They might just say: “Julian – translate!” (P.13.P) (9)

Three female interviewees also suspected that the pupils would be expected to take on more responsibility for their learning with less support from the teacher:

We might not do so much with the teacher; we might have to work on our own. (P.6.P) (10)

- To what extent are pupils aware of any exchange of information between their primary and secondary schools relating to what they have learnt, how they have learnt it and their attainment in English?

Fifteen (n=34) interviewees were confident that their secondary school teachers were informed about the material which had been covered in primary school. In terms of how this impacted on English provision in the early weeks of secondary school, there was some variation. Some teachers quickly revisited the old material as a diagnostic exercise:

Yes, first of all we went over everything again, so that they know what we can do. (P.12.S) (11)

Well, at the beginning we repeated loads of stuff, so that we were all at the same level. (P.22.S) (12)

Others, it appears, immediately advanced to new material:

We moved on immediately. We left some stuff out. (P.4.S) (13)

Twelve pupils felt that their secondary teachers had not taken any account of their previous learning and had simply started the English learning experience afresh:

No, not really. We started pretty much from the beginning again. (P.7.S) (14)

Four pupils could not tell whether their teachers were aware of what they had learnt at primary school or not.

In terms of themes covered, as well as the teaching approaches and activities adopted by the teachers, 20/34 pupils identified considerable overlap between primary and secondary school:

Yes. We’re doing the time, which we also covered at primary school and lots of things which are the same. (P.1.S) (15)

A typical English lesson is like this: we say hello to each other. Then we learn something new or we write out some vocabulary. Then at the end we always sing a song, an English song. (P.9.S) (16)

Eleven interviewees did not feel that the work done in primary schools was being taken into account in secondary school in this way:

In primary school we always sang a song, but not here. We wrote out vocabulary but not now. Really, everything has changed. (P.3.S) (17)

Two thought that this was sometimes the case.

Whilst, in the majority of cases, secondary teachers appeared to have taken note of the work done in primary, there were differences, some of which confirmed the expectations of the pupils, referred to above. Their descriptions of classroom activities suggested the adoption of a more formal approach than appeared to have been the case in primary school English lessons:

Well, we start with greetings and then we do some work from the textbook and read through some texts. You can get marks for this. Then we learn some new vocabulary and copy this into our exercise book; we set it out by vocabulary, sentences, worksheets etc. (P.18.S) (18)

Almost all of the interviewees referred to the increased use of English by the teacher and by pupils:

Yes. Mrs K, my English teacher, she uses more and more English. She tries to speak more and more English to us. (P.2.S) (19)

Yes, our English teacher speaks English only. Actually, we only speak English. (P4.S) (20)

They also identified a substantive increase in the amount of vocabulary they had to learn, greater emphasis on grammar, the number of tests to which this led and the amount of writing done:

We write up a lot of vocabulary. Then we have to learn it and then they tell us we are going to have a test; we learn for the test which will cover the vocabulary which we have just learned. (P.11.S) (21)

We didn’t do vocabulary at primary school. We’d sing or something like that. Here we do lots of vocabulary. I’ve got a vocabulary note-book here. (P.16.S) (22)

The totality of this experience led to pupils feeling that secondary school was more demanding and more focussed. The outcome of the heightened challenge and the greater effort required was an increase in learning:

We do different tests here. Here we have to write 10 sentences which then get marked. Yes, we learn a lot more. (P.5.S) (23)
Yes, the lessons are different; everything we do is more professional, lots quicker and more organised. We do more. (P.7.S) (24)

The pupils’ prediction that the teachers in secondary school might well be more strict turned out to be accurate:

Our English teacher here is more strict and we do lots more tests. (P.8.S) (25)

When we do tests or suchlike, we are not allowed to talk. We are not allowed to ask any questions. (P.15.S) (26)

Whilst interviewees reported on the continued exploitation of the CD, a new school-based experience, however, was use of the computer:

On Monday we go to the language laboratory with our proper English teacher and spend the 45 minutes working on the computer. (P.7.S) (27)

When pupils articulated a preference between primary and secondary school, in spite of the more demanding work, the stricter teachers and the more regular testing regime, most chose the secondary school, mainly because they wanted to be challenged and feel that they were achieving.

• To what extent are pupils aware of their attainment in English as they leave primary school?

One of the issues raised by secondary school teachers in Saxony-Anhalt in the earlier study [4] was the lack of reliable information on pupils’ attainment in English from primary school. Whilst a single grade was given, this did not provide any detail on their competence in particular skills nor could its accuracy always be guaranteed. Pupils were therefore asked whether they thought that their secondary school teachers had knowledge of the level of competence which they brought with them from their primary school.

Nineteen (n=34) pupils were confident that their secondary school English teachers had the information needed, although some had checked for themselves with diagnostic tests, especially relating to knowledge of vocabulary:

Yes, he certainly looked at my exercise book and saw what sort of difficulties I had, where the others in the class had difficulties and he worked on that more intensively. (P.7.S) (28)

Ten interviewees did not share this confidence but felt that their new English teachers conducted a series of tests to establish pupils’ level of competence:

No, because at the beginning we did lots and lots of tests and exercises, without any marks being given. (P.21.S) (29)

Three pupils did not know whether their teachers were aware of their attainment from primary school or not.

• Does pupil enjoyment of learning English change in the course of years 4 and 5? If so, in what way? What do pupils think the possible causes of any change might be?

All the primary school interviewees reported that they enjoyed English, appreciated its importance and wanted to learn it. When interviewed at secondary school, little had changed with 26/34 responding equally positively:

English lessons are good. We learn something new every lesson and we always leave happy. We have nothing to complain about and the teacher doesn’t tell us off either. (P.16.S) (30)

Four pupils felt that they were not enjoying the English experience, complaining about the degree of difficulty in secondary school (‘Because it’s difficult.’ P.20.S) (31)). One also reported a classroom environment which was less than satisfactory and boring lessons:

Sometimes, whenever we have Mrs J, the lesson is quite chaotic and then it gets boring; everyone gets punished and we have to write out the whole text. And it gets boring. (P.21.S) (32)

Criticisms of English lessons and the teachers, whether the context was primary or secondary school, were few and allows the conclusion to be drawn that pupils were happy with provision.

8. Discussion

The discussion which follows has to be placed in the context of English learning and teaching in Germany (and most other countries in the world) in comparison to that of other foreign languages in those countries where English is the first language. It may be argued that teachers of English in Germany enjoy a huge motivational advantage over their colleagues in those countries where English is the ‘mother tongue’, given the status of English as a global language. Very rarely, in the context of this study, will they have to answer the question: “Why do we have to learn English, miss?” a question so often heard by teachers of MFL in relation to other languages, and in those countries where meeting a native speaker of English is unlikely. Learning English in Germany is a given. It is a must-have competence, if an individual is to make progress in education and career. It is likely that English will be needed in study and work at home and abroad, whether in English- or non-English speaking countries. If two people do not
share a mother-tongue, it is more than likely that English will be their shared foreign language.

The discussion now addresses the findings in relation to each of the research questions.

Contrary to findings in England [1]; [3]; [6]; [7]; [18], this sample of pupils in Saxony-Anhalt enjoyed considerable consistency of provision across their primary schools. This common approach to the teaching of English, within a well structured framework, implemented by appropriately trained, linguistically competent teachers, had a positive impact on pupils’ perceptions of learning and is an important message for other countries involved in PMFL. This is confirmed by Graham et al., [18] in their UK-based study on pupils making the primary to secondary school transition. They concluded that the time allocated to the language, the competence of the teacher and the quality of the training s/he has received, influenced the learners’ attitude and motivation and impacted on test scores.

Teachers in the UK, Ireland and other countries where English is the first language might feel uncomfortable with such uniformity of provision, not least the adherence to one language only and the rigidity of a set number of lessons per week, as opposed to choice from a selection of foreign languages or indeed a taster menu of a number of languages, possibly permeating the range of subjects on the curriculum. The consistency in Saxony-Anhalt has the advantage, however, of secondary school teachers having a clear understanding from the approved scheme of work and textbooks, if not first hand experience, of what has been taught in the primary school and how, the knowledge on which they have to build, the methods with which the pupils are familiar, thus, in theory, at least, facilitating a potentially smooth transition into foreign language learning, that is a continuation of English, in year 5.

Whilst most of the sample pupils attended and enjoyed the Open Days put on by the secondary schools in Saxony-Anhalt, there were no English-specific activities included amongst the range of activities on offer at these events. The entire sample pupils looked forward to moving to secondary school but were a little concerned about teachers being stricter and the work harder. In relation to English, could these concerns have been allayed with the inclusion of some English-specific activities on the Open Day programme? Even a question and answer session with the teacher and/or some older pupils already attending the school might have eased the minds of the primary visitors in relation to their move to their new school.

Pupils reported having regular tests in English at primary school and so have a clear idea of their grades. A regular testing regime is part of the learning experience in any subject. At the end of each year they are also provided with a Zeugnis (report) which includes their overall grade for each subject. They were aware of the progress they were making, a key factor in avoiding any ‘sense of stagnation’, as identified by Graham and her colleagues [18] in their UK-based study. It came as some surprise that pupils were ignorant of the European Languages Portfolio [17], given that some of the teachers interviewed for the earlier Saxony-Anhalt study [4] had made reference to it. Its usage might well help pupils to gain further insights into their strengths and weakness relating to their English competence.

The findings appear to confirm the importance and usefulness of a shared scheme of work and textbook, both approved by the Kultusministerium. This helps explain why the majority of sample pupils reported that their teachers had a clear understanding of the work covered in English at primary school. It is perhaps surprising, therefore, that 12/34 pupils said that they had started the learning experience afresh. This may reflect either secondary school teachers’ lack of confidence in primary school teachers’ assessment of pupils’ competence and/or a professional need to make sure of this for themselves. Evidence provided confirms that the approved and shared PMFL teaching framework facilitated general continuity of experience between primary and secondary English lessons. The clear majority of pupils did not report any dramatic change of learning experience.

In relation to pupils’ awareness of teachers being familiar with the attainment they had brought from primary school, the majority thought that this was the case. The teachers had seen their Zeugnis (report) from the primary school which gave a grade for each subject. It was apparent, however, from pupils’ reports of the tests they had to take in their early days in secondary school, that not all of the teachers seemed to trust the grade awarded for English lessons. The clear majority of pupils did not report any dramatic change of learning experience.

It was apparent, however, that English teachers being familiar with the attainment they had brought from primary school, the majority thought that this was the case. The teachers had seen their Zeugnis (report) from the primary school which gave a grade for each subject. It was apparent, however, from pupils’ reports of the tests they had to take in their early days in secondary school, that not all of the teachers seemed to trust the grade awarded for English lessons. The clear majority of pupils did not report any dramatic change of learning experience.
diagnostic tests at the beginning of the school year. Having said that, I suspect there will always be a cohort of secondary teachers who will feel the need to find out for themselves, whether this is based on fragile trust of the judgement of primary school colleagues and/or an innate diligence and conscientiousness. Perhaps a way in which to find out about the level of attainment of pupils to join their classes might be to engage in some collaborative teaching with their primary school colleagues and/or to work with them on activities for the early weeks of Year 5.

The sample pupils in Saxony-Anhalt enjoyed English at primary school and this enjoyment was heightened in secondary school. This appears to have had little to do with increased use of technology. Teaching still included the use of CDs from time to time, as it had done at primary school, but DVDs, videos and computers were rarely mentioned. Even those pupils who started English afresh at secondary school, as well as those who underwent a series of diagnostic tests, enjoyed lessons and articulated their understanding of why the teacher had adopted this approach. They valued the increase in the number of classes, the professional, knowledgeable approach of the teachers who taught them (only two pupils contradicted this view), the resulting amount they learned and the dominance of English as the language of interaction, which enhanced the confidence of most pupils in their ability to engage with English speakers. Increased consciousness of the more serious approach to work at secondary school combined with greater awareness of the progress they were making, combined to increase enjoyment and, probably, motivation, a finding in line with the work of Graham et al. [18] and Chambers [1].

9. Conclusion

The pupils have very largely corroborated the views articulated by the teachers in Saxony-Anhalt in the earlier study [4]. Pupils understand the importance of English for their futures. They feel that their teachers in secondary school are in possession of the information they need from primary school to provide them with the continued learning experience they need. They have no complaints about their preparation for transition or the process.

There is also much to consider from this study for teachers and policy makers involved in PMFL and transition from primary to secondary school. Consistency of provision across primary schools has to be driven by an approved, shared and applied scheme of work (e.g. in England that provided by the Qualifications and Curriculum Development Agency, [19]). This may mean focussing on one foreign language only, unpopular though this might be (in countries such as England). Secondary schools have to be aware of the content of the primary scheme of work and build on this. PMFL needs to be appropriately resourced, with particular attention to the training of teachers. PMFL needs to be given the timetable space it requires to provide secondary schools with a firm foundation on which to build. Pupils want to feel that they are making progress in their learning. Lesson content and monitoring, assessing and recording of achievement have to facilitate this. Appropriately detailed evidence of pupil achievement has to be provided by primary schools to the secondary schools. Some collaborative work between primary and secondary teachers as well as exploitation of the European Languages Portfolio [17] might help facilitate this.

The pupils in Saxony-Anhalt have spoken. The information they have provided has the potential to enhance MFL provision across primary and secondary schools, not only in Saxony-Anhalt but further afield. Their messages should not be ignored.

10. References


Appendix 1

Interview Schedule – English version

The primary school questions
The headings in italics reflect the main area of questioning. The bullet points are possible questions which could be asked.

Languages provision; lesson content
- Which foreign language are you learning in school?
- How often do you have English lessons?
- How long does each lesson last?

Teaching of MFL:
- Who teaches these lessons?
- Do you ever have a teacher from the local secondary school?
- Is it always the same one?
- Do this teacher and your usual teacher ever teach together?
- Describe a normal English lesson.
- Does the teacher always speak English?
- Do you ever do tests?

Assessment; attainment; recording:
- Do you know how well you are progressing in English?
- How do you know?
- Have you ever heard of the Languages Ladder?
- Have you ever heard of the European Language Portfolio?

Preparation for transfer to secondary school:
- Have you visited the secondary school you will be attending in Year 5?
- Did you meet any of the English teachers?
- What did they tell you about what you might experience in Year 5?
- Did they ask you about what you are doing at primary school?
- Did you attend a taster English lesson?
- Was it different from what you do in primary school?

Likes and dislikes re: English
- Are you enjoying your English lessons?
- What do you like about them?
- What do you dislike about them?
- Do you look forward to English lessons?


Would you like to continue with English in future years at this school? Why / Why not?

The secondary school questions

Language/s provision at secondary school – smooth transition from primary school?
- What language are you learning at secondary school?
- Is this the same language that you were learning at primary school?
- How are English lessons different in secondary school?
- Have lessons continued from where you left off at primary school?
- Do you think that your English teacher knows what you did at primary school and has taken this into consideration in her/his teaching?
- What makes you think this?

Perception of teacher’s awareness of attainment at primary school? Assessment, recording and reporting at secondary school?
- Do you think that your English teacher knew how well you were doing in English at Primary School?
- What makes you think this?
- Do you do tests in English lessons?
- Are these similar to tests you may have taken at primary School?

Likes / dislikes re: English at secondary school:
- Are you enjoying your English lessons?
- What do you like about them?
- What do you dislike about them?
- Are you enjoying them just as much / more / less than you did at primary school?
- Do you look forward to English lessons?

Appendix 2

Interview Schedule – German version

Primary school questions

Languages provision; lesson content
- Welche Fremdsprachen lernst du in deiner Schule?
- Und wie oft gibt es eine Englischstunde?
- Wie lange dauert eine Englischstunde?

Teaching of English
- Kommt manchmal ein Englischlehrer oder eine Englischlehrerin aus dem Gymnasium oder aus der Sekundarschule zu euch zu Besuch?
- Unterrichtet deine Englischlehrerin euch manchmal mit einer Kollegin von auswärts zusammen?
- Beschreib mir eine typische Englischstunde!
- Spricht deine Englischlehrerin viel Englisch im Unterricht?

Assessment; attainment; recording
- Schreibst du manchmal Arbeiten oder Tests in Englisch?
- Weißt du wie gut deine Leistungen in Englisch sind? Wie?
- Ist Englisch dein Lieblingsfach? Warum? Warum nicht?
- Hast du von dem europäischen Sprachenportfolio gehört?

Preparation for transfer to secondary school
- Auf welche Schule gehst du im nächsten Schuljahr?
- Hast du die Schule schon besucht (am Tag der offenen Tür oder etwas Ähnliches) und die Englischlehrer kennengeleert?
- Oder hast du schon den Englischunterricht im Gymnasium oder in der SEKS während eines Besuchs erlebt?
- Denkst du, der Englischunterricht im Gymnasium ist anders als hier in der Grundschule?

Likes and dislikes re: English
- Wie findest du deine Englischstunden hier in _________? Was gefällt dir am besten? Welche Aktivitäten sind am schönsten?
- Ist Englisch dein Lieblingsfach? Warum (nicht)?
- Freust du dich auf deine nächste Englischstunde?
Secondary school questions

Languages provision / lesson content
- Welche Fremdsprachen lernst du in deiner Schule?
- Hast du die Sprache auch in der Grundschule gelernt?
- Und wie oft gibt es hier eine Englischstunde?
- Wie lange dauert eine Englischstunde?
- Wirst du in Englisch mit deinen Klassenkameraden zusammen unterrichtet, oder gibt es spezielle Englischklassen oder Gruppen?
- Wie viele Kinder gibt es in deiner Klasse? Wie viele Jungs? Wie viele Mädchen?

Teaching of English
- Sind deine Englischstunden hier im Gymnasium / in der SEKS anders als deine Englischstunden in der Grundschule? Wie?
- Beschreibe mir eine typische Englischstunde!
- Siehst du einen Zusammenhang mit deinen Englischstunden in der Grundschule? Werden die Themen fortgesetzt?
- Denkst du, dein Englischlehrer weiß, was du in Englisch in der Grundschule gelernt hast?
- Denkst du, dein Englischlehrer weiß, wie deine Leistungen in Englisch in der Grundschule gewesen sind?

Assessment; attainment; recording
- Schreibst du manchmal Arbeiten oder Tests in Englisch?
- Hast du auch in der Grundschule Leistungskontrollen in Englisch gehabt? Und wie waren deine Noten?

Likes and dislikes re: English
- Wie findest du deine Englischstunden hier in _________? Was gefällt dir am besten? Welche Aktivitäten sind am schönsten?
- Ist Englisch dein Lieblingsfach? Warum (nicht)?
- Freust du dich auf deine nächste Englischstunde?
### Appendix 3

#### Sample Primary Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Description</th>
<th>Number of pupils in class</th>
<th>Number of pupils interviewed</th>
<th>Number of boys interviewed</th>
<th>Number of girls interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Located in city centre. 142 children attending.</td>
<td>15</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>Located in large village. 130 pupils attending.</td>
<td>17</td>
<td>5</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>Located in former mining village. 51 pupils attending.</td>
<td>8</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>D</td>
<td>Village location. 70 pupils attending.</td>
<td>17</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>Located in small town. Modern buildings and facilities. 92 pupils attending.</td>
<td>16</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>Located in affluent suburb of city. 100 pupils attending.</td>
<td>19</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>G</td>
<td>Located in middle-class suburb of city. 248 pupils attending.</td>
<td>19</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>H</td>
<td>Located in suburb of city. 70 pupils attending.</td>
<td>13</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL INTERVIEWED** 34 15 19

### Sample Secondary Schools

<table>
<thead>
<tr>
<th>School</th>
<th>Description</th>
<th>Number of pupils attending</th>
<th>Number of pupils interviewed</th>
<th>Number of boys interviewed</th>
<th>Number of girls interviewed</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>Grammar school. City centre location. Modern facilities.</td>
<td>776</td>
<td>10</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>K</td>
<td>Grammar school. Split site; city centre and edge of city.</td>
<td>1002</td>
<td>8</td>
<td>5</td>
<td>3</td>
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<tr>
<td>L</td>
<td>Grammar school. Edge of city.</td>
<td>955</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>M</td>
<td>Secondary modern school. Edge of small town.</td>
<td>350</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>N</td>
<td>Secondary modern school in small town.</td>
<td>330</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>O</td>
<td>Secondary modern school. Edge of city.</td>
<td>350</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

**TOTAL INTERVIEWED** 34 15 19
Appendix 4

Original German version of quotation translated into English in the main text

(1) Also, Frau Bittel kommt dann rein, und wir sagen dann halt ‘Good Morning’ zu einander. Und dann sagt sie uns, was wir machen. Meistens singen wir auf Englisch, wir schreiben auf Englisch und kleben auch auf. Und manchmal machen wir auch Arbeitsblätter. Also, Frau Bittel kommt dann rein, und wir sagen dann halt ‘Good Morning’ zu einander. Und dann sagt sie uns, was wir machen. Meistens singen wir auf Englisch, wir schreiben auf Englisch und kleben auch auf. Und manchmal machen wir auch Arbeitsblätter.

(2) Wir singen meistens ein Lied, so ein englisches, behandeln eventuell das Thema weiter oder lernen eben ein neues. Wir gucken im Buch nach und schlagen auch in den Wörterbüchern nach Englischtexten nach und müssen auch Texte übersetzen.

(3) Ja. Wir haben ein Arbeitsheft. Da steht manchmal so was drunter mit so einer CD. Da ist so ein Viereck mit einer CD drinne. Da müssen wir das hören, dann müssen wir das kreisen oder ankreuzen oder ausmalen.

(4) Also, meine Lehrerin spricht den ganzen Unterricht Englisch.


(6) Ich habe auf irgendeiner Fremdsprache, ich glaube auf Französisch das Märchen von den ‘Drei kleinen Schweinchen’ mit Schattenspiel.


(8) Ja, also auch schwerer, weil wir da eigentlich, glaube ich, nur Englisch sprechen. Und weil es dort auch Hausaufgaben gibt, also mehr.

(9) Und, daß sie dann zum Beispiel nur reinkommen und dann gleich Englisch reden. Daß sie dann zum Beispiel nur sagen, “Julian, Übersetzen!”

(10) Daß wir nicht mehr so viel mit Lehrern machen, dass wir selbstständiger arbeiten müssen.

(11) Ja. Als Erstes war alles wiederholt eigentlich, damit sie wissen, was wir können.

(12) Also zuerst wurde eine Menge wiederholt, damit alle auf dem gleichen Stand kommen.

(13) Wir haben gleich einen Sprung gemacht. Also wir haben was übersprungen.

(14) Nein, eigentlich nicht, weil wir quasi wie von vorne angefangen haben.

(15) Ja. Wir machen die Uhrzeit, die wir auch da gemacht haben und viele Dinge die so dasselbe sind.

(16) Eine typische Englischstunde ist: erstens begrüssen wir uns; dann lernen wir, oder machen wir, wir schreiben Englische Wörter auf; dann zum Schluss machen wir so immer ein Lied – ein englisches Lied.


(18) Also wir fangen jetzt an mit Begrüssungen und dann gucken wir im Buch nach und lesen so Texte durch. Dann kann man auch dafür Noten kriegen. Dann lernen wir auch neue Vokabeln und schreiben die auf im Heft und das ordnen wir zwischen Vokabeln, Sätzen, Material und alles.

(19) Ja. Also Frau Kunde, meine Englischlehrerin, sie macht jetzt immer mehr Englisch. Sie versucht immer mehr Englisch mit uns zu sprechen.

(20) Ja, unsere Englischlehrerin spricht nur mit uns Englisch. Wir sprechen eigentlich nur Englisch.

(21) Wir schreiben sehr viele Vokabeln auf. Die muss man mal auch lernen und dann sagt man uns mal Teste an und bereiten wir uns vor und dann kommt halt die Vokabeln, die wir gerade gelernt haben.

(22) Also in der Grundschule haben wir es nicht mit Vokabeln gemacht. Erstmal so gesungen oder was. Und hier wird viel mit Vokabeln. Ich habe hier schon ein Vokabelheft oder was.
(24) Ja, sie sind anders, weil wir das hier viel professioneller machen, also viel schneller und organisierter. Wir unternehmen eigentlich mehr.
(25) Wir haben hier eine etwas strengere Englischlehrerin und schreiben auch viel mehr Kontrollen.
(26) Wenn wir Tests schreiben oder so dann dürfen wir nicht reden. Wir dürfen keine Fragen stellen.
(27) Am Montag da gehen wir mit unseren richtigen Englischlehrerin in Sprachlabor und arbeiten die 45 Minuten am Computer.
(28) Ja, er hat sicherlich mein Workbook angeguckt und dann hat er geguckt, wo ich was für Schwierigkeiten hätte, wo die anderen auch Schwierigkeiten hatten, er hat das nochmal intensiver gemacht.
(30) Ich finde sie gut. Wir lernen an jeder Stunde und dazu gehen wir immer glücklich raus. Wir können uns nicht beschweren und die Lehrerin meckert auch nicht mit uns.
(31) Weil es eigentlich schwierig ist.
(34) Ja, auf jeden Fall. Wir waren auch schon in Norwegen, und da habe ich auch schon Englisch gesprochen. Und mein Bruder, wir mussten immer ins Restaurant und da sagen, was wir wollen.
(37) Nein. Meine Familie ist stolz darauf, was ich jetzt gerade mache. Ich möchte es machen und wenn ich nicht möchte, muss ich nicht. Mir fällt die Entscheidung.
(38) Weil man ja ganz viel Auslandseinsätze hat und wenn man als Pilot arbeitet, dann landet man auch nicht immer in deutschen Flughäfen. Man landet ja auch mal in Irak oder anderen englischen Ländern.
(39) Ja. Bei Sportreporter ja, weil es spricht auch nicht jeder Spieler oder Sportler Deutsch. Und Englisch können halt die Meisten. Also könnte das wichtig sein.
(40) Eigentlich wollte ich mal Englischlehrerin werden, aber ich gehe jetzt auf die Sekundarschule.
(41) Ich möchte in einem Laden als Verkäuferin arbeiten. Hier in Gröbzig.
(42) Was möchtest du später werden? Wie mein Papa, meine Schwester und mein Bruder.
   Und was ist das?
   Lochführer.
   Ist dein Papa Lochführer? Und dein Bruder auch?
   Ja.
(44) Ich habe ja schon einen englischen Freund.
Taking Innovative Approach to Educational Institution in Post-modern Societies

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Abstract

This research starts from the observation of an ongoing crisis of French educational institution based on the republican model. By the 1970s, the "conflictualists" sociologists have studied and denounced the mechanisms that make the school a factor of the continuation of social inequality. Previous governments have implemented numerous educational policies often at the expense of consistency and efficiency. There are indications of deterioration in the school climate as well as recurrent lower academic performance of students, as shown by surveys such as Program for International Student Assessment (PISA). French schools are based on modern values at odds with the social environment and loss of efficiency.

Our research is informed by various experiences and practicing a broad range of teaching methods. We propose to conduct an analysis of the French schools in the light of the paradigm of post-modernity. French educational institution operates on a system of values inherited from the modern era, characterized by rationality and “verticality”, (i.e. transfer of knowledge from the top down) the individual is expected to conform to a model. A relatively autonomous modern ideology, based on idealism, prevailed from Descartes to Durkheim.

These values, like traditional republican institutions are obsolete and no longer work. However, the postmodern era is characterized by the emergence of a topical “horizontality” (i.e. learning from your peers and your teacher), a new concept of interpersonal relationships, communication and relationship with each other. There is also a resurgence of archaic and sensitive values. These are phenomena characteristic of trends in postmodern societies, influencing attitudes and representations, particularly among young people, pupils and students. Remaining impervious to the new social environment, the Republican school institution is in discordance with the people in which is in charge of training, and this, becomes inadequate.

Pedagogical transformation began in the 20th century, thanks to the contributions of psychology, including constructivism in the sense of a better mobilization of psychological functions of the individual. From the 1960s, the evolution of pedagogy in theory relies on the work of humanist psychologists who have improved the understanding of the mechanisms of motivation and highlighted the importance of concepts such as self-esteem. These concepts have contributed to educational changes, which have supported research on "process-product" and the reflective practices of teachers. However, it clearly appears that the contributions of psychology and the results of these studies are insufficiently integrated practice in the educational process in France. The fact remains that educational change is incomplete as the school is not attuned to the social environment. The paradigm theories of Jung applied to education, focused on the archetypal nature of the teacher-student relationship. In addition, we further stress, convergence with theories of imagination. We intend to demonstrate that the proper implementation of an "archetypal" education, leveraging the sensitivity, intuition, empathy and the “resonance” is a powerful contributor to education. We believe that for students to be engaged, they need to be taught based on their pedagogical archetype, and then teachers should be introspective, rather than trying to make students fit into box. We developed a unique teaching style for each individual student. The goal is to seat the connection between student knowledge and enhancement of personal potential. The establishment of such an educational relationship is currently based on an individual approach of the teacher including their own self-analysis in order to improve the transfer of knowledge.

The incorporation of these concepts in the organization of the educational institution would require a thorough overhaul of the educational process, but also the recruitment and training of teachers.
The Development of Communicative Competences – An Imperative of Modern Education

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Abstract

Effective communications in formal education systems therefore have to take place at a range of levels and include diverse groups of actors, depending on the messages and ideas being communicated. Civil society organizations often interact at all levels of educational systems, building support at the grassroots level and advocating for change at the governmental level. We view effective communication as supporting students’ learning, so it applies to all subject areas. We think that effective communication is more than just pronunciation, intonation or articulation. Communication also involves the teachers’ classroom discourse and interaction that deepen thinking to help students internalize and process subject content. We believe in teachers and students co-constructing knowledge together, particularly in the subjects that involve multimodal aspects of communication. In our field communication is a very important part of teaching and learning, because our students will become doctors and this job consists of communication with patients, so the communicative skills are very important in our activity and in the future activity of our students.

1. Introduction

The goals of modern education define strategic guidelines for the development of education relevant to economic, political, and cultural and community developments of postmodern society. This fact provides the derivation of plural objectives built in terms of education policy through action targeting the educational process at global normative (general objective) and at the practical level (general objectives including the developing of curricula). These criteria are for defining strategic directions of modern education necessary for society and for education system.

The ideal of this education defines the type of personality that is required for society, designed to the Educational system. This ideal of contemporary education is not a standard way imposed forever, but a dynamic model that allows some new approaches.

In our activity we tend to combine all principles of teaching a modern language: the individualization, novelty, functionality, situationality. We think that an individual approach of student character and way of studying. Each student is a personality and each student has his interest in life that is why we tend to introduce the novelty in our lessons. We teach in step with new technical, methodological and medical development.

The goal of this paper research is to show the importance and the complexity of communicative competences.

2. Literature review

Cucos, considers that the educational ideal is a value instance that radiates names, principles, strategies, determined goals and objectives that lead on the training of young generations. Author asserts that educational ideal determines some realities to follow a certain group of values.[3]

The institutions of High Education contribute greatly to the achievement of the educational ideal, expressing the highest and the harder degree in achieving perfection in a certain field, it is the model which the entire human being tends to reach in its activity.

To tend to ideal it means to aspire to perfection. Referring to the pedagogical ideal, Cristea affirms that current pedagogical ideal aimed at forming a creative and autonomous personality, adaptable to changing the innovative and rapid conditions for specific postindustrial society of informational type. He notes that educational finalities are outcomes of macro-structural determined pedagogical ideal, guiding the actions of training – the development of personality designed and realized in the educational system. Cristea reports that one of the internal features of education policy is the prospective character "points out those education activities aimed always a future situation, potential, strategically superior to the present, current circumstantial"

Education components were revised according to the development all fields.

As Kant said, it's nice to think that human nature will be better developed through education and it can reach him to take a shape which suits him. This reveals the perspective of future happiness of mankind."[1]
Prospective character of nature of education is to form personalities, autonomous, adaptable to innovative changes in the, although there is the other side of things, changing what is known from things, man changes the world we know. Changing world in which man lives he changes himself. [2] Communicative method in teaching a foreign language is based on some fundamental principles: Individualization; Novelty; Functionality; Situationality [4]

The individualization holds the abilities of the person being trained, such as memory capacities performing tasks etc. Here we can include the person's character because there are emotional people (based on their own emotions and feelings) and are rational people (leading to logical arguments). Perception of linguistic structures will be individual to each person, but individual qualities cannot provide communicative motivation.

News or actuality involves using current topics and methods are innovative but interactive. The lesson will be based on discussion and maximum involvement of actors in the lesson and main issues addressed will be the permanent change in accordance with the changes in society. Novelty aimed communication and exchange participants, forming new groups and novelty of technical means and intuitive material.

When talking about the communication, one cannot ignore situationality because situationality is an indispensible quality of speech. It allows people to adapt and communicate in various situations. The best method for developing mechanisms and qualities of speech are communication situations are unconditional.

The functionality is more about using the words, phrases joints word on which communicative models are formed.

The functionality also requires methods of reproductive speech (already memorized) and productive units (created by the intent speaker, the manner and forms of organizing the material must be functionally oriented communicative purpose) [2]

### 3. Research Methodology

Referring to the educational goals, we deduce that they depend on the purpose of education, representing more concrete elaborations of it. Specifically, the objectives are related to "what the teacher claims to obtain from his students: apply the principles, methods and processes, analyze points of view to maintain social relationships with people or with certain special groups.

Human activity is sharing information between persons view to establishing and maintaining relations of cooperation and mutual understanding through language is communication, which has an imperative role in the development of modern education.

Education has two objectives: one of cognitive nature (people communicate because they want to send an information), and one of social nature (communication must be efficient).

Being organized according to the philosophical principals, modern education is focused on knowledge, on formation of skills and habits, on cultivation of attitudes and intellectual capacities.

Speaking about the fundamental principles we can say that the individualization deals with the personalities of students. The personality is a combination of characteristics that are innate to us as individuals as well as characteristics that develop out of specific life experiences. Taking in consideration the character of the student it means to know very well the audience. There are some types of personalities which succeed every time. This success depends on the adaptability. The adaptability is the ability to handle a sudden change without making it a distraction.

The novelty depends on the development of methodology and the development of medical technologies. The students implement their knowledge of language and the knowledge of medicine.

These statements guide us to reverse the process of preparing and teacher on foreground is located the formation of skills, attitudes and spiritual, moral and ethical capacities, afterwards the accumulation of knowledge and professional skills so we can focus on social interaction between teacher and student. In the development of communication skills in the professional training it is important to know the requirement that makes us have morality, responsibility to others personalities. Each person has possibility to develop and to emphasize the use of his capacities and aptitude for integration into modern society.

Here we must mention aspects of the education orientation. The formation of personality through education, methodology and procedures is through learning by inuring how to learn and to research.

Contemporary education must be synonymous with reform or progress. The educational ideal of actuality is free developing of full and harmonious human individuality, formation of autonomous and creative personality designing the strategies and various educational activities to transform this goal into reality. The future forwards the requirements of increasingly high. These demands require changes; these changes depend on the trends that will guide the development of new educational policy.

To achieve certain communicative models are intentions, users mobilizes above general skills and combines them with a linguistic communicative competence.

Communicative competences consist of the following components:
- Language skills;
- Sociolinguistic competence;
- Pragmatic skills;
4. Findings and Discussing

The methodology of teaching Romanian as foreign language consists of a complex of exercises. Speaking about the innovation and interactivity, we use to make discussions between students, both of them are actors. One student acting as a patient and another is acting as a doctor. In this case the students are acting according to their creativity and according to the situation. The words chosen for dialogue will be in accordance with the topic.

Here we can add that the students remember the most common phrases for beginning and ending a discussion with a patient but the rest of the discussion will be accordance to the situationality.

We cannot speak about language education without some linguistic skills. These skills are composed by some parts: language skills, sociolinguistic competence and pragmatic competence.

4.1. Language skills

At the moment there is no a universally accepted theory of general linguistics. The language is highly complex and, in case of a vast, diverse and advanced society, is never fully mastered by any of its users. Otherwise, it is not going to happen this because each language is a constantly evolving to meet the demands of its use in communication. Most of nation states tried to define a rule without getting down to brass nails. To present this rule, it has used the model of linguistic description in use for teaching stubborn corpus of literary texts that served as support in learning dead languages.

This model of “traditional” was however rejected, now more than a hundred years by the most illustrious linguists who claimed that languages should be described in the way they work really, not the way a certain authority would like to see; the traditional model, developed for a certain type of language was inappropriate to describe some language system based on a very different organization. However, no one of the other models proposed as an alternative was accepted unanimously. In fact, the possibility of a single universal model description language was rejected. A recent work on universals has yet meaningful results to facilitate learning, teaching and evaluation of languages. Most of descriptivist linguists limited henceforth to codify the practice, putting in relation to form and meaning and using terminology that departs from traditional practice only when treating phenomena outside the range of traditional models of description. It covers the major identification and classification of the main components of language proficiency, defined as formal knowledge resources, on which can be developed and made accurate and meaningful messages and the identification of capacity to use them. Plan aims to present the following, some parameters and categories as means for classification, which may prove useful in describing a linguistic content and as a basis for reflection. Practitioners who would prefer to use a different frame of reference should feel free to do as in this case as in others.

In this situation, they should identify the theory, tradition and practice that they adopt. We distinguish here:

- Lexical competence;
- Grammatical competence;
- Semantic competence;
- Phonological competence;
- Orthographic competence

4.2. Sociolinguistic competence

Sociolinguistic competence refers to knowledge and skills to improve the social dimension of language functioning. As we pointed out in connection with socio-cultural competence, and because the language is a social phenomenon, the essence from what is presented in the framework of reference, particularly as regards the socio-cultural field, could be considered. Here will be treated typically issues of the use of language have not been tackled elsewhere:

- Indicators of social relations;
- The rules of politeness;
- Expressions of popular wisdom;
- Differences in register;
- Dialect and accent.

4.3. Pragmatic competence

Pragmatic competence refers to knowledge by the user / student of the principles according to which messages are:

a. organized, structured and adapted (discursive competence);
b. used to perform communicative functions (functional competence);
c. segmented according to interactional and transactional scheme (schematic design a competence of conceived scheme).

5. Conclusions

We live in a world where the communication is an important condition of being. All people need communication and doesn’t matter which kind of communication is. We communicate in real or virtual world, oral or in written way, even the art is a way of communication.

In high education we need to teach communication through other subjects. In language education we try to teach Grammar, Phonology, orthographic but the main goal is communication. Because communicative competences should accomplish four main purposes including: expressing wants and needs, developing social closeness, exchanging information, and fulfilling social etiquette routines.
Our students have the possibility to find out the variety of Romanian language through the activities from the lessons keeping their character, wishes, and ideas. The modern education put accent on the student and not on the materials. It is more important for us to hear the opinion of a student in taught language about a subject that to hear the memorized explanation of a subject. The personality of student is another strong point in the lessons. An interactive lesson will be efficient in a group of creative and active students. This lesson will totally different in a class where the silent students predominate.

So, the efficient communication guides us to the success of teaching and learning of a language.

6. References


Sharing Practices that Lead to Academically Successful Habits
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Abstract

The authors of this paper were the lead team that initiated this Literacy/Technology project, entitled SPLASH (Sharing Practices that Lead to Academically Successful Habits). The dissemination project included a charter school, grades PreK-8 and two other schools in Westchester County New York: one K-8 school and one middle school. The overarching goal of the dissemination project was to provide effective and meaningful staff training with an emphasis on ELA strategies and data analysis to improve student performance and raise New York State ELA test scores in schools in need of improvement. The results of this project indicate that a successful professional development program needs to include collaboration of peer teachers while learning new skills.

1. Introduction

Research describes many professional development programs that support teachers implementing the new Common Core State Standards. It is generally accepted that the pace of change will be faster than previously experienced for many teachers and the stakes will be higher. All teachers will require time to gain the knowledge and skills to apply the new tools in real work settings, and the success of such efforts will be accelerated when work is conducted in collaboration with peers. With that in mind the authors applied and received a Charter School Dissemination Grant in New York State. The lead team for this project was the authors of this paper. The paper will provide a description of this successful three-year professional development program entitled SPLASH (Sharing Practices that Lead to Academically Successful Habits). During the paper presentation, the authors/presenters will share the successful outcomes of this professional development model with actual literacy lessons and data analysis strategies presented by the Grant participating teachers. This will be demonstrated by the various different technologies that were implemented during the project. It is hoped that other school districts that are looking to improve student achievement will replicate this effective professional development model.

2. Methodology

The project included a charter school, grades K-8 and two other schools in Westchester County New York: one K-8 school and one middle school, serving grades 7 and 8. The Charter School was selected because it had outperformed the other two schools on the New York State Assessments. The K-8 public school was designated a Restructuring Comprehensive School on the 2010-2011 New York State Report Card. Less than half of the fourth grade students met the standards on the ELA exam in 2010-2011. Additionally, the school did not meet their Annual Yearly Progress as determined by the New York State Education Department in English Language Arts. Lastly, the two public schools’ New York State Report Cards indicated that their students with disabilities and economically disadvantaged students performed poorly in English Language Arts (ELA).

The professional development model meshed both literacy specific content strategies and teacher collaboration through the use of technology. The specific content instruction was in text-based evidence, data analysis to inform instruction, academic vocabulary, making students accountable for their learning and collaborating/working with a teacher partner on the same grade level but from different school districts. The technological component allowed teachers to effectively collaborate remotely. This was most effective in facilitating the interschool grade level teacher partner communication of sharing best practices. The goals of the dissemination project were as follows:

Goal 1: Use a collaborative coaching model to support research-based literacy practices that will be implemented and assessed in partner classrooms; set up and organize an effective, supportive literacy environment for teaching and learning; and collaborate effectively as part of a professional team.

Activities that address goal:

Workshops and Professional Development sessions were provided during the program for staff at the charter school and partner schools. The Project Director and the Site Coordinator provided professional development in [1] collaborative
coaching model that links teacher and student learning. The collaborative coaching cycle included: 1) planning conversations, 2) coaching and gathering data, and 3) reflecting conversations.

As staff teams were established, the authors followed the recommendation set forth by [4] who stated that when establishing collaborative teams, the number of team participants should be restricted to two teachers, as it is too complex to do it well with more. The professional development (PD) team began building upon the working rapport that was guided by the work of [1] with the paired partner teams. This PD team was comprised of the project director and the site coordinator and outside literacy and data consultants when necessary. Specifically, the professional development focused on the following topics: literacy best practices such as interpreting words and phrases, summarizing, determining importance, word and question choice, text based evidence, academic vocabulary [3].

As part of the program, partner teachers shared literacy strategies in a myriad of ways. These included emails, journal entries, classroom visitations and reflections focused on selected chapters from the text, Close Reading and Writing From Sources [2]. Also, teachers watched Fisher and Frey best literacy practice videos and discussed the feasibility of the strategies to be implemented in their own classrooms. Classroom visitations were videotaped implementing the strategies taught during the PD sessions. This use of videotaping allowed both teachers and students to learn these important literacy skills and practices. During PD sessions there was time that allowed teacher partners to meet and discuss both successes and areas that may require assistance. As a follow-up to the partner meetings the PD team structured the site visitations to address their literacy classroom challenges.

Goal 2: Structure team/grade meetings that focus on student progress through the use of data. Use that data effectively to inform instruction (analyze data to determine student needs, chart student progress, make thoughtful programming decisions) and target measurable instructional outcomes with specific student needs in mind.

Activities that address the goal:

Workshops and professional development sessions were provided during the program for staff at all three schools. Topics included: analyzing data to determine student needs, charting student progress, and making thoughtful programming decisions. These initiatives were selected to specifically address those students with disabilities and of economically disadvantaged backgrounds that were identified in the two public schools’ NYS Report Card findings.

Each school developed and administered a mock ELA exam in year 1. Professional development was provided to teach teachers how to effectively analyze the data to determine student needs, chart student progress, and make thoughtful programming decisions. This goal was effectively achieved due to the fact that the data consultant effectively tutored the data managers individually. This was important because each school’s data manager had different levels of ability in using data effectively.

Goal 3: Teachers would become reflective in teaching approaches/practices – examining what worked and did not work and determining how to proceed.

Activities that address goal:

Grade level partner team meetings, both in person and virtually, provided time for teachers to:

- Dialogue and rehearse in-class demonstration lessons and reflect on their teaching approaches as the partners shared literacy best practices, e.g., inference, questioning techniques, effective word choice and academic vocabulary.
- Examine what worked and did not work and determine how to proceed.
- Initiated partner teacher dialogue bimonthly to share best literacy practices and other literacy issues.
- Initiated videotaping classroom partner teachers’ literacy lessons that were shared in PD sessions and reviewed with specific criteria based instruments that delineated the specific strategies that were addressed during previous PD sessions.
- Conduct classroom inter-visitations during which teachers observed colleagues from their partner schools. Staff met both before the observations to help observers understand the instructional context and after to debrief. Partners visited each other schools and observed the teaching of a goal specific lesson, i.e.: text-based evidence, close reading lessons, etc.
- Analyze data from the mock exams to problem-solve and make instructional planning adjustments
- Be guided how to become proficient in error analysis to better inform their instructional decision making
- Review formative assessment data to benchmark entire class and individual student progress.

Goal 4: Learn how to make students more accountable for their own learning. Activities that address goal: The PD team and a data consultant shared different models of effective progress monitoring during the professional development sessions. Additionally, teachers were
encouraged to create rubrics based on those models, use them with their students and bring examples to a future PD session. At that follow-up session, teachers shared several models and their students’ experiences that was a productive learning experience for all participants.

3. Discussion

The New York State Education Department hired an external evaluator to determine the success of the Dissemination Grant programs. When citing significant progress, the external evaluator reported that when SPLASH participants were asked about the extent to which participating in the Charter School Dissemination Grant had affected their skills as an educator in a number of diverse areas the respondents stated that they recognized improvements, particularly in their abilities to function as a member of a professional learning community after Year 1. The effect was even greater at the end of Year 2, where the biggest difference was seen in participants’ abilities to function as part of a data culture. Additionally, the staff provided some examples of how the SPLASH program had affected their schools. Below are direct quotes from the surveys:

- The grant brought the English, Social Studies and Reading department together as a collaborative team.
- I think it has made us more aware of our practices. Since we want to appear as a mentor school, we are more conscious of our instructional and databased decisions.
- We are more data focused now, working collaboratively and spreading the new practices into other subjects.

Another set of evaluative questions asked SPLASH participants to give examples of how they were doing things differently as a result of applying the literacy strategies:

- I have helped students to use close reading strategies.
- I rearranged my lessons to include stronger academic vocabulary activities.
- Some educators are using the literacy strategies outside their regular classroom setting:
- Incorporating more close reading strategies.
- I have shared strategies with other teachers, and students who are not in my classroom with the hopes of providing understanding.
- It has helped me to become a better researcher.

4. Conclusion

The findings suggest that this professional development model was successful due to a three prong specifically targeted approach: collaborative coaching, targeted literacy strategies/ classroom practices, and interschool classroom visitations. The professional development surveys conducted by the external evaluator support the findings and confirm future replication of this project. This professional development model is unique in that it combined direct explicit literacy content, data analysis instruction and technological activities with teacher partners from different school districts. The results were overwhelmingly positive and indicate that this is a model that should be replicated in both public and private schools that want to ensure teacher quality and maximize student achievement globally.

5. References


Teachers’ Role in Motivating Language Learners: The Case of Arab Teachers of English in Israel

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This qualitative, exploratory study examines the different ways in which teachers can affect learners’ motivation, from the perspectives of both teachers and students. The participants were 20 Arab learners of English (aged 14-15) and five of their teachers.

The data were collected using 15-40 minute semi-structured interviews. Analysis of the data reveals that teachers’ positively perceived behaviours can trigger learners’ motivation, sustain it and help students cope with the demotivating experiences they undergo. Teachers can do so through projecting enthusiasm in what they are doing, offering supportive feedback, increasing learners’ autonomy, providing challenging yet enjoyable tasks, being close to their students, and reducing students’ anxiety. On the other hand, apathetic teachers and their negatively perceived behaviors and traits can diminish and even eliminate students’ motivation.

The interviews with the teachers confirm the above findings. However, they draw attention to the limitation of the role that they can play. The teacher cite a number of problems that limit their influence: a high percentage of indifferent and weak students, congested classes, inability to deal with heterogeneous classes, load of work, lack of pedagogical resources, poor physical conditions at schools and the existence of many distracting elements that are enhanced by the rapid technological and social developments.

Based on the results of this study, it is recommended to make teachers more cognizant of the behaviours that affect their students’ motivation. They should also be equipped with practical tools that can help them cope with those factors that limit their abilities to motivate their students.
Session 14: Cross-disciplinary Subjects in Education

Immigrants Becoming Canadian Teachers
(Authors: Claire Duchesne, France Gravelle, Nathalie Gagnon)

Student Readiness - A Comparison between Student and Lecturer Perspectives
(Authors: Nuraan Agherdien, Michelle Mey)

Exploring Ethical Business Culture in Turkey: Implications for Leadership
(Authors: Ahmet Coskun, Mesut Akdere)

Different Histories, Different Trajectories: Comparing Religious Education in the Republic of Ireland and Religion in Education in the United States
(Author: Gregory J. Fritzberg)
Immigrants Becoming Canadian Teachers

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Abstract

While Canada is a welcoming place for many new arrivals, the latter nevertheless run up against roadblocks when it comes to having their foreign academic credentials and professional experience recognized by Canadian employers and professional orders[1]. As a result, many of them are forced to switch career paths. Several of these immigrants turn toward teaching, subsequently enrolling in faculties and departments of education at Canadian universities to earn the credentials they need to practice this profession[2]. The French-language school boards in Ontario, specifically in the Ottawa and Toronto areas, welcome these new teachers once they have completed their training. However, their professional integration into these schools is fraught with challenges related to their own socio professional backgrounds as well as their personal beliefs about teaching and learning [3][4]. This is the case with the participants in our research study, who in fact experienced many challenges related to fitting in at their new schools. Semi-structured interviews were conducted with twelve immigrant teachers, six principals, and four teacher-mentors working at an Ottawa-area school board. This paper will address the difficulties encountered by these new teachers, as well as the strategies they employed and those proposed by the school administration to support and ease their transition to teaching.

References


Student Readiness - A Comparison between Student and Lecturer Perspectives

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Abstract

Student readiness has become a global topic of interest amongst various institutions, professionals and governments. This paper examines both student and lecturer perspectives on the factors and current interventions impacting on student readiness and retention in higher education. The study was conducted at a single comprehensive university, namely Nelson Mandela Metropolitan University (NMMU), in Port Elizabeth, South Africa. In addition, it consisted of one student cohort comprising 117 full-time first-year Human Resource Management students and included seven academic staff members who teach these students. The study is qualitative in nature and key themes were identified. Furthermore, the factors impacting on success comprise of self-management, motivation, teaching, resource availability, engagement, course information and so forth. Lastly, NMMU has multiple interventions aimed at improving the first-year experience and success rates. These include orientation, summer and winter schools, workshops, academic advisors, lecturer interventions and additional programmes. The purpose of this paper is to identify the alignment between student and lecturer expectations concerning student readiness and the impact this has on student success.

1. Introduction

Various factors contribute to student readiness and success. These factors impact on a learner’s ability to prepare and succeed in higher education and include preparation, course and student fit, academic factors, psychological and social adjustment, financial support, personal circumstance, student engagement and support structures.

To ensure student readiness and success, interventions have been implemented by institutions of higher learning. Hence, the rationale for this paper is to draw comparisons between the theory and the practical application of the interventions being implemented.

2. Factors impacting on readiness and success in higher education

A variety of factors contribute towards student readiness and success in higher education. Preparation commences at secondary school and involves the learner, parents and teachers. This implies that students need to take ownership of their studies while receiving support from their parents. The role of their parents is therefore to ensure that homework is completed and submitted timeously and to strengthen their involvement in school activities. The teacher on the other hand needs to identify possible areas for improvement and more importantly align the curriculum to that of higher education institutions. In doing so, students are more prepared for their studies. A fundamental factor to student readiness and success is academic course selection. Successful students have a high level of career maturity which enables them to select a field of study that is aligned with their capabilities [1]. Furthermore, this assumes that students have researched different options and gained insight into the possibilities available to them [2]. Academic factors include aspects such as study methods, reading and writing ability, self-management, subject knowledge and expertise. A successful student takes ownership of his or her studies; is able to identify and find solutions to problems that may occur and who has the necessary literacy skills required at a higher level of learning [1]. Psychological and social adjustment refers to mental health and wellbeing as well as the ability to integrate and interact with their peers effectively without being influenced [3]. Successful students are therefore emotionally, physically and mentally prepared for higher education. In 2015 and still ongoing, South African higher education institutions
have faced challenges relating to student finance. Institutions and government have placed a hold on an increase in study fees and have implemented support for those who satisfy the academic requirements but due to financial constraints cannot attend university. Personal circumstances have a debilitating effect on students – their success and their wellbeing. Outside of their academic career, many students are confronted with concerns which may be a hindrance to their success [4]. The onus is on the institution to create awareness and on students to utilise the support services offered to assist them in the transition from secondary school to higher education. Students who have higher levels of engagement are able to enhance their learning experience which positively influences their overall performance [5]. Thus, students who are actively engaged in and out of the classroom, attend all their lectures, participate in class discussions and interact with their lecturers and peers are more likely to succeed in higher education. Lastly, support from family and the institution are vital to student success. As a result, institutions have multiple support structures in place which are highlighted later in the paper [6]. These are considered to be essential as they assist in the development of students and allow them to reach their full potential. Hence, if students have adequate support from family, peers, lecturers and the institution their level of readiness and success increases. In future, for a student to be adequately prepared and to succeed in higher education, the extent to which these factors apply to students need to be considered.

3. Current interventions used to address readiness and success for higher education

Higher education institutions across South Africa and abroad have implemented interventions aimed at addressing the identified factors. The following are current interventions used by various institutions to enhance readiness and success.

Detailed orientation programmes are utilised to integrate first-time students into the academic and social planes of university. These focus on meeting the faculty and include short sessions that cover academic skills, email and internet access, support services, time management, plagiarism, budgeting and so forth [7]. Many institutions make use of an extended programme which functions as a bridging course to students who do not meet the full requirements of an institution. Their first year is therefore completed over two years [8]. Access assessments and research are often conducted at institutions and use developmental approaches that allow students to reach their full potential. These centres communicate directly with the deans, directors and heads of departments and offer interventions based on the results obtained [9]. Peer helping has become common practice as the assumption is that students relate better to other students. Peer helpers are trained to provide guidance and support to these students. Student counselling is integral to university functioning [9]. Qualified counsellors are employed to provide students with personal and professional development [9]. In addition, blended learning is used. This relatively new form of instruction makes use of different types of media and traditional modes of delivery in the classroom with the aim of maximising learning [10]. Face to face tutorials are offered for most subjects whereby students are assisted to better their understanding of the course content. Mentoring programmes are popular amongst departments. The aim of these programmes is to match junior students with more senior students who have completed the course or who are at a higher level. Lastly, there are summer and winter schools. These ‘schools’ were designed for students who have not met the requirements for a specific module and to increase the overall throughput and success rates at universities [11]. The following section explains the research methodology used in this paper.

4. Research methodology

4.1 Research design

This study was sub-divided into three parts, a theoretical foundation, an empirical study and data analysis. Furthermore, an open-ended questionnaire was developed as the data collection instrument.

4.2 Sample and sampling technique

The sample for this study comprised 117 first-year Human Resource Management students at NMMU, Port Elizabeth, South Africa. A convenience sampling method was used as the students were easily accessible [12]. In addition, seven lecturers who teach the first-year HRM students were involved.

4.3 Instrument

A qualitative approach was used where students and staff measured their self-perception of the
factors and interventions required to succeed in higher education. Furthermore, reliability was tested by means of keeping detailed notes [13]. For the purpose of validating the study, the open-ended questionnaires were emailed to the staff and the responses were kept verbatim [13].

4.4 Data analysis

The results were analysed by using informal qualitative methods. This suggests that the information was reduced by identifying frequent patterns [14]. Also, a scaling approach was used whereby the researcher decided on the information to be used. Factors outside of the parameter of the study were omitted.

5. Results and discussion

Key themes concerning the factors and interventions influencing success as per lecturer and student responses are outlined and discussed below:

5.1 Factors impacting on student readiness and success

The various factors impacting on readiness and success in higher education have been discussed in detail. Table 1 reflects the responses and perceptions of the lecturers and students in relation to the factors that may hinder or promote readiness and success.

Table 1. Responses related to the factors impacting on readiness and success

<table>
<thead>
<tr>
<th>Lecturer responses</th>
<th>Student responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Student’s engagement in studies – studying diligently and reflecting in a disciplined way on each study area and content learnt. Checking up with lecturers for guidance, doing all individual and group assignments, participating wholesomely in class debates and discussions, participating in societies and other extra-mural”</td>
<td>“Always attend classes and make sure you understand everything that is being taught. Always prepare yourself whenever you come for a class. Always seek assistance whenever you see yourself struggling with a certain module or work.”</td>
</tr>
</tbody>
</table>

On analysing the results, it was established that there was an overlap between the theory and the lecturer and student responses in terms of the factors affecting student readiness and success in higher education. Moreover, the three main factors that emerged from the study are academic, social and personal components. Academic components relate to a student and lecturer’s ability and proficiency which include aspects such as quality teaching, providing guidance, selecting the right course, reading and writing ability, study techniques, preparation and time management. Social components refer to students’ ability to adapt to their surroundings. Consideration should therefore be given to affiliation needs such as support from peers, parents, lecturers and the institution; interpersonal relations...
and effective communication. Finally, the personal component focuses on the subjective experiences or challenges students may face and includes the level of motivation and resource availability.

It should be noted that motivation is an important factor in determining student success. Additionally, other significant aspects emphasised were affiliation and support.

5.2 Interventions used to prepare students to succeed in higher education

Institutions, such as NMMU have implemented various interventions aimed at improving readiness and success for higher learning. Table 2 reflects both lecturer and student responses in relation to the interventions that assist students in their transition to higher education.

Table 2. Responses related to the current interventions used to address readiness and success

<table>
<thead>
<tr>
<th>Lecturer responses</th>
<th>Student responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>“student selection process, orientation – introduction to expectations and resource, computer training for first years, overview of study skills in study guide, on-going advising/counselling/caring for first years”</td>
<td>“Receiving career counselling or advice from teachers or lecturers from a specific university was an important thing to receive while I was still in high school. People coming from different universities in SA have been visiting my high school during 2012, when I was doing grade 12 and application forms for other universities out of the Eastern Cape were provided for us. Orientation at NMMU was an awesome experience especially the how2buddies, very kind and helpful people keep up the good work.”</td>
</tr>
<tr>
<td>“Orientation programmes and the linking up of”</td>
<td>“I enjoyed the open day/orientation days that the tertiary</td>
</tr>
</tbody>
</table>

new students to senior students – the buddy system. Peer helping – senior students acts as ‘lecturers’ to first-year students. Identification of struggling students and referrals to student advisor. Winter schools for struggling students. Health clinic support. Student counselling.”

“Summer and winter schools are good for allowing students to consolidate learning, or fill the learning gaps that exist. Lecturer interventions – consultations regarding student progress – are key (where manageable) to encouraging students to improve. Institutional programmes such as SI are important to close the gap between school and university learning.”

“There was an orientation the weekend before registration. I took an aptitude test before I was accepted in the university.”

This section of the questionnaire focussed on assessing the interventions currently in place at NMMU.

Based on both student and lecturer opinions, the main themes identified were orientation, student support services and lecturer interventions. The orientation programme is considered a fundamental part of preparing students for their tertiary studies. In this instance it includes the ‘how2buddy’ and peer helping systems. Students are introduced to their lecturers and course and attend additional workshops. The ‘how2buddy’ and peer helping systems involve senior students assisting first-year students with relevant information about the course,
the institution, and who after orientation, continues to provide support. Moreover, according to the student responses the ‘how2buddy’ system made the transition from secondary school to higher education easier as new students were able to relate better to senior students. Open days were also used to provide students with valuable information with regard to the courses and entry requirements of the various qualifications on offer. Student support services such as the Centre for Access, Assessment and Research (CAAR), the Centre for Teaching, Learning and Media (CTLM) and the Student Counselling, Career and Development Centre were further highlighted. It was implied that the guidance counsellors on and off campus provided the support and direction needed in deciding on a career.

The factors and the interventions used to prepare students have been identified and can be used as predictors of readiness and success for higher education.

7. Conclusion

As mentioned in the introduction, this paper identified through the use of qualitative methods the factors contributing to readiness and success and the current interventions NMMU has implemented to promote success. For students to be equipped for higher education the degree to which these factors relate to them must be considered.

Lecturers and students’ self-perception of the factors and the interventions were aligned, which implies that both have their own set of expectations, and if met, will lead to success. In addition to these factors, institutional conditions must be conducive to learning for students to succeed. Institutions can do this by implementing various developmental opportunities with the aim of promoting student readiness and success for higher education.

8. Recommendations

The following serves as recommendations for both secondary schools and higher education institutions:

- Open day activities and a detailed orientation programme should be implemented to enable a better transition to university, thus contributing to student success.
- Developmental programmes should be an integral part of university life. These include language, writing, statistical, computer and/or other workshops centred on student success.
- Guidance counsellors should be employed at secondary school level which will enable students to make the career choice that suits their interests and abilities which will have a positive impact on student success.

- Secondary school curricula should be aligned with university curricula and expectations.
- Departments should make use of academic advisors who are able to identify and monitor ‘at risk’ students.
- Mentoring should be used as a tool to promote personal and professional development.
- Summer and winter schools should be used as tools to promote the mastery of key content knowledge which leads to success and improved throughput rates.

9. Reference list


Exploring Ethical Business Culture in Turkey: Implications for Leadership

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Abstract

In a rapidly changing global market, it has become increasingly important and vital for the survival of the organization to be competitive and adaptive. In order to achieve this, organizational leadership needs better understanding of the business cultures in which their companies are operating. One of the challenges is the lack of literature on ethical business cultures in emerging markets. This is also the case for Turkey, an emerging market, which is considered part of the CIVETS initiative. The paper provides an analysis of ethical business culture in Turkey and presents challenges of globalization and business development. Implications for leadership are also discussed.

1. Introduction

The advancement in information and transportation technologies has led to the rapid growth in global economy. Global investment is becoming even more crucial for societies as well as countries, of which governments develop and adopt national policies to attract and retain investors and businesses. In this environment, emerging markets are becoming increasingly attractive locations to do business. Yet, beside their promising attributes, these markets often present significant ethical challenges as a result of being emerging markets in which institutionalization and business practice is still in the process of maturation (Akdere, 2015). Coupled with this process is the culture and norms of the particular national culture of the emerging markets. Among some of these challenges are ethical perceptions; approaches and philosophies; decision making styles; business attitudes, intentions assumptions, and behaviors; and cultural, legal and institutional infrastructure of emerging markets.

According to various economics and financial classifications (such as of The World Bank, IMF, OECD, S&P, JPMorgan, Goldman Sachs, HSBC, Bloomberg, Forbes, MSCI, and FTSE among others) Turkey is one of the most attractive emerging markets for investors. Hence, understanding the ethical business culture in Turkey would provide essential foundation for understanding Turkish economy.

Understanding differences between corresponding parties in business affairs and transactions may result in a better business. In this paper, ethical business culture of Turkey, as an emerging market, will be explored using the Integrative Social contracts Theory (ISCT) by Donaldson and Dunfee [41]. Donaldson and Dunfee [41] combined two approaches towards business ethics, i.e. normative and empirical ones. Normative approach to business ethics, to some degree, deals with rational and universal prescriptions by defining “ought” propositions. On the other hand, empirical approach concerns with finding out the real situations, or "is" conditions, of business life, considering ethical problems. Adopting the ISCT framework, we presuppose that both approaches are relevant and necessary for understanding of ethical business cultures in emerging markets. While being tied to universal ethical values as a result of globalization, Turkey has some local differences because of its own realities.

According to ISCT, ethical sphere of global business is mainly comprised of two components: hypernorms and authentic norms. Hypernorms connote fundamental ethical standards, which all societies abide by, e.g. being just and honest, or avoiding deceit. Authentic norms, while not violating hypernorms, reveal the shared values of a particular community, e.g. societies, industries or even companies. As Donaldson and Dunfee [41] argued that “the existence of authentic ethical norms can be determined by empirical tests of ethical attitudes and behaviors in particular communities”. Thus, we will also refer to findings of recent empirical studies in order to further discuss authentic ethical norms in Turkish business culture.

2. Historical Background

Geographically, historically and culturally, Turkey has been a bridge between Asia and Europe. Having over 75 million of population, which is predominantly (99%) Muslim, Turkey is a democratic and a secular country as well. As a country, it has over a century long transformation history, which most probably had a profound impact on its ethical culture. In order to create a novel nation, founders of the new state, attempted to transform the culture of the people radically and which was implemented through a secularization of
all governmental, including the military, and civic institutions in which all remnants of the Ottoman culture and way of life.

In addition to the radical transformations in cultural and institutional areas, Turkey has continually attempted to implement different governmental policies for the purpose of economic development and societal growth since its establishment. Creating a national bourgeoisie has been the core motivator for developmentalist efforts with this regard [9]. Such policy and its implementation method not only failed to address underdevelopment problem, but also brought up some chronic ethical problems and practices along with it including tax evasion, shadow economy, exploitation of labor, nepotism, partial incentives and protections, low quality goods and services production [15]. Moreover, Turkey has experienced a total of 5 military coups and 11 economic crises over the last nine decades since 1950s. Research by Ernst and Young [39] shows that during both political and economic crisis times, ethical culture of business life is adversely impacted. As a result, such turmoil and uncertainty in national economy and politics of Turkey over the last 50 years had most probably a considerable negative affect, including an ethical business environment as well as a vibrant national economy and marketplace.

3. International Factors

According to the ISCT, international factors surrounding the ecosystem of Turkish business environment set the hypernorms of ethical business culture in concordance with the global integration level of the Turkish economy.

Since becoming an open market economy in 1980, Turkey has focused to strengthen its economic ties with other countries. While total exports/GDP of Turkey was 5.2 per cent in 1980, it was reported to be 25.6 per cent in 2013. Similarly, while total imports/GDP of Turkey was 11.9 per cent in 2003, it was 32.2 percent in 2013 [37]. In 1995, Turkey signed a customs union agreement with the European Union (EU) to enhance mutual trading relationships. As a result, the EU countries have been the largest market for Turkish products and services, and its share in Turkey's total exports is nearly 45 per cent. This strong trade relationship enforces Turkish companies to pay closer attention to ethical concerns and abide by product and service quality standards and policies of the EU (World Bank, 2014).

Furthermore, Turkey has acquired $14.6 billion of foreign direct investment (FDI) on a yearly average, and the number of companies with international capital has been tripled from 11,700 to 36,500 within last ten years. In fact, this may be considered a good indicator for business ethics, at least from a corporate social responsibility (CSR) perspective. Since there is a robust relationship between CSR development level and globally openness of an economy [19]. In addition, multinational companies (MNCs) generally report to have a more developed CSR culture and they might play a change agent role for the Turkish economy.

But, in terms of the ease of doing business in Turkey- ranked 69th still - does not present an attractive level for MNCs for Turkey [37].

Turkey has been trying to enter the EU since 1987, and it was officially recognized as a candidate country for full accession to membership in 1999. Since then, fourteen assessment papers opened to align Turkey's laws and institutions to the EU standards. Most of these papers are connected with business ethics; such as company law, intellectual property law, taxation, environment and climate change, consumer and health protection, fundamental rights etc. Moreover, Turkey has accepted some crucial conventions and protocols in recent years. It has ratified the United Nations Framework Convention on Climate Change in 2004; accepted the Kyoto Protocol in 2009; and signed the United Nations (UN) Convention Against Corruption in 2006. Also, being a member of International Labor Organization (ILO) since 1932, Turkey has ratified only 57 of 189 ILO conventions (54th among 190 countries), and 53 of them are mandatory (ILO, 2015). Turkey is considered to have “a global perspective on economic and management development” [2]; and it is “generally more accustomed to dealing with other cultures in both business and social contexts” (p. 464). It is obvious that export-led growth strategy, economic integration with global economy and EU membership process facilitate Turkish business environment to internalize ethical hypernorms, but there is still a long way to go for the Turkish economy and businesses for adopting and functioning within the international norms and standards associated with business ethics.

4. CSR Culture

There is a strong philanthropy tradition in Turkey. Charity behavior and foundation (waqf) tradition have been essential parts of Muslim Turkish culture through the ages. In fact, apart from their benefits, philanthropic activities has satisfied the visible needs of society and diminished the possibility of a broader understanding of CSR. But, in recent years, Turkish business organizations began to pay attention to the triple Ps (bottom line - people, planet, and profit) and support social projects in different areas such as education, environmental protection, and disadvantaged groups [40].

There are some structural reasons of lack of CSR awareness in Turkey. For instance, 95 per cent of Turkish companies, and almost half of the publicly traded ones are family-owned or family-managed.
businesses. According to Robertson [19], predominantly family-ownership structure of Turkish economy is one of the reasons that lead Turkish CSR model to become mostly comprised of philanthropic activities. She argued that with a more intensive market capitalization, companies would pay more attention to the expectations of stakeholders due to increasing pressures for being a socially responsible organization. Supporting this argument, there are two indexes operating in Istanbul Stock Exchange Market (BIST) to promote ethical business culture in publicly traded companies. One of them is corporate governance index (XKURY), which has been available since 2007; and the other one is sustainability index (XUSR), which was launched in November 2014.

5. Religion and Its Impact on Turkish Society

Turkey has a 99 per cent Muslim population and most of the Muslim citizens are sensitive about their religious practices. For example, over 42 per cent regularly perform their five daily prayers, and over 83 per cent of them fast during the entire month of Ramadan, the holy month of Islam [35]. Although Turkish society has long been subject to a harsh, and, at times brutal, secularization process, religion – Islam - has still powerful impacts on their values both personal and societal. As Uygur [22] mentioned, even “most secular people ... consider themselves Muslim, and religion is not completely excluded from their lives”. However, the relationship between religion, especially values which are derived from a religious belief, and ethical culture in business life is a larger subject of debate. Some scholars assert that there is not a significant relationship; on the other hand, some others claim that religiosity affects the ethical values in business life [23].

In fact, the value system that Islam offers has a comprehensive scope, which encompasses every aspects of social life including business activities. There are several verses from the Qur’an (the holy book of Islam) and the hadith (the sayings) of the Prophet Muhammad (Peace Be Upon Him - PBUH) that mention the virtue and importance of doing ethical business [3]. The Qur’an has several verses which prohibit conducting unjust, unfair, and unethical business and clearly state the ramifications for doing so.

In verse An-Nisa - Women: 58, the Holy Qur’an says “God commands you (people) to return things entrusted to you to their rightful owners, and, if you judge between people, to do so with justice: God’s instructions to you are excellent, for He hears and sees everything. Similarly, in Al-Rahman - The Lord of Mercy (7-8), Allah (God) says “He has set the balance so that you may not exceed in the balance: weigh with justice and do not fall short in the balance. In another verse, Muslims are warned about improperly and deceivingly conducting business: “Woe to those who give short measure, who demand of other people full measure for themselves, but when it is they who weigh or measure for others give less than they should” (Al-Mutaffifin - Those Who Give Short Measure: 1-3). And, in a different verse Allah reminds the believers as follows: “You who believe, do not wrongfully consume each other's wealth but trade by mutual consent. Do not kill each other, for God is merciful to you” (An-Nisa - Women: 29).

In a similar vein, the Prophet Muhammad (PBUH) was regarded as being a highly trustworthy merchant by the society even prior to becoming the Prophet; thus, considered a role model for Muslim businessmen. It is narrated on the authority of Abu Huraira that the Messenger of Allah (PBUH) happened to pass by a heap of eatables (corn). He thrust his hand in that (heap) and his fingers were moistened. He said to the owner of that heap of eatables (corn): What is this? He replied: Messenger of Allah, these have been drenched by rainfall. He (the Holy Prophet) remarked: Why did you not place this (the drenched part of the heap) over other eatables so that the people could see it? He who deceives is not of me (is not my follower). (The Hadiths, Muslim: The Book of Faith-43). In another hadith, The Prophet (PBUH) stated that “The truthful, trustworthy merchant is with the Prophets, the truthful, and the martyrs” (The Hadiths, Tirmidhi: The Book of Business-4). The Prophet Muhammad also warns Muslim business people about the importance of fully paying employees their dues as soon as they complete the work: “Give the worker his wages before his sweat dries” (The Hadiths, Ibn Majah: The Papers on Pawnning-4).

As evident from the strong emphasis on ethical business culture in Islam, which has been the most dominant factor in Turkish culture since Turks became Muslims, one might easily argue that there would be a strong relationship between religion and ethical business culture in Turkey. Nevertheless, there is another view in the literature that Turkish people tend to separate religious and business values. According to this view, along with the secularization and globalization experience, Turkish businessmen, even highly devout ones, discriminate religious values and business practice in a pragmatic way [22]. The belief that "business world has its own rules" is more solid and strong in Turkish business mindset in comparison to other countries, even the U.S.A. [20]. However, respondents’ explicit statements about the lack of relationship between their religious beliefs and ethical business culture do not necessarily mean that there is by no means a real influence of religion to their mindset and inherent culture that determines much of their behavior. Thus, at a sub-conscious
level, they may very well behave and act as business people under the Islamic framework—as it is dominant in their culture and very much mixed with cultural forms. Islamic moral system praises many important ethical values in business life such as being honest, trustworthy, ethical, fair, and hardworking; and condemns unethical behaviors including deceiving, lying, cheating, manipulating, bribing, corruption, stealing, and injustice. Studies disclose that these very same values are shared in Turkish business culture as well [12]. So, even if people do not recognize, there might still be an implicit ‘moral filter’ of Islamic values embedded within the Turkish business life [18]. For example, Menguç [17] revealed that when making ethical decisions, Turkish business people are using deontological ethical approach more than they use teleological evaluations. This might be a reflection of an Islamic rule that the ethical value of intentions, which people have, are much more important than deeds. In addition, it is important to note that Islam encourages its followers not to reveal and make known their charitable deeds or acts, which is a unique characteristics of CSR in emerging countries [19]. Thus, Turkish businesses and companies are expected to be less prone to advertise their CSR activities as compared to their Western counterparts. Indeed, public disclosure and reporting is considered to be one of the weakest sides of CSR engagement in Turkey [40].

Based a non-indigenous model, existing literature argue that Turkish people have a significantly greater degree of Protestant work ethics than Protestant people in Britain and the US [26]. In these studies, Turkish people were found more strongly believing that ‘hard work brings success’; they have a higher level of internal locus of control; and the endorsement tendency of Turkish people towards money and time saving is more salient in comparison to Catholics and Protestants. Actually, Turkish business people, especially pious ones, possess these values (e.g. hardworking, honesty, frugality) attributing them to Islamic ethics; whereas, rather than being merely Islamic, they are globally accepted values [22].

6. Ethical Culture in Organizations

Ethical culture in organizations is comprised of formal and informal cultural systems. Formal cultural systems include factors such as “policies (e.g., codes of ethics), leadership, authority structures, reward systems, and training programs”; whereas informal cultural systems refer to “peer behavior and ethical norms” (Trevino, Butterfield, & McCabe, 1998, 451-452). There have been developments in ethical culture of Turkish business organizations considering both systems mostly due to the change of expectations in the local and global markets. “Societal expectations about what a corporation can and cannot do as well as should and should not do play a role in shaping CSR culture and framework [19] in organizations. Based on this approach, stakeholder perspective is becoming more comprehensive in business culture of Turkey; and, companies pay closer attention to the interactions with their stakeholders. Turkish business organizations are now dealing with the rising pressure of civil society on their activities, particularly related to human rights, child labor, and working conditions [7].

Another influential factor is ‘trust’. According to the World Values Survey [33], Turkish people have one of the least trust level (report as 11.6 per cent) to other people. Public trust level to business organizations is considerably low in Turkey as well (GİK, 2013). Particularly, in the last three years, Turkish citizens has indicated that ‘being just and transparent’ has been the most important feature of business organizations for trust and reputation (Reputation Management Institute, 2013). Hence, companies began to recognize ‘trust’ and ‘reputation’ as a crucial value in their assets and pay attention to business ethics in order to increase their reputation level. Therefore, the number of Turkish business organizations having codes of ethics has been increasing. For instance, while only 23.3 per cent of 500 largest companies in Turkey had reported to have a code of ethics in 2007 [9], this ratio increased to 36.4 per cent in 2012 [25], and 53.3 per cent in publicly-traded companies [16]. Although longitudinal studies showed that ethics training has a positive influence on organizational ethical culture [24], according to a field research, only 25 per cent of business organizations in Turkey had ethics training program [14].

One of the most important ethical challenges of business culture in Turkey is the perceived notion of ethics and law which are regarded interchangeably by the Turkish businesses and organizations [5]. Yet, there are so many gray areas in business life, which are not clarified by detailed laws, and this lack of clarification makes ethical abuses more possible, especially against the less powerful or effective parties in the deal. For example, while Turkish companies consider customer satisfaction and high quality production as most important values; supplier satisfaction and union relationships have the lowest importance [11]. In an empirical study of Ekin and Tezölmaz [10], while Turkish managers declared that environmental issues, insider trading, and bribery/inconvenient gifts are the most important unethical problems, they see longer breaks, expense account abuses, and getting information about rival companies and competitors as the lesser important unethical behaviors.
7. Implications for Leadership in a Global Economy

Many researches in the business ethics field reveal that neither ignoring global ethical standards nor neglecting diverse local features of the business cultures in Turkey can provide an accurate holistic picture of ethical business cultures. Rather, international investors, firm owners, and managers should keep in mind the unique characteristics of ethical business culture of the particular country while stressing on and not violating global ethical standards. Furthermore, to establish a strong infrastructure of trust among local and international business actors, governments should effectively identify legal requirements and strengthen associated governmental and public institutions, ensure them properly work, and eliminate unnecessary red tape applications and deterrent costs such as high taxes in order to encourage the business actors to abide by both the ethical guidelines and legal procedures.

There is an obvious and vital necessity to broaden the business ethics education and research capacities in Turkish universities. Based on the research output and academic programs, there is clearly a need for Turkish higher educational institutions to increase their focus on ethical business practices through sound and indigenous research approaches and establishing both academic programs and research centers. Equally important is the role of Turkish NGOs in terms advocating ethical business culture. There is a great need for Turkish NGOs to be more prevalent and focused to enlighten the public as consumers and positively create pressure and proactively influence companies.

Enhancements in international trade and investment opportunities may help Turkish businesses and companies improve and flourish their ethical business culture, both from cooperation and competition facets. Thus, integration of Turkish economy to global markets as well as the capacity and capability of Turkish businesses should be not only be maintained and supported but also be expanded and enhanced. Turkish businesses may consider shifting their culture towards more ethical business culture and practices while promoting ethical leadership. Furthermore, instead of fostering a rigid value-based culture (solely focused on financial indicators), they should recognize values-based culture (focused on ethical indicators) in which ethical behavior as a performance indicator should take place in performance management system and CSR should be seen as an essential means to reach organizational goals.

8. Conclusion

Turkish cultural characteristics imply that employees mostly prefer obeying the orders of their supervisors or confirming to the group norms, and not violating harmony in the workplace. Thus, in Turkish business life, ethical leadership occurs as one of the most powerful determining factor of ethical business culture at any organization. Therefore, organizational leadership should deliberately attempt to build an ethical culture; and, to do so, they should ‘walk the talk’. Undoubtedly, all their stakeholders including customers and employees, will not only appreciate their ethical leadership practices but also establish an understanding for best practices in ethical business culture for long term sustainability and prosperity.

9. References


Different Histories, Different Trajectories: Comparing Religious Education in the Republic of Ireland and Religion in Education in the United States

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Abstract

Early provision of popular education in the American colonies was almost completely religiously motivated and carried out by religious institutions. In the colonies that now form New England, the Puritan communities formed by Protestant minorities leaving England were mainly Calvinist and Virginia and the southern colonies were Anglican – and each of these regions desired to further their religious traditions by passing them on to their children through a mix of tax-supported and privately-funded schools. In America’s middle colonies such as New York and Pennsylvania, however, denominational schooling was the norm due to the greater diversity of religious immigrants. Regarding the latter, democratic and educational theorist- and signer of the Declaration of Independence - Benjamin Rush, was the chief proponent of church parishes handling American education privately, in accord with their particular ethnic and religious orientation.

The original denominational norm in America’s middle colonies is similar to the organization of schooling in the Republic of Ireland, although until recently in Ireland two religious bodies dominated the landscape completely – Catholics and Protestants (speaking categorically) - and within this dual sponsorship a similarly pronounced majority existed in favor of Catholic parishes and schools. With immigration impacting the Republic of Ireland just as it has across the British Isles and most European nations, the equity and legitimacy of Ireland’s church-based model of popular education requires adaptation to accommodate children of non-Western origins, and this challenge is augmented by the simultaneous task to make church-related schooling experiences – no matter how liberalized - relevant to families with increasingly secular views.

Returning to the American context, the vast majority of American schoolchildren now attend public schools in which religious instruction has to be very general and holds no privileged place relative to non-theistic or other transcendental views. In this context, understanding how best to provide any instruction in religion for the purposes of broad liberal education is challenging, and we will examine the contemporary Irish multi-denominational effort as a way of broadening awareness of the available options in the United States. Of particular interest in the Irish context is the contemporary Educate Together National Schools movement that seeks to honor non-Catholic and non-Protestant citizens – whether migrants or those from families that subscribe to no religious orientation – by creating inclusive curriculum that respects the range of epistemological viewpoints represented across the Republic.

Even the very week prior to the deadline for submissions for the 2016 Ireland International Conference on Education, Educate Together is advocating for three new schools in Dublin. My hope as a presenter is to utilize this time and venue to compare and contrast the multi-denominational Educate Together effort with similarly contemporary American efforts of ecumenically-minded Protestant, Catholic, Jewish, Muslim, and non-Abrahamic, non monotheistic religious leaders to liberally educate children in public, state-funded schools. In the United States, these efforts are often misunderstood as constitutionally unfeasible, but in truth are avoided due to testing and accountability pressures and administrators’ and teachers’ unwillingness to risk informal and formal legal complaints by parents. In short, we will compare an historically faith-based,
privatized (almost universally) popular education system in the Republic of Ireland that must open up to "other" viewpoints with what became a public (almost universally) popular education system in the United States that must also counter ever-increasing secularization and ethnic and religious diversity. Both countries seek a religious education element of the curriculum that is characterized by the kind of vitality, open-mindedness, and inclusiveness that children require in order to flourish academically, with significant consequences for their democratic maturity.
Session 15: Teaching Methodologies, Curriculum, Research and Development

Reading Rocks: An Approach to Support Vulnerable Readers
(Author: John McNamara)

Impacts of Abusive Supervision in Clinical Nursing Education
(Author: Bell Fung Pui Ling)

Motivation and Learning of Portuguese Language for Students in School Failure: A Case Study in Rabo de Peixe, Azores, Portugal
(Authors: Sandra Patrícia Pereira, Tereza Ventura)

Principles of Online Instructional Design
(Author: Li-Ling Chen)
Reading Rocks: An Approach to Support Vulnerable Readers

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Abstract

This paper explores Reading Rocks, a literacy program to support vulnerable readers between the ages of 6 and 12. The Reading Rocks program is designed based on literacy frameworks of phonics, sight words, and fluency. In addition to this, the Reading Rocks program is a one-to-one tutoring program that holds to the principles of direct, explicit instruction – a service delivery model promoted by the National Reading Panel. The current paper describes the Reading Rocks program along with its foundation principles and also demonstrates the results of a cross-sectional study of fifty children participating in the program. The paper concludes with educational and policy-based implications.

1. Introduction

Approximately 20% of children experience significant challenges with learning to read [1]. Among this group of children exist a variety of developmental paths and diverse literacy experiences, some of which greatly influence how children become ‘vulnerable readers’. Research has pointed to several factors that can affect children’s reading. Such factors may include cognitive factors such as learning disabilities [2], behavioral or emotional difficulties [3], environment and specifically socio-economic status [4]; [5], and learning a second language [6]. However, regardless of the cause of the reading difficulty, it is important that researchers and concerned stakeholders look for the most effective interventions aimed at supporting vulnerable readers. There are a number of literacy skills and tactics that have been linked to effective interventions. The current paper focuses on Reading Rocks – a one-on-one literacy intervention approach for vulnerable readers [7]. In the present study, we examine the achievement gains of children participating in Reading Rocks and discuss the significance of the approach in effectively supporting children and young people with reading difficulties.

Research consistently indicates that vulnerable readers benefit from literacy interventions that strengthen their phonics, sight word vocabulary, and fluency [8], [10], [9], [16]. After analyzing over 100,000 studies, the National Reading Panel [10] concluded the most effective reading intervention approach is one that includes, “explicit instruction in phonemic awareness, systematic phonics instruction, and methods to improve fluency and ways to enhance comprehension”.

Phonics may be defined as the ability to focus on and manipulate sounds [10]. Phonics is comprised of various skills beginning with letter-name and sounds as well as larger units such as blending and segmenting. Research has indicated that phonological awareness transferred into phonics ability is significantly predictive of later reading success and that phonological processing problems are at the core of most children’s reading difficulties [15], [12]. Similarly, sight word vocabulary strengthens one’s ability to read efficiently and with ease [13]. Sight words refer to commonly used words in the English language that do not follow the rules of phonics. As such they cannot be learned through the process of manipulating sounds, and must be learned by ‘sight’ and memory [13]. Phonics and sight word abilities set the foundation for upper-level reading tasks such as reading fluency. Fluency is the ability to read with speed, accuracy, and expression. The ability to read fluently is an important part of the reading process as it enables comprehension [11].

The National Reading Panel [10] has also suggested that beyond teaching content skills such as phonics and sight word vocabulary, it is equally important to attend to how literacy intervention-based instruction is delivered. Specifically, reading instruction is most effective when it is directly, explicitly and systematically taught [14], [15], [10], [15] distinguish the term explicit as a way of teaching, or type of lesson delivery; and systematic as the content of phonics instruction, as well as the sequence and order of instruction. For instance, in explicit phonics instruction, “children are taught letter-sound associations and build toward whole words” (part-to-whole), as opposed to analyzing known words in order to understand letter-sound relationships (whole-to-part) [15]. Systematic instruction may include first teaching only five
letters and corresponding sounds, and only after having mastered the first five, would the child be instructed to work with five more sounds [14], [15]. Ultimately, the explicit explanations, modeling, monitoring, meaningful student-teacher interactions, and sequential approaches characteristic of direct explicit systematic instruction play a substantial role in meeting the needs of struggling readers.

A common result of vulnerable reading extends beyond the act of reading per se. That is, vulnerable readers are at-risk for struggling with motivation or engagement with reading-based activities. This has been described in the context of the Matthew Effect, as described by Stanovich [16]. The effect has been commonly understood as the rich get richer and the poor get poorer, whereby children who are good at reading continue to get better at reading, yet children who are poor readers progressively get worse. The Matthew effect posits that children who demonstrate early difficulties in phonological awareness are slower in their word-level decoding and as a result experience less exposure to vocabulary and have fewer opportunities to engage in reading practice. In turn, these children experience a decrease in motivation, compounding the effects of their cognitive delay. In essence, cognitive delays interact with motivational factors to produce conditions whereby children with poor phonological awareness begin their trajectory throughout formal schooling at a significant disadvantage compared to their peers. Subsequently, as these children progress through their primary schools years, the gap in reading achievement scores between themselves and their grade-level reading peers increases exponentially thus leading to a situation where struggling readers continue to fall further behind.

Numerous published programs consider component skills along with the idea of delivery models that are direct, explicit, and systematic. However, very few programs consider the idea of addressing motivation. In response to this issue, Scruton and McNamara [9] and Holtzheuser, McNamara, and Short [17], suggests that traditional literacy programs may be enhanced by incorporating self-regulated learning into the reading intervention process. As well, Scruton and McNamara describe the influence of using motivational tactics to develop self-regulated learning in vulnerable readers. However, limited research has been conducted on the connection between reading programs and motivation.

2. The Current Study

The current study assessed the efficacy of Reading Rocks. Specifically, the current study investigated children’s reading achievement after participating in Reading Rocks. The goal of the study was to consider how reading intervention programs such as Reading Rocks can be effective in supporting children with their engagement in reading.

3. Reading Rocks

Reading Rocks [7], is a literacy intervention approach that is aimed at supporting children with reading disabilities. Reading Rocks was developed based on the latest research around the reading process and supporting vulnerable readers. Reading Rocks is designed to focus on three foundational literacy skills; sight word vocabulary, phonics, and fluency – all skills recommended by the National Reading Panel. In addition to foundational literacy skills, Reading Rocks is an intervention approach that uses motivational tactics to engage children in the reading process. Specifically, Reading Rocks has children use tactics such as task understanding, goal setting, graphing, and monitoring. These tactics are designed to actively engage children in their own learning. This active engagement will allow children to recognize their own progress and achievement. By combining traditional literacy with motivational tactics, Reading Rocks aims to bolster children’s motivation and increase their reading achievement to support long-term reading success. Reading Rocks recognizes that within the spectrum of motivation there are several tactics that can be used to bolster children’s motivation and increase their reading achievement. Specifically, within each instructional block (i.e. phonics, sight word instruction, etc.) Reading Rocks engages a number of motivational tactics that promote the self-regulated learning skills. The motivation tactics are engaged through the use of instructional workstations that tutors design and tailor to each child’s needs.

The Reading Rocks approach is designed to be delivered in a series of 1-hour instructional sessions. Each hour session should be broken down into four 15-minute instructional blocks each corresponding with one literacy-based instructional component. For example, a 1-hour session could include a 15-minute block of phonics, followed by a 15-minute block of sight word vocabulary, a 15-minute block of reading fluency, and ending with a 15-minute block of reading appreciation. The purpose of the 15-minute block structure is twofold. First, research has demonstrated that short, intensive instructional sessions (10-15 minutes) are more effective than longer sessions. Second, the 15-minute block structure in Reading Rocks is designed to be motivational. Within the program, children set out to meet instructional goals within set time periods. This process encourages children to engage with the task vigorously in order to meet their defined goal. Goal setting is utilized as an important tactic for motivating children to engage within their own learning in order to meet their goals. An important aspect of the goal setting process in Reading Rocks.
is that goals are collectively developed and set by both instructors and children. Goals are deliberately set to be challenging yet attainable allowing children to feel a sense of accomplishment when goals are met.

4. Methods

4.1. Participants

The study involved a total of 50 children who ranged from ages 6-12 years old. Participating children were referred to Reading Rocks by caregiver(s), teachers, or other educators. To qualify for Reading Rocks, all children were deemed to have significant reading difficulties without any global intellectual impairment. Also, children with behavioral or other exceptionalities were excluded from the program. Participating children resided in neighborhoods located within the Niagara Region. As a critical component to Reading Rocks is one-to-one instruction, 50 volunteer tutors were also involved in the study. Volunteer tutors were students enrolled at Brock University who had experience with providing instruction in the area of reading. The tutors were randomly assigned to a participating child.

4.2. Measures

The current study adopted a within-subject, repeated measures design. Participating children were assessed using pre and post-test reading achievement measures. Pre-test assessments were conducted on the first night of Reading Rocks, while post-tests were conducted on the final night of programming. A number of informal literacy assessments were utilized. Assessments were designed to examine children’s letter name knowledge, letter-sound awareness, and ability to apply a number of phonics principles. Participants were also assessed in sight word efficiency and reading fluency.

Letter Names. This subtest measured children’s ability to identify and name both upper and lower case letters. Letter recognition clearly taps into something of critical importance in early reading [18]. The major task of letter naming is mapping a visual symbol to a phonetic representation. Therefore, for this task children were shown all twenty-six lower-case letters and twenty-six upper-case letters of the English alphabet and asked to give the letter name. Students were scored as correct if they responded with the appropriate letter name. The total maximum score for Letter Recognition was 52.

Letter-Sounds. This subtest measured children’s ability to isolate and recite the individual sound of each English alphabet letter. Letter-sound tasks requires associating symbols with discrete sounds, which may be more challenging, because it requires isolating individual phonemes. Research has demonstrated that this skill has a significant causal effect on subsequent development of phonological skills. For this task students were shown lower-case letters and asked to give the corresponding sound. If students responded with a letter’s corresponding soft sound (ex. /c/ as in race), they were prompted to think about another sound. The target sound was the hard consonant or short vowel sound. Students were scored as correct if they responded with the appropriate letter sound. The total maximum score for Letter-Sound Correspondence was 26.

Phonics Inventory. This measure consisted of an informal inventory of phonics skills and was broken down into 13 subcategories. Children were tested in consonant diagraphs, consonant blends, vowels, short vowels (pseudo words), double vowels, final “e” (silent “e” at the end of each word), diphthongs, reversals, prefixes, suffixes, compound words, silent letters, and vowel + R. Participants were asked to identify as many of the items (ie: blends, pseudo/non words, real words) as they could in each category. Scores were calculated based on the number of correctly identified items in each category – total phonics inventory score was out of 228.

Sight Word Efficiency. The Test of Word Reading Efficiency – Second Edition provides a measure of an individual’s ability to pronounce printed words accurately and fluently. This subtest measures the ability to recognize familiar words as whole units automatically. The child was asked to identify as many real words as possible within a time frame of 45 seconds. Raw scores are computed based on how many real words are read correctly and converted to scale scores and percentile ranks.

Fluency. Fluency was measured by a standard calculation by words correct per minute. Participants read a passage at their estimated reading level. The number of correct words read within one minute were divided by the number of words in the passage and multiplied by 60. The resulting score was recorded as participants reading fluency rate.

5. Results

A paired samples t-test for letter names was found to be significant [t (44) = -4.70, p < .001] indicating that participating children improved their ability to name letters from the pre-test (M = 49.28, SD = 6.79) to the post-test (M = 51.35, SD = 4.84). Letter sounds was also found to be significant [t (43) = -5.29, p < .001], indicating that participating children improved their ability to name letter sounds from the pre-test (M = 46.88, SD = 10.28) to the post-test (M = 49.15, SD = 9.70). Phonics was found to be significant [t (44) = -6.60, p < .001], indicating that participating children improved their ability to sound
out pseudo-words from the pre-test (M = 52.95, SD = 39.94), to the post-test (M = 71.00, SD = 41.42). Sight word efficiency was found to be significant [t (45) = -8.79, p < .001], indicating that participating children improved their ability to recognize and identify sight words from the pre-test (M = 32.34, SD = 22.82) to the post-test (M = 42.34, SD = 23.42). Finally, the test for reading fluency was found to be significant [t (35) = -8.29, p < .001], indicating that participating children improved their ability to read text accurately and fluently using a repeated readings strategy from the pre-test (M = 44.05, SD = 37.08) to the post-test (M = 93.44, SD = 50.80). Means, standard deviations, and t-values are illustrated in Table 1.

Table 1. Means, standard deviations, and t-values for pre- and post-test achievement measures

<table>
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<tr>
<th>Measures</th>
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<td>Letter Sounds</td>
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<td>Sight Words</td>
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<td>42.34</td>
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<td>Fluency</td>
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6. Conclusion

In general, after participating in Reading Rocks children showed significant improvements in letter name and letter sound knowledge, phonics skills, sight word vocabulary, and reading fluency. This study holds a number of implications. First, the achievement gains highlight the importance of literacy intervention programs such as Reading Rocks. Vulnerable readers face the potential of a developmental trajectory whereby they can experience an increasing gap between themselves and their grade-level achieving peers. Following this, programs such as Reading Rocks can serve to reverse the Matthew effect.

In addition to pointing to the efficacy of the Reading Rocks program, this study emphasizes the importance of program delivery models. Specifically, Reading Rocks was offered as a one-on-one tutoring program. It is important to recognize that schools, with limited resources and larger class sizes, may not be able to provide this type of intensive, direct instruction. However, it is this exactly this type of instruction that allows vulnerable readers to succeed. As such, this study points to the need for schools to collaborate with community agencies and organizations that can provide such instruction. By establishing collaborations between agencies, our systems can create open dynamic partnerships between stakeholders concerned about supporting children with reading difficulties.

7. References


Impacts of Abusive Supervision in Clinical Nursing Education

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Abstract

Clinical mentors supervise the nursing students during clinical placement. Abusive supervision may affect nursing students, clinical mentors and organizations. The purpose of this study was to provide an overview on the impacts of abusive supervision in clinical nursing education. Literature search was conducted in major databases (CINAHL, Education Research Complete, Teacher Reference Centre, Health Source: Nursing/academic edition). Three aspects of impacts which included individual impacts, workplace deviance behaviours and increased turnover were identified. Further studies were suggested to explore how abusive supervision affects the clinical nursing education.

1. Introduction

Clinical nursing education is one of the major components in nursing education. Clinical nursing education involved teaching in a clinical area [1]. Clinical mentors worked as supervisor of nursing students. Abusive supervision referred to subordinates’ perceived non-physical hostile behaviours from their supervisors [2]. Several studies reported that abusive supervision occurred in clinical nursing education [3-5]. It is important to know the impacts from abusive supervision in clinical nursing education.

2. Methodology

Literature search was conducted in several databases (CINAHL, Education Research Complete, Teacher Reference Center, Health Source: Nursing/academic edition). Keywords such as ‘abusive supervision’, ‘mentorship’, ‘nursing students’, ‘organization’ and ‘clinical mentor’ were used. Articles published from 2004 to 2014 were included. Impacts of abusive supervision in clinical nursing education were identified.

3. Findings

Numerous impacts from abusive supervision were identified from the literature search. These impacts could be classified into individual impacts, workplace deviance behaviours and increased turnover rate [6-8]. Abusive supervision may have negative effect on individual such as job satisfaction, psychological health and family conflict [9-11]. Subordinates who were under abusive supervision tended to have lower job satisfaction [9, 12]. Lower job satisfaction was related to depressed emotion and poor psychological health [13]. It may indirectly relate to family conflict [11].

Workplace deviance behaviour was found strongly related to abusive supervision [14]. Abusive supervision may promote both interpersonal deviance and organizational deviance [6, 15, 16]. The deviant behaviour may be considered as punishment to either the supervisor or organization [17].

Turnover was also found positively related to abusive supervision [6, 7, 18]. It was mediated by one’s locus of control, job satisfaction and subordinate’s power dependence [7, 16, 18]. High turnover rate may increase the cost of recruiting and retraining [8].

4. Conclusion

Abusive supervision had different negative impacts on individual, professionals and organizations. With the knowledge of the impact of abusive supervision, it could promote the awareness of abusive supervision in clinical nursing education. Most of the identified impacts were correlated to abusive supervision. The identified studies were unable to explain how the impacts occurred under abusive supervision in clinical nursing education. Further investigation is recommended to explore the factors that may lead to abusive supervision in clinical nursing education.

5. Reference


Motivation and Learning of Portuguese Language for Students in School Failure: 
A Case Study in Rabo de Peixe, Azores, Portugal

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Abstract

The study [1] base of the present work aimed, through a Motivation Program implementation, to contribute to the understanding of the effect of motivation in students with a school record of failure background, integrated in classes with alternative school programs, its relevance to improve school results and the importance of the pedagogical relationship in the motivation for learning. It focused on 71 individuals, from Rabo de Peixe - Azores, 53.5% males and 46.5% females, between the ages of 10 and 17, with an age average of 11.6. It was shown that the Motivation Program significantly improved the motivation and the academic performance and unequivocally minimized social, family, financial and cultural inequalities. The students considered as decisive for success the investment in self-efficacy beliefs, the development of self-concept, the promotion of education through affection and the quality of the pedagogical relationship.

1. Introduction

This research started due to the fact that there were a high number of problematic students in the alternative program classes at Rui Galvão de Carvalho School - Azores and aimed to answer the initial question: Can motivation have a positive effect on the learning process of these students?

The sample was submitted to a Motivation Program, based on the Constructivist and Interactionist perspectives of learning, integrating the principles of social constructivism of Vygotsky and Bruner and the ecological vision of Brufenbrenner. We assumed that the student is able to build his/her own knowledge in a critical and reflective dynamic, supported by the knowledge that he/she has of the world [2]. He/she must do so partnering with a teacher who will facilitate and mediate the discovery and the appropriation of knowledge, promoter of participation, of involvement and cooperation, with a regular recourse to the experimental teaching, to research and to problem solving [3]. We assumed learning as a personal construction, based on a change more or less permanent, which occurs on the behavior as a result of practice and of life experience, as a result of interaction between the subject, his/her behaviors, his/her life context and the way the teaching activity is organized, in an invisible construction which includes practice and execution [4].

With regards to the motivation theories, this study favored the Self-Determination of Macro-theory of Deci and Ryan, which cares about the development and function of the personality in social contexts and about the causes and consequences of the self-determined behavior [5], with an articulated approach of complementarity and continuum between extrinsic and intrinsic motivation, advocating equity in the role that both have in the promotion of learning [6], [7], [8]. It is believed that the intrinsic motivation can occur not only by itself, but also as a result of extrinsically motivated behaviors that, after internalized, are recognized as self-regulated [5], [9], [10].

In summary, a Motivation Program was defined, applied and tried. Through the quality of the pedagogical relationship, the teaching through affections, the strengthening of self-concept and self-efficacy beliefs, emphasizing the significance of learning, in a suitable molding attribution of causality and in a perspective of involvement and participation, was able to influence the improvement of learning, school results and, hence, the recovery of students in school failure.

2. Study Description

As explained above the implementation of the motivation Program which aimed to establish a positive and reciprocal correlation between the quality of the pedagogical relationship and the increase of the motivational levels of the target population, presenting them as factors of the promotional learning and inhibitors of the social, family, financial and cultural inequalities, enhancing the access to success of students with a record of repeated failure background.

On a first phase, we applied the Motivation Scale for Learning - EMAPRE A (minimum score of 28 negative points and a maximum of 28 positive points, considering the student motivation from 0 points) with the objective of assessing the target population motivation levels at the beginning of the study. It was also applied the Portuguese Knowledge Test (Pre-test) in order to assess
the students’ knowledge of the Portuguese at this moment. Then, the Motivation Program was implemented and applied during nine months. Halfway through the implementation of the program a questionnaire was introduced to help to characterize the students, as well as to understand their perspectives of the issues related to their motivation and its importance in learning, as well as to assess the importance given by them to the quality of the pedagogical relationship, in the increase of the motivation and the success in learning. On the second phase, a data collection, with the EMAPRE B, was applied with the objective of assessing the motivation levels of the same students at the end of the study. The Portuguese Knowledge Test (Post-test) was also applied to assess the Portuguese knowledge generated by the same students at the end of the study. The goal was to establish a comparison of the results in terms of distribution, frequency and correlation capable to affirm or deny the hypotheses and sub-hypotheses presented, testing the influence of the motivation and the pedagogical relationship in learning and improving the students’ performance.

Bearing in mind that the EMAPRE was used to assess the Brazilian population, before the first application a pre-test application was held by fifteen students with the same age, the same school, the same year and with similar difficulties diagnosed within the target population. It was found that it would be beneficial to change some words used in the EMAPRE as it distances from the standard Portuguese, the changes were undertaken, and all the data collection instruments were submitted to previous analysis and validation of experts in the field. The internal consistency of the organizational environment and the participation in the questionnaire was assessed by using Cronbach’s Alpha coefficient of internal consistency. For the data collection regarding the qualitative method, it was used the teacher’s record grids, the students’ files, the “Projeto Curricular” (Curricular Project) of the different classes involved, the Moodle MotivArte course and some classroom records that allowed to enrich each student’s profile.

2.1. Methodology

Bearing in mind the problem studied, the established objectives and the defined starting question, methods from different traditions were used, in a perspective of inter-methods triangulation. It started with the quantitative method through the identification of hypotheses, supported by all the literature read and experience, and its predefined instruments of data collection. It was added a qualitative method in order to value the researcher’s interaction with the field and the importance of his/her subjective interpretation as an explicit part of the production of knowledge. It was intended to follow a path able to promote the articulation of results, the contextual delimitation and the survey of new leads for future research, combined with a need for more accurate communication, with a structure defined a priori, able to incorporate and control the statistically admissible error.

2.2. Contextual characterization

The study was conducted at Rui Galvão de Carvalho School, in Rabo de Peixe, Azores. In 2015, as a consequence of the results obtained in the Portuguese national exams of the 6th grade, it was ranked by the National Schools Ranking as the second worst school in the country.

Rabo de Peixe is internationally known as socioeconomically disadvantage, highlighted in the Census of 2011, as the most populated town in the archipelago, with about 178 inhabitants per square meter. It is also the youngest town, where 33.8% are less than 18 years of age, with an age rate opposite to the national reality, since the elderly population represents only 5% of the residents. The population growth increased by 24% in the number of households, with an average household of 4.6 people, as opposed to the 2.6 national standards. It is stated that 34.6% of the population of the town is illiterate; 28% only attended primary school; 48% completed secondary school and only 3.6% completed university.

The low qualifications have an impact on the employability, being the unemployment rate the highest in the country. Rabo de Peixe is thus the Azorean town with more financial benefits and protection against social exclusion, being the target of several European initiatives, especially the European Free Trade Association, whose investments, between 2005 and 2008, were around the twenty-three million euros.

2.3. Characterization of the target population

The studied population consisted of 71 individuals integrated in the alternative educational program classes (53.5% boys and 46.5% girls) with an average age, at the beginning of the study, of 11.6 years of age.

Before the enrolment in these classes, 92.6% of the students had failed two school years and 7.4% had failed more than twice. 38% had already enrolled in the Special Education System.

A brief analysis of the students’ family profile allows it to see the low level of qualifications among parents: 21.1% of the fathers and 11.3% of the mothers can’t read or write and 34.5% are illiterate. There is a greater attendance in primary school – grades 1 to 4 (fathers: 75%, mothers: 72%), with only 1% of the mothers...
having attended the 7th and 9th grades. The low qualifications reflect the high unemployment rate (fathers: 30%, mothers: 92%) and the consequent financial instability. There is a high household rate (5.7 persons), as well a significant number of children per couple (4 children: 28%, 3 children: 24%, 5 children: 16%, 6 children: 8%, 9 children: 6%). 63% of the families benefit from Social Assistance, and all students receive support from the Student Assistance School Program, being 78.9% of the studied families covered by the highest school financial aid. 73% of these households rely on the State protection to ensure housing. 21.1% of the students are being supervised by the Children Protective Services, being 8.5% monitored by the Juvenile Court. 7% of the students were institutionalized, being 1.4% still under State Guardianship. It is shown, therefore, that 36.6% of the studied population is or was in a vulnerable emotional and / or familiar situation.

3. Discussion

The results obtained align, in general, with the findings of recent studies in this area; however, given the specificity of the context and of the studied population, it was possible to detect some deviations.

After a careful analysis of the results, it was proven that the students enrolled in the educational recovery programs show extremely low motivation levels \( t(71) = -13.04, p = 0.000 \), revealing also unsatisfactory school results (an average of 41.18%). It is shown, in these two variables, a parallelism with the international researches [11], [13], [14] and [16] which proved a positive, significant and reciprocal correlation between the motivation and the school results and show that students with school failure demonstrate a set of inhibitory motivation beliefs towards learning, being school failure an obstacle to enjoy learning.

It was found that the boys have significantly higher demotivation levels than the girls, meeting the results of studies carried out by Santos and Zenorini [17], [18] where it was assessed that girls tend to be less unmotivated and more orientated to the learning goals than boys that are more oriented to the Performance goals. Finoto and Seabra [19], [20] consider that the motivation discrepancy among sexes seems to be related to the fact that girls are culturally seen as more obedient and hard-working, receiving more support from teachers, creating moments of conflict in the relationship between the teacher and male students, creating a more favourable classroom environment for the girls, influencing positively their motivation. In the case of the population being studied, it could be a constraint to the relationship between the student (boy) and teacher the fact that this community, culturally, devalues the position of women in the society, triggering difficulties in establishing the authority and originating disruptive behaviors that influence motivation and learning.

The age variable was also studied during the assessment of the motivation levels of the students’ before and after the application of the Motivation Program and it was concluded that, contrary to the reference literature and studies that reiterated a negative and significant relation between age and level of student motivation [15], [21], in the studied population, it is not the case. The above studies were carried out in different contexts with different samples and none has looked into students integrated in school recovery programs, distancing them from the geographic, social and educational reality of the population covered by this investigation. The internalization of the irreversibility of failure may justify the significant demotivation levels in younger students, whereas the older students seem to feel more resigned to the fact that they did not attend a regular school program, identifying themselves with a more functional work. The high demotivation levels presented before the application of the Motivation Program leave, however, little room so that one can check a representative oscillation related with age. However, it was possible to detect an approach to the above referenced studies where the only seven students who showed to be motivated in EMAPRE A fit in the lower age group of the studied population.

Analyzing in particular the seven students in question, it can be detected that their positive motivation levels are always associated with the result above the average in the Pre-test (64.4% vs 41.18%). There are some similarities between these seven students, being the most significant found in the family relationship with the student and the school, perceiving a strong partnership between the parents and the homeroom teacher, as well as a dynamic monitoring of the students’ school life. This dedication is reflected in monitoring the homework assignments, in showing up at the parent teacher interviews; in participating in the activities developed in the classroom context, in attending sports and artistic activities, in showing affection and personal availability, factors considered [22] decisive for the motivation and academic success. It was found that these seven students came from households with low income, however, in the seven families, the father was employed, four of which also received Social Assistance Benefits. These households’ sizes were below the average of the studied population, showing an average of 2.2 siblings compared to the overall average of 3.5 siblings. According to a study by Vasconcellos [23], low family income has a negative effect on student motivation, without the possibility to invest in materials capable of stimulating interest and curiosity.

It was analyzed the level of education of the seven mothers, given that Portugal is one of the OECD countries where the intergenerational transfer is
particularly distinct [25]. It was found that the level of education is the 6th grade, in contrast to the remaining studied population in which 24.2% is illiterate and 84.2% finished the 4th grade. These results align with Leal’s [12] where it was shown that more educated mothers tend to show more positive expectations regarding the educational future of their children, having a notable influence on their self-efficacy beliefs and with Machado and Gonzaga’s [24] where it is found that better educated households have more access to culture and information, making them potentially more capable of transmitting knowledge and to develop skills and curiosity in their children. The analysis was confined to the mothers in the sense that Leal found that the school influence is statistically significant only in their case. According to Gentile [26], the fact that there is the above monitoring does not guarantee success in school, however, it may be decisive with the combination of other variables such as personal taste for the subject and integration in a mentoring program. The seven students who proved to be motivated in EMAPRE A indicated that Portuguese is their favorite subject and six of them were involved in a mentoring project. When implementing EMAPRE A, it was found that the students who benefitted from mentoring showed lower demotivation levels than the rest (-8.643 vs. -4.02), aligning with Converse [27] and Vieira’s studies [25], who concluded that mentoring has a positive effect on motivation and student learning. For these results, it may have contributed the fact that the mentor teacher, by moving around in the various networks of life of the mentored, in a closer context, has assumed a key role in motivating and mobilizing students for learning.

Afterwards, the results of EMAPRE A and EMAPRE B were compared and it was noticed that all students increased statistically and in a significant way their motivational levels following the implementation of the Motivation Program (-13.04 vs. 15.94), showing positive results academically and a significant relation with this tendency, aligning with the conclusions of the studies carried out by Cortez and Faria [13], Lourenço and Paiva [16], Martinelli and Genari [15] and Sergio [14]. The students assessed the Motivation Program in 2.7 out of 3 points and all of them said that they would like to continue to benefit from this intervention strategy. The issues that had greater unanimity were related to the affective and relational nature of the program, with increased sense of well-being and belonging, with the rise of beliefs of self-efficacy and the development of self-concept and self-esteem, in a dynamic of participation, discovery and significance, in a clear recognition of the importance of the pedagogical relationship quality for motivation and educational success. 85.9% of the students indicated that motivation was the most decisive key variable for learning, followed by the teachers (77.5%) and personal effort (67.6%), mentioning that the three most crucial factors in order to feel motivated to learn were To believe that I am capable (97.3%), The teacher’s help (64.8%) and The teacher explains well (60.6%), being that all the answers gave emphasis on the quality of the pedagogical interaction as a motivation promoter to learn. The teacher’s sweetness (88.7%), the teacher’s understanding (42.2%) and the quality and diversity of activities (70.4%) were the most frequently variables mentioned by the students for the success of the Motivation Program and for the improvement of the school results, focusing again on the quality of the teacher’s action and interaction. The emotional method that involved the whole delineation of the Motivation Program, as well as its results, align with the conclusions of Cavenaghi and Bzuneck [28], Magellan [29], Souza [30] and Paiva and Lourenço [16], who have assessed that the affective elements were decisive for the teacher to be able to motivate, encourage and support students in the discovery of new knowledge and skills. Although motivation influences positively and significantly the performance of students, it is not possible to establish between them a direct proportionality to the extent that, even motivation being as an enhancer factor of good educational results, it will be always conditioned by other variables to be considered in learning. However, only three students have shown an increase of motivation associated with a reduced performance. One was absent for two-thirds of the year, not allowing a concerted work at the level of the subject’s skills. Another one, although he/she had high motivation level, reversed his/her progress when institutionalized.

The factors like the school devaluation, lack of school monitoring by parents [25]; big households ([12] and [23]); the high level of illiteracy [12]; situations of negligence in the primary care (29.5% of the studied population is monitored by the Children Protective Services and/or by the Juvenile Court); some cognitive constraints (38% of the students belonged to the Special Education System) and the difficulties felt by the teacher in working with social and personal realities so extreme can contribute to the understanding that the school results improve with the increase of motivation, but not to the same scale.

In conclusion, the Motivation Program had a very positive and significant effect on the less motivated students, being that among the fifteen mostly motivated at the end of the application of the Motivation Program, ten presented a motivational average of -14,3 points before the program, but also on individuals who did not show demotivation levels at the beginning, verifying that the seven students motivated in the EMAPRE A, continue to be among the most motivated on EMAPRE B. Triangulating the results of EMAPRE B, the results in the Post-test, the most significantly increase in
motivation, as well as in the school results, it was concluded that, from the sixteen students for which this correlation was more significant, 50% belonged to the lower age groups of the studied population and the other 50% to the highest level, not verifying any impact on the age variable. It was not shown, in these sixteen cases, a predominance of the students covered by the mentoring program. It was found that thirteen students (81.3%) belong to a family where the father has a paying job (confirming the effect of household income), that only four students (25%) benefit from the parents’ school support and four students (25%) are being monitored by the Children Protective Services. Regarding the mothers’ education, it can be seen that the majority of them (69%) have no more than the fourth grade, 18.8% are illiterate and only 12.5% have qualifications above average. It was concluded, therefore, that the application of the Motivation Program minimized some family, economic, emotional and social differences with a significant impact on motivation and student learning.

95.8% of the studied population improved over the year, being that 84.5% of the students managed to develop the skills of their curriculum. Twelve students (16.9%) were automatically reinstated in the normal curriculum, following the existing programs, benefiting from minor adjustments in the formal stages of evaluation, without any harm in the development of structural skills of the curriculum.

4. Conclusion

Once again it was confirmed that the teaching and learning process is permeated by variables that sharpen the curiosity of researchers and fill the minds of educators, in a desire to outline intervention strategies that promote effective equality of opportunities in a school of masses.

It was seen, converging with the literature, that the motivation to learn seems strongly influenced and supported by teacher-student interaction, by its quality in an affective dimension of education in which each party has its space and its value, in a dynamic of discovery, participation and mutual support, working the beliefs of self-efficacy, raising self-concept and self-esteem and developing resilience in a demand sustained by success that in this study is effective.

Not being able to extrapolate the findings of this research to other realities and contexts, it can assess tendencies, supporting lines of action for this population. Thus, one may intervene in the effectiveness of educational recovery programs, establishing them as alternative paths of respect for individuality and fight school dropouts.

It is considered as a limitation of the study its nine month intervention period not allowing to assess the medium and long terms of the effect of motivation and of pedagogical relationship on the course and on the academic results of the students involved. It is suggested, therefore, to carry out a longitudinal study with this objective, covering other findings and expanding fields of view, aiming at equal opportunities and the effectiveness of public school.

5. References


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Principles of Online Instructional Design

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Abstract

With the ever-increasing integration of online instruction or e-learning into educational settings, particularly in higher education, there is a strong need for a pedagogically effective instructional design model for online instruction to facilitate the development and delivery of online learning environments. A poor-designed online course often confuses online students, loses their focus, and makes them feel frustrated. Online students will not know where to start, what to do, when to communicate, and how to learn if an online course is not well-designed. Thus, developing a pedagogically effective instructional design model is essential now more than ever as more and more learning moves to virtual classrooms.

1. Introduction

In the past decade, online instruction continues to grow rapidly. With the popularity of online instruction in education, there is a strong need for a pedagogically effective instructional design model for online instruction to facilitate the development and delivery of engaging online learning environments. A poorly designed online course often makes the students get lost, lose their interests, and feel distressed. If an online course is not well-designed, students will not know what to do, when to communicate, where to follow, and how to learn. The status will become even worse if a student is still learning how to operate the technology aspects of an online course. With unclear instruction, ambiguous organization, and inefficient applications, the focus of online learners will be on technology, not on learning which creates more obstacles for online learners.

Instructional design (ID), also named as instructional systematic design (ISD), is “the practice of creating instructional experiences which make the acquisition of knowledge and skill more efficient, effective, and appealing”[7]. An effective ISD model benefits both instructors and learners. An instructional design serves as a framework and also a tool that provide guidance for the structure and organization of a course design. With systematic guidance, it helps to lead learners to focus on a topic quickly, to removes distractions, yet still allows learners to take control of their learning. It also helps instructors to organize contents, to sequence instruction effectively, to assist and support learners, and to promote engaging, meaningful and active learning. Therefore, it is essential now more than ever as more and more learning shifts to online.

The purpose of this paper is to address principles of online instructional design and then to propose a stand-alone online instructional systematic design model, particularly relevant for online course development with the consideration of learning theories and pedagogical philosophy. The proposed ISD model in this paper will effectively guide online instructors and educators to better design quality online courses which promote and enhance online student’s focus on active and engaging learning.

2. Literature Review

The review of literature will start from reviewing the two most frequently mentioned traditional ISD models, ADDIE and Dick, Carey, and Carey’s model [2] first. Then, the literature review will examine the current four ISD models or standards that are mostly cited and applied for developing online courses.

2.1. Traditional Instructional Design Models

Instructional design models have some history in education and thus many instructional design models exist yet few are specific to course design for online teaching and learning. The two most well cited traditional ID models are the ADDIE model and Dick, Carey, and Carey’s model [2]. The ADDIE model offers five universal course design principles: Analysis, Design, Development, Implementation, and Evaluation (ADDIE).

Like all ID models, both pros and cons have been claimed with ADDIE. Its advantages include: providing structured guidance for design, serving as a valuable checklist to ensure a solid course design, and including a great focus on implementation and evaluation. The disadvantages of ADDIE include that the analysis step is not being broad enough in the design process; the model is too linear and not flexible; and it does not encourage inspiration [6].

Sequentially similar to the ADDIE model, Dick, Carey, and Carey’s ISD model is more specific and rigid to each instructional step [2]. Their model
focuses on real-world settings, considers learners’ needs, assesses learners’ prior knowledge levels, and integrates learning and performance context into the design. The model is well accepted and respected in higher educational settings because it is well-researched and relies heavily on theoretical principles of learning.

Although Dick, Carey, and Carey claim that their ISD model is also applicable to online instructional design, many educators criticize that their model is “rigid, cumbersome, driven by predetermined objectives, thus incompatible with learner-determined objectives. The model is also instructor-focused, assumes the learner is a consumer of content and materials, and not active in the learning process” [4].

Apparently, ADDIE and Dick, Carey, and Carey’s models provide a great guidance for designing instruction. At the same time, critics of the models also indicate that they are too linear and inflexible. Their designing process is also driven by predetermined instructional objectives which are contradictory to learner-centered learning with learner-determined objectives.

2.2. Online Instructional Design Models

Although distance education has been a long time, the history of online instruction has just started in early 1990’s. Thus, there are few online instructional design models and theories exist. Literature review reveals that there are four instructional design models and theories relevant to online course design. They are: the Instructional Design Model for Online Learning (IDOL), Roblyer’s online and blended learning design theory, and the online instruction rubric by Quality Online Learning and Teaching (QOLT), and Quality Matters (QM) Publisher Rubric.

This IDOL model, designed and proposed by Siragusa, Dixon, and Dixon [8], gears toward online course design in higher education with three proposed main steps: analysis, strategy, and evaluation. One can tell that the model derives from the two above-mentioned traditional instructional design models, ADDIE and Dick, Carey and Carey’s model. It presents 24 pedagogical considerations when designing an online course. The main drawback of the model for online instructional design is that it is only recommended for use alongside with other ID models and is inefficient to use alone for designing an online course.

Roblyer’s instructional design model was proposed in his book, entitled “Introduction to Systematic Instructional Design for Traditional, Online, and Blended Environments” published in 2015. His theory also draws from ADDIE and Dick, Carey, and Carey’s model. Besides the traditional instructional design process, he proposes how to organize traditional, online, and blended learning environments. Strictly speaking, it is not an instructional design model but just suggestions and considerations for designing an online or blended course.

The rubric for online instruction by QOLT was first released in 2010. It is a state-wide program developed by the California State University system. It provides a framework for online course design and delivery and serves as a means for supporting in developing an online course. According to QOLT (2010), the rubric can be used for designing online learning in two ways:

1. As a course “self-evaluation” tool - advising instructors how to revise an existing course to the Rubric for Online Instruction.

2. As a way to design a new course for the online environment, following the rubric as a road map.” Although the rubric provides a great checklist to design an online course, it overlooks the actual implementation and evaluation of an online instruction.

Quality Matters Publisher Rubric (2015) was created by Quality Matters (QM), a non-profit organization dedicated to assure the quality of online and blended instruction. There are two sets of rubrics: one for higher education and the other one for K-12 education. The rubric was created to address the need of design standards for higher education and K-12 educational settings to guide the design of online and blended instruction. The QM rubric is also a great guide for designing online course. Again, the actual delivery, implementation, and assessment of an online instruction are not been addressed.

3. Principles of Pedagogically Effective Online Instructional Design

Based on the literature review and extensive research, the author would like to propose an online course design model (See Figure 1.). There are four main steps in the model: Identify, Select, Create, and Assess. Because the nature of an online course is very different from a traditional face to face course and a hybrid or blended course, identifying a course format becomes essential in the initial process when designing an online course. As an instructor, he/she needs to identify which course format that he/she would like to adopt for instruction first. Then, an instructor has to identify instructional objectives, identify learners’ needs and characteristics, and identify an appropriate pedagogical approach, such as behaviorism and / or constructivism approach. In addition, online instructors also have to identify the learning context in order to maximize their students’ learning.

After identifying appropriate necessary formats and elements for an online instruction, then an online
instructor can begin to select. At this stage, online instructors select web-based content organization to be linear or nonlinear, select interaction and communication methods, select technologies for communication and content delivery, and then select resources to help their students learn. The resources can include both curriculum related resources, technical support resources, and mentoring supporting resources.

The third step is to create or to develop. At this step, online instructors start creating intuitive course path or flow, creating instructional methods and materials for content presentation, assignment, and assessment, creating interactive communication methods, and creating supporting materials for students.

The final step in this model is for online instructors to assess students’ performance with multiple strategies, such as projects, presentation, assignments, test, communication posts, etc. Online instructors should also assess the effectiveness of the instructional methods and materials by checking with their online students either via survey, questionnaire, interview, online observations, or others (See Figure 1).

Figure 1. Online Instructional Design Model

4. Discussion

There are several advantages of applying the four principles proposed in this model for online course design. First, the model is built upon with considerations from traditional instructional design models as well as currently existing online ID models. Furthermore, both pedagogical approaches and learning theories are also taken into account. Second, it is well-designed by outlining conceptual framework for online instruction. The researcher has received one national and two state wide recognitions for her outstanding online course design and teaching. In addition, she also has accessed to numerous exemplary online courses. To develop the model, she and her research team had listed essential elements of the theoretical framework for online instruction based on the examination of various online courses. They reviewed online courses, make tables and charts to compare instructional design theories and elements that were used for the online course design. Third, the model is flexible. That is, online instructors can tailor the instructional sub-steps in the model to meet their own specific online teaching needs. Fourth, the model is learner-centered. According to the model, online instructors have to identify their students’ needs, prior knowledge, characteristics, and learning context in order to provide appropriate and needed instruction.

The proposed OID (Online Instructional Design) model is still in its infancy. Although the researcher has adopted, tested out, and proved the effectiveness of the model in her online instruction, it is still suggested that more empirical researches should be done.

5. Conclusion

The four principles, Identify, Select, Create, and Assess, proposed in the model can provide online educators or instructors as an effective guidance and checklist when designing online course materials. A proper implementation of the model can support online student’s engagement, involvement, motivation, and focus on learning. The four basic principles are in a circular process. That is, online instructors can go back to each step to modify their instructional design as they deliver online instruction. The end goal of the four principles in the OID model is to assist instructors to better design their online courses or lessons to facilitate online students’ focus on their learning effectively and to promote active learning.

6. References


Poster Session

Structure the Process, Improve the Outcome? A Report of Eight Workshops Organised for PhD Candidates
(Authors: Maria M. Nel, Sonet B. Swart, Johan Bezuidenhout)

Evaluating the Effectiveness of Virtual Labs as an Alternative Teaching Method by Accessing Past Student Performance, and the Perceptions of Students and Faculty
(Authors: Kyle Bactol, Andrew Laursen, Charlotte de Araujo)

Comparing Alternative Delivery Methods for Introductory Sociology and Psychology Courses: On-ground, Hybrid, versus Online
(Authors: Sara A. Brallier, Megan McIlreavy)

Developing Personal Transferable Skills: Preparing Undergraduate Students for Success in the Workplace
(Authors: Megan McIlreavy, Sara A. Brallier)

Conceptualising Curriculum Change: Structuring the Final Year Learning Experience on a Professionally-orientated Degree Programme in Education Studies
(Authors: Julie Uí Choistealbha, Marian Fitzmaurice, Róisín Donnelly)
Abstract

The programme for Health Professions Education (HPE), accredited with the Health Professions Council of South Africa (HPCSA), offers the first complete postgraduate qualification in this field of study that can be attained at any institution for higher education in South Africa. The programme creates opportunities for educators and trainers in health professions education for the further development of knowledge and skills, and to expand the knowledge field of the area of health professions education through research. Professional educators and supervisors are a valuable resource for an institution.

Academic development programmes which assist postgraduate students to focus effectively on approving their doctoral research are therefore essential. The aim of the project was to offer effective training in postgraduate research with intensive support as necessary and to evaluate the outcome thereof. The Division for Health Sciences Education organised a series of three-day workshops for doctoral candidates. A qualitative research design was used based on semi-structured interviews, completion of open-ended questions and the analysis of reflection reports.

The workshops were organised according to principles such as small numbers of participants, involving experienced supervisors in post-graduate training and students were encouraged to set own objectives and to focus their learning on their own practice and their Ph.D. project.

Forty-two candidates participated in the workshops over four years. Candidates commended the structured, progressive nature of the workshops and active participation during the research training and opportunities to develop scientific writing skills. Students reflected that the training workshops were effective. The value and significance of their recommendations were of utmost importance.
Evaluating the Effectiveness of Virtual Labs as an Alternative Teaching Method by Accessing Past Student Performance, and the Perceptions of Students and Faculty

Kyle Bactol, Andrew Laursen, Charlotte de Araujo
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Abstract

Virtual labs are online environments which recreate scientific experiments emulating real equipment and data collection outside a physical lab. Contrary to some perceptions of online education where students are almost solely independent, virtual labs supplemented with experiment kits and dedicated discussion periods with an instructor ensure that students learn the same material and develop practical skills necessary for their scientific career. These students who enroll into this alternate format have the opportunity to complete tasks at their own pace without the time constraints of a traditional lab setting. The researchers seek to explore the background and driving factors that influence whether students opt-in and opt-out of the virtual lab option. Drivers may include commuting distance or time, employment or other personal responsibilities. Benefits or costs of choosing between these lab formats will be determined by examining student scores through an analysis of covariance (ANCOVA) model. This model allows controlling for previous scores on BLG 143 laboratory components as covariates (as most students taking BLG 143 in Transition will have completed the lab portion of the course in a previous semester). This data would be compared to the previous iteration of the virtual lab course for introductory biology (BLG 143) in order to determine the potential of implementing virtual labs into the curriculum.
Comparing Alternative Delivery Methods for Introductory Sociology and Psychology Courses: On-ground, Hybrid, versus Online

Sara A. Brallier, Megan McIlreavy
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Abstract

The purpose of this poster is to compare students' mastery of course content and instruction between students enrolled in two course delivery methods (hybrid and face-to-face) of an Introductory Sociology courses. The same instructor taught a hybrid Introductory Sociology course in the spring semester of 2015 and an online Introductory Sociology course in the fall semester of 2015. The instructor participated in a series of trainings and an outside review to ensure that the course was using best-practices for online instruction in regards to learning outcomes, learner support, assessment, course structure, learning interaction and accessibility. Students in both courses completed the same assignments, quizzes, and exams. The only difference was that students in the hybrid course also attend 75 minutes a week for the 16-week semester. Overall, there were no significant differences in student performance on assignments, discussions, quizzes, papers, or the final exam between students in the hybrid and online courses. Also student mastery of general education student learning outcomes was satisfactorily met.

Student learning outcomes: (1) Demonstrate a basic knowledge and understanding of human health or behavior and (2) Demonstrate a basic knowledge and understanding of human behavior in societies. Moreover, students’ course evaluations in terms of their experience and quality of the course content and instruction did not differ significantly between the two course delivery methods.
Developing Personal Transferable Skills: Preparing Undergraduate Students for Success in the Workplace

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Abstract

The ability to collaboratively work with others is an important skill that is increasingly necessary in the professional world. In order to help students develop team working skills, it is important for them to have the opportunity to work in groups, carefully reflect upon their behavior (and the behavior of others), and to accurately assess the quality of their finished work. During the fall 2015 semester, group projects were assigned in two courses (Sociology: Cults and Violence; Psychology: Psychology of Women). Both instructors used best-practices for group-work – groups were small, randomly assigned, time was allocated during class for group meetings, and groups skills including communication and conflict-resolution skills were discussed in class. After completing the group-project, students were asked to confidentially rate each group member on the effectiveness of their participation on a variety of personal transferable skills (i.e. non-discipline specific skills that apply to different contexts such as communication, team work, analytical and problem solving skills). Students were also asked to distribute points among the group members appropriately in terms of their contributions to the project. We found that overall students were overwhelmingly generous in their assessment of others. In both classes, the peer evaluation metric was most beneficial for identifying egregious social loafing, but did little to differentiate among the quality (or amount) of the contributions of other individuals in the group. Interestingly, the students who were identified as loafing rated themselves equal (or higher) as the other group members. For the vast majority of the other students, was little variation in the allocation points and they rated everyone equally positive in performance. The results of this project will also be discussed in terms of the alignment between students' perceptions of their final work and the professor's assessment of strengths and weaknesses (these data are available for 8 out of the 14 groups). Despite the use of a well-established metric for peer evaluations, our data suggest that more work is needed to fully understand the dynamics involved in developing students' ability to provide constructive feedback and evaluate necessary skills for working well with others.
Conceptualising Curriculum Change: Structuring the Final Year Learning Experience on a Professionally-orientated Degree Programme in Education Studies

Julie Uí Choistealbha, Marian Fitzmaurice, Róisín Donnelly
Marino Institute of Education, Ireland

Abstract

Within Higher Education there is a growing expectation that graduates will enjoy smooth transitions into practice or further study and thus it is important to understand how higher education students’ experiences in university should be best organised and integrated to realise these purposes. This action research study investigated the impact of the curriculum design of the final year on student experience, engagement and progression routes post-graduation in a new four year professionally-orientated degree for students in a BSc in Education Studies in an Irish education institution.

This study involved 26 lecturers and 25 recent graduates from the programme. Students were required to undertake a final year (capstone project) dissertation and an internship (involving the development of an e-Portfolio to demonstrate and reflect on their journey of learning and to make connections with learning across the final year). Data was collected by means of an online student survey, followed by a focus group interview with self-selecting student participants as well a focus group interview with the programme development team.

The focus of this poster is on presenting the findings in terms of student experience of the balance between the internship and the dissertation as a preparation for their professional pathway; it also explores the lecturer experience as curriculum designers and facilitators.

Ultimately the intention of the research team is to improve the curriculum design process and outcome for the programme and to contribute to the knowledge base on the highlights and challenges of designing and delivering professionally-orientated degrees in to the future.