

# END

# 2017

INTERNATIONAL CONFERENCE ON

EDUCATION AND NEW DEVELOPMENTS

24 - 26 JUNE

LISBON, PORTUGAL



## BOOK OF ABSTRACTS

Edited by:  
Mafalda Carmo



**Edited by:**

**Mafalda Carmo**

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## FOREWORD

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Dear Colleagues,

We are delighted to welcome you to the International Conference on Education and New Developments 2017 - END 2017, taking place in Lisbon, Portugal, from 24 to 26 of June.

Education, in our contemporary world, is a right since we are born. Every experience has a formative effect on the constitution of the human being, in the way one thinks, feels and acts. One of the most important contributions resides in what and how we learn through the improvement of educational processes, both in formal and informal settings. Our International Conference seeks to provide some answers and explore the processes, actions, challenges and outcomes of learning, teaching and human development. Our goal is to offer a worldwide connection between teachers, students, researchers and lecturers, from a wide range of academic fields, interested in exploring and giving their contribution in educational issues. We take pride in having been able to connect and bring together academics, scholars, practitioners and others interested in a field that is fertile in new perspectives, ideas and knowledge. We counted on an extensive variety of contributors and presenters, which can supplement our view of the human essence and behavior, showing the impact of their different personal, academic and cultural experiences. This is, certainly, one of the reasons we have many nationalities and cultures represented, inspiring multi-disciplinary collaborative links, fomenting intellectual encounter and development.

END 2017 received 581 submissions, from 55 different countries, reviewed by a double-blind process. Submissions were prepared to take form of Oral Presentations, Posters, Virtual Presentations and Workshops. The conference accepted for presentation 176 submissions (30% acceptance rate). The conference also includes a keynote presentation from an internationally distinguished researcher, Professor Lizbeth Goodman, Chair of Creative Technology Innovation and Professor of Inclusive Design for Learning at University College Dublin; Founder/Director of SMARTlab, Director of the Inclusive Design Research Centre of Ireland, Founder of The MAGIC Multimedia and Games Innovation Centre, Ireland, to whom we express our most gratitude.

This volume is composed by the abstracts of the International Conference on Education and New Developments (END 2017), organized by the World Institute for Advanced Research and Science (W.I.A.R.S.). This conference addressed different categories inside the Education area and papers are expected to fit broadly into one of the named themes and sub-themes. To develop the conference program we have chosen four main broad-ranging categories, which also covers different interest areas:

- In **TEACHERS AND STUDENTS**: Teachers and Staff training and education; Educational quality and standards; *Curriculum* and Pedagogy; Vocational education and Counseling; Ubiquitous and lifelong learning; Training programs and professional guidance; Teaching and learning relationship; Student affairs (learning, experiences and diversity; Extra-curricular activities; Assessment and measurements in Education.
- In **PROJECTS AND TRENDS**: Pedagogic innovations; Challenges and transformations in Education; Technology in teaching and learning; Distance Education and eLearning; Global and sustainable developments for Education; New learning and teaching models; Multicultural and (inter)cultural communications; Inclusive and Special Education; Rural and indigenous Education; Educational projects.
- In **TEACHING AND LEARNING**: Educational foundations; Research and development methodologies; Early childhood and Primary Education; Secondary Education; Higher Education; Science and technology Education; Literacy, languages and Linguistics (TESL/TEFL); Health Education; Religious Education; Sports Education.
- In **ORGANIZATIONAL ISSUES**: Educational policy and leadership; Human Resources development; Educational environment; Business, Administration, and Management in Education; Economics in Education; Institutional accreditations and rankings; International Education and Exchange programs; Equity, social justice and social change; Ethics and values; Organizational learning and change, Corporate Education.

The abstracts contain the results of the research and developments conducted by authors who focused on what they are passionate about: to promote growth in research methods intimately related to teaching, learning and applications in Education nowadays. It includes an extensive variety of contributors and presenters, who will extend our view in exploring and giving their contribution in educational issues, by sharing with us their different personal, academic and cultural experiences.

Authors will be invited to publish extended contributions for a book to be published by inScience Press.

We would like to express thanks to all the authors and participants, the members of the academic scientific committee, and of course, to our organizing and administration team for making and putting this conference together.

Hoping to continue the collaboration in the future,

Respectfully,

Mafalda Carmo  
World Institute for Advanced Research and Science (WIARS), Portugal  
*Conference and Program Chair*

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## KEYNOTE LECTURE

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### **“ANNOUNCING THE SMARTLab VR FIRST IMPACT LABS NETWORK: CREATIVE TECHNOLOGY INNOVATION IN VIRTUAL AND AUGMENTED REALITY AND GAMES TO SUPPORT REAL WORLD COLLABORATIVE LEARNING FOR ALL”**

**Professor Lizbeth Goodman (BA, MA, MLitt, PhD)**

*Chair of Creative Technology Innovation and Professor of Inclusive Design for Learning at University College Dublin; Founder/Director of SMARTlab, Director of the Inclusive Design Research Centre of Ireland, Founder of The MAGIC Multimedia and Games Innovation Centre (Ireland)*

#### **Abstract**

Empathetic Education: Towards a Connected Learning Model applying technology supports to human development and inclusion.

This paper introduces the concepts of Empathetic Education and Hippocratic Innovation: ethical and action-oriented models to help frame the current models of education and technology development as they develop in parallel. The paper argues for a playful and creative approach to connected learning, using technology as a personalised scaffold to support each and every learner, with any level of physical and intellectual ability. Examples of Inclusive Design in learning programmes are shared, from early interactive learning using broadcast and multimedia, to kinaesthetic learning tools, games for learning, the interactive Inclusive Learning Handbook to the ILearn virtual world for collaborative learning, to the affordances of the Sensai Learning system currently in development at SMARTlab.

The talk will end with a formal announcement of the new SMARTlab VR First Impact Labs Network: a global collection of specially equipped creative technology innovation labs to support development and training in virtual and augmented reality and games to support real-world collaborative learning for all.

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#### **Biography**

Lizbeth Goodman is Full Professor of Inclusive Design for Education and Chair of Creative Technology Innovation at University College Dublin, where she directs SMARTlab and the Inclusive Design Research Centre of Ireland at UCD, and is an Executive Board member of the Innovation Academy (member institutions: Trinity College, UCD and Queen’s University, Belfast). For UCD she coordinates and manages the high level work of the pan-institutional senior faculty engaged in design and implementation of educational and pedagogic strategy in learning futures through the IDRC, and is the university representative on the all-Ireland University Project for the future of education, and on the Marie Curie ASSISTID Programme (Assistive Technology for People with Intellectual Disabilities/Autism) for the DOCTRID Research Institute: the first top tier research institute bridging the Republic and Northern Ireland. Also on behalf of UCD and the national universities network, she was elected to Chair the Social Sciences Panel of the Royal Irish Academy in 2012.

Previously, she was Director of Research for Futurelab – Lord David Puttnam’s thinktank for the future of education in the UK- and served in that capacity on the Prime Minister’s SHINE Panel. For RITSEC in Cairo, she serves as Director of the Genius Award Programme. In Ireland in 2014, she established a new Award for excellence in using technology for the sharing of knowledge across generations and levels of physical and cognitive ability: the Duais Eagnaí (Wisdom Awards) in memory of the late Daniel O’Hare. In 2008, she was awarded the top industry prizes for Best Woman in the Academic and Public Sectors, and Outstanding Woman in Technology by Blackberry Rim. Most recently, she was selected by a global panel of industry, academic and NGO experts as one of the CSR Global Top 50 Most Talented Social Innovators: awarded in Mumbai in February 2015. Back in 2003, Lifetime TV broadcast a tribute Lifetime Achievement Award for Volunteer Service to Women and Children for her work on SafetyNET,

announced by billboard in Times Square. She came third nationally in the recent Global Enterprise Awards for Ireland, for her work in setting up and running virtual campuses and virtual training centres for learners of all levels of ability around the world.

She is well known as an expert in interdisciplinary Art-Technology initiatives including STEAM education challenges globally, with a specialism in the cross-over between disciplines and community engagement on a global scale. She and her SMARTlab team have developed numerous creative educational technology tools and convergent media solutions to the challenges of teaching and learning in the 21st century, for learners of all ages and levels of ability. In this capacity, she has advised on numerous projects in the creative industries including TV/radio/convergent media education projects for children and young people. For the Open University/BBC, she researched and presented the Art Works Programme for several years and presented one of the largest arts courses, Shakespeare in Performance, (with 6,000 registered students and 6 million drop in viewers for most programmes) for which she and the OU-BBC Multimedia team won awards for their invention of new forms of interactive teaching with the Cut Your Own Shakespeare CD Roms, videos and publications. She also toured internationally for the OU and BBC in the mid-late 1990s as part of the British Council Cultural Studies course development programme for which she helped to set up the British Council-funded PhD programme at the OU, supervising some of the first international PhD candidates from Morocco through to successful completion. She also wrote and co-edited some of the OU's best selling textbooks of that period, including *Gender and Literature*, and *Shakespeare, Aphra Behn and the Canon*. While in Morocco she also set up the first technology backbone for women: a series of supported cybercafés run by women where women could communicate safely and discreetly: the beginning of what became the Safetynet charity. As part of that ongoing work, through her creative enterprise SpiritLEVEL, she also dances with women and men of limited physical movement and/or learning differences, using eyegaze and other technology supports to level the 'playing and dancing fields' for all participants so that everyone can engage fully in their own forms of creative expression.

Having developed the interactive learning rubric and characterological framework for the highly successful tv series *BB Agus Bella* in Ireland, as well as new virtual worlds to support internet safety training for parents, teachers and kids, she is currently developing new interactive inclusive children's learning programmes with collaborators from the Oscar-nominated *Song of the Sea* team and from the *Sesame Street* and *Bear in the Big Blue House* teams. This broadcasting work is informed not only by her educational experience and media and broadcast training with the BBC, but also by many years of television and convergent media work and her direction of live theatre and comedy for the *Cambridge Footlights* and *TBA Live Comedy Club* at the *Gate Theatre London* as well. This rich public speaking and production background makes her a highly sought after public speaker for academic keynotes and industry liaison events alike.

She leads a team of scholars and technologists working together to invent and implement innovative technology tools for 'real social change' via the SMARTlab International initiative, which trains PhD supervisors to support creative industry professionals in their practice-based doctoral studies in Ireland, the UK, the USA and Canada (including PhD graduates who are NASA scientists, 3D science designers, cultural heritage user interface experts, et al.). She has led numerous multi-million euro research projects for the EC and industry collaborators, and is currently co-PI for the *Learnovate Centre* (6 million euros) and *Academic Chair/UCD faculty lead* for the *ASSISTID Project* (8.9 million euros overall to the all-island consortium led by charity *Respect* for the *DOCTRID Institute*, coordinated by and for *RCSI, MSU* et al). She is also a regular judge and evaluator for many international funding councils and foundations including *SFI*, the *IRC*, the *Fulbright Commission* (for which she is currently Chair of Judges for the *TechImpact Awards*), the *Wellcome Trust*, the *Canadian Innovation Fund*, *SSHRC* and the *EC*. She has served as *Leonardo Advisor* for the *Science Gallery Dublin* since 2010, and previously served as Chair of Judges for the *Sci-Art* and *Science on Stage and Screen* panels of the *Wellcome Trust*. She was also chair of Judges for the *European Commission's HERA (Humanities in the European Research Area)* call in 2013-4, and evaluates for the *EC* on *SaferInternet+* and *Future Emerging Tech*. She is currently collaborating with partners in the *European Parliament* on a new *Roadmap for Responsible Open Innovation – what Lizbeth calls 'Hippocratic Innovation.'*

In addition to her major contributions to the field of *Inclusive Design* through production of the personalisable *Inclusive Design Handbook* in 2014, she has also written and edited 14 books and many peer-reviewed articles and broadcasts. Having previously supervised 40 PhDs to successful completion, she currently supervises and mentors practice-based PhD and Masters dissertations and industry/research council projects in the areas of: *Creative Technology Innovation*, *Connected Health*, *Virtual Worlds*, *Inclusive Design*, *Experience Design*, *Interactive Exhibit Curation*, *Digital Media*, *ICT4d*, *Assistive Technologies for People with Disabilities and the Elderly*, *Technology Futures*, *Wearables* and *SMART*

Textiles, Performance Technologies, Assistive Tech, Technology Enhanced Learning for Health and Well Being, Connected Health, Personalised Electronic Health Systems, Digital Materialisation, Haptic and HCI integrated studies, as well as Gamification, or what Lizbeth calls 'Meaningful Games' or Mobile Games for Learning.

In the knowledge transfer domain, she founded the MAGIC (Multimedia and Games Innovation Centre) in East London in 2005, bringing industry and NGO players together with science scholars and artist-practitioners across disciplines in what was London's first fully open source/open access 3D printing and games lab. For seven years, she worked with Microsoft on their largest ever community engagement project- (Clubtech), which has so far transformed the education of over 7 million children and young people worldwide. She founded the charity Safetynet in 2003, and currently serves as VP for the charity Special Effect (Oxford), as well as serving on the Advisory Board of the new Samsung Innovation Centre for the Children's Health Fund and the Mailman School of Public Health at Columbia University (New York), with previous collaborations with colleagues at Columbia University working on the interactive 'smart' children's hospital at Montefiore (Bronx, NY) and the Harlem Children's Zone.

Professor Goodman and her team were selected by Crytek and VR First to lead a global learning consortium using cutting edge VR and AR tools for real social change. Partners include IBM, Microsoft, Fexco, SGI, Easylumens, 4M Group, All These Worlds, Hao2, I-DEAS, Skignz, and other smes in the science-art visualisation space. Lab spaces for outreach and community impact are currently being chosen in Dublin, Kerry, Belfast, and globally.

Professor Goodman is also co- PI on several large Canadian and US grants for Innovation in Education, with Raising the Floor and the Inclusive Design Institute of Canada, and is Visiting Prof at the IDRC of Canada at OCADU, and at the Serious Games Centre of the University of Coventry, as well as a frequent visiting lecturer at NYU. She is due to take up Visiting Professorship at Changchun University and the NVidia Joint Lab for Mixed Reality in Autumn/Winter of China in 2017.

She is a dual citizen of the USA and UK, currently resident in Ireland, with full flexible working rights in North America and across Europe and with a very strong, long-standing network of collaboration globally.

She is a woman of limited eyesight but boundless vision.

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# ORAL PRESENTATIONS





## TEACHERS AND STUDENTS

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### THE TEACHING EXCELLENCE PROJECT AS A FRAMEWORK FOR LEADING INTEGRATIVE CHANGE AND QUALITY LEARNING IN TECHNOLOGICAL AND VOCATIONAL EDUCATION

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#### **Abstract**

Integrative change in how technological and vocational education courses in quality learning are delivered has generated better learning outcomes and ensured courses are more interactive among students as well as have improved relationships between teachers and students. The Teaching Excellence Project (TEP) framework has undergone extensive research and been used to design and develop institutional learning and teaching policies. The purpose of this case study is to describe teaching excellence in teaching quality, teaching results, ethics education, and social services as implemented at the Tainan University of Technology (TUT), Taiwan. In this study, the TEP framework within the context of higher education is revisited and examined. The importance of quality learning is addressed, and the three major elements that may foster a deep and meaningful learning inclination, to include assessment strategies, classroom milieu, and alignment of learning objectives, are discussed. The findings demonstrate that success in teaching excellence involves creating a sustainable future that is realized by raising the quality of the education, research, and development that supports the vision of collegial governance and academic freedom.

**Keywords:** *Teaching excellence, change processes, quality learning.*

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### TEACHING STRATEGIES OF DICTATION IN MUSIC EDUCATION

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#### **Abstract**

Dictation which forms the foundation of solfège training is a synthesized product of musical memory, ear training, notation, rhythmic writing and capability of perception. In the field of music education, dictations are the most highlighting feature when it attempts to measure the individuals' ability of music. Therefore, their role in ear training is undoubtedly important. Students having problems with musical dictation generally need to practise and study with their teachers. Therefore, most of the time students remain dependent on their teachers in their dictation studies.

In this study, nine teaching strategies have been developed and suggested for students of music education to study dictation individually, Interval studies; tonality studies; rhythmic studies; rhythmic dictations; mono voice melodic dictations; dictations written with mistakes; melodic dictations supported with rhythm; two voice dictations at medium difficulty level, played on different instruments; filling in the scales in polyphonic dictations played with different instruments.

In this study, practical ways of dictation techniques, methods and teaching strategies have been proposed to students, which will help them study individually. At the same time, these applications are aimed to improve students' musical memories, notation, rhythm skills, and knowledge of instruments. In these practices which are done with the support of CD recordings, dictations are not only played on a piano, but different kinds of instruments both from western music and traditional Turkish music are .

**Keywords:** *Teaching strategies, Dictation training, Musical memory.*

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## **INTERNATIONALIZATION OF TEACHING IN HIGHER EDUCATION: CASE OF TURKISH UNIVERSITIES AND ACADEMICS**

**Fugen Toksoz**

*English Language and Literature Department, Dogus University (Turkey)*

### **Abstract**

The study analyzes the staff mobility of Turkish instructors in Erasmus+ teaching assignments. 45 in-depth interviews are conducted with academics teaching in various fields in different Turkish state and foundation universities. The aim of the study is to show the differences and similarities between teaching in a Turkish university and teaching in a European university, and the impact of this mobility on teaching staff, as well as the internationalization of higher education. The questions that are asked in the in-depth interviews are grouped under the following topics; a) reasons for and expectations from teaching in another university in Europe, b) topics preferred to be taught, c) the comparison of student reactions to lectures and/or seminars, d) contribution of the staff teaching assignment experience to the academics professionally, e) overall assessment of the staff teaching assignment mobility. The overall assessment of Erasmus+ teaching assignment mobility indicates that although it is a short initial contact, it can lead to concrete outcomes such as long-term collaborations and cooperation between universities and/or academics and/or students. Moreover, the findings of the research show that it provides an international environment where academics can assess their teaching, see their strong and weak points and develop themselves accordingly.

**Keywords:** *Internationalization, Higher Education, Erasmus+ Mobility, Teaching.*

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## **WHAT IF OUR SCHOOLS ARE WORKING? BASE, SUPERSTRUCTURE, AND HEGEMONY IN GLOBAL EDUCATION REFORM**

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<sup>2</sup>*Adjunct Instructor, Baruch College-CUNY, Queens, New York (USA)*

### **Abstract**

UNESCO initially identified six internationally agreed education goals to meet the learning needs of all children, youth and adults by 2015. When these goals were not met, the 2015 World Education Forum identified a new set of goals to be achieved by 2030 promising “inclusive and equitable quality education and lifelong learning for all.” This paper explores the role of education in advanced capitalist nations, especially the United States, and in Third World developing nations. In both tiers education performs the institutional goal of sorting people out into socially stratified class roles and imposes a hegemonic belief that the system is fundamentally fair and that those who fail, fail because of their own short-comings. As case studies it examines corporatist reform movements spear-headed by companies like Pearson Education and hedge-fund dominated foundations that use high-stakes standardized testing and charter schools in the United States a campaign to force market economics and for-profit strategies in education while dismantling schools as public institutions. This phenomenon has been a major force undermining the idea of the public sphere in the United States. It has also been used to exploit Third World countries where for-profit edu-businesses that supposedly will train people for employment in low-level technical jobs serving the global economy are being presented as alternatives to poorly funded public institutions. Last, the paper explores the dialectical possibility of the emergence of Gramscian oppositional working-class organic intellectuals in the struggle for public education, a possibility that can have broader implications in the struggle for progressive change.

**Keywords:** *Reform, Schools, UNESCO, Pearson, Education.*

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## **NOT SO FAST: A CASE AGAINST LEAVING LIBERAL ARTS BEHIND IN THE RUSH TO STEM EDUCATION**

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### **Abstract**

Studies indicate that engineers spend between 40-70% of their day on writing tasks, mostly correspondence (Cunningham & Stewart, 2012). A recent study conducted in Qatar revealed that Texas A&M University at Qatar (TAMUQ) alumni engineers, who are mostly in early career, on average spend 31.5% of their working day (2.5 hours) on writing tasks. However, at many universities worldwide, and at TAMUQ, students often have few opportunities for experiential learning of everyday workplace communication and other soft skills, even as Science Technology Engineering and Math (STEM) has become the recent buzzword in educational reform recently (U.S. Department of Education, n.d.).

In fact, the World Economic Forum (WEF) notes that “Overall, social skills—such as persuasion, emotional intelligence and teaching others—will be in higher demand across industries than narrow technical skills” (World Economic Forum, 2016). Among more STEM-related skills such as ICT literacy and mathematical reasoning, WEF also cited active learning, creativity and active listening and critical thinking as vital in the new workplace (Ibid.). Top-tier engineering programs in the US are now acknowledging that engineering education should incorporate such skills (Stanford, 2015).

This paper provides a case study of an English faculty member who is attempting to leverage their experience in their previous career in technical writing to argue the roles and value of teaching the liberal arts in an engineering program. Challenges in course and assignment design, assessment, as well as student and institutional expectations, are detailed, with student feedback also given.)

**Keywords:** *Pedagogy, inductive learning, liberal arts, STEM education.*

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## **DESIGNATION OF COGNITIVE STRUCTURES ASSOCIATED WITH THE CONCEPT OF FOLK SONG OF THE CANDIDATE TEACHERS OF MUSIC**

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### **Abstract**

The purpose of this study is to handle the cognitive structures of the candidate teachers of music associated with the concept of folk song; and to designate their alternative concepts. For this aim, the sample group of the study has been chosen from the 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year students studying in the Music Education Department of the faculty. Some students couldn't participate in the study. The number of those who participated is 105, between 18-22. In this study, the data has been collected by means of a free word-association test, as one of the testing and evaluation alternatives. For this purpose, the concept of 'folk song' has been written on a sheet of A4 paper for five times under the other; and the candidate teachers of music have been asked to write words associated with 'folk song'. They have also been asked to write a sentence about the concept.

First of all, the collected data has been numbered from 1 to 105. Associated concepts have been coded one by one; and the codes have been collected under a title like 'proper and meaningful categories'. It has been observed that the candidate teachers of music have mostly associated the concept of 'folk song' with the concept of 'bağlama'. They have also used the terms "Turkish folk music", "nation", "region", "Anatolia", "custom", "culture" mostly. It has been determined that the concepts that teacher candidates have at least been related to the concept of folk songs are words such as music and sound. When the prospective teachers analyzed the sentences they wrote about the concept of folk song, it was seen that the prospective teachers did not have alternative concepts. It has been seen that the cognitive structures of the teacher candidates have formed in meaningful structure with the concept of folk song.

It was determined that the teacher candidates did not have difficulty in writing the words related to the concept of folk song but they could not associate the folk song concept with the music as a sufficient level. From these results, it is proposed that musical teacher candidates construct and conceptualize musical concepts correctly and consider important concepts in musical education in a comprehensive way.

**Keywords:** Folk song, music education, candidate teachers of music.

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## **INVESTIGATING THE CLASSIFICATION PERFORMANCES OF SUPPORT VECTOR MACHINES AND LOGISTIC REGRESSION: A CASE STUDY ON PISA 2012**

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### **Abstract**

Investigating factors that significantly affect the students' academic performance is an important research area in educational studies. When the relationship between factors and academic performance is truly known, it can be possible to monitor the current problems and take precautions in order to improve the quality of education system. In this sense, choosing the most appropriate method is one of the most challenging subjects for researchers. In recent years, data mining methods have been becoming very popular which give reliable solutions and applied easily for complex huge data sets related with educational environment. In this study two data mining classification methods such as Support Vector Machines (SVM) and Logistic Regression (LR) are used. SVM is one of the important classification algorithms which based on statistical learning theory and structural risk minimization. The main principle of SVM is to find optimum separating hyperplane that divide the data into two classes. LR is a regression model that allows using two categorical variables as a dependent variable. The unknown regression coefficients are estimated by using maximum likelihood estimation with maximizing the likelihood function. These methods are compared in terms of their prediction and classification performances for the study of Programme for International Student Assessment (PISA) in 2012 which is the last released data from the International Association for the Evaluation of Educational Achievement (IEA). The dataset for fifteen years old Turkish students studying in primary education schools is used. Results not only show the best performing classification algorithm, but also determine the important factors that affect the students' academic performance.

**Keywords:** Support vector machines, logistic regression, PISA, academic achievement.

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## **SENSUAL EXPERIENCE IN DESIGN: SEEING AND IMAGINATION IN STUDIO ENVIRONMENT**

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### **Abstract**

In design education it is important to encourage students to create their own way through meaning, context, abstraction or formal relations. There are several pedagogies that are applied in studio environment with this regard. When dealing with design problem, students engage their basic knowledge about design with their experiments, skills and capabilities. In this paper aesthetic experience has considered as one of the linkage with design and designer. Aesthetic experience is an extensive subject that has been considered and discussed for centuries. However, within the scope of this paper it will be addresses as sensual experience through art. In Dewey's pragmatic approach aesthetic experience derives

in the context and linked to object and subject as well as sensuous sense and meaning (Dewey, 1934; Folkman, 2013, p.33). In order to capture how design students can conduct design process through a visual experience and imagination a case study was conducted with five 3<sup>rd</sup> year interior architecture students.

**Keywords:** *Design education, aesthetics experience, visual senses, basic design.*

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## **DECISION TREE APPROACH FOR PREDICTING STUDENTS' MATHEMATICS ACHIEVEMENT OF TIMSS STUDY**

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### **Abstract**

Data mining has grown rapidly in many areas, especially in the field of education in recent years. Application of data mining techniques in educational domain is known as Educational Data Mining which is to discover hidden and useful knowledge from huge databases. The purpose of this study is to classify students according to their mathematics achievement and presenting it by a predictive data mining model using classification based algorithms. Dataset were obtained from Trends in International Mathematics and Science Study (TIMSS) 2011 for 8th grade Turkish students. Various classification algorithms in decision tree method such as J48, Random Forest, Random Tree, Rep Tree and Hoeffding Tree were compared in terms of their classification accuracy. Thus, the students were classified according to their mathematics performance and also the most important dimensions of classification algorithm were determined. Classification algorithms were implemented using WEKA an Open source tool. As a result, the best performing classification algorithm among all five classifiers has been obtained for these dataset.

**Keywords:** *Educational data mining, student's achievement, classification, decision tree, TIMSS.*

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## **CRUCIAL VARIABLES IN DEVELOPING A PROACTIVE ATTITUDE TO IMPROVE SOCIETY**

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### **Abstract**

Learning gain is explored at a UK modern university through a survey designed to measure students' engagement with Active Citizenship. The survey contains three subscales: (1) Knowledge and awareness of different perspectives, (2) Actions taken within the community, and (3) Proactive attitude to improve society. These three dimensions of Active citizenship -cognitive, pragmatic and attitudinal, respectively- draws upon theoretical support from the European's Commission (1998) definition of Active Citizenship. A total of 923 students participated in the study. Results showed significant differences concerning gender and study dedication, but not for age. Discussion is provided around Active Citizenship as a challenging focus for engaging undergraduates in initiatives promoting leadership in a contemporary globalised context.

**Keywords:** *Active citizenship, gender, age, study dedication, higher education.*

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## COMPARING DATA MINING METHODS FOR CLASSIFICATION OF STUDENTS' SCIENCE SUCCESS

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### Abstract

Data mining in the field of education has increased its attention due to enable researchers to overcome some limitations of traditional statistical methods. In order to provide solutions to defective strategies, construct the correct student-based model is a vital purpose of improving managerial decisions. Especially, the outputs obtained from Trends in International Mathematics and Science Study (TIMSS) give comprehensive information about students' performance on mathematics and science at the international level. In this study, classification performances of REPTree, Naïve Bayes and Logistic Regression are compared in order to identify the features that influence the science achievement statistically. For this purpose, TIMSS 2011 data of Turkish 8th grade students are used and two research questions are taken into account (1) which algorithm has the best performance on classification? (2) which features are statistically significant on science achievement?

**Keywords:** Educational data mining, science achievement, classification performance, TIMSS.

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## SUPPORTING STEM TEACHERS' LEARNING: LESSONS FROM A NEWLY ESTABLISHED SCHOOL IN THE MIDDLE EAST

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### Abstract

Prioritizing initiatives and support for teachers of science, technology, and mathematics in international schools can be a complex and difficult decision. The demands of teaching in these schools can be equally complex as teachers are often faced with a myriad of challenges that include, but are not limited to, assimilating into a new culture, emulating the norms of their new school, and re-defining their own identity as a teacher within these new contexts. Furthermore, the confluence of these issues become more pronounced within new schools as the mission, vision, and overall identity of the school is often still in flux. This paper examines a multi-year collaborative project between a new international school in the Middle East and a university-based professional development team in providing comprehensive and scaffolded support to teachers in order to create rich learning experiences for students within technical content areas. Findings highlight some of the more prominent benefits for the teachers and common challenges in developing the internal capacity for professional growth.

**Keywords:** STEM Education, Teacher Development, Middle East, New Schools.

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## CLASS CLIMATE FROM THE PERSPECTIVES OF STUDENTS WITH MIGRATION BACKGROUND AND SPECIAL EDUCATIONAL NEEDS

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### Abstract

One of the hidden mechanisms that make cognitive education work is the perceived class climate by students. There is some evidence that students with special characteristics have problems to participate satisfactorily in school lessons and at school (e.g. Chang, 2004).

Apparently especially students with migration background and special educational needs belong to this group (Van de Vijver, Helms-Lorenz, & Feltzer, 1999; Huber & Wilbert, 2012; Bakker & Bosman, 2003).

For this reason this cross-section study examines the class climate from the perspectives of students with migration background and special educational needs and controls.

**Objectives:** Does migration background or special educational needs lead to a more negative perception of class climate?

**Methods:** For this, 700 girls and boys from grades 4 to 8 in Germany were surveyed by a standardized questionnaire (Eder, 2000).

**Results:** Multivariate Analyses show diverse results. The perception of class climate differs between students with and without migration background and special educational needs depending on school grades and gender. Even more differentiation can be found on class climate subscales like teacher behavior and peers relationships.

**Conclusions:** Implications for the school based support of students perceiving a bad class climate are discussed – especially considering climate factors as important for successful teaching in inclusive school settings.

**Keywords:** *Class climate, migration background, special educational needs, inclusion.*

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## **TRANSFORMING DISTANCE EDUCATION COGNITIVE DISTRIBUTION - CO-TEACHING AND CO-EVALUATION**

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### **Abstract**

One problem with distance education systems is that are usually based on individual work, leaving the student isolated. This can be transformed into appropriate educational designs that take advantage of *distributed cognition* strategies and the advantages offered by online virtual classrooms, by creating a *Virtual Learning Environment (VLE)*. *Distributed cognition* assumes that intelligence, as knowledge and memory are distributed, they are part of the socio-cultural environments that surround the student. Our approach is to take advantage of distributed cognition through peer-based teaching (peers teaching), collaborative peer-to-peer work teams, but also using co-evaluation (peer assessment) where one team evaluates another. Teamwork and co-evaluation favor social interaction and the argumentation that promotes *epistemic activity* expressed in critical, creative and purposeful reflection in students.

In this study, a correlation analysis was carried out with 61 university students, who were studying psychology in distance education at the National Autonomous University of Mexico. The 61 students worked in three groups in virtual classrooms using a *Learning Management System (Moodle 3.1)*. The groups were divided into teams consisting of 3 to 4 students. Each team developed a collaborative essay, students wrote their ideas and proposals in discussion *FORUMS* and wrote their essay on a *WIKI* platform. The evaluation was based on rubrics by teams, with veiled identity, to avoid possible complications or rivalries. Students co-evaluated the collaboration, epistemic activity and participation. We found statistically significant correlations between collaboration and epistemic activity, collaboration and participation, epistemic activity and participation ( $r = 0.845$   $p < 0.01$  \*\*,  $r = 0.861$   $p < 0.01$  \*\*,  $r = 0.848$   $p < 0.01$  \*\* respectively), which indicates that there is congruence and that collaborative work was positive.

**Keywords:** *Distance education, collaborative work, peers teaching, peer assessment, epistemic activity.*

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## **DEVELOPING AND ASSESSING THE GENERIC PROBLEM-SOLVING SKILLS OF UNDERGRADUATE STUDENTS**

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### **Abstract**

Generic problem-solving skills (PSS) of university graduates are becoming an increasingly more desirable outcome because modern workplaces no longer rely solely on knowledge of existing routines, but require adaptability and competent problem solving; therefore, the ability to problem solve is a highly valued competency expected of university graduates, independent of their area of study. PSS training is hindered by a shortage of available tools for monitoring student progress and by lack of defined instructional strategies for development of these skills. Our research is aimed at addressing both of these issues. We have developed an evaluation tool, which we applied to study the dynamics of undergraduate student PSS. We tested first- and upper-year students from 26 different courses (2,229 enrolled students). Overall improvement of PSS was detected for the first-year students over their first term of study, with two different groups of students showing a statistically significant increase in test scores. Even though no significant overall PSS improvement was detected in upper-year students, there was a strong trend towards significantly improved generic PSS in upper-year students compared to the first year students. These observations were confirmed in a follow-up study conducted the subsequent academic year involving an independent group of 1,073 participating students, as well as through a longitudinal study aimed at re-testing first-year students after they had completed two years of undergraduate studies at our university. Our data indicate that most of the standard lecture approaches do not develop undergraduate student PSS. However, we have previously demonstrated that introducing tutor-less problem-based learning (PBL) in a large third-year science class leads to statistically significant improvement in PSS of students taking this course. Our current data also indicate that team projects involving ill-structured problems could be one of the successful strategies for developing the generic PSS of undergraduate students. We conclude that universities and individual instructors must take active steps in order to advance the generic PSS of students taking their classes. Improvement in this critical skill set represents a highly desirable outcome of university education. In addition to discussing our research data, this presentation will outline the PBL technique used in large classes of 20 to 100 students and will describe the PSS evaluation tool used, which is available to all interested instructors.

**Keywords:** *Assessment, higher education, problem-based learning, problem-solving skills, undergraduate students.*

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## **IDENTIFYING STUDENTS-AT-RISK IN SCHOOLS AND WHAT NEXT? PROMOTING REMEDIATION IN THE SCHOOL LEADERSHIP PROGRAMME**

**Disego Vincentia Thobejane & Kgomotlokoa Linda Thaba-Nkadimeng**

*University of Limpopo (South Africa)*

### **Abstract**

This article reports on the findings of the study in which the researchers sought to understand the significant of remedial action after diagnosis and categorisation of students-at-risk, as part of lessons learnt in the implementation of Advanced Certificate in Education-School Leadership and Management programmes rolled out by universities in Limpopo Province, South Africa. A qualitative case study research design was adopted wherein thirty purposively selected student principals participated in the unstructured interviews and the document study. The findings revealed that teachers' duty to engage in remediation was not implemented and that school leaders do not properly monitor the process. This study concludes that educationally challenged students require school intervention before referrals are made. However this area was neglected by educational professionals who are well-grounded in teaching, learning and assessment and resultant is educational exclusion that leads to social and economic exclusion at later years. This study recommends that student at risk and remedial policies and plans should form

part of school leadership programmes. Furthermore, Department of Education should roll-out an in-service training on screening and identification of students at risk; and remediation to support schools in addressing educationally challenged students.

**Keywords:** *School leadership programme, student at risk, remediation, educational professionals, educational exclusion, social and economic exclusion.*

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## **DEFINING THE PRE-VOCATIONAL CURRICULUM: A CASE STUDY IN THE DESIGN OF THE BTEC LEVEL 1 INTRODUCTORY QUALIFICATION**

**Hayley Dalton & Dr. Eleanor Andressen**

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### **Abstract**

Recent policy reforms on technical education in England call for ‘up to a year of tailored and flexible support’ for those learners who are not ready to access a technical or academic route aged 16. A number of drivers may determine what is included in this transition year, with all indications being that the needs of employers will be paramount in defining this curriculum.

Other than references to the transition year, the new policy seems to have overlooked the group of young people, who having had a negative school experience, may lack the basic educational means to progress further without significant intervention. With the limited progression opportunities available to these learners, there is a very real risk that getting the ‘transition’ wrong for those who have few (or no) qualifications post-16 could result in a very high number of young people with no realistic options for progression.

This study considers the purpose(s) of this transition year or ‘pre-vocational phase’ for learners whose primary aim is to progress to further study, rather than develop technical skills in anticipation of imminent entry to the labour market. In doing this, the paper draws on previous work looking at the role of post-16 vocational provision for low attaining pupils and its fitness for purpose in shaping a future workforce as well as addressing issues of social inclusion and widening participation in education.

In developing a new suite of BTEC qualifications, considerable work was undertaken at Pearson to identify the purposes of post-16 Level 1 provision and how it could have the best possible impact on the learners. The reaction from colleges to the proposed qualifications prior to first teaching has been positive but a more detailed analysis on the impact of the qualifications and specifically how they support learner progression needs to be undertaken now.

In this study, consideration is made of what a ‘transition year’ should look like both from the most recent policy perspective and in response to challenges faced by the diverse groups making up this cohort of learners. Drawing on recent academic responses to post-16 policy and provision and early responses to the new BTEC Level 1 provision available from September 2016. The paper will argue that at level 1, the focus should be on the needs of the individual learner and not the employer.

**Keywords:** *Pre-vocational, low attainment, BTEC, transition, policy.*

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## **REASONS WHY STUDENTS LOST INTEREST IN STUDYING**

**Hideyuki Kumaki**

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### **Abstract**

When explaining success or failure in second language learning, “motivation” tends to be the focal point for teachers and students alike. This paper is based on my experience teaching TOEFL-ITP materials to two cohorts of university English language learners over one year (April 2015 to January 2016).

Interestingly, one group retained their initial motivation towards English learning and some of the students in that group even increased their motivation as time went by. On the other hand, the other group lost their interest by the end of the semester. Attitudinal differences such as consistently being late for class, missing a class, not taking notes when necessary and sitting towards the back of the classroom frequently occurred. What could be the reasons for these behaviors? By the same token, my feelings and

attitudes towards the learners who acted out in class were also negatively affected. In short, where my class of motivated students was concerned, my motivation level went up, whereas towards the other class, my motivation level went down. Were changes in my attitude a reflection of the students' motivation, or was low motivation in the students a result of my pedagogy? In other words, did my teaching demotivate the students to the point where their negative response caused me to lose motivation, too?

**Keywords:** *Motivation, intrinsic motivation, extrinsic motivation, ideal L2 self, ought-to self.*

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## **BILINGUAL LATINO TEACHERS: EXPERIENCES OF LANGUAGE SHAME AND LOSS IN THE TEACHING OF ELLS**

**Lisa Winstead<sup>1</sup> & Congcong (Penny) Wang<sup>2</sup>**

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<sup>2</sup>*Department of Languages and Literature, University of Northern Iowa (USA)*

### **Abstract**

Bilingual teachers come into the workplace with a plethora of language capital, language registers, and language varieties as well as cultural understanding associated with knowing more than one language. Such expertise and capital can be used to promote positive well-being and language bridging for bilingual and plurilingual newcomers in mainstream schools. While the European Union has promoted language policies that promote plurilingualism, instances of home language restriction in schools has occurred. Primary language restriction is historically charged in the United States. English-only policies enacted as early as the 1850s serve as reminders that other languages will not be tolerated. These sentiments were reflected in more recent legislation, Proposition 227, which was passed in California in 1998. While the proposition has been repealed through the recent passage of Proposition 58 in 2016, it has negatively influenced educator and administrator decisions about primary language use and support in mainstream classrooms. The intent of this multiple case study was explore Spanish-English bilinguals lived experiences utilizing their primary language as ELL children and as adult bilinguals teaching in predominantly Latino populated mainstream classrooms. The goal was to determine what types of language experiences shaped their images about themselves as children, whether those experiences have changed or are similar to those of their childhood. Participants were recruited from the Bilingual Authorization credential program at an urban university in Southern California. Eight participants out of 14 volunteered to participate. Data were collected from journals, interviews, and artifacts over a period of two years from the point in which teacher participants were interviewed for participation in the Bilingual Authorization Program and after they received the credential. The data corpuses were transcribed and reviewed for recurring themes and patterns. Salient themes converged based on participant childhood schooling and adult teaching experiences including: institutional language shaming, institutional instigated language loss, family-supported language pride, and family-supported language retention. Bilingual teachers reported adult home language shaming by some educators and administrators in schools. Native language use was discouraged or criticized. Teachers were encouraged to provide English Learner newcomers with English-only approaches and resources in the classrooms. All experienced some type of discouragement, language shaming, and a couple experienced inklings of possible job loss at their school sites which prevented them from providing primary language support for Spanish-speaking newcomer children. Implications for administrators and educators are addressed.

**Keywords:** *English Language Learners (ELLs), bilingual education, English-only policy, language loss, teacher education.*

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## **YOUTH BULGING IN SOUTH AFRICA: THE ROLE OF ENTREPRENEURSHIP EDUCATION IN THE SCHOOLING SYSTEMS**

**Disego Vincentia Thobejane & Kgomotlokoa Linda Thaba-Nkadimene**

*University of Limpopo (South Africa)*

### **Abstract**

This paper reports on the research findings on the study on youth bulging and the role of entrepreneurship education in the primary and secondary schools. This study aimed at seeking possible solutions to address political unrests, conflicts in societies and crime that emanate from youth bulging in South Africa. This research was conducted in rural and semi-urban areas in Capricorn District, Limpopo Province of South Africa. Literature on youth bulging in South Africa and the role of elementary education was reviewed and was supported by empirical study wherein 20 secondary school educators were purposively selected. Content analysis and narratives were used to analyse data, derived from interviews. The findings revealed that quality basic entrepreneurship education that is delivered by committed and competent teachers is required to curb growing youth bulging in South Africa. The findings suggest that adding entrepreneurship curriculum in the basic education from the foundation phase can help inculcate within the South African children basic entrepreneurial skills that are required for their future full economic participation in the business and labour market. This study concludes that entrepreneurship education has a role to play in addressing a problem of youth bulging and can be used to upgrade economic development and growth of the developing country, such as South Africa. The study further recommends that the entrepreneurship education should be a core curriculum of basic education, and should be integrated in the teacher education curriculum whereas practising teachers requires training on the integration of entrepreneurship education in their subjects.

*Keywords: Youth bulge, entrepreneurship education, unemployment, poverty, economic development.*

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## **USING AN APP AS A LOG TO COLLECT DATA ABOUT THE FEEDBACK PERCEPTIONS OF FIRST YEAR EAL (ENGLISH AS AN ADDITIONAL LANGUAGE) UNDERGRADUATE STUDENTS**

**Karen Olave**

*School of Education, University of Queensland (Australia)*

### **Abstract**

International education is considered the third largest export industry in Australia. An increasing number of international higher education students are choosing Australia as their destination. Many are English as an Additional Language (EAL) students, who come with different cultural backgrounds and diverse previous learning experiences. Thus, several universities have been looking carefully at how to ensure that these students, for whom English is not their first language, develop the skills that allow them to engage and complete their studies successfully. Assessment for learning is seen as an important way of enhancing and promoting students' learning. Feedback, which is considered part of the assessment for learning process, is recognized as beneficial to students' learning. This investigation is qualitative in nature aiming to understand how students perceive and use feedback. Data collection methods included interviews and the completion of a log using an app. The app enabled an intensive investigation of specific experiences of EAL students receiving feedback. Using the app enabled an exploration of the landscape of feedback from the EAL students' perspective, including the sources of feedback, how much they learnt from the feedback, and what was the feedback about. The findings have implications for universities to facilitate success for international students as the data from the app revealed students' behaviours, preferences and perceptions of the feedback. Feedback from peers and tutors were equally ranked in terms of contributing to their learning process. Lecturers were the least source they received feedback from.

*Keywords: Feedback, international students, higher education, EAL (English as an Additional language).*

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## **EXAMINATION OF THE EMPLOYMENT HOPE LEVELS OF TURKISH CONSERVATORY STUDENTS**

**Mürvet Nevra Küpana**

*State Conservatory, Sakarya University (Turkey)*

### **Abstract**

The purpose of this study is to examine the employment hope levels of Turkish conservatory students in terms of different variables. Descriptive survey model was used in the study. The study group was comprised of 344 conservatory students in Turkey during 2015-2016 school year. "Employment Hope Scale" was the data collection tool. The data obtained from this inventory and "personal information form" which was prepared by the researcher were analyzed by independent sample t-test, one-way analysis of variance (ANOVA) and Welch test. According to the results obtained the psychological empowerment ranking of the Turkish conservatory students in the study vary across the age and the department. Goal-oriented pathway ranking of the Turkish conservatory students in the study vary across the department and the instrument.

**Keywords:** *Conservatory students, music education, employment hope, hope.*

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## **SEN AND MAINSTREAM TEACHERS' PERCEPTION OF GIFTEDNESS IN ITALIAN MIDDLE SCHOOLS DO THEY EVALUATE GIFTED STUDENTS IN THE SAME WAY?**

**Clarissa Sorrentino**

*Department of History, Society and Human Studies, University of Salento (Italy)*

### **Abstract**

Giftedness Evaluation represents a new emergent area of study in Italy. A didactic intervention starts from a good evaluation of children's potential. The assessment of children capacities is the first step of personalized didactics. Due to the lack of appropriate identification procedures, Gifted students often underachieve and do not receive appropriate instructional and educational supports. In the framework of inclusive education, the study highlights the importance of the evaluation of each student's potential in order to create didactics plans and learning experiences that fulfill their educational needs. This paper presents the result of a comparison between Special Educational Needs teachers and Mainstream Teachers in the use of the Renzulli-Hartmann Rating Scale (2010) in the Evaluation of Giftedness in three Italian middle schools in south-eastern Italy. Both qualitative and quantitative data were collected. The results show a high correlation between SEN and Mainstream teachers evaluations in each subscale (Creativity, Learning, Leadership, Motivation, Artistic Attitude, Communication-Expressiveness, Communication-Precision and Planning). However, T-students Analysis show differences in teachers' perception of Creativity, Learning and Artistic Attitude indicating the need for further studies in this way.

**Keywords:** *Giftedness, Evaluation, Teachers, Middle School, Rating Scales.*

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## **PRE-SERVICE TEACHERS PERCEPTIONS OF COOPERATIVE AND INDIVIDUAL-LEARNING**

**Michal Nachshon<sup>1</sup> & Amira Rom<sup>2</sup>**

<sup>1</sup>*Oranim Academic College of Education, Tivon & Ministry of Education (Israel)*

<sup>2</sup>*The Department of Education & Psychology, The Open University of Israel (Israel)*

### **Abstract**

Cooperative learning is a style of learning strategy that becomes more and more popular as an active pedagogical tool for advancing academic performance (Tsay & Bradym, 2010). Some researchers see it as a good strategy for reducing antisocial behavior of adolescents (Eskay et al., 2012) Burdett & Hastie (2009), who studied cooperative-learning in higher education, say there are advantages and disadvantages in cooperative-learning. For example, students were worried that the group will

overshadow the individuals and that their grades will be lower than those achieved in individual work (Jolliffe, 2007).

The aim of this research was to identify students of teachers training program preferences: Do they prefer to carry out their assignments through cooperative learning or through individual learning? An additional objective was to clarify the reasons offered by students, given that the character of the justifications opens a window onto the students' educational and social world.

The sample was 40 teachers' training students from a teachers-education college. They had carried out individual and cooperative learning in two courses for one semester. At the end of the semester, they answered a questionnaire with five open-ended questions. Their answers were content-analyzed and classified into categories corresponding to their justification. These were validated through a process of inter-rater reliability. The responses in each category were also counted quantitatively.

Findings indicated no differences in the number of pre-service-teachers that prefer group (N=15) vs. individual (N=14) learning (11 didn't express a clear opinion).

The reasons for preferring cooperative learning were: deep and productive thinking, encounter with different content worlds, intellectual contribution and social aspects. At the bottom of the list: clear work rules, a place to express an opinion and better results. The reasons for preferring individual learning were technical issues (time and distance) and personal variables: the desire to be in control, the worry about losing personal freedom, etc. The study indicates that students see cooperative -learning as an opportunity to reach achievements with the group, and also as social opportunities and as ways to make friends.

The findings present the difficulties in cooperative -learning, raised by the students and their suggestions for ways to handle these problems.

To summarize, the perceptions of the learners and their preferences offer evidence of the existence of a need for a range of methods in order to make the learning accessible to the learner in the way most appropriate to him or her.

**Keywords:** *Teachers' training, cooperative-learning, individual-learning.*

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## **EYES WIDE OPEN: EXPLORING FACULTY PERCEPTIONS ABOUT STUDENT PROGRESSION AND RETENTION IN HIGHER EDUCATION**

**Angeliki Papakonstantinou<sup>1</sup> & Suzie Savvidou<sup>2</sup>**

<sup>1</sup>*Business Administration and Economics Department*

<sup>2</sup>*Psychology Department*

*The University of Sheffield International Faculty, CITY College (Greece)*

### **Abstract**

Coping with the demands of higher education (HE) has become such a major issue in academia, that some universities have set generic modules for all disciplines to help their students acquire knowledge and skills that are necessary for the transition into this challenging context. Alike several other developments and changes in academia, this developed interest in the students' coping skills has triggered debates across governmental, public and educational frames (Knox, 2005). At the same time, the number of students entering HE increases dramatically, influencing the academic culture critically by triggering more scientific research and practices in the area (Taylor & Bedford, 2004). Despite the several measures taken to ensure smooth transition, still many educators do not recognise how much they contribute to the students progression (Regan, Dollard & Banks, 2014). The aim of the paper is to provide a better understanding of the differences between teachers, staff and students about students progression, retention and drop-out rates (PRD).

**Keywords:** *Higher education, student progression, retention.*

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## **WHOLE SCHOOL SYSTEMS FOR ENGAGING STUDENTS IN LEARNING AND IMPROVED BEHAVIOUR**

**Judith Foggett<sup>1</sup>, Robert Conway<sup>2</sup>, & Kerry Dally<sup>1</sup>**

<sup>1</sup>*School of Education, University of Newcastle (Australia)*

<sup>2</sup>*School of Education, Flinders University (Australia)*

### **Abstract**

Student problem behaviour remains one of the principal issues of discussion for teachers, pre-service teachers, principals in schools and policy makers in education departments. The concern about the effects of problem behaviour on students' engagement with learning and their academic and social outcomes has resulted in considerable research to determine which approaches should be utilised in schools that will improve the engagement and behaviour of students. This study reports upon the results of interviews with principals and 150 surveys of principals and teachers working within a Local Management Group (LMG) model for managing student problem behaviour within an educational jurisdiction in NSW, Australia. The functioning and implementation of the LMG were analysed in the light of literature on best practice approaches for managing student problem behaviours. The study aimed to fill a gap in the literature on schools working together to improve both academic and social outcomes for students with problem behaviours, and improved outcomes for all students. The results of this study concluded that the LMG model develops opportunities for schools to establish common links and practices in both behaviour and learning to ensure that students' needs are met throughout their schooling. The LMG model supports schools working together and supports teachers' professional learning through effective leadership practices and consideration of the needs of students and teachers within the school community.

**Keywords:** *Behaviour, engagement, whole-school, systems, management.*

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## **DYNAMICS OF PEER TUTORING IN A HIGHER EDUCATION PROGRAM IN TRINIDAD AND TOBAGO**

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*School of Education, the University of the West Indies, St. Augustine (Trinidad and Tobago)*

### **Abstract**

Peer tutoring has been widely employed at undergraduate level in higher education settings but there is less research into its usefulness in graduate education courses. Extant research indicates benefits to tutees through knowledge-sharing and socialisation. Peer tutoring involves the use of classroom peers in specific ways such as improved academic improvement and support, and are meant to augment instruction from lecturer. This study focuses on selected peer tutoring relationships in a post-graduate Diploma in Education Information Technology/Computer Science course in Action Research in Trinidad and Tobago. A qualitative narrative study took place with eight participants, four of whom were tutors and four were tutees. Data were collected through interviews with tutors and tutees separately to understand the dynamics of the tutoring relationship. Thematic analysis on the transcribed interview data took place through written transcription and coding iterations. The tutoring took place over one semester on a one-to-one basis. Variation in learning outcomes and perceptions of the relationship are elicited. Findings indicate variation on the need for the tutoring, and that two of the relationships did not occur smoothly. Only one tutee was willing to receive help from the tutor as three tutees were reluctant for help and felt that they were managing well on their own. Tutors tried to motivate their tutees through online and face-to-face meetings. Additionally, the tutor and tutee often engaged in power struggles and a worsening of collegial relations. As a result, even though three of the tutees passed the course, they hardly acknowledged the contributions of the tutor. Tutors experienced some benefits of the tutoring such as improved empathy and but felt that time was lost from their own studies. Recommendations are made for improving the peer tutoring process among adult learners to maximise the benefits for both tutors and tutees.

**Keywords:** *Peer tutoring, power relationships, knowledge-sharing, higher education.*

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## THE NEGLECTED TWIN: NUMERACY PATHWAYS TO CRITICAL THINKING

**Maura Sellars**

*School of Education, University of Newcastle (Australia)*

### **Abstract**

This writing challenges the dominant discourse around critical literacy as the major proponent of critical thinking. Instead, it argues that critical numeracy skills best support the development of the cognitive capacities of critical thinking as an essential 21st century competency. A widely -accepted definition of critical thinking is examined in order to identify the critical cognitive components of this mental activity and the ways in which they are operationalized to solve problems and to develop critical perspectives in the context of classroom learning and beyond. An analysis of the thinking skills required to engage successfully in mathematical learning is also undertaken, followed by an extrapolation of the interpolated components of adaptive reasoning, which is the vital intellectual activity required for creative problem solving. A framework is then developed to illustrate that the logic and rational thinking that are characteristics of adaptive reasoning, together with the mathematical understanding of generalizing, are the foundational capacities upon which critical thinking is predicated.

**Keywords:** *Numeracy, Critical Thinking, Adaptive Reasoning.*

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## ANALYZING WESTERN CHOIR EDUCATION COURSES IN MUSIC DEPARTMENTS OF FINE ARTS HIGH SCHOOL

**Sema Sevinç & Vahide Bahar Yiğit**

*Necmettin Erbakan University (Turkey)*

### **Abstract**

This research is a descriptive study using qualitative research methods that are used in the courses of Western Music Chorus Education courses in Fine Arts High School Music department.

This research was conducted as an analysis of the interviews conducted with the teachers who are practicing the teaching program in order to determine the teaching methods used in the implementation of the Western Music Chorus Education Curriculum, which was put into force by the Ministry of National Education Ministry of Education Board of Education, number 156 and 11.09.2009.

A standardized open-ended interview technique was used to obtain information on the subject, thus enabling a realistic and holistic examination of the environment or events under study. A semi-structured interview form consisting of 1 open-ended interview question was used as data collection tool in the research. This form was answered by 10 chorus teachers who are working on the Fine Arts High School.

All the obtained data were interpreted by analyzing the content and the results of the research showed that the teaching methods used in the western music chorus education course were focused on attention, motivation, goal informing and pre-condition learning with reminder activities, technology-supported teaching method and cooperative learning (team) study with the method of teaching.

**Keywords:** *Western Music Choir Education, High School of Fine Arts, Teaching Methods.*

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## STUDENTS' PERCEPTIONS OF COOPERATIVE-LEARNING

**Michal Nachshon<sup>1</sup> & Amira Rom<sup>2</sup>**

<sup>1</sup>*Oranim Academic College of Education, Tivon & Ministry of Education, (Israel)*

<sup>2</sup>*The Department of Education & Psychology, the Open University of Israel (Israel)*

### **Abstract**

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Burdett & Hastie (2009), who studied cooperative-learning in higher education, say there are advantages and disadvantages in cooperative-learning. For example, students were worried that the group will

overshadow the individuals and that their grades will be lower than those achieved in individual work (Jolliffe, 2007).

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**Keywords:** *Teachers' training, cooperative-learning, individual-learning.*

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## **DEAF-BLIND STUDENTS ARE PERCEIVED TO HAVE LOW ABILITIES DUE TO LIMITED LANGUAGE SKILLS**

**Julia Laderer Young**

*Department of Special Education, South Bend Community School Corporation (USA)*

### **Abstract**

The nature of this study is to provide information regarding deaf-blind students' poor performance on standardized tests because of poor language skills, causing educators to assume they are low achievers. What strategies should educators use to help them, so they will increase their language skills, thus giving them the tools to succeed academically? How can deaf-blind students be provided opportunities for incidental learning to expand their foundation of language? Measuring deaf-blind students' academic and verbal abilities is difficult because of their poor communication skills. Informal assessments are used to judge deaf-blind students' proficiency, as no standardized assessments exist to measure their cognitive and linguistic abilities. This leaves the psychologist to estimate where the students' ability levels lie. All too often, educators rely far too heavily on formal assessments to help guide their instruction. Reliance on such estimates makes it difficult for teachers to design programs to meet their unique academic needs. This study suggests concrete strategies for increasing deaf-blind students' language skills by incorporating opportunities for incidental learning that will increase the frequency and function of language, thereby giving these students the tools needed for academic success.

**Keywords:** *Incidental learning, deaf-blind, voice-output communication aid (VOCA), funnel questions, intervener.*

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## **UNDERSTANDING MULTI-GRADE TEACHING WITHIN SOUTH AFRICAN CONTEXT**

**Kgomotlokoa Linda Thaba-Nkadimene, Raesetja Letjobana Cathrine Lekgothoane, Disego Vincentia Thobejane, & Mavhungu Samuel Nkadimene**

*University of Limpopo (South Africa)*

### **Abstract**

Multi-grade teaching arrangement is a common practice across the globe and most often than not, it comes as a contingency strategy in developing countries, instead of it being a choice of such pedagogy. The use of multi-grade teaching as a back-up teaching arrangement was not successful in many African educational ministries because of inadequacies in schools' resources and a lack of specialised curriculum for teachers and schools. Some educational ministries display an effort in integrating multi-grade teaching in the teacher education and in the schooling curriculum.

However, South African approach to teacher training still focuses on mono-grade teaching. Teachers from teachers' training centres are only equipped to provide mono-grade teaching despite the fact that many of them land in multi-grade schools. The purpose of the study was to examine the instructional practices used in multi-grade teaching. The study was underpinned by interpretive epistemology that is embedded in a qualitative research paradigm, and generated its empirical data from unstructured interviews and document study. Two Limpopo primary schools, one community school and one farm school were purposively selected. The findings revealed that both schools were organised as mono-teaching schools, and due to small rolls of learners they were converted to multi-grade teaching arrangements. Teachers use different curriculum for different grades within one classroom. They teach one grade when the other grades are given activities. The teachers are faced with a challenge of curriculum coverage, a lack of training to teach in multi-grade schools and a lack of curricular support. This study recommends collaboration between the Department of Basic Education and Department of Higher Education and Training and teacher training centres to provide in-service training for teachers in multi-grade teaching. A long term-strategy is recommended wherein multi-grade teaching is integrated within teacher education curriculum.

**Keywords:** *Multi-grade teaching, mono-grade teaching, instructional practice, pedagogy, curriculum.*

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## **PARTICIPATION IN EXTRACURRICULAR ACTIVITY: DISTINCTIONS CAUSED BY CULTURAL AND SOCIAL STATUS OF FAMILIES**

**Sergey Kosaretsky**

*Institute of Education, National Research University Higher School of Economics (Russian Federation)*

### **Abstract**

We present results of research on involvement of children in extracurricular activity conducted by NRU HSE together with Levada Center as part of «Monitoring of Education Markets and Organizations». The survey covered over 2,000 parents of school students involved in extracurricular activity provided by various institutions. We analyze correlations between parameters of student involvement in extracurricular activity (the rate and continuity/discontinuity of services consumption; the choice of types of extracurricular activity programs and institutions; the place of extracurricular activity in the structure of spare time and vacations) and family characteristics (place of living, financial status, cultural and educational background). We discuss how manifestation of inequality in access of Russian children extracurricular activity is affected by some specific features of organization and regulations in this field. We suggest solutions to allow for the revealed differences in the national education policies.

**Keywords:** *Extracurricular activity, educational inequality, cultural capital, educational policy.*

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## **INVESTIGATING THE USE OF VIRTUAL ENVIRONMENTS IN EDUCATION TO ENHANCE STUDENTS' PERFORMANCE IN THE KINEMATICS GRAPHS**

**Itumeleng Phage**

*Department of Mathematics, Science and Technology Education, Central University of Technology, Free State (South Africa)*

### **Abstract**

There are various methods to teaching and learning and simulation, as a practical component of study, can be used to stimulate and enhance teaching and learning in the classroom. The researcher investigated how efficiently and effectively does the results of simulation activities mean to learners and teachers and how teachers can use it as method of teaching to instill curiosity among learners to apply that knowledge in their daily life environment.

The study was conducted with first year physics students. Sixty three (63) of these students participated in this study. Students had to do a kinematics experiment in a laboratory measuring position vs time and velocity versus time. The purpose of the experiment was to determine the slope (average velocity and acceleration) and area (displacement) of these graphs. Then they performed the experiment using technology known as The Physics Education Technology (PhET) Interactive Simulations Project. The results indicated that students made sense of what they are supposed to and what the experiment is about after simulation experiment. They managed to identify and correct their mistakes from the laboratory experiment, hence their keenness to redo the experiment in the laboratory. PhET Interactive Simulations helped them to go back to the laboratory and perform the experiment better, hence being able to obtain required data, analyse and interpret data and results. They could then be able to use algebraic knowledge of functions and graph to predict type of graph and solve kinematics formulae to interpret results (collected data and resulting graphs).

It is anticipated that this study will assist the physics lecturer on how to enhance conceptual understanding of kinematics graphs, but not replace practical laboratory experiments with laboratory experiments. It will also help to enable them to apply and relate knowledge of algebraic functions and graphs in order to solve kinematics problems and graphs. It will still, except gaining conceptual understanding and knowledge of subject content, also enhance the laboratory experiment skills and techniques on how effectively and efficiently they can conduct physics experiment in the laboratory.

**Keywords:** *Simulation, kinematics and algebra graphs, conceptual understanding, learning and teaching, MBL, robotics.*

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## PROJECTS AND TRENDS

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### **POTENTIAL OR PROBLEM? ANALYSING SECONDARY SCHOOL TEACHERS' CAUSAL ATTRIBUTIONAL OUTCOMES OF STUDENTS WITH LEARNING DISABILITIES**

**Dr. Stuart Woodcock**

*Macquarie University, Faculty of Human Sciences (Australia)*

#### **Abstract**

Despite strong support for inclusive education in principle, many teachers and administrators still demonstrate mixed responses to the inclusion of certain students in their classrooms. Students with specific learning disabilities (SLD) form a large group of students in inclusive classrooms yet some provincial, state and national jurisdictions fail to acknowledge the existence of these students. Not acknowledging and understanding these students can deny them the recognition and resources necessary for their genuine participation in education and, in turn, society. The aim of this study is to examine British in-service secondary teachers' attributional responses to students with and without specific learning difficulties. The participants included 122 British secondary school teachers who were surveyed in response to vignettes of hypothetical male students who had failed a class test. The study found that while teachers attributed more positive causes towards students without SLD, they exhibited more negative causes towards students with SLD. Teachers' causal attributional outcomes of students' level of achievement can impact upon the students' own attributions, with teachers' responses for students with SLD having the potential to, unintentionally, influence students' own sense of self-efficacy and motivation. If students with specific learning difficulties are to achieve their full potential in inclusive classrooms, the students and those within their learning environment must recognise and foster their ability to succeed. Moreover, if education systems truly aim to make a paradigm shift towards inclusion for all and understand the needs and abilities of students with specific learning difficulties, focus needs to be put on systemic support at the leadership level to help teachers achieve this. The paper concludes with a consideration of the implications of the research and recommendations for practice.

*Keywords: Attribution theory; specific learning difficulties; in-service teachers; inclusion.*

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### **INCLUSIVENESS IN THE ONLINE CLASSROOM: A STRATEGIC PLANNING APPROACH**

**Neil M. Alperstein**

*Department of Communication, Loyola University Maryland (USA)*

#### **Abstract**

Based on the theory of strategic process and development, this paper provides a road map through which online course content can be brought into compliance with current regulations regarding accessibility as well as applying principles of universal design for learning (UDL). Strategic planning, which can be applied to many aspects of organizational life, refers to a "systematic process of envisioning a desired future, and translating this vision into broadly defined goals or objectives and a sequence of steps to achieve them" (Schmidt & Laycock). Turning that concept slightly, this paper advocates planning strategically to achieve accessibility in online courses, the outcome of which is that institutions of higher learning will ultimately provide students with the knowledge and tools to operate both within the university environment and beyond. While it is clear that colleges and universities have a legal responsibility to make their course content accessible to those students who may be deaf, blind, have a permanent or temporary physical disability that would inhibit their access of online course content, they also have a moral obligation as well to create courses to accommodate students with different learning styles.

*Keywords: Accessibility, universal design, WCAG2.0, disabilities, online courses.*

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## **THE NEOLIBERAL REVOLUTION IN EDUCATION: THREE INSTRUMENTS FOR DIAGNOSING AND ADDRESSING THE PROBLEM**

**Johannes L. van der Walt**

*EduH-Right Research Unit, Faculty of Education Sciences, Potchefstroom Campus, North-West University (South Africa)*

### **Abstract**

Neoliberalism has had a devastating effect on the management of schools and universities. This paper identifies and outlines the problem, and then discusses *the social space and ethical action theory* which encapsulates three heuristic instruments for adequately understanding and addressing the problem, namely those of sphere sovereignty, sphere universality and ethical action within the relevant social (i.e. pedagogical) space. The thrust of the paper is that whereas before we had an intuitive “suspicion” that all is not well with schooling, teaching and learning and academia that are in accordance with the neoliberal orientation, we now have particular heuristic instruments at our disposal to help us understand the problem and to address it more effectively.

**Keywords:** *Neoliberalism, schools, universities, social space and ethical action theory, education.*

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## **THE COMMON CORE DEBACLE: FAILED SCHOOL CURRICULUM REFORM IN THE UNITED STATES**

**Dr. Alan Singer<sup>1</sup> & Felicia Hirata<sup>2</sup>**

<sup>1</sup>*Professor, Curriculum and Teaching, Hofstra University, Hempstead, New York (USA)*

<sup>2</sup>*Adjunct Instructor, Baruch College-CUNY, Queens, New York (USA)*

### **Abstract**

National Common Core Standards and accompanying high-stakes assessments for evaluating students, teachers, schools, families, communities, and states have led to fiery political and educational blowback in the United States. The Common Core standards were intended to define the reading and math skills that students should be able to do at each grade level. Development started in 2008 when the 2016 high school graduating class was in fourth grade. Critics charge Common Core standards have turned reading into a discombobulated and often meaningless chore for young people and curriculum, especially in schools attended by children from working-class and poorer families, into test prep academies to prefer students for high-stakes tests. The National Assessment of Educational Progress (NAEP) is the largest nationally representative and continuing assessment of what America's students know and can do in various subject areas. Its mandate to test was included in the original No Child Left Behind legislation. NAEP tests are given to a representative sampling of about 30,000 private and public school students every two years in Grades 4, 8 and 12. NAEP, which is administered by a federal agency that is part of the national Department of Education, periodically tests students in math, reading, science, the arts, civics, geography, U.S. history, and technical literacy. By the 2014-15 academic year, every state was required to have in place Common Core aligned assessments to ensure that students were “college- and career-ready.” The 2016 high school graduating class was in eleventh grade. In Fall 2015 the NAEP tested a representative sample of high school seniors in the 2016 graduating class. After seven years of Common Core curriculum and assessment, the NAEP tests showed the average performance of high school seniors dropped in math and failed to improve in reading from 2013 to 2015. Performance was also down on both tests from 1992, the first year that similar tests were used. There was a decline in the percentage of students in both public and private schools that are rated as prepared for college-level work in reading and math. In 2013, 39% of students were considered ready for college math and 38% were prepared for college-level reading. But in 2015, only 37% were prepared for college. Worse, while scores improved for students in the highest percentile group in reading, they dropped in reading and math for students in the lower percentiles. The number of students scoring below “basic” in both subjects also increased from 2013. These were the students that Common Core and the high-stakes testing regime were supposedly designed to support the most. Test scores for students in 4th and 8th grade who have been trapped in Common Core classrooms with Common Core curriculum for pretty much their entire school careers showed a similar decline in math.

**Keywords:** *Reform, Schools, Common Core, Assessment.*

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## **PROFESSIONAL TEACHING PRACTICES TRANSFORMATION FROM THE USE OF TELESSALA™ METHODOLOGY: CASE STUDY OF AUTONOMY PROGRAMME**

**Ana Teresa Pollo Mendonça<sup>1</sup> & Ariana Cosme<sup>2</sup>**

<sup>1</sup>PhD student at Faculty of Psychology and Educational Sciences, Porto University (Portugal)

<sup>2</sup>Teacher at Faculty of Psychology and Educational Sciences, Porto University (Portugal)

### **Abstract**

The purpose of this paper is to oral present in the International Conference on Education and New Developments, inside the topic Projects and Trends and sub-topic Pedagogic Innovations, the research developed in the Doctoral Programme in Science of Education at Porto University, Portugal, which aims to understand and analyse the transformations in professional teaching practices of educators who used the Telessala™ Methodology in *Autonomy* Programme in Rio de Janeiro, Brazil, between 2009 and 2014. The motivation to write about this subject came up during the years I worked as an educational consultant at Roberto Marinho Foundation with cities and states government public policies for discrepancy between age and grade correction to youth and adults students of Brazilian public schools, that uses this innovative pedagogic and didactic methodology.

This research is based on a qualitative methodological approach as it believes this work seeks to interpret a unique and complex reality. The option for the case study appears because it is about a specific matter and so need to describe it in detail, conceptualize it, theorize it, and contextualize it in depth. Thus, it has been developed from the content of semi-structured individual interviews and focus groups with these educators of primary and secondary education. As analysis procedure has been used the content analysis technique, which aims to give voice to the sayings, unspoken and silences of the participants.

Regarding their transformations, educators reported about their challenges working with an innovative pedagogic (P.C.: “you will have many taboos, you will have several difficulties, you will have many problems adapting and even breaking paradigms...”) but also achievements (PL: “I left my comfort zone, which gave me new life, that feeling of the beginning of the career, when the spell was present in every new experience”).

They also related about their role in the teaching-learning development process (P.N.: “because in *Autonomy*, there wasn't a major figure, authoritarian, who owned all the knowledge. What existed was a mediator, which also learned...”), and their professional maturity (P.E.: “the experience I won, today I'm another professional, and I have another view about education. Before that, I was a teacher just to be a teacher...”), (P.N.: “I think before *Autonomy* I was a teacher, now I'm an educator...”).

So, it can be concluded, according to the research purpose, that yes, there has been transformations in professional teaching practices of educators who use of *Telessala™ Methodology* in *Autonomy* Programme.

**Keywords:** *Telessala™ Methodology, Autonomy Programme, Professional Teaching Practices, Transformation, Pedagogic Innovations.*

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## **OUTDOOR LEARNING IN THE CZECH REPUBLIC – CONFRONTATION BETWEEN PLANS AND REALITY**

**Hana Svobodová, Eduard Hofmann, & Radek Durna**

*Department of Geography, Faculty of Education, Masaryk University (Czech Republic)*

### **Abstract**

Curricular system in – Czechia is formed on two levels. State level is represented by National Education Development Programme and Framework Educational Programmes (FEP). The FEPs are created for individual fields of education and define the compulsory contents, scope and conditions of education for its individual stages. The implementation of the state curriculum at the school level is represented by the School Education Programmes (SEPs). SEPs stand for educational autonomy of schools as well as teachers' professional responsibility for the outcomes of the educational process. The point of SEP lies in motivating teachers to elaborate on their own ideas (including outdoor learning) regarding education in the schools where they teach at.

The aim of this paper is to confront the SEP content analysis of selected primary schools and the views of teachers in relation to the outdoor learning as a powerful teaching strategy. SEP content analysis was performed using quantitative methods on a sample of 50 schools in Czechia. The particular anchoring of various forms of outdoor learning in the SEP was analysed in terms of time, space, subjects taught, a

complex concept, etc. The identified data have been verified by qualitative methods – semi-structured interviews with teachers at 10 schools from the sample. The results of the interviews should also extend the analysis of other data that are not detectable by analysis of documents – e.g. positives and negatives of outdoor learning from the perspective of teachers, barriers to implementation, or of the assessment of this form of teaching. It was also examined whether the outdoor learning at the school is implemented as a comprehensive concept – whether the forms of outdoor learning are continually developed in higher grades in terms of knowledge and skills.

Results of confrontation show that SEPs are generally formal documents that each school further elaborated in annual thematic plans. These plans give a clearer idea of what the schools in terms of outdoor learning realise, including specification of forms and hours. Furthermore, it is shown that the teacher – according to his experience and courage to implement outdoor learning – has a major influence on the intensity and implemented forms of outdoor learning. As the largest barrier to the realization seems to be the financial aspect, good communication with parents and school management is essential. Therefore, further research is focused on evaluating individual forms of outdoor learning from the perspective of parents and pupils.

**Keywords:** *Czech Republic, outdoor learning, School Education Programme, primary school.*

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## **GAMIFICATION IN LEARNING CHINESE: USING KAHOOT TO MOTIVATE NON-CHINESE SPEAKING HIGH SCHOOL STUDENTS**

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### **Abstract**

“Gamification”, the integration of gaming elements, mechanics, and frameworks into non-game situations and scenarios as described by Fotaris, Mastoras, and Leinfellner & Rosunally in 2016, is often used in the classroom to motivate and engage students in learning. However, despite the rapidly growing number of American students learning Mandarin Chinese – American president Barack Obama has committed to having one million students learning Mandarin by 2020 – and the known difficulties that Westerners schooled in alphabetic, non-tonal languages have in learning the tonal, non-alphabetic Chinese language, few studies have been done to date on using gamification in teaching Chinese as a second language. One popular example of a game-based learning platform is “Kahoot”, and a number of researchers (e.g., Olatoye, 2015) have found that Kahoot can effectively engage students in learning and enhance students’ motivation to learn.

This study examined the effects of Kahoot in enhancing high school students’ learning motivation in Chinese language instruction. Subjects were 18 students in a private female high school in the Midwestern United States. All were enrolled in a Chinese language class that met every day for 45 minutes. An identical pre-survey/post-survey design was used in this study for data collection. The main section of the survey includes two scales: “Beliefs about Chinese Learning” and “Confidence in Ability to Learn Chinese”. The beliefs about Chinese learning scale is a short version of the “Student Beliefs about Chinese Learning” scale developed by Yu-Ju Lan (2014) and consists of 17 Likert-type questions on a five-point response scale (1 = strongly disagree, 5 = strongly agree). The “Confidence in Ability to Learn Chinese” scale was adapted from a self-efficacy for foreign language learning instrument developed by the National Foreign Language Resource Center (2000). It consists of 20 questions, with 5 in each of the following four areas: reading, listening, speaking, and vocabulary. It uses a scale that ranges from 0 (not sure at all) to 100 (completely sure).

Paired t-tests were conducted to examine whether there were significant differences in student beliefs about and confidence in ability to learn Chinese as a foreign language. The results indicate that there was no significant difference in student beliefs,  $t(16) = .476$ ,  $p = .64$ . Among the four areas of confidence in ability to learn Chinese (reading, listening, speaking, and vocabulary), we found significant differences with regard to reading,  $t(16) = 2.63$ ,  $p < .05$ , and speaking,  $t(16) = 3.633$ ,  $p < .01$ . There was no difference in student confidence in the areas of listening,  $t(16) = 1.427$ ,  $p = .173$ , or vocabulary,  $t(16) = .364$ ,  $p = .721$ . This study found that the use of Kahoot improved students’ confidence in their ability to learn to read and speak Chinese, though not confidence in their ability to learn to accurately hear spoken Chinese or master Chinese vocabulary.

**Keywords:** *Kahoot, gamification, Chinese learning, motivation, engagement.*

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## **DIGITAL LEARNING SOLUTIONS: ARE WE DESIGNING ASSESSMENT FOR LEARNING?**

**Colette McCreesh & Karen Fraser**

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### **Abstract**

Increased class sizes in Higher Education has coincided with increased use of technology and particularly in large classes the use of technology-supported assessment is commonplace. Often the key driver is efficiency. This paper reports on the range of assessment choices made by staff when assessing large classes and the pedagogic rationale behind those choices.

Assessment is resource heavy in the modern higher education institution, however, poor experiences of assessment and lack of early feedback is often associated with poor learning experiences, failure and dissatisfied students particularly for first and second year undergraduates. Evidence suggests that some disciplines have an over reliance on Multiple Choice Questions (MCQs) as summative assessment which we know, from published literature on the subject, can lead to a poor student learning experience. By examining MCQs and other forms of technology-supported assessment, we will build a framework of appropriate assessment tools used for assessing (both formative and summative) specific learning outcomes.

Assessment for learning rather than assessment of learning is Tenet 1 of the HEA research study.

*“A high quality learning process requires a balance between formative and summative assessment ensuring that summative assessment does not dominate.”* (“A Marked Improvement”, 2012)

Innovative use of learning technologies can help achieve a high quality learning process; effective assessment has greater bearing on successful learning than almost any other factor. Students and staff can work in partnership to explore the range of different technologies that could be used in assessment activities. Technology can transform the assessment and feedback lifecycle by returning and recording marks and providing feedback much quicker than by doing it manually; this alone has benefits to both students and staff. Assessment for learning rather than assessment of learning can be part of this transformation. (Salmon, 2011).

In this study we will focus on large classes (>150 students) across a number of disciplines, examining the range of technologies harnessed in the assessment process. We will examine the variety of pedagogic approaches employed when assessing module/programme outcomes using technology in parallel with the student learning associated with those chosen tasks.

**Keywords:** *Assessment, large class-size, pedagogy, technology.*

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## **LEARNING FROM VISIONS OF THE PAST FOR VISIONS OF THE FUTURE: SOME PEDAGOGICAL IMPLICATIONS**

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### **Abstract**

Engineering Visions was launched as an Erasmus intensive programme in collaboration between five European universities interested in broadening the horizons of their engineering undergraduates beyond the hard-core approach typical of many undergraduate engineering degree courses. For this reason, a main focus was placed on the soft skills needed to complement specialist engineering skills. In each session, various teambuilding and methodological exercises prepare students for working in international multidisciplinary student teams, in which they analyse and evaluate challenges of the future and develop their own innovative solution or vision for their chosen scenario.

The present research aims at taking stock of the pedagogical approaches taken to date and the pedagogical outcomes perceived by participating faculty, with a view to learning from past experience and identifying areas for further improvement. A questionnaire was prepared and sent to faculty who had worked as presenters and/or mentors. Analysis of respondents' answers shows, for example, that there is a need to re-evaluate the balance of presenter input and student teamwork and that the role of the mentor needs to be clarified. Also, assessment and feedback procedures are in need of improvement. Generally, students are felt to have benefited greatly from methodology new to them and from the international experience in terms of intercultural awareness. Faculty themselves also much appreciated international teamwork.

Furthermore, spin-off effects were noted and were considered extremely valuable. The questionnaire results were further evaluated with reference to relevant pedagogical research into soft skills acquisition and learning and communication in cross-border education.

**Keywords:** *Collaboration, visions, soft skills, international, multidisciplinary.*

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## **ARTS EDUCATION AND CULTURAL UNDERSTANDING: A PEDAGOGICAL FRAMEWORK**

**Dr. Ilana Morgan**

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### **Abstract**

In this paper I reflect upon challenges of integrating arts education (dance, visual arts, and music) as core subjects in the United States and the viewpoint, held by some in the US, that arts are not fundamental and important to a democratic education in a global capitalist society. In this paper, I contest this opinion and offer a theoretical and pedagogical framework with which to view the value of the arts in a kindergarten through high school setting, ages 5 through 18. At the core of this framework is the theoretical idea that an arts education not only supports students development of arts specific skills, such as painting, acting, or dancing, but that inherent in arts education is an advancement of cultural understanding, mindfulness, and empathy that is advanced by creative and aesthetic study. This pedagogical framework outlines four objectives of arts education that are applicable to artistic teaching and learning globally, and has been developed through reflective teaching practices in partnership with analysis of established research. These objectives articulate the importance of students becoming more aware of multiple truths and perspectives, of building skills of negotiating and disagreement, advancing the ability to see and articulate difference with respect, and to increase an aesthetic awareness of diverse people, arts knowledge, and artistic perspective. In this paper, I also contribute practical approaches for arts classrooms that promote empathy and cultural understanding and are led by this new pedagogical framework. This framework for viewing arts education is essential for a world in which massive numbers of peoples are migrating, new leaders are making changes to policy and nation relationships, and in which the internet is bringing together people from varying cultures, backgrounds, and religions. To be able to communicate, respect difference, and negotiate with civility is essential in a world where borders are changing daily. This framework is presented in relationship to research in the field in the areas of arts education, mindfulness and empathy, cultural understanding, and pedagogy; Maxine Greene, John Dewey, Ken Robinson, and Brian Massumi.

**Keywords:** *Arts Education, Practice, Cultural Understanding, Pedagogy, Mindfulness.*

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## **TEACHING CULTURAL COMPETENCE IN THE FOREIGN LANGUAGE CLASSROOM: MEETING THE OTHER**

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### **Abstract**

Can we teach cultural competence in the foreign language classroom? How do we transmit cultural knowledge? Which cultural features do we introduce in a closed educational space? These are questions we aim to answer in this paper.

Anthropologist Lévi-Strauss sums up the concept of national culture and its rapport with other cultures in the following manner "A culture, he says, consists of a multiplicity of features some of which, to some degrees, are shared with closer or distant cultures, while other features can more or less separate them." This dichotomy is a common subject in the foreign language classroom when students are being taught "intercultural skills and know-how".

As a result from prior contacts with the target culture or from second hand knowledge of that culture, students may come to the classroom with biases and preconceived ideas. For example, students tend to believe that the language they are learning is classic and unchanged for centuries. Our object then is to deconstruct these ideas by showing students that no language, no art, no music, no architecture, no anthropological features of a nation are locked in a cultural bubble.

Our position then for the teaching of culture is aligned with recommendations suggested by the authors of the lengthy CEFR document (Common European Framework of Reference for Languages). In our presentation, we review the concepts of culturalism, interculturalism and multiculturalism; we present specific examples of differences and similarities between cultures; and we demonstrate how we can "promote mutual understanding and tolerance, respect for identities and cultural diversity through more effective international communication".

**Keywords:** *CEFR" Culture, Interculturalism, Multiculturalism.*

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## **AN INNOVATIVE METHODOLOGICAL APPROACH BASED ON COLLABORATIVE LEARNING PROJECTS IN HIGHER EDUCATION**

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### **Abstract**

Undoubtedly innovation is a key issue in higher education. With the aim of training successful professionals and enhance students' employability, universities invest money and efforts in researching on new methodological approaches. The picture of professors lecturing without the students' participation, no longer represents 21st-century universities. Nowadays, students are seen as the core of teaching/learning processes, hence issues such as collaborative learning, competence-based training, or problem-solving methodology have come on scene.

The experience we are presenting has been carried out at Florida Universitaria (private institution affiliated to the Universidad de Valencia, Spain). It is a workers' co-operative with long experience in education and training at different levels. The organization defines itself as dynamic and innovative having entrepreneurship as one of its leading values. Unavoidably, Florida's policy is projected on its educational proposal as we will show in this paper.

In 2010, Florida Universitaria went through an overall organizational restructuring which enabled this institution to go the extra mile and develop a holistic approach to training students in higher education. Interdisciplinary projects (IPs) performed in two educational levels (advanced vocational training and university degrees in the fields of education, business, tourism, ICT and engineering) have been the key instrument chosen to implement this methodology.

These interdisciplinary projects aim to improve students' professional competences by applying the problem-solving methodology in situations they are likely to face throughout their career. In addition, we guarantee that students graduate having had the opportunity to collaborate directly with local companies. Each student will participate in a different IP per year; consequently, organizers have staggered the skills to be worked on throughout each degree or vocational training course. By the end of their studies participants will be trained in competences such as collaborative work, autonomy, entrepreneurship, ICT, oral and written communication, leadership, innovation, creativity, problem solving, cross-cultural awareness and internationalization.

Given the scope of this paper we will focus specifically on the role of collaborative work in the holistic approach developed at Florida Universitaria. Four groups of stakeholders are involved in this experience: management, lecturers, students and companies. The objectives of this study are twofold, first to show how an organization can manage an overall restructuring based on pedagogical goals and second to present two examples of interdisciplinary projects in two different levels, one implemented in the Degree in Tourism and the other in an Advanced Vocational Training Course in Administration and Finance.

**Keywords:** *Innovation, holistic, higher education, collaborative work, projects.*

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## **FLIPPED CLASSROOMS, FLIPPED HOMES? TENDING TO STUDENTS' PERSONAL COMPETENCIES**

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### **Abstract**

Technology and media use have dominated daily lives, have already had a profound impact on all aspects of parent-child-teacher interactions, and have increased workforce demands for significant computer skills. These changes have prompted shifts in pedagogical thought, a push for change in classroom practices, and an urgent need for tending to the learning needs of students in an ever-changing global landscape. In the era of personalized learning, technology use to enhance the individualization and differentiation aspects of learning is indispensable, and serves as the pillar of competency-based education. The swift pace of changes and the uncharted waters we have entered, however, have raised concerns and reluctance from practitioners and other stakeholders. When one though closely examines the opportunities that technology and media integration is offering, one realizes that the basic principles inherent in responsive, caring education have not changed. What has changed is modes of communication and instruction-delivery options. As with any and every innovation, its use is as good as its users. Technology is not a silver bullet, but it is as good as the educators who are utilizing it in a targeted and purposeful way to enhance student learning by putting an emphasis on the four personal competencies of the learner (cognitive, metacognitive, motivational, and social/emotional). The present paper explores ways students' personal competencies can be addressed within a flipped-classroom model, and the ramifications that such a model shift has on parent involvement and school-family interactions. Specifically, the flipped classroom framework is discussed as a context in which media integration can foster competence-based, personalized education; ways through which technology and media can be meaningfully integrated into instruction and homework are also presented.

**Keywords:** *Student competencies, flipped classrooms, technology integration, parent involvement, home-school interactions.*

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## **TECHNOLOGY IN TRANSLATION TRAINING**

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### **Abstract**

Recent decades have faced a rethinking of translation processes and an integration of social dynamics and continuous learning into the translators' work. Technological advances and global business and communication have required translators, as well as other language mediators, to be part of a large network of agents and communities of practice in order to share knowledge and develop best practices. The demand for translation has increased significantly and the deadlines for delivering translations in multiple languages have gotten shorter: for both translators and organizations seeking to produce multilingual content, technologies have become a strategy to increase productivity but also to learn and communicate better. However, the need to integrate technologies in translators' formal and informal education presents various challenges, as technology users need to learn how to use these tools strategically and manage their expectations with regard to the benefits associated with technologies. Users also need to acquire specific skills to be able to adapt to the evolution of the translation technology market and the complexity of translation projects. This paper presents an overview of various technologies used by translators, highlighting problems that can arise from an uncritical use of technologies.

**Keywords:** *Translation technologies, translators' training, critical use of technologies.*

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## **THE CREATIVE DEVELOPMENT FROM THE APPLICATION OF URBAN SKETCHING IN THE ACADEMIC CONTEXT**

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### **Abstract**

The present scientific work is developed in the field of art and culture in academic scope, as Project of Extension, titled: Artistic Design - Intermediate Level. Directly related to the Pro-Rectorate of Extension and Culture and Extension Directorate of the Fluminense Federal Institute of Education, Science and Technology, Campus: Campos-Centro - in the city of Campos dos Goytacazes / Rio de Janeiro-Brazil, by edict n° 139, of December 17, 2015. In this context, it aims at the application of Urban Sketching, which consists of sketching in loco sketching urban landscapes without theories or complex artistic ideas, stimulating and enhancing the creativity of participants from their practical activities of teaching in Artistic Design, proposing that its use be a pedagogical instrument conducive to and potentiating the creativity, perception and sociocultural relations of the internal student community and society as a whole. It is therefore envisaged (a) to create practical and theoretical weekly meetings for the participants, proposing activities through the plastic language in question, which favor the perceptive, cultural and social development of the participants; (b) investigate how the process of perception and creation occurs in the face of the challenges proposed in the project; (c) to accompany, describe and evaluate in what ways creative intervention can be useful as a didactic resource; (d) to verify that the practice in Urban Sketching is capable of empowering participants with respect to creativity, perception and socio-cultural interaction and (e) disseminating online all artistic production during the Project, in an attempt to form the first group of Urban Sketchers of the city of Campos dos Goytacazes. With methodology based on the qualitative approach, in a context of action research and participant observation. Configuring itself as an extension, integrative activity that enables a transformative relationship between the said campus, its students and the external community. From this point of view, various sectors of society maintain a link with the Institute of Education, with a view to facilitating, among the parties, (re) construction and production of knowledge, pedagogical processes of inclusion, access to essential information about values and cultural citizenship.

**Keywords:** *Creativity, Creative Process, Urban Sketching.*

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## **REMOTE ACCESS TO A PHYSICAL LABORATORY**

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### **Abstract**

Within this article, a real existing physical laboratory is presented, which can be accessed from anywhere at any time with a simple web browser. No additional software or hardware is needed. The laboratory offers engineering students the possibility doing practical exercises without being present at the laboratory's site.

Especially for engineering students, practical exercises are essential for understanding system behavior. Main target group of the laboratory are distance learning students, which are often employed and living far away from their university. Thus both time for travel as associated costs are a problem. A second target group may be students of conventional universities, where the pool of laboratories can be enlarged by remote laboratories without any further costs.

The laboratory presented belongs to mechanical engineering and mechatronics. It is an example from a pool of remotely accessible laboratories in the context of mechatronic and robotics. It consists of a gearing mechanism with sensors. The wheels of the gear chain are actuated by a motor. When started, the motor executes specific motion profiles. These motions evoke typical effects of gears with toothed wheels, such as vibration, elasticity, and backlash. These effects are measured by the sensors and logged in a file. Students can display the results as graphics. Several methods for analysis are offered by the laboratory, such as FFT (Fast Fourier Transform).

As for many other laboratories, this one needs exclusive access for one student at a time. Thus a strategy has been implemented to guarantee that if one user started a laboratory session, no other can get access. To avoid complicated booking mechanisms, a simple exclusion procedure blocks the laboratory for a

pre-defined time as soon as a student started a session. If needed, a supervisor can unlock the laboratory at any time.

The laboratory is on duty since several semesters, numerous students completed it successfully. It is accessible at any time, 24/7.

**Keywords:** *Technology education, distance education, laboratory exercises, remote access.*

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## **MASSIFICATION OF HIGHER EDUCATION IN BOTSWANA: OPPORTUNITIES AND CHALLENGES**

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### **Abstract**

African higher education has witnessed massive increases in enrolments due to improvements at the primary and secondary school levels, coupled with the realisation that higher education qualifications help in economic development and improved standard of living for the individuals and the society. Botswana is one of the countries in Africa that is faced with high enrolments in tertiary institutions. This position paper examines the opportunities and challenges emanating from massification of higher education in Botswana. It concludes, by discussing some possible solutions to the problem.

**Keywords:** *Massification; Higher Education; Opportunities; Challenges.*

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## **A PEDAGOGIC INNOVATION IN TEAMWORK**

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### **Abstract**

Since 2006, the École Polytechnique de Montréal has integrated a teamwork approach into its twelve engineering programs. A compulsory 45-hour course (who employs active learning pedagogies and focuses on using students' experiences) on interpersonal skills and collaborative teamwork constitutes the starting point for a four-year team coaching program to guide students throughout all integrated engineering projects. As students work in teams to complete their projects (one per year / by engineering discipline), a group communication specialist (social psychologist) meets each team for approximately 60 minutes to help students put what they've learned into practice and to encourage them to develop their collaborative teamwork and interpersonal skills. Approximately 900 team coaching sessions take place each year at the École Polytechnique de Montréal. To track the advancement of these skills, a progress evaluation system is used for formative purposes in the first three integrated engineering projects, and for summative purposes in the fourth project.

The objective of my presentation is to showcase this innovative formula, a first for an engineering school, and to share some interesting results that demonstrate the success this approach has had in developing interpersonal and teamwork skills. I will outline the role and purpose of the experiential and introspective approach employed as an active learning pedagogy, as well as the tools and conditions that enable teams to gain awareness and take action.

**Keywords:** *Teamwork approach, teamwork dynamics, experiential approach, change-oriented approach and team coaching.*

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## **ROBOTICS AS MEANS TO INCREASE STUDENTS' STEM ATTITUDES**

**Marievie Panayiotou & Nikleia Eteokleous-Grigoriou**

*School of Education, Frederick University Cyprus (Cyprus)*

### **Abstract**

This study examined the impact of robotics on the attitudes of primary school students towards science, technology, engineering, and mathematics (STEM). Two teaching approaches, one with and another without robotics, were designed for a teaching class module in the field of Science Education. Students completed pre- and post-tests on STEM attitudes and future career choices regarding the STEM professions. The results showed that the robotic approach led to a significantly greater impact on STEM attitudes and motivation than with the control group. In addition, results indicated that there is a slight significant change on students' future careers choices after participating in a 10-hours Science' module.

**Keywords:** *Educational robotics, education, STEM.*

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## **TEACHING VERBAL BEHAVIORS TO CHILDREN WITH AUTISM**

**Nurgül Akmanoğlu & Esin Pektaş Karabekir**

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### **Abstract**

This study aims to examine the effectiveness of video modeling via smart board on teaching verbal behaviors suitable for social contexts to children with autism. Generalization to different people and other settings was also examined. Additionally, opinions of parents who have children with autism about teaching verbal behavior were collected. Participants of the study were 3 male children between 4-6 years old diagnosed with autism. The study was designed with a single subject multiple probe design across participants and experimental control was provided by inter-participant replication. Findings of the study show that percentages of correct responses of the participants gradually increased and the participants met the criterion of 100% correct responses at running three daily probe sessions. Besides, it was observed at follow-up sessions arranged by researchers that the participants maintained the target skills for 6 weeks. Additionally, the participants generalized the target skills to different people and settings at the level of 100% after the instruction sessions were completed.

**Keywords:** *Autism, Social Behaviors, Verbal Behavior, Video Modelling, Smart Board.*

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## **UNIVERSAL INSTRUCTIONAL DESIGN FOR ACCESSIBILITY AND INCLUSIVITY: SUPPORTING LEARNERS WITH CHALLENGES**

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### **Abstract**

This paper describes foundational principles of universal instructional design (UID), which is also known as Universal Design for Learning, that support accessibility and inclusivity, and discusses how to support a variety of learners through applying UID strategies when creating learning materials. Given that creating instructional materials that are accessible and inclusive is a relatively new challenge, it is likely that few know how to design for accessibility and inclusivity.

In an ideal world, all learners should have their learning needs met. From a practical perspective, this is not possible. However, instructional materials can be designed to be accessible and instructionally effective for a wide range of learners. This can be partially achieved by following Gagné's Nine Events of Instruction because it supports all learners. Instructional design strategies should support weak readers, deaf and hard of hearing individuals, students with visual deficiencies, learners who have difficulties staying focussed, academically-weak students, cognitively-gifted students, learners with low confidence,

students with different learning preferences, and cultural minorities. These concepts will be illustrated through practical examples created for a “soldering project” that taught piping students how to solder copper pipe.

**Keywords:** *Universal instructional design, accessibility, inclusivity, universal design for learning.*

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## **UNPACKING THE EXPERIENCES OF TEACHERS TRANSITIONING TO BLENDED LEARNING IN TRINIDAD AND TOBAGO**

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### **Abstract**

This case study explored the perspectives of 68 part-time in-service primary school teachers enrolled in a 12-week blended learning mathematics education course in their first year of a Bachelor of Education at a university in Trinidad and Tobago. The study sought to identify factors that hindered or facilitated participants’ learning, and factors that would have scaffolded their transition to the blended learning environment. Data were collected from participants’ journals, researcher’s observations of face-to-face and online activities, and focus group interviews. Data were analysed using qualitative content analysis. Learning was facilitated by participants’ interaction with technology that provided opportunities to develop competencies with it, and forge collaborative relationships in shared virtual spaces; flexibility of time and space for online activities; and supplemental support of online resources and activities. Challenges included simultaneously learning to navigate the virtual world and learning new content; limited previous exposure and access to computers and the Internet; managing the time to attend to online activities; the absence of immediate technical support for difficulties arising; and loneliness created by the absence of face-to-face interactions. Participants felt that the transition to the blended environment would have been better facilitated by an extended orientation period; a student manual to navigate the course shell; access to 24-hour technical support; and guidance on managing their time during the course. Future research requires large-scale analysis across all learning activities in any blended learning course to identify a comprehensive list of factors that influence the transition to blended learning.

**Keywords:** *Blended learning, mathematics education, in-service elementary teachers.*

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## **EFFECTIVENESS OF THE MULTIDIMENSIONAL CURRICULUM MODEL IN DEVELOPING HIGH ORDER THINKING SKILLS IN ELEMENTARY AND SECONDARY STUDENTS**

**Dr. Hava Vidergor**

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### **Abstract**

The study aimed to assess the effectiveness of the Multidimensional Curriculum Model (MdCM) in the development of high order thinking skills in a sample of 394 elementary and secondary school students in Israel. The study employed a quantitative quasi-experimental pre-post design, using a study module based on MdCM, comparing intervention group to control group. Thinking skills were measured using a thinking questionnaire comprising 3 dimensions: Scientific thinking- focusing on inquiry skills, creative thinking – relating to problem finding and problem solving, and future thinking- concerning personal and time perspectives. Findings indicate improvement in measured thinking skills in the intervention group by 40% compared to 4 % in control group. Most improved skills were future thinking and creative thinking. Differences were detected according to type of school. It is suggested that when used regularly the MdCM incorporating innovative teaching-learning strategies and embedded thinking tools could improve thinking skills among students from different age groups. General implications for curriculum design are discussed.

**Keywords:** *High order thinking, curriculum design, 21<sup>st</sup> century skills, future thinking, innovative teaching strategies.*

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## MARKING FOR THE MASSES WHEN TIMELY FEEDBACK IS IMPORTANT

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### **Abstract**

The popularity of Computing degrees in the UK has been increasing significantly over the past number of years. However, this is tainted as Computer Science degrees also continue to maintain the highest dropout rates. In Queen's University Belfast (QUB), we currently have a Level 1 intake of over 400 students across several computing pathways. Our drive as staff is to empower and motivate the students to fully engage with the course content and all students take a Java programming module the aim of which is to provide an understanding of the basic principles of object-oriented design.

To assess these skills, we have developed Jigsaw Java as an innovative assessment tool offering intelligent, semi-supervised automated marking of code. For many of the students this is the first time they will have tried to program and therefore instilling a passion and interest is paramount if they are to be successful in their studies. One of the main issues we have had is that using the Java compiler can be as demotivating as not understanding programming. Coupled with this is the fact that if all students, in a large class, submit code to be manually marked and returned with useful feedback the process takes too long, it requires multiple markers which increases inconsistency of the process. If the students are lost at the point of submission of this task, by the time feedback is returned they have missed too much content to catch up and they become very demotivated.

Jigsaw Java allows students to answer programming questions using a drag-and-drop interface to place code fragments into position. Their answer is compared to the sample solution and if it matches, marks are allocated accordingly. However, if a match is not found then the corresponding code is executed using sample data to determine if its logic is acceptable. If it is, the solution is flagged to be checked by staff and if satisfactory is saved as an alternative solution. This means that appropriate marks can be allocated and should another student have submitted the same placement of code fragments this does not need to be executed or checked again. Rather the system now knows how to assess it.

Jigsaw Java is also able to consider partial marks dependent on code placement and will "learn" over time. Given the number of students, Jigsaw Java will improve the consistency and timeliness of marking.

**Keywords:** *Programming, assessment, automated marking, personalised feedback, large class teaching.*

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## EMPLOYERS AS INDIVIDUALS, EMPLOYERS AS ORGANISATIONS: THE CONTINUED INFLUENCE OF EMPLOYER BEHAVIOURS ON POLICY SUCCESS

**Dr. Eleanor Andressen & Hayley Dalton**

*Pearson (UK)*

### **Abstract**

In 2014 major reforms were announced to the apprenticeship system in England as a result of a consultation into the impact and perceptions of apprenticeships under the existing framework model. With the positioning of employers as the leaders of the development of Apprenticeship Standards and their related Assessment Strategy, this paper considers the distinction between the employer-as-individual, the employer-as-role, and employer-as-organisation, and their respective relationships with the intermediary organisations, government departments and other members of the network. This is particularly meaningful in England, where the education background of the individual may be seen to have a more pronounced influence on attitudes towards VET than in other countries. The paper recognises that the impact of this must be balanced to ensure that theories are not developed purely on the basis of characteristics of individual actors rather than the properties of the network itself.

The partial failure of policy reform in VET in England may be attributed to factors such as competing drivers and outcomes and a lack of policy stability over time, also social attitudes towards it. Contributions to system, policy and curriculum reform are made by individuals, not organisations, and history and culture in England continues to drive aspects of reform and implementation in ways that remain largely unacknowledged. A policy narrative which suggests a vocabulary change away from 'vocational' and 'apprenticeship' to increase take up of qualifications and programmes currently under these banners, should continue to be examined.

Previous work has shown that the personal attitudes towards, and experiences of, vocational qualifications and programmes often influence their implementation in an organisation, in sometimes surprising ways. Interviews with employers in the early stages of implementing the new Apprenticeships will explore their responses to the process of creating standards and assessment strategies, implementing these [and comparison with the implementation of previous frameworks], the impact of the levy, the impact on the number of apprentices being recruited in which sector.

The research is intended to support the meaningful engagement of employers throughout policy creation and implementation by openly acknowledging some of the cultural challenges involved in embedding Apprenticeships in organisations, some of which have previously had little involvement with such programmes. It will provide a different perspective on meeting government targets, for example, which are not always transparent to those trying to work with employers.

**Keywords:** *Employers, apprenticeships, policy, vocational.*

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## **ENGAGING STUDENTS FOR THE LEARNING AND ASSESSMENT OF THE ADVANCED COMPUTER GRAPHICS MODULE USING THE LATEST TECHNOLOGIES**

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### **Abstract**

The advanced computer graphics has been one of the most basic and landmark modules in the field of computer science. It usually covers such topics as core mathematics, lighting and shading, texture mapping, colour and depth, and advanced modeling. All such topics involve mathematics for object modeling and transformation, and programming for object visualization and interaction. While some students are not as good in either mathematics or programming, it is usually a challenge to teach computer graphics to these students effectively. This is because it is difficult for students to link mathematics and programming with what they used to see in video games and the TV advertisements for example and thus they can easily be put off. In this paper, we investigate how the latest technologies can help alleviate the teaching and learning tasks. Instead of selecting the low level programming languages for demonstration and assignment such as Java, Java 3D, C++, or OpenGL, we selected Three.js, which is one of the latest and freely accessible 3D graphics libraries. It has a unique advantage that it provides a seamless interface between the main stream web browsers and 2D/3D graphics. The developed code can be run on a web browser such as Firefox, Chrome, or Safari for testing, debugging and visualization without code changing. The unique design patterns and objectives of Three.js can be very attractive to third party software houses to develop auxiliary functions, methods and tutorials and to make them freely available for the public. Such a unique property of Three.js and its widely available supporting resources are especially helpful to engage students, inspire their learning and facilitate teaching.

To evaluate the effectiveness for using Three.js in teaching computer graphics we have set up an assignment for scene modeling in the last 4 years with focuses on the quality of the simulated scene (50%) and the quality of the assignment report (50%). We have evaluated different assessment forms of the module that we taught in the last four years: in 2013-2014 the module consisted of 20% assignment and 80% exam based on Java 3D; in 2014-2015 the same proportion of assignment/exam but based on WebGL, in 2015-2016 the module was 50-50% of assignment and exam but based on Three.js; and in this year the module is 100% assignment based on Three.js. The effectiveness of the module delivery has been evaluated both qualitatively and quantitatively from five aspects: a) average marks of students, b) moderator report, c) module evaluation questionnaire, d) external examiner's comments and e) examination board recommendations. The results have shown that Three.js is indeed more successful in engaging students for learning and the 100% assignment assessment enables students to focus more on

the design and development. This four year result is really encouraging to us as an educational institute to embrace the latest technologies for the delivery of such challenging modules as computer graphics and machine learning.

**Keywords:** *Computer graphics module, Assessment, Assignment, Latest technologies, Student engagement.*

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## **THE IMPACT OF TRAILBLAZER STANDARDS ON THE DELIVERY OF APPRENTICESHIPS**

**Dr. Eleanor Andressen, Hayley Dalton, & Irene Custodio**

*Pearson (UK)*

### **Abstract**

In 2014 major reforms were announced to the apprenticeship system in England and are due to be fully implemented by 2020. The reforms were the result of a consultation into the impact and perceptions of apprenticeships under the existing framework model. Sector-based employer groups are coming together to lead on the creation of Trailblazer Apprenticeship standards and assessment strategies.

The move from qualifications and frameworks to standards will have a significant impact on the structure and delivery of apprenticeships. This paper looks at the early experiences of two large employer organisations as they work with an assessment organisation to set out the structure of the apprenticeship programme and review what this means in terms of training delivery and outcomes. It looks at the interpretation and practical implementation of end point assessment (EPA), at the creation and inclusion of credentials as part of the new standards, and the impact of these on the learner.

A number of face-to-face interviews will be carried out with the employer, the related training provider(s), in-house trainers and apprentices, some of the latter pursuing existing framework apprenticeships, others starting on the new 'trailblazer' standards. Interviews will also be carried out among assessment organisation staff. Organisations and training providers will be asked to reflect on the process of creating standards and EPAs, and of engaging with an assessment organisation in relation to these. They will also be asked to consider the impact of the new standards on apprentices and their organisations from recruitment, through delivery, to learner outcomes.

The findings of the research will be used to identify good practice and lessons learned from the perspectives of the employer, a training provider and an assessment organisation, to inform the implementation and delivery of apprenticeships. The research will also reflect on the experience of the apprentice and the value of the new standards and outcomes from their perspective. Finally, the outcomes will be used to inform the critical 'employer engagement' aspect of assessment organisation work in relation to the new standards and assessment strategies.

**Keywords:** *Policy, apprenticeships, implementation, change, delivery, employers.*

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## **HOW CAN THE TECHNOLOGY INTRODUCTION FOSTER EDUCATIONAL INNOVATION IN VET CENTERS? A COMPARATIVE CASE STUDY**

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### **Abstract**

Since the mass diffusion of Information and Communication Technology (ICT), Italian educational institutions have been implementing several experimental projects in order to enhance students learning experience (Moricca, 2016). The initial Vocational Education and Training (VET) has been part of this innovation process with several pilot projects, such as iCnos, which aims at introducing ICTs as support to teachers' activities and students' learning process (Franchini, 2015). This project has been led by the central management of CNOS-FAP federation through several teacher training courses, the empowerment of internet connections and the substitution of paper handbooks and notebooks with the iPad. Each center involved in the pilot project has managed independently the innovation process based on the guidelines issued by the central management. The main research questions of this exploratory study are as follows:

Can an institutional innovation process - managed with a top-down approach - fosters pedagogical and organizational changes in VET centers? Which aspects and roles are involved in this innovation process? How do teachers and students perceive and react to this innovation process? Which are the solutions implemented by the different centers? Which are the shortcomings? Which solutions have been implemented by the centers? To answer these research questions a comparative case study has been conducted (Campbell, 2010; Yin, 2009). Four VET centers were selected. The teachers in charge of the coordination of the project of each center were interviewed with a semi-structured questionnaire; project documentation and teaching materials were also gathered. The analysis has followed an iterative, grounded approach and included the use of Nvivo 11 (qualitative data analysis software) (Charmaz, 2006; Glaser, Strauss, & Strutzel, 1968). The comparison of interviews and the other gathered data shown that the innovation process has been taking different forms in every VET center context. The analysis also suggests that there are several core factors in the innovation process investigated. The main results could represent a set of good practices that could be taken into account by the CNOS-FAP federation when the *iCnos* project will be extended to all the federation centers. In this sense, this study may be also useful in similar contexts.

**Keywords:** *Educational technology, innovation process, tablet, VET project, comparative case study.*

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## **EFFECTS OF THE NEONATAL HEARING SCREENING PROGRAM IN A SCHOOL FOR HEARING IMPAIRED IN TURKEY**

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### **Abstract**

The present study aims to evaluate the effects of newborn hearing screen program on the age of diagnosis, age of hearing aid fitting and age of starting an intervention program of children who have a hearing loss. For this purpose the files of children who attend a special for hearing impaired were evaluated. The files covering the years between 2000-2015 were scanned to collect data. The findings indicated a significant decrease in the age of diagnosis after 2010 but there are still problems in initial age of early intervention and hearing aid fitting.

**Keywords:** *Deafness, neonatal hearing screening, age of diagnosis, follow-up.*

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## **EURO4SCIENCE 2.0: SPINOFF OF A FORENSIC SCIENCE EDUCATIONAL STRATEGY**

**Luís Souto, Helena Moreira, Sandra Vieira, & Rosa Pinho**

*Department of Biology, University of Aveiro (Portugal)*

### **Abstract**

Euro4science 2.0 is a spinoff of Erasmus + KA2 "Euro4Science". We propose to explore students interest in crime scene based television series as an educational strategy towards students motivation to school, minimizing early school leaving. In version 2.0 not only a forensic educational kit is disseminated through a network of trained teacher's from six participating countries but also interdisciplinarity is enhanced by extending the experimental activities in order to include the values of European citizenship from human rights to environmental sustainability and health education.

**Keywords:** *CSI Effect, Euro4Science, Refugees, Transdisciplinary.*

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## **EFFECTIVE PRACTICES PROMOTING ABORIGINAL COMMUNITIES' SCHOOL SUCCESS**

**Mirela Moldoveanu<sup>1</sup>, Marilyn Steinbach<sup>2</sup>, Maryse Potvin<sup>1</sup>, Naomi Grenier<sup>1</sup>, Élian Boco<sup>1</sup> & Chantal Viens<sup>1</sup>**

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### **Abstract**

Canadian statistics concerning First Nations still portray communities that struggle to realize their full potential in society. This situation led us to question the systems' success conditions which seem to generate a positive dynamic with regard to the aboriginal students' school success. We carried out a synthesis of knowledge, specifically in countries where the presence of indigenous communities is important (Australia, New Zealand, Canada, USA, Denmark, Sweden, Norway, Finland), in order to examine the modalities of organization of the education system and the practices implemented in classrooms which promote the school success of Aboriginal students. From the perspective of the education system organization, results show that an emancipatory approach is associated with better school success among Aboriginal students. This emancipatory approach requires the recognition of Aboriginal language as one of the country's official languages, the availability of services provided in the Aboriginal language, and bilingual education programs at all school levels. The pedagogical practices that seem to contribute most to Aboriginal students' school success subscribe to the same type of emancipatory approach. In addition to providing a critical analysis of these practices, we will identify avenues for action that would contribute to reducing the discrepancies currently observed between Aboriginal students and those of majority communities in Canada.

**Keywords:** *Aboriginal communities, secondary socialization, school success, emancipatory education, effective practices.*

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## **USING GOOGLE CLASSROOM TO REINVENT SCIENCE EDUCATION**

**Julie Smith**

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### **Abstract**

Incorporating "Google.classroom" transformed the way students learn and how Science teachers teach in several significant ways. First, management of classwork and homework became almost completely paperless. Then a flipped classroom model was easily incorporated along with other innovations. However the biggest change occurred when our students began to use animation, both professionally produced and then student generated. Instead of communicating exclusively via written means, students began using animation. Ultimately a culture of animation emerged though out the entire school.

**Keywords:** *Google.classroom, technology, science education, animation.*

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## **INCREASING LABOUR MARKET SUCCESS POTENTIAL OF YOUNG UNIVERSITY GRADUATES THROUGH PROJECT-BASED EDUCATION**

**Grażyna Budzińska & Marta Kędzia**

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### **Abstract**

An overwhelming dynamics of change on today's global labor market constitutes a real challenge for companies and employees, and especially for young people who begin their professional careers and have to face difficult questions concerning career planning and design while the expectations of employers are under a continuous flux. The dynamic job market situation is a strong factor triggering substantial changes in an approach to quality education and in higher education curricula. Presenting the background situation of today's job market and current trends in career counselling, the article discusses a necessity to

develop new forms of learning operating on the verge of academic and industry collaboration such as real-life project-based education in order to better prepare young graduates for the demands of the 21c. employment. The article presents quantitative and qualitative research on competencies acquired by students working in real-life projects in international teams versus competencies perceived as desirable by today's global employers. It presents the perceptions of the students who participated in the project-based education in collaboration with companies and confronts them with global employers' expectations.

**Keywords:** *Project-based learning, employability, international teamwork.*

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## **EDUCATIONAL FUNCTIONS OF MUSEUMS AND MUSIC IN MUSEUM**

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### **Abstract**

Common components of museums can be listed as, setting up a connection with the past, now and the future through objects; collecting and protecting; exhibiting similarities and differences; creating admiration and pleasure; comprehending educational and cultural transfer.

The history of museology and its perception is made up of the stated components. Even though a lot of advancement was not achieved in the diversification of the museums, especially with Archaeology and Ethnography museums, a huge amount of cultural background and knowledge was brought to light. Their classification, exhibition and making them gain function in accordance with the educational sciences has advanced considerably in the recent years though. Using the opportunities of the technology instead of limited "presentation", and instead of "visiting" participative museum visiting started to be common.

Compared to the developed countries thematic museology become common in our country in spite of a delay. One of the examples of this is "Music Museums". It is possible to see the exhibition of the instruments in some of these rare museums and it is also possible to see the object collections related to the music being exhibited in some others. Repertoire, equipage and exhibition facilities of these museums are the reason of their existence, enlightening music history, music science, music education and music taste.

Museums' educational function become crucial when the cultural and educational background is brought out of the museum and transferred into the life. When it is considered that the knowledge cannot be enough itself but it will be with the processing of the knowledge through education, educational functions takes its place in the priorities of the museums.

This study will focus on the educational functions of the museums. As an example, the musical experience in the energy museum will be explained.

**Keywords:** *Museum, Education, Music.*

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## **USE OF MIXED REALITY IN DESIGN STUDIO TO ENHANCE CREATIVITY OF DESIGN STUDENTS**

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### **Abstract**

Design activity requires many alternative design solutions for ill-defined design problems. Thus, designers have to interact with each other in a creative process to generate alternative design solutions. Interacting with each other to solve design problems requires collaborative activities. In design education, both creative and collaborative nature of design process should be supported at the same time. Computer Aided Design (CAD) systems are used to drafting and presentation of preliminary drawings and 3D modeling software enables designers to create realistic 3D models of their designs. However, in architectural design studio courses, design students built their 3D models from clay, card or polystyrene blocks, sketches and initial drawings are produced with pen and paper technique. There is a gap between real objects and computer generated models in design studio education. Design students need to convert design sketches into a single CAD model to modify, transform and print their final design solution. The

recent developments and availability of low cost see-through display technologies make possible mixing real objects with virtual information. The use of mixed reality in design education could prove a key component in collaborative learning environments. When used in a collaborative manner, mixed reality could be able to achieve a greater level of direct engagement with design studio process. The objective of this study is to develop a conceptual framework for design education environments to support design creativity in a collaborative setting.

**Keywords:** *Design education, Collaborative design, Mixed reality, Creativity support.*

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## **DEVELOPING A GRADUATE EMPLOYABILITY PROFILE: HOW DO WE ENSURE WE DELIVER WHAT WE PROMISE?**

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*Department of Computer Science, The University of Sheffield International Faculty, CITY College (Greece)*

### **Abstract**

This paper describes the rationale, approach and outcomes of the use of Graduate Attributes in Higher Education and a set of badges mapped to each one of them. We decorate syllabi with these badges with the aim of facilitating a programme level view of how any programme of study contributes to the employability profile of our graduates. We suggest that such an approach contributes to quality assurance of programmes in Higher Education as it can guide institutions in their decision making as to how, and how effectively, they build their graduates' profile and ultimately deliver what they promise.

**Keywords:** *Graduate Attributes, Employability, Branding, Badges, Quality Assurance in HE.*

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## **TEACHING ENGLISH AS A FOREIGN LANGUAGE BY ADAPTING MATERIALS ACCORDING TO STUDENT'S LEARNING STYLES**

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### **Abstract**

The aim of this research is to be aware of the importance of knowing the different learning styles in order to match the teaching styles with the individual learning preferences. On this study, English as a Foreign Language (EFL) subject was taught by taking into account the VAK learning style (Visual, Auditory and Kinaesthetic learning style). As to adapt the materials to each individual, the Multisensory Instructional Packages, first introduced by Rita Dunn and Kenneth Dunn in 1979, were designed and carried out for this purpose. These packages included materials and resources about specific contents that were designed and chosen by the teacher.

The aims of this study were to determine the learning styles of the second graders from a class of a school located in Barcelona and to evaluate the efficiency of learning specific contents of English as a Foreign Language (EFL) subject by considering the students' learning styles.

A questionnaire, originally from Cohen A.D. and Weaver, S.J. in 2006, was carried out as to know the learning tendencies of each child and, based on these results, few sessions were designed and took place during the English classes on which students used the Multisensory Instructional Packages. A final assessment, designed by the English teacher, was carried out as to evaluate the efficiency of the contents they learnt. It included four language contents: use of English, listening, speaking and reading and writing.

69.2% of the pupils had a tendency towards kinaesthetic learning style, 7.7% had a tendency towards auditory/kinaesthetic learning style and 23.1% had a tendency towards visual/kinaesthetic learning style. Based on the results of the final assessment in Use of English, Listening, Speaking and Reading and Writing, it was clear that the learning efficiency was high thanks to the adjustments of the teaching styles with the learning styles.

To conclude, being aware of the different type of learning styles could benefit both teachers and pupils because for a good improvement and success in school, the teaching style must complement the students' learning styles.

**Keywords:** *English as a Foreign Language, learning styles, VAK, Multisensory Instructional Packages.*

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## **ENHANCING CREATIVITY AND FOSTERING EDUCATION TO ENABLE COMMUNITY DEVELOPMENT. CASE STUDY IN FAVARA (SICILY – ITALY)**

**Carla Cardinaletti**

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### **Abstract**

The research explores the role of creativity and education in Favara, a town in the economically depressed Province of Agrigento. After the *European Year of Creativity and Innovation* the European Commission proposed the strategy Europe 2020 with the aim of “smart, sustainable, inclusive growth”. The purpose of this research is to identify best practices undertaken by these guidelines through creativity. The research is set in Favara, where I was artist-in-residence to conceive a project based on the immaterial inheritances of Sicily, promoted by I-Art Association. I have been hosted by *Farm Cultural Park*, a cultural and creative center founded and granted by two private citizens of Favara with the ambition to foster creativity and develop sense of belonging in a city lacerated by unauthorized architectural development, and in a community oppressed by illegality and unemployment with a GDP among the lowest in Italy. I was not only dealing with inheritance but also with the concept of “dowry”: the aim of Farm is to offer children a better world. The double role of artist and ethnographer helped me to resolve this ostensible oxymoron: being artist-in-residence means to be completely part of the setting and this status enhanced my role as ethnographer. I combined the maieutic approach in perceiving the genius loci as artist with the “connective thinking” (Agar, 2006) in order to reach an anthropological holism. I detected qualitative data with participant observations in Favara and in the microcosm of Farm, finding out relationships through an ecological view (Bateson, 1977/2011). In order not to interfere with the research I produced my artwork when I left the field of investigation. The research came out with the result that Farm is a best practice according to Europe 2020 guidelines because it is able to grow sense of belonging, turn on virtuous economically circle, redesign architecture. Inventing new way of involving participant community, conceiving new methods of learning, fostering intergenerational relationships displays that creativity is the driving force that moves civilization toward (Hennessey & Amabile, cited in Sawyer, 2010). *Farm Cultural Park*'s people have the ability to evoke new perspectives, to go out of the frames (Sclavi, 2003), because they experienced that lifelong learning is the way to reserve experiences and stories (Dozza, 2016). Today with its 54.444 likes on Facebook, *Farm Cultural Park* is a sort of Favara's amplifier (Bruner, 1976): its inhabitants are virtually almost redouble.

**Keywords:** *Creativity, education, inclusion, intergenerational, lifelong learning.*

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## **CHANGING THE PARADIGM. THE EMPATHETIC APPROACH TO PROBLEM SOLVING IN ENGINEERING EDUCATION**

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### **Abstract**

In many countries engineering education has been run in a traditional and well acknowledged way emphasizing the quality aspect of technological expertise, however not always exploring deeply enough perceptions and necessities of the target audiences for whom technological developments are created as well as perceptions of young generations of technical university students who are the main actors of the educational process. Considering new challenges arising from continuous global political, economic and technological changes that are inherently connected with mentality changes, there arises a need to adapt educational approaches to the new demands. The article aims at presenting an innovative curriculum scheme used by the Lodz University of Technology, Poland, that attempts to combine the above factors and look at education from a different angle, the angle that allows to include empathetic perspectives of

the actors involved in an educational process, students and teachers, as well as the perspective of potential recipients of the solutions generated by the technology developers. A few year experience in the human-centred approach to problem solving in an engineering education at the Lodz University of Technology results in salient reflections presented in a qualitative and quantitative form that are used to create guidelines for modelling engineering education so as to increase its positive impact on the success of young generations of engineers in a dynamically changing international context.

**Keywords:** *Engineering, education, problem-solving, human-centered.*

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## **CHALLENGES IN HIGHER EDUCATION: INVOLVING STUDENTS IN THE DYNAMICS OF SCIENTIFIC KNOWLEDGE PRODUCTION**

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### **Abstract**

Society is currently contending with numerous problems for which, in many cases, no solutions have been found yet. One of those major issues is unemployment, which affects the population as a whole but has damaging repercussions on students attending higher education (HE) institutions and is hugely demotivating for them. Measures to combat student failure in education, often caused by this lack of motivation, have not been effective so far and need to be urgently revised.

In this context, a study of qualitative nature was planned in order to assess how influent is the effective and active involvement of HE students in the dynamics of the production of scientific knowledge as a way to promote motivation and success in education.

This essentially theoretical article reviews projects conducted to fight students' dropping out of HE; it stresses the importance of young people getting involved in the dynamics of research in HE and relates this measure to the kind of motivation and progress felt by students throughout their studies.

**Keywords:** *Challenges in higher education (HE), Dynamics of the production of knowledge in HE, Student motivation, Progress in studies, Dropping out of HE.*

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## **MAXIMIZING SELF-CONFIDENCE, LINGUISTIC ASSIMILATION AND CULTURAL AWARENESS USING INTERACTIVE EXCHANGES IN THE FRENCH LANGUAGE CLASSROOM**

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### **Abstract**

Interactive native-speaker exchanges facilitate communication with native speakers of the target language (L2) that mimic the immersion experience and supplement the communicative classroom. The use of video-conferencing tools may enhance aural skills, intercultural awareness and global competence. This interactive presentation will assess the use of *TalkAbroad*<sup>TM</sup>, a proprietary application, as an integral part of the Intermediate French language curriculum and classroom at the College of Saint Benedict and Saint John's University (CSB/SJU), in Saint Joseph, Minnesota, USA. We will present the experience, conducted from January 2016 through May 2017, and discuss its results: how it can engage students, inspire motivation and autonomy and boost linguistic skills and intercultural understanding. We will assess its possibilities and challenges and demonstrate, through data collected, that the use of interactive exchanges in the foreign language classroom enhances language learning. The use of innovative technology, such as the *TalkAbroad* platform, has proven to impact positively students' perception of confidence levels in the target language, of foreign language learning, and of overall global awareness

and intercultural competence. Tools such as TalkAbroad seamlessly integrate the guidelines of the American Council on the Teaching of Foreign Languages (ACTFL) and the skills deemed essential for 21<sup>st</sup> century learners.

**Keywords:** *Higher Education, Technology in Teaching and Learning, Global Competence, French Language Learning, Interactive Language Exchange.*

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## **DESIGN IN CONCRETE AND ABSTRACT LANDSCAPES IN ARCHITECTURAL EDUCATION**

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### **Abstract**

The physical and cultural space in which the architectural structure is located has always been influenced throughout history. These concepts are constantly reminded us in contemporary design concepts, such as "genius loci", "cultural environment relations in architecture", "place and space" Through the continuous analysis, synthesis and evaluation scientific study method throughout the education of the architects, students are made to analyze the place where the project will be done. However, it is sometimes difficult for students to use this data. In this study, architecture-culture-environment relations in architecture will be examined and examples will be given on the abstract and concrete designs of architectural students.

**Keywords:** *Architectural education; architecture; culture, environment.*

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## **STRENGTHENING COMPUTER SCIENCE STUDENTS' ENTREPRENEURIAL SKILLS: A STEP FORWARD**

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*Department of Computer Science, International Faculty of the University of Sheffield, CITY College (Greece)*

### **Abstract**

Lately, the number of Computer Science (CS) graduates who find jobs in startup companies or create their own startup company is increasing. It is imperative to enhance the entrepreneurial and enterprise skills of CS graduates towards following this career path. This paper proposes the integration of two units in the 3<sup>rd</sup> level of the undergraduate studies in order to prepare students to work in a startup company or to launch their own startup. The paper presents the necessary changes for the integration of the two units and discusses the challenges and the benefits for the students.

**Keywords:** *Startups, Computer Science curriculum, Entrepreneurship, Enterprise skills.*

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## **CRITICAL MEDIA LITERACY IN COMMUNICATION SPACE OF HISTORICAL FILM EXHIBITION**

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### **Abstract**

The film medium represents a rarely used source of inspirational impulses for the practical implementation of constructivist learning. Of particular promise is using its dispositions (representative relation to reality, the constructed nature of film images, and meaning-making character) and social scope as the starting point for specific communication within the participative space of a museum exposition. The current approach to the presentation of the medium and its history in film museums lacks a critical

perspective and for that reason the educational potential of these institutions is highly limited. While film museums and exhibitions remain out of touch with the current needs of film education they have little to no influence on the development of critical media literacy.

NaFiLM, a project initiated by students of the Film Studies Department at Charles University, Prague, aims to create original curatorial approaches to exhibiting the history of the film medium, combining exhibition design with education.

Organized exhibitions function as labs in which are tested possibilities of interaction, activity, association and multi-layered communication with the feedback of various groups of visitors. Currently, systematic methods of constructive communication in historical film expositions are developing within the project. The goal is more strategically use the communicative and constructive aspects of the film medium to curate the overall visitor experience.

Basing the museum's narrative of Czechoslovak modern history not on the authority of historical canon, but rather on the logic and structure of acquiring media literacy, enables the instigation of historically contextualized critical thinking making the visitor a participant of historical reflection. Working from the perspective of reality filtered through the construct of film (applying the codes, conventions and intentional approaches to the medium) we find is a suitable way to understand how particular eras represented themselves.

Thus the visitor is encouraged to learn how to read and perceive history through its images and reflections thanks to the communication allowed through the roles of film as a source which exceeds the conventional use of historical illustration and can be a more encrypted (but paradoxically more immediate) testimony of the era itself.

**Keywords:** *Media Literacy, critical thinking, film education, museum education, modern history.*

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## **ROLES OF SOCIAL WORKER IN SUSTAINABLE EDUCATION DEVELOPMENT (SPED'S CASE STUDY)**

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### **Abstract**

A primary focus of this paper is to highlight why there are needs for social workers to increase their impacts and activities on the road to achieve sustainable development bearing in minds different sustainable developments goals (SDGs) to attain sustainability especially sustainable education development and challenges to be addressed and what experiences exist in using education intervention program for this purpose and the impact on children..It also highlighted three components of sustainable development. Environment, Society and Economy.

Social worker intervenes at the points where people interact with their environments. the fact that Education is the key to African Development therefore we have to look at the sustainable education development as the key word that have driven global and world planning in education sector, social workers have vital roles to play in enhancing sustainable development because they are civil Society, They work at. " Community level' thereby affecting social change from the grass-roots where others cannot. The paper concludes by identifying the roles of social workers in enhancement of sustainable development strategies and planning elements that need to be taken into consideration when implementing and making sure that Sustainable Development Goals are achievable by 2030.

**Keywords:** *Social Worker, Education, Development, and Sustainability.*

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## TEACHING AND LEARNING

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### STUDENT TEACHERS APPROACH ON USING INDIGENOUS LANGUAGES AS LOLT IN TEACHING SCIENCE IN PRIMARY SCHOOLS

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**Abstract**

The study sought to explore the approach of student teachers towards using indigenous languages as Language of Learning and Teaching (LOLT) of Science Subjects in primary schools of Motheo district in South Africa. The aim was to compare the approach and attitude of 20 student teachers towards the use of English as Language of Learning and Teaching (LOLT) and that of *Sesotho* as Language of Learning and Teaching (LOLT) of Mathematics to Grade 4 classes and to examine the students' approach towards the use of mother tongue instruction in the teaching and learning of Mathematics in South African primary schools. A practical teaching experiment was conducted to investigate the feasibility of using *Sesotho* as Language of Learning and Teaching (LOLT) of Mathematics to Grade 4 class and investigate the student teachers' approach in the teaching situation. In addition a descriptive survey research design which used questionnaires and interviews as data collection methods was also employed for its usefulness in exploratory studies. Data gathered was subjected to both quantitative and qualitative analysis resulting in data triangulation for validation. The results show a positive approach towards the use of *Sesotho* as Language of Learning and Teaching. The implications and recommendations were also discussed.

**Keywords:** *Language of Learning and Teaching, Language policy, language attitudes.*

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### PERCEPTIONS OF MUSIC STUDENTS FOR EFFECTIVE GROUP WORKING

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*Music Education Department, University of Necmettin Erbakan (Turkey)*

**Abstract**

Several research studies have confirmed that students who participated in various types of small-group learning had greater academic achievement, learn more actively and effectively, exhibited more favorable attitudes towards learning, more satisfied with their education and had increased persistence. (Davis, 1993, Johnson et al., 2006). However it is also claimed that the use of team or group work at all levels of education, if it is not well managed, can backfire on the learning. This paper aimed to explore the perceptions of music students regarding group work. Metaphor and open ended questions have shown to be a useful tool to understand the perceptions. Majority of music students perceive group work as being together, building friendship, sharing ideas, workload and being powerful. On the other hand some students indicated although they are set as a grouped they work individually in group. Music students valued the group work for improving their musical skills, affective skills, and social interaction skills. Thirteen aspects were shown as a negative side of group work such as difficulties of time arrangement, evaluation, group composition, pressure and working environment.

**Keywords:** *Group working, Music students, Metaphor.*

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## **THE TEACHER AS A QUALIFIED INTERLOCUTOR: EDUCATIONAL IMPLICATIONS, CONDITIONS AND OPPORTUNITIES**

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### **Abstract**

The Bologna Process stimulated a reorganization in higher education field, which meant also a reflection about the teaching methods used by teachers. With this new academic reorganization of higher education, becomes relevant to question the teacher's role in the construction of learning by students.

The work presented here was developed in the research project called "The teacher as a qualified interlocutor: educational implications, conditions and opportunities." The main goal of this research project was focused on assessing the impact of a training program of one curricular unit in a class of 30 students of the 1st higher education cycle, where the teacher tried to take the role of qualified interlocutor, as opposed to either the instructor paper or the facilitator. Part of the argument is that the educational act is realized from the quality and relevance of the interactions that take place between teachers and pupils or students with each other.

Methodologically we used i) classroom observation; ii) analysis of support instruments used by the teacher in the classroom; iii) work done by students throughout the semester; iv) focus group conducted for students. The classroom observation was performed through the support of two scripts: one corresponding to the general dynamics of the class, but with higher incidence about the teacher's behavior during the class and another script related to student behavior analysis. The analysis of support instruments used by the teacher aimed to understand their quality and relevance for the training of students. Through the work done by students and the focus group we tried to understand the position of the students about the teaching options and the relevance of these for their construction of critical thinking about the topics covered in the classroom.

The findings allow argue that the production of learning by students does not mean focus all pedagogical act only on the student, but to develop quality interactions between teachers and students. In particular, the work done by students' currents shaping evolution of these critical thinking, achieved through relevant and located interventions by the teacher, thus assuming the role of qualified interlocutor.

**Keywords:** *Higher education, qualified interlocutor, critical thinking, teacher, Bologna Process.*

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## **IMPLICATIONS OF SEXUAL DEVELOPMENT OF LGBT CHILDREN AND YOUTH FOR SEX EDUCATION CURRICULUM**

**Angela Hovey & Susan Scott**

*PhD, RSW, Lakehead University (Canada)*

### **Abstract**

Sexual formation is a key developmental factor for children and youth in the transition from childhood to adulthood that informs sex education curriculum in Canada. Of particular importance is the inclusion of sexual development of both heterosexual and non-heterosexual (Lesbian, Gay, Bisexual, Transgender, Two-spirited, Intersex, Queer, and Questioning (LGBT)) children and youth. We conducted a research synthesis based on resources drawn from both the academic and grey literature. The search of academic literature included materials published between 2009 and 2016, although some seminal articles and other resources from earlier than 2009 were included. Most of the literature was based on heterosexual development. Nonetheless, our findings indicated that developmental pathways are similar for both groups, but also differ in important areas. The formation of gender identity occurs in middle childhood (ages 6 to 12); however, for some children, the gender identity does not align with their biological gender. Depending on their experience and the intensity of their experience, children may fear their impending entry into puberty. Their secondary sex characteristics will develop and will be visibly incongruous with their gender identity, possibly causing them to feel negative impacts. Minimal research has been completed regarding the development of non-conforming gender identities and where research exists,

much has been completed with those who have sought medical treatment, including mental health treatment for the difficulties they faced. Sexual orientation also begins to emerge in middle childhood. Practitioners are finding that children are disclosing their sexual identities (i.e., “coming out”) earlier than they have previously. In addition, middle-years children are now experiencing early onset puberty in larger numbers than in previous generations, thereby creating major developmental challenges for children affected. With puberty, many social issues may arise regarding dating and association with peers. Further issues may arise at school related to the gender binary presentation of sex education materials and the likely absence of information about gender dysphoric children and non-heterosexual orientations. Sex education is intended to aid the child in developing sexually within physical, cognitive, emotional, and social domains and to prevent early engagement in sexual activity and outcomes that can flow from lack of knowledge such as teen pregnancy and contracting sexually transmitted infections. We will present the findings of our research synthesis regarding LGBT sexual development and discuss the implications of these findings for the sex education curriculum for children and youth.

**Keywords:** *Sexual development, gender identity, sexual orientation, sex education curriculum.*

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## **ARE ILLUSTRATIONS AND TEXTS IN PICTURE STORYBOOKS INNOCENT? NATURAL ENVIRONMENT MESSAGES TRANSMITTED**

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### **Abstract**

This study critically examines the natural environment messages given in the picture storybooks and it's primarily focused on the messages given through the illustrations and the texts of the books written for preschool children. The purpose of this qualitative study, where case study was used, was to examine the illustrations and texts in the picture storybooks for 3-to-6-year-old children with respect to positive and negative natural environment messages. The data was collected by document review and examined by content analysis with the help of 3 forms developed by the researchers. For this purpose, at the beginning of the study, 954 books in the Children's Library located in a leading university in a capital in Europe were scanned. After the copies were eliminated, the remaining books were evaluated, first, whether they were directly related with natural environment, and second, whether they had living organisms - natural environment interaction. As a result, a total of 58 books were analyzed by the researchers. Before analyzing the data, researchers did the reliability and validity tests. At the end of the data analysis, it was found out that the writers and the illustrators were mostly giving positive natural environment messages to young readers but in a few books, maybe unconsciously, they gave negative natural environment messages to children. Accordingly, both kinds of these environmental messages were explained thoroughly and by these messages, some examples of positive/negative environmental perceptions which might occur in children were given.

**Keywords:** *Picture storybook, illustration, text, natural environment message, preschool.*

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## **FIRST LANGUAGE VERSUS FIRST ADDITIONAL LANGUAGE(S) TEACHING IN FOUNDATION PHASE IN SOUTH AFRICAN SCHOOLS**

**Takalani Mashau, Matodzi Muremela, Humbulani Mutshaeni, & Fhatuwani Ravhuhali**

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### **Abstract**

In a multicultural society like South Africa, where eleven languages are regarded as official languages, usage of language contributes towards quality education. In terms of Section 6 the Constitution of the Republic of South Africa official languages are: Sepedi, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, Afrikaans, English, isiNdebele, isiXhosa and isiZulu. The question which arises mostly is whether these (especially) African languages are mastered by the children. The language of teaching and learning in most schools in South Africa is English. The paper investigated whether Foundation Phase

learners are able to switch from mother tongue (first language) to second language (first additional language) without challenges. Quantitative design was used where questionnaires were used to collect data. Ten (10) Grade 3 teachers from Sibasa Circuit were purposefully sampled as participants. The research paper found that, it is not difficult for learners to learn first additional language before they master their own first language. It is not difficult for learners to comprehend what they have read in first additional language.

**Keywords:** *Mother tongue, Second language, First additional language, Education Language Policy, First language.*

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## **DEVELOPMENT OF FUNCTIONAL THINKING IN PRIMARY SCHOOL CHILDREN USING EARLY ALGEBRA**

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### **Abstract**

The purpose of this paper was to develop functional thinking in third grade students (around 9 years old). A psychoeducational strategy was planned, using basic understanding schemes, when handling quantities of water. To promote the understanding of quantitative relationships, quantity was manipulated by passing water from one vessel to another and translated into arithmetic representations as well as algebraic equations.

A group of 26 children were divided into teams to promote collaborative work and thus foster distributed cognition, where advanced students help to less advanced. The teams manipulated a fixed amount of water (10 centimeters) passing the water from one glass to another and wrote their arithmetic representations. They then put the data into a table in which the numerical relationships were ordered. Later, the data were transposed to an algebraic representation incorporating the notion of variable, using quantities in vessel A and B, as well as the constant X, where the constant was 10 cm, so that  $A + B = X$ , for example:  $3 + 7 = 10$ . Finally, the algebraic equation was represented with a line on the Cartesian plane.

All children were able to understand and represent relationships in arithmetic (numerical) expressions and linear graphs. 83% of the children were able to understand the variable relationship ( $A + B$ ) of the amount of water distributed in the vessels, and move to the algebraic function represented by the equation  $A + B = X$ .

**Keywords:** *Functional thinking, distributed cognition, representation, transfer, early algebra.*

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## **MENTAL HEALTH LITERACY DEVELOPMENT IN PRE-SERVICE TEACHER EDUCATION**

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### **Abstract**

Health literacy, including mental health literacy, has been internationally recognized as a strong predictor of health outcomes (World Health Organization, 2013). Mental health literacy is fundamental to improving knowledge about mental health, decreasing stigma and thereby enhancing help-seeking behaviours. The need for mental health literacy for teachers is important, particularly for those working in middle and secondary schools, as the ages 12 to 25 years are those during which most mental disorders can be diagnosed and constitute the largest component of the burden of illness during this phase of the life-span. Improving teachers' mental health literacy may lead to enhanced access to effective mental health care for students, thus helping to decrease negative outcomes associated with undiagnosed and untreated mental disorders in young people, such as poor academic and vocational achievements, social dysfunction, and early mortality due to suicide.

There is a lack of both in-service and pre-service teacher professional development in mental health literacy in Canada. These shortcomings are occurring even though pre-service teacher preparation is known to be critical for equipping teachers with the knowledge and skills to address mental health concerns in the classroom. To address this gap, we modified and implemented a mental health literacy professional development program, originally created for and provided to in-service classroom teachers, and delivered it to a group of pre-service teachers studying in a large Canadian Faculty of Education.

Sixty pre-service teachers participated in a professional development session and completed a survey on their mental health knowledge, attitudes towards mental illness, and help-seeking efficacy. Participants completed an anonymous mental health knowledge and stigma survey before and directly after the training session and again three months later. One-way repeated-measures analysis of variances (ANOVA) were used to explore to impact of the professional development session on knowledge and attitudes from the pre- and post-session surveys, and follow-up surveys; and paired samples t-test was applied to assess the help-seeking from the pre-session and follow-up surveys. Compared to baseline data, results demonstrated significant and substantial improvements on all three outcomes immediately following the session and after three months.

Provision of mental health literacy education among pre-service teachers may be an effective approach to help them better address student mental health needs in their future teaching career.

**Keywords:** *Mental health, pre-service teachers, teacher education, schools.*

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## **ENHANCING COGNITIVE DEVELOPMENT AMONG UNDERGRADUATES IN THE BIOLOGY CLASSROOM BY ACTIVE LEARNING THE PRINCIPLES, LOGICS, AND RATIONALES THAT DRIVE THE INFORMATION EXPLOSION IN MODERN (MOLECULAR) BIOLOGY**

**George M. Malacinski & Brian Winterman**

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### **Abstract**

The “information explosion” in molecular biology is causing undergraduate biology students to complain of “cognitive indigestion”. This is especially noticeable as the size of molecular biology textbooks increases. As well, the intellectual content of classroom lectures is changing away from traditional analyses of experimental designs and towards “information content”.

The signature feature of science—the use of a hypothesis to direct experimentation and assessment of subsequent evidence—is nowadays very often either supplemented (especially during beginning stages of a project) or replaced by alternatives to hypothesis testing. That is, high technology is increasingly being employed for “discovery-based” and/or “data-mining” endeavors. For the intrinsic value derived from those approaches to be understood by undergraduates, special efforts by the instructor are required. That is, to help students learn how to assign meaning to the data collected by those alternative endeavors, explanation of the driving force (e.g., logic/rationale) behind collection of specific data set provides a useful starting point.

Sample classroom exercises that foster the development of the requisite cognitive skills for understanding authentic contemporary professional-level data collection and evaluation are therefore described.

**Keywords:** *Information explosion in biology; discovery-driven science; data mining in biology; writing to learn science.*

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## **TACKLING ECONOMETRICS TEACHING CHALLENGES: THE USE OF UNICODE IN HIGHER EDUCATION**

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*Department of Economics and Statistics, University of León (Spain)*

### **Abstract**

In the present research, we develop a teaching methodology to emulate statistics software to make econometrics lectures more approachable and understandable through *learning by doing* activities. The goal of this initiative relies on combining the interactive characteristics of a spreadsheet program and

Unicode plain-text linear format for mathematical expressions. The advantage of Unicode standard is based on the easiness to write, and, even more importantly, to read. Also, with Unicode, mathematical expressions are more legible, and the resulting nearly plain-text can often be used with few or no modifications in other numerical computing environment as Matlab, Mathematica or Maple. Moreover, with these capabilities students can learn how to display and edit mathematical expressions in a built-up format in Word or Latex. To test our hypothesis that Unicode standard could be an appropriate tool for teaching econometrics, we perform an experiment with a group of students. Two main results arise: first, students using Unicode standard reduce their response time to mathematical questions, and the reduction is larger when the difficulty increases. Second, those students taught under Unicode standard present a learning curve: their response time decreases with difficulty.

**Keywords:** *Teaching tool, Unicode, spreadsheet, econometrics.*

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## **THE DIFFICULT SECOND ALBUM: WHY WE MUST START TEACHING COMPUTER SCIENCE IN SECONDARY EDUCATION AGAIN**

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*School of Electronics, Electrical Engineering and Computer Science, Queen's University of Belfast (United Kingdom)*

### **Abstract**

In this paper we present an assessment of the pedagogical effectiveness of several computing related educational outreach activities undertaken by Queen's University Belfast (QUB) in partnership with a number of Northern Irish Schools. Outreach activities included: a Computer Science Teacher Upskilling Programme, a Code School and a Sphero Challenge. Each activity has provided thought-provoking pedagogic experience for academics, teachers and students alike. The Computer Science Teacher Upskilling Programme (CSTUP), is a Department of Education (DE) funded programme, run by the School of Electronics, Electrical Engineering and Computer Science (EEECS) at QUB. It aims to upskill teachers to deliver qualifications with programming elements in schools to meet DE's strategic objective 'to provide a curricular framework that reflects the needs of the economy of the future'. Code School is a six week after-school club arranged at local schools, supported by QUB EEECS staff and students. It has engaged more than 120 school pupils aged 11 - 14 who, due to socio-economic background, may not have considered further education as an option or indeed have little knowledge of STEM subjects and careers. The programme encourages pupils to learn how to code, to develop apps, programs and games and to explore technology. The Sphero Challenge is a problem-solving challenge, in which a wireless programmable robot is controlled using a tablet computer. QUB sets several challenges for both primary and secondary school students. Each activity has exceeded its targets of out-reach to School teachers and pupils. Sphero Challenges have promoted the development of problem solving skills. Code School has specifically targeted girls to help reduce the recognised gender divide in students choosing to study or work in the Software industry. The CSTUP has been successful but also identified that the two-year programme has not been long enough and continued support is still needed. We reflect on our ongoing research into the effectiveness of computing-related outreach activities in the context of primary and post-primary education. The paper contributes to debate surrounding the ambition of the UK government to see a move away from Information Communication Technology (ICT), and toward computing subjects, in the classroom. It will be of interest to academics and practitioners seeking to uncover the most effective way that Higher Education institutions can support primary and secondary schools in this transition.

**Keywords:** *Computer Science, Secondary Education, Outreach, Coding, Software Development.*

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## **INTEGRATING LAPTOP COMPUTERS: A LEARNING PROCESS FOR BIOLOGY TEACHERS**

**Morag S. Gundy<sup>1</sup> & Marie-Josée Berger<sup>2</sup>**

<sup>1</sup>*Bishop's University (Canada)*

<sup>2</sup>*Dean, School of Education, Bishop's University (Canada)*

### **Abstract**

The paper describes a study on teacher insights, defined here as their capacity to intuitively discern the true nature of a situation. Insights can be based on deep, clear, sudden, possibly unique, perceptions of a specific cause and effect in a specific context. This descriptive study documents the learning processes of high school biology teachers as they integrate laptop computers in their classrooms, the key factors about the integration process, and how the integration was accomplished. The teachers considered the acquisition and use of teaching materials to be an important aspect of integrating laptop computers into instruction and identified ongoing challenges for accessing appropriate professional development, and for sharing knowledge, skills, and teaching materials. This study found that integrating laptop computers into instruction was a positive experience for the biology teachers interviewed and suggests specific areas in which teachers need additional support in order to sustain successful integration. The primary fact that emerges is the central and critical role that teacher learning plays in the development of new instructional technologies such as the successful integration of laptop computers.

**Keywords:** *Laptops, Biology, Integration, Secondary, Quantitative.*

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## **RELIGIOUS DIVERSITY IN A MULTICULTURAL SOCIETY: WHAT WE CAN LEARN FROM THE HISTORY AND MANDARIN TEXTBOOKS IN TAIWAN**

**Chuen-Min Huang**

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National Taiwan Normal University (Taiwan)*

### **Abstract**

It is important to cherish and promote multi-religious competence and literacy in a multicultural society in addition to the issues of racial/ethnic, class, gender diversity. The perspectives and world views that textbooks carried reflect the cultural heritage and social ideology in a changing society. The major purpose of this study was to investigate what kinds and in what degree of religious diversity, tolerance, and imbalance embedded in the textbooks of junior-high schools in Taiwan, as well as how teachers' and experts' interpretations are. Data derived from qualitative approach provided significant information to answer the related research questions. The research findings include the following: (1) religious diversity more or less showed on Mandarin and history textbooks in Taiwan, while some preference and imbalance were also founded; (2) the narrative way of political perspective on textbooks is highly stronger than the perspective of cultural exchange; (3) keeping balance between religious localization and globalization is a better way to face the religious diversity of student composition in a changing Taiwanese society; and (4) the empowerment of teachers' multi-religious competence and literacy is urgently needed, so that could further enhance students' multi-religious knowledge, respect, and tolerance.

**Keywords:** *Multicultural society, religious diversity, religious tolerance, Taiwan, textbooks.*

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## **EXPLORING THE TRANSITIONAL EXPERIENCE OF BTEC STUDENTS FROM POST-16 STUDY INTO AN UNDERGRADUATE DEGREE**

**Irene Custodio**

*Pearson (UK)*

### **Abstract**

In England, the number of learners taking technical qualifications at post-16 study has increased over the past decade. Recent data (UCAS, 2015) shows a sharp rise in the number of people applying to university with qualifications like BTECs (vocational equivalent to A-level) which allow progression from a

technical track at post-16 to an academic track at HE, within some academic institutions. Research has highlighted differential outcomes for BTEC students at HE, suggesting that students who go to university with BTEC qualifications are less likely to achieve a first or an upper-second class degree; and that this difference is more pronounced in research-intensive universities. Research also suggests a 'nuanced picture' whereby such students 'can feel more independent, self-motivated and capable than their counterparts with A-level qualifications' (Masardo and Shields 2015).

This paper reports on a case study of a sample of BTEC students at a Russell Group University. The study seeks to understand how BTEC students engage with the university educational experience and focuses on the transitional experience of BTEC students starting their undergraduate degree; how the knowledge and skills achieved through their BTEC qualification enables, or otherwise, their degree level learning; and the nature of students' progression routes from BTEC, through university and into the workplace. Through a series of face-to-face semi-structured interviews with students at different points in their university experience, data was elicited which illuminates students' perceptions and experiences.

This study forms the basis of a wider study to be conducted by four HE institutions in England in collaboration with FE Colleges. The research aims to develop evidence-based interventions to transform the transition of BTEC students into HE as a means of reducing differential educational outcomes and contributing to the Government widening participating agenda.

**Keywords:** *BTEC, HE, Vocational, Transition, Technical.*

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## **THE EFFECT OF USING METACOGNITIVE STRATEGIES FOR SOLVING MATHEMATICAL WORD PROBLEMS**

**Eda Vula, Rrezarta Avdyli, Valbona Berisha, Blerim Saqipi, & Shpetim Elezi**

*University of Prishtina/Faculty of Education (Kosovo)*

### **Abstract**

The purpose of this study was to identify the effect of using metacognitive strategies on word problem solving on fifth grade students' achievement. Participants were (N=133) Albanian speaking Kosovar students of fifth grade from two urban schools. A twelve-word problem tasks test was constructed in two versions. The items involved mathematical word problems which can be solved using one arithmetic operation, word problems with information which are not in consistence with an arithmetic operation and the other items were more complex consisting of two or more necessary steps with a mix of arithmetic operations. Test was applied twice, as a pre-test or baseline, and posttest. During one month, about half of students received metacognitive instruction and self-regulation strategies based on the work of Maverech and Kramarski (1997) and Montague (2008), while the other students studied under the traditional method. After a month, the posttest was administrated to both groups. The findings indicate that there was an effect of metacognitive instruction and self-regulation strategies in the experimental group. The authors discuss implications for future research and practice.

**Keywords:** *Mathematics, word problems, metacognition, self-regulation.*

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## **FOUNDATIONS OF EDUCATION: FROM SECONDARY TO HIGHER EDUCATION. IDENTITIES AND (DES)CONTINUITIES**

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*UAç Centre for Humanistic Studies (Portugal)*

### **Abstract**

In the field of Education, once again we must think and act towards the *ends* and the *purposes*, which not only fall within an alleged final step of the educational process - or an alleged final phase of the teaching/learning process - but also within the domain of *active principles, origins and causes*. In this way, we can root ourselves in concepts such as course and path, Development and new or renewed developments, innovation or continuity, involving the subjects of the action: persons, communities, peoples. What are we doing? Why and for what? Arising from Foundation of Education, Philosophy of

Education and Philosophical Education, and even from values, these are the questions which can really give life to the developments, giving them meanings, significance and foundations. We will clarify the core elements - conceptual or practical principles – of “*Education for Development*” as well as “*for Growth*”, in their *integral, entire and integrative sense*. This would only make sense by asking for the deep mean of Lifelong Education.

We look at the word END, and a sign of the future immediately appears, in dialogue with the present and the past. It means – the language has its weight – new and renewed human developments. For an Ecology of Human Activity in the Planet Earth, the meaning of ‘Development’ should be known. The plural form ‘developments’ pays greater attention to diversity and to “Environmental Education for Sustainability”. Resources are scarce. *Carefulness* is the principle that should guide action and developments.

*What* and *how* (the object and the method of knowledge) are educationally important, but we also call for a light, a guideline, a direction, a sense. Hence the need to rethink the foundations.

From “Early childhood and Primary Education” to “Secondary and Higher Education” the bases are of the utmost importance for our (re)thinking, doing and acting in a landscape of values, attitudes, knowledge, skills and competences. Specificity, identity(ies) and connections between different cycles of studies, between different stages of/within the Education System and subsystem. What kind of people are we looking for, for what end and purpose? Will Secondary Education be a “crossroads” of the entire educational system, as UNESCO maintains in *Education for the Twenty-first Century*? What kinds of developments and persons are we preparing, to build a genuine educational society, a knowledge society? We need to combine Culture, Education and Science, to open new dynamic and meaningful horizons.

**Keywords:** *Person, Development(s), Secondary Education, Higher Education, Aims.*

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## THE PEDAGOGICAL ORIENTATION OF PRESERVICE TEACHERS IN TEACHING PHYSICS

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University of Johannesburg (South Africa)*

### Abstract

This study investigated the pedagogical orientations of Bachelor of Education fourth year preservice student teachers at a South African university using the Pedagogy of Science Teaching Test (POSTT). This test is made up of items that depict a teaching scenario followed by four options. Each option corresponds to a pedagogical orientation. Teaching practices cover a wide spectrum ranging from didactic exposition through to open inquiry learning. For our purposes we considered four main orientations in this spectrum, which we call Didactic Direct, Active Direct, Guided Inquiry, and Open Inquiry. The analysis of data collected using POSTT revealed that students straddle between active direct and guided inquiry orientations in the teaching of high school physics.

**Keywords:** *Pedagogical orientations; physics teaching; pedagogical assessment.*

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## REDUCING PUBLIC SPEAKING CLASSROOM ANXIETY THROUGH THE USE OF MASKS

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<sup>2</sup>*Istanbul Medipol University (Turkey)*

### Abstract

For many foreign language learners, speaking promotes anxiety especially when learners are using the language orally in the language classroom. Speech anxiety could be seen either during general communication or public speaking. The present study searched into the effects of using masks on public speaking anxiety of Turkish EFL learners. The study specifically investigated whether using masks during oral performance in the classroom alleviated public speaking anxiety of learners. The study employed a mix-method research design combining both qualitative and quantitative data collection and



analysis. The participants of the study were purposefully selected from the total population of the students enrolled in a high school in Turkey. A total number of 70 learners at A1 level participated in the study. Findings of the study indicated that using masks in oral performance helped students to overcome their public speaking anxiety.

**Keywords:** *Speaking anxiety, FL learner, FL teaching, use of masks in FL, Drama in ELT.*

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## UNIVERSITY PHYSICS STUDENTS' VIEWS ABOUT SCIENTIFIC INQUIRY

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<sup>1</sup>*Department of Applied Physics and Engineering Mathematics*

<sup>2</sup>*Department of Science and Technology Education*

*University of Johannesburg (South Africa)*

### **Abstract**

The development of informed views about scientific inquiry forms an integral part of a key endeavour geared towards meaningful enhancement of scientific literacy. Within the realm of curriculum innovation, there is an added imperative for scientific inquiry to underpin curriculum reform efforts. In this regard, the Views About Scientific Inquiry (VASI) questionnaire was utilized to establish university physics students' baseline knowledge about scientific inquiry as an essential tenet in science education. Analysis of responses revealed fragmented and incoherent views about the nature of scientific inquiry with the concomitant implication that students appeared not to hold informed views about scientific inquiry itself.

**Keywords:** *Scientific inquiry, scientific literacy, curriculum innovation.*

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## UNPLUGGED TOOLS FOR BUILDING ALGORITHMS WITH SPREGO

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### **Abstract**

In the present paper we introduce unplugged programming tools and provide details on their application in the Sprego – Spreadsheet Lego – environment. Since Sprego is a functional programming approach and language, the main idea of the supporting unplugged tools is borrowed from Russian matryoska dolls, with which we are able to demonstrate how to create composite functions.

To substitute the handmade matryoska dolls, we can buy sets of barrels, print plastic matryoska dolls with 3D-printers, and students can make their own origami boats which can be folded into balls. The steps of the algorithms, the outputs, the output data types, etc. can be written on tapes and stuck on the surface of the plastic objects or written directly on the paper boats. Moving in an inside-to-outside direction, students can build the algorithm step-by-step. As the final phase of the problem solving process, they disassemble the set of dolls and remove the tapes, which can be recycled by pasting them in the notebooks. In this outside-to-inside direction we go through the algorithm repeatedly. All these activities are accompanied by the teacher using the enlarged version of the dolls/barrels/boats on the whiteboard.

Our experience has proved that by applying the Sprego method, along with the unplugged tools, functional programming and high-mathability spreadsheet management can be introduced to young children, and to both beginner and end-user programmers.

**Keywords:** *Sprego, computer science unplugged, algorithms, functional programming, composite functions.*

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## **DEVELOPMENTAL DYSGRAPHIA AND ITS PREVENTION. WHAT EDUCATIONAL ACTIVITIES?**

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<sup>3</sup>*Expert in the assessment and treatment of learning disabilities and expert in cognitive science (Italy)*

### **Abstract**

Dysgraphia is a problem that involves from 5% to 33% (Overvelde & Hustijn 2011) of European school population. The present work proposes special educational research on 3 to 6 years old children, to identify probable predictors of dysgraphia, with a preventive aim. The work presented here concerns a series of indications, collected through a special educational work that has allowed to develop a prevention program. The article also presents a series of practical, educational guidelines, whose application has proven to be effective in recovering situations where handwriting is difficult.

**Keywords:** *Dysgraphia, prevention, specific learning disorders, motor education.*

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## **PROMOTING THE RESEARCH KNOWLEDGE MOBILIZATION THROUGH A COLLABORATIVE ACTION-RESEARCH PROJECT IN TWO DISADVANTAGED SCHOOL SETTINGS IN QUEBEC (CANADA): CHALLENGES AND SUCCESS CONDITIONS**

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### **Abstract**

In Quebec, action-research projects which promote the mobilization of research knowledge in schools are put forward as an efficient way to support school success and perseverance (Dagenais et al., 2007; Landry et al., 2008; Ramdé, 2012). In line with these recommendations, funding programs were recently implemented by the provincial government (*Fonds de recherche du Québec – société et culture*) to support action-research projects in school settings. Collaborative action-research approaches are commonly implemented with the aim to support professional development through the co-production of relevant research knowledge, while emphasizing the relevance and usefulness of experiential knowledge in research (Desgagné, 2007, Turcotte *et al.*, 2010). Hence, these types of approaches seem particularly relevant to promote the sustainable use of research knowledge in schools. However, while theoretical operationalizations associated with collaborative action-research remain fairly clear (Anadòn & Savoie-Zajc, 2007; Dolbec & Prud'homme, 2010; Savoie-Zajc & Descamps-Bernarz, 2007), its implementation in school settings entails several adjustments in relation to the partners' postures, mutual expectations and respective roles in the design and implementation of the research project, which renders the compliance with traditional quality criteria more complex (Morrissette, 2013). This paper proposes to shed light on these issues by providing a detailed analysis of the success conditions and challenges associated with implementation of a collaborative action-research project in two disadvantaged areas in Quebec. The implications of this approach with regard to the mobilization of research knowledge and the sustainability of changes in the teachers' professional practice will be discussed in relation to the quality criteria of the research project.

**Keywords:** *Collaborative action-research, research knowledge mobilization, success conditions, quality criteria, disadvantaged school settings.*

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## FOSTERING CRITICAL THINKING IN TEACHER EDUCATION

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### **Abstract**

In teacher education, nurturing critical thinking skills in students has the potential to influence not only the quality of education that is delivered by teachers in schools, but also to allow future teachers to cultivate cognitive skills that they will transmit to their students. This paper presents the results of an exploratory study that experimented the *Practical Inquiry Model* (PI) (Garrison, Anderson & Archer, 2000), a model that is utilized to develop critical thinking skills in a community of inquiry setting. The model, which was initially validated in an online learning environment, was experimented among teacher education students in a face-to-face setting for the current study. The purpose was to examine the type, or nature of critical thinking cues that participants utilized when reflecting, in writing, on a controversial problem that they could potentially encounter in their practice, after having received extensive instruction on various constitutive elements of critical thinking. These cues were coded and categorized according to Garrison et al.' (2000) critical thinking indicators, which highlight the presence of surface and profound ideas expressed during reflection on a problem posed. The results indicated that the majority of participants were able to propose new and innovative ideas, to reflect and to propose suggestions that went beyond the parameters of the problem, were able to consider and accept external information and were able to make relevant links to lived experiences or existing knowledge while considering the problem. Furthermore, a preponderance of profound ideas was expressed by participants in their written reflections. Results of this study can help inform educational approaches and pedagogical practices that are conducive to nurturing critical thinking in adult students.

**Keywords:** *Critical thinking, practical inquiry, teacher education.*

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## INTEGRATION OF CIVIL TECHNOLOGY THEORY CONTENT: STUDENTS' PRACTICAL WORK PERSPECTIVE

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*Central University of Technology Free State (South Africa)*

### **Abstract**

The practical skills are one of the challenges that teachers faced with, when they start their teaching career in South African Technical School. One of the biggest problems is the way lecturers address practical skills in South African universities. The aim of the study is to test and suggest the methods that can be used to teach theory and practical within a timeframe scheduled in Civil Technology time table. Study used mixed method both qualitative and quantitative to collect data, in a form of pre-test (quiz test) and post- test (formal test, practical performance and presentation). The researcher used purposive sampling to select participants 16 third year degree students registered under Civil Technology were selected as participants. Sampling consisted females and males student. The results indicated that students they get more interested when they learn and apply while the content is still fresh in their mind. The study also revealed that fresh content to practical promotes creativity.

**Keywords:** *Practical Skills, Theory Content, Civil Technology, Problem Solving.*

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## THE RELATIONSHIPS BETWEEN NUMBER SENSE AND MATHEMATICS ACHIEVEMENT

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### Abstract

Number sense has been found to be relevant for measuring mathematics achievement in the elementary school years. However, there are conflicting or at least different ideas as to what constitutes number sense. Two basic systems of number have been identified: Approximate and exact number systems. This paper evaluates the approximate number system. There are mainly two types of task used in measuring the approximate system: pure quantity estimation and number line estimation. The purpose of this paper is to determine which type of tasks is more relevant to measuring mathematics achievement in the early years of schooling. A curriculum based math achievement test (MAT), calculation performance test (CPT), Raven Standard Progressive Matrices Test (RSPMT), 2 Mental Number Line Tests (MNL-10 and MNL 100), and Pure Quantity Comparison Test (Panamath) were used in collecting the data. Participants were 323 second graders recruited from schools located in low-middle socioeconomic areas of 2 mid Anatolian cities. In the analysis, lower 10% of the students in Raven SPMT were excluded from the analysis to avoid low general intellectual abilities. Outliers were also removed before the analysis. Final analysis was performed on 274 students. MNL-100 explained 12% of the variance while Panamath explained an additional 2% of the variance in curriculum based math achievement (MAT). On the other hand, MNL-100 has explained only 6% of the variance while Panamath explained an additional 10% of the variance in calculation performance (CPT). When it comes to MNL-10, which is considered to be small numbers for second graders, it explained 28% of the variance and Panamath contributed to an additional 4% of the variance in CPT. These results showed that the relationships between number sense and what considered to be math achievement and calculation performance is more complex than we expected. Relatively small numbers seem to be more associated with calculation performance while MNL with larger numbers were more associated with general math achievement which includes but not limited to numerical problem solving and estimation.

**Keywords:** *Number sense, math achievement, calculation performance.*

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## ORGANIZATIONAL ISSUES

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### LEADERSHIP FOR SCHOOL REFORM: A CASE STUDY FROM A NEW YORK CITY RENEWAL SCHOOL

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#### Abstract

The authors measure and analyze the successful implementation of a renewal program instituted in a New York City high needs urban high school. The program is designed to transform the school climate and academic performance through a qualitative and quantitative analysis of student performance on standardized exams. Schools in the renewal program are labeled “time out” and must show sustained improvement in various measures of student performance or face being closed. The core curriculum is four years of English, Global and American History, Science, Math, and one year of foreign language. In addition to passing the courses, students are required to pass exit examinations in each subject area. The renewal program at this school is based on the Scaffolded Apprentice Model (SAM) program, a two-year administration program housed at a local branch of the City University of New York. Teachers enrolled in the program work toward state certification in School Building Leadership that qualifies them for the positions of principal and/or assistant principal. The SAM – Scaffolded Apprentice Model is a leadership program where leadership skills and a leadership philosophy are developed through a combination of classroom instruction and leadership practice in the school arena. SAM participants work individually and collectively to connect with and redirect at-risk students in their own classrooms and schools which are generally schools that have been identified as failing by municipal and state governing bodies. SAM participants analyze institutional practices in their schools and recruit colleagues to join in the analysis process with the goal of reforming practices in the organization and operation of their schools. School principals play an important role in the leadership program, recommending teachers identified as potential leaders who can accelerate needed change in their schools and then supporting them in their work. The authors observed dialogue at work team meetings, analyzed written work by school leaders, and joined with teams in evaluating the ability of the program to impact on student academic performance. The study demonstrates the possibility of developing school-based leaders as a force for school transformation and points toward more long-term research on the role teacher leaders can play in turn-around schools.

**Keywords:** *Reform, Transformation, Leadership, Renewal.*

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### TEACHING IN A GLOBAL WORLD: HOW ECONOMY DEFINES EDUCATIONAL POLICIES

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#### Abstract

In today's academic world, it seems that motivating critical and analytical thinking in students has lost its relevance. One way to exercise and build both the power of observation of reality and the construction of knowledge, is teaching methodology. But when noticing that currently those analytical and reading skills are not considered relevant to develop, therefore, we could ask ourselves:

How to understand this shift or minimization about the methodology and its teaching? Which can be the starting point to consider the loss of the importance of methodology in the education? In search of arguments to answer these and other questions, we can say that it is possible to address this problem as a part of a multi-causal phenomenon that cannot be reduced to educational contexts only, instead, it falls within the dimensions of economic and political processes.

It seems that as a specific issue it is not related to these dimensions, and that it is far from having any type of connection. In addition, it might also be thought as a purely pedagogical problem, whether how to teach research techniques, or perhaps to a matter of conceiving methodology according to a certain perspective. However, this problem is immersed in a much more complex process which involves the displacement, minimization and even the disappearance of subjects related to philosophy (ethics, logic), history and others in the field of Humanities. As a result, these related subjects have been considered unnecessary because they are not directly linked or connected to economic production.

The point is to articulate social processes to the market dynamics. In education, this issue is presented as a series of transforming policies: several reforms towards education, changes in plans and curricula according to the needs of the production world. In this sense what prevails in academic reforms are political decisions, to materialize in terms of educational and pedagogical models and contents the guidelines imposed by the logic of the market.

Therefore the context in which methodology, its teaching and importance in the academic and intellectual training, is located, can be seen from a logic related to an articulated process: market dynamics - social control and direction of a qualified workforce trained according to standardized criteria.

**Keywords:** *Teaching, educational policies, globalization process.*

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## **CONTROVERSIES SURROUNDING SEX EDUCATION: A CASE STUDY**

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### **Abstract**

Provision of sex education by Ontario Canada government schools to children and youth can be very controversial. Attitudes of parents and other members of the public about sex education can fuel controversy regardless of the need for sex education and the research which supports provision of this education. Perceptions of age appropriateness of the content of sex education, perceptions of who the appropriate parties are to provide sex education to children, religious and cultural perspectives, and ages of children receiving sex education are some of the aspects that may fuel the controversy. Societal conditions and developmental needs of children may be given less relevance in favour of these perceptions, particularly in the case of sex education for middle years (ages 6 to 12 years) children. While viewed as an effort to aid children, the controversies may contribute to an inability to ensure children are adequately prepared for the societal and developmental realities they are facing.

This presentation uses a case study approach to examine the controversial sex education curriculum introduced in Ontario Canada in 2015. The case study focuses on curriculum for middle-years children and question the controversy which arose upon its implementation. The curriculum content is examined relative to the current research understanding of sexual development during the middle-years. Content is analyzed against the results of our 2016 synthesis of sexual development research from 2009 to 2016 pertaining to the middle-years, which was prepared for the Ontario government in aid of the development of a policy framework for middle-years children's policy. The analysis is placed within the context of key factors present in Ontario society today, which influence sexual development generally and for middle-years children specifically. The nature of the controversies which have arisen are examined relative to the goodness of fit of the curriculum and the societal situation within which children develop. Finally, conclusions and recommendations concerning curriculum content and approaches to addressing controversies are provided.

**Keywords:** *Sex education, sexual development, middle-years children, parental attitudes.*

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## **THE ARDUOUS JOURNEY OF THE HIGH FUNCTIONING AUTISTIC/ASPERGER SYNDROME INDIVIDUALS FROM THE SCHOOL SYSTEM TO THE WORKPLACE: A CANADIAN MODEL**

**Christine Besnard**

*Glendon College, York University, Toronto ( Canada)*

### **Abstract**

In Canada, enormous efforts have been deployed by the school system (The Ontario School Curriculum, 2013) and post-secondary education to create inclusive learning environments. Indeed, learners with special educational needs such as, for example, the high functioning autistic/Asperger syndrome students, are being accommodated in order to give them a chance to succeed not only academically but also socially, psychologically and culturally in their learning environment. And because this issue is considered as a social justice one, by implementing full inclusion in their curricula, programs and classroom practices (Besnard, 2012), institutions strive to educate all 'typical' students as well as their families to the social benefits of the full inclusion of 'atypical' individuals with special needs in society from birth to old age. And gradually, Canadians are opening up to the idea that full inclusion should not be limited to primary schools and post-secondary institutions but also to the job market, the health system, and retirement places (Geneva Center for Autism, 2014).

This presentation will be based on my experience in helping families with high functioning autistic/Asperger syndrome children break social and academic barriers in order to be fully included, with the necessary support and accommodations, in the Canadian academic system. I will present the numerous challenges that have been overcome, and success that have been accomplished for the last twenty years in the Canadian society which, because of its multicultural identity, is quite open to diversity (Besnard, 2015).

I will then explore the issue of whether or not the establishment of more equity in schools and post-secondary institutions is triggering substantial social change and equity in the current competitive labor market. In other words, I will explore whether or not today, in Canada, students with autism who have graduated from post-secondary institutions have a better chance than before, to be successful in their job search (Weiss, 2016). Are they still hitting a wall in their employment search or do we start seeing some cracks in mentalities and professional practices surrounding the social and societal issue of opening up the job market to adults with autism by acknowledging their hidden strengths and abilities while accommodating their needs (Autism Speaks, 2016)? Do we see more cooperation between academic institutions and businesses/industries via the establishment of transition programs, workforce and career models, tool kits and internship projects in order to increase the employment participation of these individuals?

*Keywords: Social justice, Education, Autism, Employment.*

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## **INTERNATIONALIZING ALLIED HEALTH CURRICULUM**

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### **Abstract**

As stated by Leask (2009), an internationalized curriculum develops the international and intercultural perspectives of students. It is as much about the content (the information) as it is about the skills and attitude differences found in non-native countries. Within the health care disciplines, multiple references can be found related to opportunities to incorporate international service-learning, clinical internships, and study abroad into the curriculum to provide international opportunities for students (Banhidi et al., 2013; Crawford et al., 2010; Pechak & Thompsan, 2010). Experiences such as these allow the opportunity for students to develop global competencies to practice successfully in diverse environments.

At Fresno State, our mission and strategic plan emphasize the importance of providing students with global awareness and an internationalized curriculum. The strategic directions of the College of Health and Human Services further highlight this area as an important curricular component. While study abroad programs and other forms of international travel, such as service-learning trips, are a valuable means to providing students with international experiences, these options are not available for all students. As identified by the American Council on Education, changing student demographics, financial

challenges, and low study abroad rates increase the importance of making sure all students are prepared to live and work in a global society.

The purpose of this paper is to describe a variety of strategies used to enhance the internationalization of two health care disciplines, therapeutic recreation and physical therapy, within the College of Health and Services. The paper will explore how these two departments utilize university resources and strategic partnerships to enhance international opportunities in their curriculum. Included in the discussion will be campus-wide events such as international coffee hour; interdisciplinary study abroad programs focused on health care; international clinical internships and fieldwork opportunities; visiting faculty and students from other countries; class assignments, and the integration of faculty research on international topics into courses.

**Keywords:** *International, Health, Curriculum.*

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## **DEVELOPING EFFECTIVE UNIVERSITY GOVERNANCE IN KNOWLEDGE BASED SOCIETY**

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### **Abstract**

The characteristics of a higher education institution (HEI) such as: professional domination, fragmentation of decision-making, increasing diversification and diffusion of power calls for a new governance model. The main purpose of this paper is to examine crucial issues in effective university governance. We apply the qualitative methodology based on the descriptive study, comparison, critical assessment and interpretation of the relevant scientific achievements within the defined problem area. The research questions cover the three main areas: the new paradigm of entrepreneurial university, the importance of regional and international networking and the strengthening of university institutional autonomy. We provide the integrative framework for university governance that meets the requirements of university dynamics in the new knowledge based economy.

**Keywords:** *University, governance, entrepreneurship, knowledge based economy*

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## **A RESEARCH ON THIRD-PARTY WORD-CLASS UNIVERSITY EVALUATION INSTITUTIONS IN CHINA AND ALL AROUND THE WORLD**

**Baoyu Guo & Zhuolin Feng**

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### **Abstract**

With the continuing development of higher education internationalization, economic globalization, and global science and technology, many countries including China are building up World-Class Universities (WCU) in succession. To ensure the anticipated compliance and effects of related policies, evaluation is becoming more and more important for WCUs. Contrasted with government and university level evaluation, third-party evaluation is gaining more favor because of its various evaluation forms and external evaluation bodies.

In use of mixed research design combining quantitative statistics study and qualitative content analysis, this research analyses four types of third-party world-class university evaluation institutions worldwide from different kinds of data source. Firstly, the overall counts and distribution of the institutions are analyzed at macro level. Then evaluation standards and systems of institutions are analyzed at micro level. Based on that, we present and illustrate the developing situation of evaluation counterparts in China and compare it with global mature cases.

Through the research, it is identified that the four types of evaluation institution, university alliance, university ranking, university evaluation and subject accreditation institutions, are different in terms of evaluation standards, subjects, methods and frequency. Institutions in different countries and regions also have different development levels. In the case of China, university ranking is becoming mature, while subject accreditation and university alliance institutions are still lagged behind by some developed



countries. It is noteworthy that university evaluation institutions in China are the most undeveloped type among all the four types and have a long distance compared with developed countries including the US, the UK and Japan.

This research chooses third-party world-class university evaluation institutions as a research target, which enriches the range of research and expands it to third-party evaluation in higher education. We have collected a list of global third-party world-class university evaluation institutions. Moreover, we have also studied several case institutions in depth. By doing the comparison, we have found some problems and challenges of third-party evaluation situation in China. In conclusion, this research has proposed several pieces of available suggestion about how to build up third-party WCU evaluation institutions in China, including suggestion about top-level demand, number of different kinds of evaluation institutions and development directions of different evaluation institutions. It is our genuine hope that it can shed some insight in this area and provide some instructions for the future key policy measures as well as projects to speed up the process of world-class university building in China.

**Keywords:** *World-class University, Third-Party Evaluation, University Ranking, University Alliance.*

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## DEVELOPMENT OF FINTECH AND IMPORTANCE OF FINANCIAL EDUCATION

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### Abstract

Recently entry of enterprises related to Financial Technologies (Fintech) to financial services industry is remarkable. When Fintech enterprises started to enter financial services industry, many traditional financial institutions saw them as a competitor. Moreover, some might say Fintech would break a traditional financial services, financial institutions, and financial markets. But on the contrary, many traditional financial institutions, for example banks, securities companies and insurance companies actively invest and introduce Fintech and Fintech related startups. Now in any cases, traditional financial institutions don't think Fintech competitor, rival or enemy as they thought before. They use Fintech a tool to develop new markets, new customer, and existing customer.

In addition, Cyber security and Fintech are actual and interrelated topics, which shall to be researched and analyzed further. Innovations of the financial services lead to the reduced cost, improved timeliness, along with the introduction of many new services and products. However, there are many barriers and uncertainty regarding their success and rate of adoption, in relation to the cyber security, privacy, and regulatory issues. Many of the legal issues of the Cyber security in the context of Fintech are still unknown or in other words – legally uncertain. Finally, the challenge in the Fintech is how to capture innovation while preserving the stability of the banking network.

Regarding users of Fintech, accessibility or convenience of financial transaction has improved because of the development of Fintech. But at the same time, possibility to be a victim of financial crime or fraud has grown. Moreover, users themselves might make a perianal mistake. In fact, many frauds related to Fintech have happened in China in these years. So, we can say, the education to develop financial literacy and information literacy is one of the most important topics in modern education system.

**Keywords:** *Fintech, Cyber security, financial education, financial literacy, Information Literacy.*

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## NOT THE “FRENCH-FRENCH”: ISSUES OF INCLUSION AND IDENTITY FOR NON-EUROPEANS AFTER CHARLIE HEBDO

Lisa Winstead

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### Abstract

Just over three million people who live in France ranging from 18 to middle age are second generation immigrants, many of North African descent. Non-Europeans of African descent, attempt to belong in French society, however, they are perceived as having greater cultural distance and less ability to integrate than their European immigrant counterparts. The goal of this case study was to explore and

contribute to a temporal understanding of the lived experiences of three female Algerians of non-European descent who are first-generation college students and citizens of France. Data from surveys, interviews, and field notes were collected over a period of year. Cross-case analysis was employed to identify recurrent themes and patterns. Findings revealed that the challenges of inclusion and upward mobility for non-Europeans continue to exist and are exacerbated by recent events such as Charlie Hebdo. Participants reported issues of inequitable schooling practices, marginalization, integration with immigrants, and an increased intolerance for those seen as “foreigners”. Conversely, participants refer to the benefits of “positive discrimination” (government legislation) which has led to increased opportunities for the less advantaged to attain access to a university education. Implications for social, educational, pedagogical and curricular inclusion approaches are also addressed.

**Keywords:** *Algerian, France, integration, inclusion, Charlie Hebdo.*

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## **TRANSFORMATION AND SOCIAL JUSTICE CHALLENGES FACING SOUTH AFRICAN HIGHER EDUCATION**

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### **Abstract**

#### **Background**

2015 was the year of the student in South Africa. It all began with the Rhodes Must Fall Campaign (#RMF) at University of Cape Town and this escalated into issues of transformation, educational access and reform – bringing higher education to a halt in the country with the #fees must fall campaign. The # fees must fall campaign has evolved into a severe national crisis.

Equal opportunity in entry to education is an important concern in relation to social justice, particularly as education is associated with economic outcomes, democratic participation and personal well-being. The issue in South Africa was more than simply equal access to education it was inspired by the idea of intellectual decolonization and re-orientation of South African higher education. At a time of crisis one needs to understand certain important aspects firstly, in analysing the role of universities in social transformation there is a need to draw a distinction between the pre- and post-Apartheid periods; the former focuses on practices of resistance to the Apartheid regime and the latter on constituting a democratic polity in part by addressing Apartheid legacies. The second draws attention to the unintended consequences of Government policy.

#### **Aim**

The issues addressed here discuss the central questions about the value, role and control of higher education: Who pays for higher education? Who benefits? Who decides who should benefit, what should be offered, and what the outcomes should be?

#### **Objectives:**

- a) To explore the challenges and possibilities related to addressing the issues of transformation in various institutions.
- b) Inform future policy and practices around the higher education regulatory environment which influences adult learning.

**Keywords:** *Access, Equity, Funding, Policy and Transformation.*

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## **LEADERSHIP FOR TEACHER PROFESSIONAL LEARNING IN SHANGHAI SCHOOLS**

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### **Abstract**

**1. Background/ Objectives and Goals:** Since 2001, Shanghai has been changing the paradigm of school reform from examination-oriented education to quality-oriented education. The existing focus of the reform is to promote teacher learning and it is highly recognized that teachers are the key players to bring about successful educational transformation in terms of innovative ideas and practices. In this context,

educational reforms in Shanghai are therefore fertile grounds for teacher professional learning as well as school-based research which lead to extensive educational transformation and school improvement. As an independent municipal in China, Shanghai has always been leading in education reform and Shanghai schools have been very successful in educational transformation under the national education policies.

Both principal leadership and teacher professional learning have been well-defined and systematically investigated in the past two decades. In the literature, both are widely regarded as the attributes to school success; however, there are limited empirical research studies that link them together. MacBeath (2011) proposed a research on 'leadership for teachers' professional development, and Ellie (2012) suggested there should be research that reveals principals' leadership practices in relation to teachers' professional learning. Therefore, the purpose of this study is to demystify the effects of principal leadership and teacher professional learning on the success of Shanghai schools, examine the connection of principals' leadership to teachers' professional learning, and explore actions that can be taken by principals to facilitate teacher professional learning. Teacher professional learning in this study is defined in terms of the practices of continuous professional development and team collaborative learning which focus on student achievement. This paper reports part of findings from a major study which investigates and compares school education reforms and professional learning communities in two high performing education systems in China: Shanghai and Hong Kong (2015-17).

**2. Methods:** Drawing on the analysis of survey data collected in 2015 from the perception of 730 teachers from 15 schools in Shanghai, this paper particularly focuses on examining the relationship between principals' leadership and teachers' professional learning, and their effects on teachers' efficacy and job satisfaction. This paper intends to address the following three research questions:

1. What are the existing practices of principals' leadership that leads to teacher professional learning in Shanghai schools?
2. What is the relationship between principals' leadership and teachers' professional learning in terms of continuous professional development and team collaborative learning?
3. What is the relationship between teacher professional learning and teacher efficacy and job satisfaction?

**3. Expected Results/ Conclusion/ Contribution:** The findings reveal that principals' leadership has positive and significant effects on teachers' continuous professional development and team collaborative learning, which in turn, has positive effects on teacher efficacy and job satisfaction. It is evident from our study that Shanghai schools have well developed systems and policies on teacher professional development and a strong culture of collaborative learning. Both principal leadership and teacher professional learning have critical contributions in supporting the schools' success. Their contributions to the education reform in Shanghai and school success in the PISA 2009 and PISA 2012 are indispensable. It is to argue that educational reforms are more likely to succeed when teachers are involved, when teachers work collaboratively, and when principal leadership supports teacher professional learning. In order to sustain consistent school improvement, not only should school leadership focus on principals alone, but also should teachers learn continuously, collaboratively and professionally. This study sheds light on how principals can play a key role in leading teachers to learn, develop, grow and transform and how to develop professional learning community in Shanghai schools.

**Keywords:** *School leadership, teacher professional learning, education reform, Shanghai, China.*

## **EXPLORING PROFESSIONAL LEARNING PRACTICE IN SOUTH AFRICAN SCHOOL LEADERSHIP PROGRAMMES BETWEEN 2008-2013**

**Kgomotlokoa Linda Thaba-Nkadimene, Disego Vincentia Thobejane, & Cathrine Lekgothwane**  
*University of Limpopo (South Africa)*

### **Abstract**

This study explored the professional learning practice with the aim to evaluate how the phenomenon is integrated within school leadership curriculum; to establish its impact in real practice; and to propose conceptual framework that can guide future practices. Local and international literature on professional learning practice in school leadership was reviewed. It was augmented by the empirical study that involved interviewing and document studies of the three Limpopo schools were conducted. Discourse analysis and narratives were used to analyse data. The study revealed non-integration of professional learning practices within school leadership programmes, and that the integration was left as a prerogative of universities facilitators. As a result, the impact was non-existence except in cases where a student

principal takes an initiative to put the immediate and the distant colleagues on board. This study concludes that professional learning practice that is expected to provide theoretical underpinnings of this programme was omitted in the design and implementation of the programme.

**Keywords:** *School leadership, school leadership programmes, professional learning communities, professional learning practice, curriculum.*

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## **METHODS USED FOR DETERMINING OF ECONOMICAL EFFICIENCY OF SELECTED ACTIVITIES FOR HIGH SCHOOL STUDENTS**

**Karel Kolar**

*Institute of Particle and Nuclear Physics, Faculty of Mathematics and Physics,  
Charles University (Czech Republic)*

### **Abstract**

We briefly introduce the activities (correspondence competitions and camps) that are used by some faculties to motivate high school and gymnasia students (ISCED 3) for further study of fields taught by them, preferably at the faculty which organizes such activity. Participation in many of those activities is free of charge for upper (or lower) secondary school students. Those costs are paid by faculties (or organizations which organize them) and those cost can be high. It is hard to decide which activity should be funded more, which less and which should be terminated. Therefore, we introduced a system which helps to determine it on our faculty. This article describes the metrics used and reasons for their usage.

**Keywords:** *Informal education, efficiency, science competitions, correspondence competitions.*

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# POSTERS





## TEACHERS AND STUDENTS

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### PROFESSIONAL IDENTITY SURVEY ON UNDERGRADUATES OF PREVENTIVE MEDICINE AND HEALTH LAB SCIENCE IN SICHUAN UNIVERSITY

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#### Abstract

Professional identity, is affected by various factors such as individual, school and society, and it affects learning attitude, academic performance, and even future career. There are quite a few studies on profession identity of different majors, however, rarely related to preventive medicine and health lab science. The aim of the current study is to examine the status quo of professional identity among undergraduates majoring in preventive medicine and health lab science, so as to identify way to enhance their learning interest and ability. For this purpose, we designed a questionnaire based on related literature review. Methods of descriptive statistical analysis, independent sample T-test and one-way ANOVA were adopted in the research.

**Keyword:** Professional identity, undergraduates, preventive medicine and health lab science.

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### ELT STUDENTS' MOTIVES FOR NON-PARTICIPATION IN CONTEXTUAL GRAMMAR I COURSE

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#### Abstract

Communication and interaction are the most essential elements in foreign language (FL) teacher education mainly because teacher candidates are required both to develop their target language and to learn how to help their future students to learn the FL. Both involve the straight use of the language itself in a communicative and interactive way. Nevertheless, FL teacher candidates are observed to be in one-way communication in their field courses, passively accepting the information delivered. In this questionnaire study, as part of a larger survey, the aim is to find out first-year English Language Teaching (ELT) students' perceptions regarding their participation during Contextual Grammar I (CG-I) courses at the Faculty of Education. The questionnaire is composed of sections for demographic information, participant's self-reports of the frequency, type and timing of participation during the whole term as well as 40 statements which reveal distinct reasons for the participant's non-participation behaviour both in CG-I course and in other four English-language skills courses. The statements are compiled from the written notes of a group of 40 representative students prior to the present data collection. Findings related to CG-I course as expressed in the written notes showed that the students felt anxiety about their friends' presence and likely inner talks about linguistic inadequacies although they selected items about having trouble with grammar and speaking as the main reasons of non-participation in the questionnaire. The present paper reports a part of a larger on-going survey concerning student behaviour in all ELT courses in general. The results can represent a first-rate starting point to address the most relevant learning problems when instructors design their FL courses.

**Keywords:** Foreign language education, participation, grammar.

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## **BY WHATEVER MEANS: LEARNING EXPERIENCES THAT ENGAGE NET GEN STUDENTS AT AN HISTORICALLY BLACK UNIVERSITY**

**Alice E. Stephens**

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### **Abstract**

The students of today's generation are frequent users of electronic tools and depend on the use of technology for their daily rituals. Because they are easily bored with traditional learning methods Digital Age students want more varied forms of communication (Oblinger and Hagner, 2005), desire active, engaged learning experiences (Prensky, 2006), and want more hands-on approaches to learning (Hay, 2000). However, these students often lack information literacy skills and their critical thinking skills are weak (Oblinger and Oblinger 2005). Many educators in Higher Education have turned to active learning and project-based learning as more potent ways to engage these students. This poster session will describe and showcase the use of active learning strategies and project-based learning experiences that engage students at an HBCU (Historically Black Colleges and Universities) in the course content of a mass communication course while developing critical thinking and improving information literacy skills - consequently meeting the Net Gen students where they are and moving them towards a deeper understanding of course content and the application of knowledge.

**Keywords:** Active learning; Project-based learning; Student engagement; Net Gen students; HBCUs.

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## **DIGITAL LIFELONG LEARNING: A STUDY ON TURKISH UNDERGRADUATE LEARNERS STUDYING IN 21<sup>ST</sup> CENTURY DIGITAL SOCIETIES**

**Eda Kaypak**

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### **Abstract**

Digital lifelong learning is the personal, civic, social and academic development process of the learners in terms of knowledge, skills and competence in the long run (from cradle to the grave/ from childhood to the retirement) by the help of digital technologies such as MOOCs, Web 2.0 tools, Web 3.0 tools, social networks and online seminars. These aforementioned digital technologies have also been actively used in Turkish universities for years within the aim of providing more qualified and efficient learning experience to the learners. Even though Turkish undergraduate education system is mostly constituted by learners who can be called as digital natives in Prensky's (2001) term, it is a fact that these learners cannot get the most benefit not only from the digital materials introduced them by their educational institutions but also the ones they reach via the Internet by themselves. In this respect, this study tries to test the hypothesis of; Turkish undergraduate learners do not have the digital lifelong learning skills required in 21<sup>st</sup> century societies. The samples of this study are 200 Turkish learners studying at Anadolu University, one of the most populated universities of Turkey. The data is going to be collected via LLS (Lifelong learning scale). At the end, the quantitative data from the questionnaires is going to be analyzed by means of descriptive statistics and conclusions drawn from the data are going to be used to find ways to help Turkish learners get the most benefit from the digital technologies and materials.

**Keywords:** *Digital lifelong learning, digital societies, Turkish learners.*

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## ANALYSIS OF PIBID CONTRIBUTIONS TO THE INITIAL TRAINING OF CHEMISTRY TEACHERS

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<sup>4</sup>State Secretary of Education of Goiás (Brazil)

### Abstract

Initial training of chemistry teachers in Brazil has in the past decade the support of PIBID (Program Institutional Teaching Initiation Scholarship), a program for the improvement and appreciation of teacher training for basic education. The research mentioned in this work refers to the PIBID Chemistry project, developed in IFG - Campus Itumbiara, and was based on the assumption that the participation of the student's college degree in chemistry in PIBID project contributes, in their training, to a more dynamic and assertive performance in the classroom in high school. The analysis of the actions developed in the project, in cooperation with the supervising teacher of high school and the teacher's college, points out the positive relation the experience and reflection-action on the school's teaching practices and student-teacher training. The performance of undergraduate students in the school environment has allowed for several own activities of the teaching profession, especially the didactic transposition of content through play activities and games and experimental classes, to promote the teaching of chemical concepts. The students in chemistry degree course and the project, which now act as teachers, highlight the importance of the teaching profession experience promoted by the program, which also allows the integration of basic education with the knowledge produced in the academic environment also favors perception of the role of formal education in the constant construction of knowledge of everyone involved in the educational process.

**Keywords:** *Learning in chemistry, School training, Insertion in school, School practice.*

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## ANALYSIS OF STUDENT'S QUESTIONS IN THE TEACHING PROCESS

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### Abstract

In the framework of the research project entitled "The Didactic culture of school", the authors of this paper have selected the teaching process as the object of study. Observation in the teaching process was directed at the student questions. By observing the student questions from different perspectives the authors could examine symmetry between the teaching communication and the students' curiosity. The authors approach the students' questions from a didactical point of view, defining them as a path to knowledge. Symmetry (or its absence) is observed in relation to interactive context and with consideration of the participation of all stakeholders in the teaching process. The results of previous studies confirm and point to the marked asymmetry of the teaching process, the dominant position of teachers and the subordinate position of students.

The problem of this research focuses on the analysis of the questions students ask during classes which introduce new curriculum content. The goal is to determine the symmetry (or asymmetry) of teaching communication and to analyse the questions raised by students.

The specific research questions to be answered are:

1. Does the number of questions raised by the teaching process subjects confirm symmetry in teaching communication?
2. Does teaching communication encourage students' spontaneity and curiosity?

The sample for analysis are teachers and their students (age 10-12). The materials for the analysis are video recorded lessons in which new curriculum content is taught.

**Keywords:** *Teacher, student, student questions, symmetry, communication in teaching.*

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## REFLECTIONS ON THE LEARNING OF CHEMISTRY IN EJA: FOOD COLORINGS AS CONTEXTUALIZATION POINT

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Eloise Aparecida Rodrigues<sup>4</sup>, & Thiago Oliveira Barros<sup>5</sup>**

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### **Abstract**

This work aims to discuss the difficulties presented by the students for learning chemistry, using as a focal point the theme "food colors" through a contextual approach. The reported didactic proposal in this work was completed in high school chemistry class of the Youth and Adult Education - EJA (2nd half of the 3rd stage) with supervision and coordination of the teaching of the partner school. The methodology involved the application of a diagnostic questionnaire to the students to guide the elaboration of a didactic sequence on the chosen theme and its execution. The proposal elaborate was directed to the realization of practices by the students, especially the extraction of natural dyes, analysis of the labels of foods and drinks and simple chromatographic analysis, addressing the separation of dyes present in commercial candy. The students presented difficulties with the technical approach of the theme, but correctly related the concepts that were treated in a way closer to their experience. The activities allow to conclude that the teaching of chemistry to students of the EJA should consider, among other factors, the popular knowledge that the students take to the school and bring it closer to the scientific knowledge, so that the students can give meaning to the actions proposed by the school.

**Keywords:** *Learning in chemistry, Contextualization, Young and adult education, School practice, Popular knowledge.*

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## PROJECTS AND TRENDS

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### **AUGMENTED REALITY IN THE K-12 CLASSROOM**

**Adrian Puckering**

*St. Catherine's School (Australia)*

**Abstract**

Augmented Reality has the potential to be the fourth wave of disruptive technology in education; the worldwide phenomena that was Pokemon Go revealed a global appetite and wonder at this form of technology. Harnessing this technology, using it in the classroom to increase engagement and provide a platform for deeper learning is something that seems beyond the scope of teachers and schools. This workshop reveals otherwise. Through a series of demonstrations, the workshop lifts the veil on how this technology can be used and, most importantly, showcases how students and teachers can create their own augmented reality learning experiences free of charge. It's not only an exciting addition to the teacher tool-kit, but one with unparalleled potential and one that can alter the way schools view learning - imagine an augmented reality corridor where posters literally come alive, or textbooks where augmented images spring from the pages. The potential is only limited by the creator's imagination once they have been introduced to the creation tools. A simple workshop that will leave a lasting impression and, more importantly, provide a new and exciting avenue for learning.

**Keywords:** *Augmented Reality, Disruptive Technology.*

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### **LOOKING AT US PUBLIC SCHOOL DEMOGRAPHICS AND PERFORMANCE**

**Francis Stonier**

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**Abstract**

This study utilized data from the National Center for Education Statistics (NCES) and the National Assessment of Educational Progress (NAEP) to develop interactive maps using Geographic Information Systems (GIS) to combine school and district level data with geolocation. The maps identify the ethnic diversity for public school districts within the United States (US) that had reported NAEP. Layers included students who are identified as: American Indian/Alaska native, Asian or Asian Pacific islander, black, Hawaiian native/Pacific islander, Hispanic, two or more races, or white. The maps visualize performance data through NAEP scores from 22 of the largest urban school districts in the US and how it related to the identified populations. Students in grades 4 and 8 participated in this national test. Analysis examined student to teacher ratios as well as free and reduced lunch status and how it relates the ethnic diversity of the school district. Ethnicity was considered in terms of school percentages rather than raw numbers in order to provide a more accurate representation.

**Keywords:** *GIS, US Public Schools, Ethnicity, Performance, Teacher-student Ratio.*

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### **M-LEARNING TOOLS FOR DISADVANTAGES STUDENTS – MRIDGE PROJECT**

**Gabriela-Eugenia Iacobescu**

*Department of Physics, University of Craiova (Romania)*

**Abstract**

The use of mobile devices and related to them digital resources for the purposes of educational and social integration is an innovative solution of a need, which has arisen in society. Mobile technologies give freedom both to teachers for complex presentation, and to students for extended study of a considered problem in accordance with their educational needs, what, according to the constructivist views, is a condition for manifestation of independence and initiative.

The application of these technologies overcomes the limitations related to time, place and volume of the school material. The students can use these technologies both in the classroom and out of it in convenient time, and they can access a wealth of information resources.

The use of these technologies does not require from the student's preparation in advance. The interactive multimedia products are usually complied with their intuitive perceptions and their personal preferences and offer very good possibilities for building up steady interest and lasting motivation.

One of the latest trends in studying the educational process is related to integration of popular and widely used electronic technologies.

The project *Using mobile technology to improve policy Reform for Inclusion of Disadvantaged Groups in Education - mRIDGE* is focused on the design of new applications for mobile technologies for stimulation and support of implementing innovations in the education of the following disadvantaged groups: roam children and their teachers, hearing impaired children and their teachers, people with musculoskeletal disorders, unemployed people.

**Keywords:** *m-learning, disadvantaged groups, multimedia digital resources.*

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## **A STUDY IN DETERMINING THE TECHNOPEdagogICAL NEEDS OF FOREIGN LANGUAGE INSTRUCTORS AT ANADOLU UNIVERSITY, TURKEY**

**Sedef Sezgin**

*Anadolu University (Turkey)*

### **Abstract**

It is undeniably true that in the era characterized by continuous technological development, technology has an essential role in human's life. Based on this fact, it is indispensable to take advantage of the modern technological facilities in aiding the task of foreign language education. However, it is a fact that some challenges have been experienced by teachers in the integration of technology into teaching. Such questions as 'Do the teachers have the ability to use educational technology? How can teachers integrate technology into their teaching?' are faced. Teachers may feel unconfident about using technology for instructional purposes. While for some teachers technological skill may be a concern, the greatest uncertainty rests in how to use technology in the classroom (Menke and Guikema, 2014). At this point, what is needed to overcome these challenges is to educate the teachers with the technopedagogical skills. It is considered that determining the technopedagogical needs of teachers and giving useful courses should be handled at the outset. Therefore the method of questionnaire and descriptive research are combined. The questionnaire aiming to find out needs and wishes of teachers was given to 123 instructors working at School of Foreign Languages, Anadolu University, Turkey. When the results of questionnaire that contains 6 questions one of which is open-ended were analyzed, it is obviously seen that %95.9 of 123 participants consider that technology integration in education is essential for the instructors. This high percentage has shown that there is a need changing between %49 and %89 for web tools and programmes aiming at developing skills in foreign language education. According to these results of the needs analysis, necessary trainings can be enhanced.

**Keywords:** *Technopedagogy, technology integration, teaching, educational technology.*

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## **SOCIAL MEDIA AND CELL PHONE USE AMONG STUDENTS AT A SMALL PACIFIC ISLAND UNIVERSITY**

**Mary Jane Miller**

*School of Education, University of Guam, Mangilao, Guam (USA)*

### **Abstract**

This study examines survey results of students from a small Pacific Island university on their daily use of technology, particularly social media and cell phones. Cell phones are universal and pervasive on college campuses and research has shown that social media and cell phone technology on university campuses represents many positive benefits and may offer greater opportunities both academically and socially for

university students (Bull & McCormick, 2012). However, some studies have also noted a number of negative associations including lower student GPA and a condition that has been termed “cell phone addiction” (Lepp, Barkley, & Karpinsky, 2015). This study documents the type of media and amount of time university students report spending each day using social media and Apps such as (FaceBook, Twitter, Instagram, Pinterest, WhatsApp, Instant Messenger, LinkedIn, YouTube, etc.), and talking or texting on their cell phones.

*Keywords: Social media, cell phones, phone apps.*

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## **EMPATHY AND DESIGN THINKING AS A PEDAGOGICAL TOOL IN PRE-SERVICE TEACHER AND HUMAN SERVICES EDUCATION**

**Jacquelyn Baker-Sennett**

*Western Washington University (USA)*

### **Abstract**

This paper considers design thinking as a pedagogical tool to support the learning of pre-service teachers and human services professionals. When engaged in design thinking children, teachers, families and other users become key participants with professionals in the design process to arrive at meaningful and creative solutions to challenging problems. Empathy is the central feature of human-centered design thinking because it focuses on the user's thoughts and feelings, and contributes to shared understandings and solutions. This presentation examines the experiences of fourteen pre-service teacher education and human services professionals while developing product prototypes in a design thinking course. Analysis of final products, along with preliminary analyses of survey and interview data, highlight affordances and barriers to prototype completion while participants designed games, learning materials and devices with and for children, youth, communities and families based on empathy and human-centered design principles. Global design company, IDEO, has developed an extensive set of resources to support teachers as they work in schools to solve design challenges. Yet, few researchers have examined how the process of design thinking plays out in pre-service education or professional practice. Findings offer suggestions for the re-vision of pre-professional education in ways that incorporate design thinking.

*Keywords: Design Thinking, Pedagogy, Creativity, Teacher Education.*

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## TEACHING AND LEARNING

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### HOW STUDENT LEARN GEOGRAPHY INDOOR AND OUTDOOR – COMPARISON OF LEARNING SKILLS AND PHYSICAL ACTIVITY

Eduard Hofmann<sup>1</sup>, Radek Durna<sup>1</sup>, Hana Svobodová<sup>1</sup>, Marek Trávníček<sup>2</sup>, & Petr Vlček<sup>2</sup>

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#### Abstract

Fieldwork is a form which has been considered for many years to be a strong instructional strategy for understanding today's world. It is specific for a variety of sciences and indispensable for geographical education. Fieldwork is very specific and its contribution is not only in the cognitive area, but it is important for the affective side of education as well as supporting mutual communication and interpersonal relationships. Positive effect of the fieldwork is also in development students' motor skills. As is evident, fieldwork should have its place firmly anchored in the current school curriculum. However, despite its indispensability, it still fails to be implemented in teaching at all levels and types of schools in the Czech Republic.

The aim of the poster is compare the success rate of the solution of geographical tasks in the classroom and in the field and measure the physical activity of students during these activities. Tasks for testing are designed so that they can be implemented both in the normal classroom and in the field. Whether pupils solve the same task more successfully in the classroom without the influence of the environment or in the field – in an environment where the specified job is realistically happening and where the learner can engage visual and auditory sensations will be monitored. During testing, measuring of the physical activity of students is also be carried out – the students receive an ActiGraph device, which will measure their activity during a day spent at school indoor or outdoor.

**Keywords:** *Field work, geography, Czech Republic, physical activity, ActiGraph.*

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### INNOVATION FOR MATHEMATICS EDUCATION IN ARCHITECTURE

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<sup>2</sup>Department of Graphical Expression in the Architecture and the Engineering, University of Granada (Spain)

#### Abstract

This work presents a teaching innovation of Mathematics within the University Degree in Architecture. More specifically, the proposal consists of a combination of History and Mathematics and uses as an example the building of the School of Architecture at the University of Granada (Spain), which received the National Architecture Award in 2015.

In order to familiarize students with the complex mathematical and architectural processes that underlie such a great construction, this work applies the theory of graphs to analyze the critical points that a work can present in its functional-circulatory system, as well as in its visual connections, acoustics or adjacency. With the use of this analysis system, students are provided with a very useful tool that can avoid undesirable situations in the first instances of the project due to the lack of clarifying systematization in the design process.

An innovative aspect of this work is that it adopts an inverse process, analyzing an existing work (something that captures the students' interest) and then analyzing it through the application of graph theory and the analysis of the proportions used In the design of the same, the importance of these mathematical tools in the design instance.

**Keywords:** *Higher education, innovation, mathematical tools, Architecture, Graphs of chords.*

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## **THE CONTEXT OF USING INDIVIDUALIZED DIDACTIC STRATEGIES AND METHODS IN SANITARY POST HIGH SCHOOL TO ACHIEVE PROFESSIONAL COMPETENCIES**

**Georgeta Trucă<sup>1,2</sup>, Maria Luiza Fulga<sup>1</sup>, Mariana Andriescu<sup>2</sup>, & Crin Marcean<sup>1,2</sup>**

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### **Abstract**

Nursing teacher's educational responsibility has an important role in training the next nurses and Nursing, as a discipline has a major importance in the curriculum. Actively involved in the health education of the individuals and the community, nurses carry on an activity which implies gaining knowledge, attitudes and skills. The purpose of this research is to find out the students' average degree of mistrust in themselves or in others, the degree of critical or self-critical vision in order to obtain the proper skills for nursing occupation. We also researched the possibilities of students' personal development in gaining the ability to adapt to a proper learning environment. In order to verify the assumptions made, we used in this survey the questionnaire “Self-Others” as a research method. The research sample accounted for 100 students aged between 20-50 years, part of the 1st year study group with “Nursing for general care” specialization from “Fundeni” Sanitary Post High School, Bucharest, Romania. For a part of this survey we used Microsoft EXCEL 2007 and for the other part (CHI test Square and charts) using SPSS15. The analysis of the provided data regarding the students' gaining professional skills by the graduation of their three-years course led us to the conclusion that in the instructive-educational process, the Nursing teacher had to use customized methods and didactic strategies taking into account every student's psycho-pedagogical profile, so that all the students, irrespective of their age, intellectual, social and cultural development were able to obtain the skills and abilities required for a nurse occupation.

*Keywords: Nursing, specific competencies, individualized didactic strategy.*

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## **EFL STUDENTS' PERCEPTIONS OF THE EFFECTIVENESS AND ENJOYMENT OF TEACHING METHODS AND LEARNING ACTIVITIES**

**Raziye Güleç Sabuncu**

*Anadolu University (Turkey)*

### **Abstract**

English language, as a worldwide communication device, is learned for different purposes in formal and informal environments. These purposes vary from compulsory English education at schools, preparation for standardized proficiency tests, studying/ working abroad, doing research to quite specific ones like socializing or using technology efficiently. Regarding this fact, English teachers and instructors have to choose the most effective way of teaching English to the target group based on their special needs. However, no matter what the purpose, the learner or the context is, they are always supposed to help students get motivated to learn and the first step is giving them effective and enjoyable ways to learn and activities to deal with. That is why, it is necessary to examine how effective and enjoyable target learners find the methods and activities, which are used in class.

On this ground, this research tries to find out preparation school students' perceptions of the effectiveness and enjoyment of teaching methods and learning activities at the School of Foreign Languages of Anadolu University in Turkey. The participants are 50 Turkish students from pre-intermediate level. The data was collected with a questionnaire taken from Seo's thesis research (2011) and analyzed using descriptive statistics. The results show learners' perceptions of currently-used teaching methods and learning activities and give teachers the chance to improve their practices accordingly.

*Keywords: EFL students, students' perceptions, motivation, teaching methods, activities.*

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## **EVIDENCE-CENTERED DESIGN FOR COGNITIVE DIAGNOSTIC ASSESSMENT IN LEARNING MATHEMATICS**

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### **Abstract**

This study aims to use the evidence-centered design to practically help teachers to design cognitive diagnostic assessments in mathematics and to investigate the performance of cognitive diagnostic tests. The empirical data used in this study were responses of 593 grade four students from Taiwanese elementary schools. The fraction unit was used as an example. The Cronbach's Alpha of the assessment is 0.88. Using the experts decision as a golden criteria, the consistency rate between experts' decision and the cognitive diagnostic model in predicting mastery eight skills or not each student is 94% in average. The performance of the cognitive diagnostic assessment designed in this study was well, which can be a good practical example.

**Keywords:** *Cognitive diagnosis model, ECD, elementary, mathematics, fraction.*

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## **THE EFFECTS OF PROBLEM BASED LEARNING IN CHEMISTRY EDUCATION ON MIDDLE SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT AND ATTITUDE**

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### **Abstract**

The objective of this study was to determine the effects of problem-based learning (PBL) on student performance and attitude toward chemistry. In the study, data was obtained through the use of pre-test post-test, research-control group model. The data obtained from both groups was analyzed using t-test scores, mean, and standard deviation. The study was conducted on a sample of 120 7th grade students, in a French-speaking private school in Lebanon. Two types of instruments were used for measurement: achievement tests and an attitude questionnaire. The research group was taught chemistry using PBL while conventional teaching methods were applied in the control group. Results indicated that implementing problem based learning approach had improved students' achievement and attitude. This study encouraged teachers to implement problem based learning method teaching science concepts especially chemistry for middle school students.

**Keywords:** *PBL, science education, Lebanon, achievement, attitude.*

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## **A STUDY ON CASE TEACHING IN ONLINE BUSINESS SCHOOL**

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### **Abstract**

In this paper, a case teaching in Online Business School is considered. The purpose of this paper is to consider how to effectively perform case teaching in Online Business School. Case method teaching as "the art of managing uncertainty" is a process in which the instructor serves as "planner, host, moderator, devil's advocate, fellow-student, and judge," all in search of solutions to real-world problems and challenges. Unlike lectures, case method classes unfold without a detailed script. Successful instructors simultaneously manage content and process, and they must prepare rigorously for both. Case method



teachers learn to balance planning and spontaneity. In practice, they pursue opportunities and "teachable moments" that emerge throughout the discussion, and deftly guide students toward discovery and learning on multiple levels. In the Online Business School case learning, student learning time is not simultaneous. Also, the instructor cannot facilitate the class in real time. Those points are shortcomings of online business school. In order to change the disadvantages of the online class from the observation of the actual sample class, it was effective to share the students' pre-studies situation within the class. The observation was executed based on the characteristics of effective case teaching defined by Christensen Center for Teaching and Learning, Harvard Business School. By sharing the pre-studies situation, it becomes visible that the whole class has changed to a state with common values.

**Keywords:** *Case Methodology, e-Learning, Teachable Moments, Self-Observation, Reflection.*

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## **LEARNING HISTOLOGY THROUGH GAME-BASED LEARNING, SUPPORTED BY MOBILE TECHNOLOGY**

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### **Abstract**

Digital game-based learning and the testing effect have been shown to be effective in improving learning through scientific courses in undergraduate students. The use of screens offers the opportunity to test innovative learning strategies in the classroom. Here, we report the impact of implementing a game- and testing effect-based learning tool in a histology course, evaluating aspects of perception/motivation and daily use of mobile technology. Forty students participated in the study (mean age 19 years, 60% female). The students observed a slide-based class and then participated in a mobile game using their own smartphones. The game showed questions about key concepts, previously analyzed in the class, and students were encouraged to compete for first place, defined by a score based on accuracy and time spent to answer. Two surveys, asking about aspects related to perceptions/motivations and use of mobile technologies, were applied. The game allowed for immediate feedback, revealing student performance in every evaluated concept, and allowed teachers to give corrections. Students perceived the methodology as fun, interesting, interactive and attractive. Moreover, 95% of students participated and enjoyed the game and all of them were motivated to participate in other mobile-based games in histology. In parallel, two-thirds of students use mobile technology to study and 95% to find academic information. The results indicate that students positively perceive the strategy, offering a fast feedback tool and the vast majority use mobile technology to study. Strategies allowing for dynamic relationships in the classroom could potentially improve significant learning on concept acquisition.

**Keywords:** *Game-based learning, feedback, undergraduate, histology.*

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## ORGANIZATIONAL ISSUES

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### TEACHING ECONOMICS IN HIGHER EDUCATION THROUGH A METHODOLOGY BASED ON COLLABORATIVE WORK AND AUTONOMOUS LEARNING

Blanca L. Delgado-Márquez<sup>1</sup> & Luis Enrique Pedauga<sup>2</sup>

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#### Abstract

Bologna process and the implementation of the European Credit Transfer System (ECTS) have entailed significant changes in the way of teaching at higher education levels. Among the proposed changes, the collaborative work and the autonomous learning of students play a central role.

This work presents an innovative methodology to teach Economics in higher education. The initiative consists of two main tools. On the one hand, to elaborate posters in an academic format. Such posters are developed in 4-5 student groups and are based either on an economic international institution or on a recent economic measure from policy-makers. On the other hand, to the aim of preventing the free-rider behavior inherent to group work, such posters must be developed under an explicit contract specifically design to avoid opportunistic behaviors.

The methodology is implemented in first-grade and last-grade university students. Results reveal that the elaboration of posters following a given academic format is useful to get them familiar with the ability of synthesizing, a formal citation style, among others, thus providing the student with a valuable tool for autonomous learning on a specific topic. Also, the contract established between each group members and the lecturer served to prevent opportunistic behavior among students and, in case of arising, helps reveal the identity of the free-rider(s).

We contend this methodology may constitute an interesting approach to some Bologna teaching processes, deeply rooted in collaborative initiative with students.

*Keywords: Economics, teaching, higher education, collaborative work.*

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### EDUCATING FOR NATURE CONSERVATION: A CASE STUDY OF A COMMUNITY-BASED NON-GOVERNMENTAL ORGANISATION IN TRINIDAD AND TOBAGO

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#### Abstract

A community-based non-governmental organisation (CB-NGO) rooted in a rural coastal community in Trinidad and Tobago, West Indies, has been involved in sea turtle conservation over the past 26 years in an adaptive co-management arrangement with a governmental agency with responsibility for managing their nesting habitats. The CB-NGO has displayed success in problem-solving with regard to real life environmental challenges at the community level. A major component of its longevity is its continuous engagement in organisational learning in the workplace where its members have to keep learning new skills, and acquire new knowledge, to keep transforming itself. Using pragmatism as a research lens for a qualitative multimethod case study methodology, a single, exploratory, embedded case study approach was used, with data collected on its programmes for sea turtle activity, reforestation, eco-tourism and craft making through interviews, documents, artefacts, direct observations and information from its website. Findings revealed that incidental and tacit/implicit learning took place via learning workshops, hands-on learning and building communities of practice; and by creating a space for learning through mentoring, field visits, conferences, meetings, monitoring and evaluation, allocating physical space for meetings and networking and scheduling times for learning in the calendar of activities in the

organisation. Through its organisational structure that allowed openness and inclusiveness of all members of the community, the organisation was able to inform, educate, and transform its community members, the schools in the area, and the wider public on conservation issues, while building capacity in the community.

**Keywords:** *Community-based non-governmental organisation; multimethod case study; incidental and tacit/implicit learning; organisational learning.*

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## **AN EDUCATIONAL LEVEL CENTERED GROUP LEARNING SYSTEM**

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### **Abstract**

This idea is for a learning system supporting individual and/or group study according to the student's learning level. This paper proposes a method that supports teaching by individual or group according to learning level. In our system, the instructor can set groups according to the difference of learning ability and comprehension level, and provide appropriate learning contents to individual learner or learner group, so that personalized learning is carried out even if the students are in the same space or time. Students can actively participate in learning and enhance the effectiveness of learning.

**Keywords:** *Group learning system, customized learning, OID pen, level learning.*

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## **OVERVIEW OF EMPLOYEES OF ECONOMIC-ADMINISTRATIVE HIGH SCHOOL IN THE MEXICAN REGION OF LAJA-BAJÍO**

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*División de Ciencias Económico Administrativas, Universidad de Guanajuato (México)*

### **Abstract**

According to the OECD, in February 2017 Mexico ranked among the top 5 countries with the lowest unemployment rate and third in terms of job creation. However, it is also the country that reports the highest unemployment among perspective employees with higher academic qualifications. The objective of this research is to determine what functional areas within an organization offer more jobs and help discern the labor competencies required by employers in order to provide suggestions applicable to the plans and programs of studies at the high school level. The expectation is to provide a proposal for greater correspondence between the demands of the labor market and the exit profile of basic education. A correlational documentary research was carried out to analyze the job offers of the State of Guanajuato and that later focused on the Laja-Bajío region, was published in the main employment websites of the country, including the official website. From the detailed search of the employment publications in the categories corresponding to economic-administrative disciplines, the minimum educational level required, the requirements requested and the functions to be performed for the position offered were reviewed. As a result, it was found that, of the 5,069 job offers, the selected Laja Bajío region represented 14.87%. The categories that made up the selected profile accounted for almost 50 percent of the 754 vacancies published in the region, being sales the predominant category with more than half of the vacancies offered, administration/office and accounting/finance with just over 10 per one hundred each.

**Keywords:** *Economic-administrative disciplines, employment, basic education, Laja-Bajío Region.*

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# VIRTUAL PRESENTATIONS





## TEACHERS AND STUDENTS

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### TRAINING TEACHERS FOR TOMORROW; ISSUES, TRENDS AND QUESTIONING THROUGH TWO EXAMPLES OF INNOVATIVE TRAINING METHODS

**Amalia Terzidis**

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#### **Abstract**

How we approach teacher training today raises several questions and issues. Considering the context of a worldwide society and constant changes in technology and globalisation, the evolution of our education systems is directly and seriously impacted. Thus, Innovation In Education (Cros, 1997, Gunnarsdóttir, 2013) can be seen as the future of education in Europe (Gunnarsdóttir, 2013). Through the introduction of new innovative training modules (Choplin, 2002), teacher trainers could now address the problems raised by such rapid change.

This communication aims to present two innovative training programs that have been implemented in a Teacher University in Switzerland; one about an initial innovative training program on creativity, another one about an innovative continuing training course on yoga as a tool for teaching and learning and to analyse their features in order to seize their impact on the quality of tomorrow's education.

Through these two examples we mean to explore the issues pertinent to training teachers today, for tomorrow.

**Keywords:** *Teacher Training, Innovation, Creativity, teaching/learning studies, training programs.*

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### TEACHING STRUCTURAL ENGINEERING TO ARCHITECTS Structural Mechanics vs. Structural Design mix within the curricula

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*Department of Load-Bearing Structures, Faculty of Architecture, Czech Technical University in Prague (Czech Republic)*

#### **Abstract**

**Introduction:** A long-term research analysing role of Structural Engineering (SE) in architectural curricula is currently taking place at the Faculty of Architecture, Czech Technical University in Prague. We are comparing its study programmes to ones of selected leading English (12) and German (15) speaking European universities together with looking into innovative methods of teaching.

**Previous findings:** SE appears to be an important part of architectural curricula, its share ranges as follows:

Bachelor

10-15% (English)

15-25% (German) and 35% for top rated universities.

Majority of master architectural courses have up to 5% of SE in their curricula.

For combined courses of Architectural Engineering, the share of SE can be further boosted up to 45%.

Student-centered instructional and constructivist approach seems to be more beneficial for architectural students compared to traditional teacher-centered instructional and behaviourist approach.

**Objectives:** The main objective of this paper is to examine approach of particular universities from our sample as far as Structural Mechanics vs. Structural Design mix within their architectural curricula is concerned.

**Methods:** Applied research: comparison, observation and analysis.

**Results:** Structural Mechanics (SM) courses represent theoretical introduction into basic laws and principles of mechanics, on which further builds up Structural Design (SD). The ratio of SM vs. SD subjects in the curricula ranges considerably within selected universities (see detailed analysis).

**Conclusions:** Our research has not found "universal" approach towards the problematics. Some universities from our selection put an emphasis on students' understanding of mechanics' principles, some prefer "learning by doing" approach (see the full text for more detail). All students practice gained skills within their individual projects in later stages of their studies.

**Keywords:** *Structural engineering, architectural curricula, education.*

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## **PROFESSIONAL DEVELOPMENT IN HIGHER EDUCATION: THE USE OF PLC'S TO FOCUS ON TEACHING**

**Kathy Fox & Tracy Hargrove**

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### **Abstract**

Remaining relevant to pre-service teachers is a concern for faculty in higher education. This challenge may be exacerbated when classroom practices include changing technology and a generation of pre-service teachers who live within an electronic social network that includes their classrooms and professional networks. A departmental professional learning community (PLC), defined as an organized focus on the "process of intensive reflection upon instructional practices, benchmarks, and outcomes to ensure success and enable teachers to continually learn from one another via shared visioning and planning, as well as critical examination of what *does* and *doesn't* work (DuFour, 2004), was the chosen method to investigate teaching practices. Typically considered a strategy for classroom teachers in grades K-12, a PLC was developed at a college of education in order to support faculty in teacher education as they focused on updating their teaching to include current practices in K-12 classrooms. Department administration, operating from the unique insider perspective of seasoned faculty members now serving as department and assistant department chair, distributed surveys, held focus groups and sponsored collaborative events both on and off campus in order to encourage an atmosphere of collegiality mediated by a focus on teacher excellence. The resulting home-grown PLC offered faculty engagement across the department, an increase in student learning within courses, and a source of continual renewal among the PLC stakeholders. Evidence showed ongoing expansion of leadership roles as an outcome of the practice. This research contributes to the field of teacher education in multiple ways. It is our belief that this initiative has fostered development among our departmental colleagues *and* our students. It offers faculty a model for professional development that fosters collaboration and socially responsive support among peers. Additionally, it provides a platform for teacher educators to model effective instructional techniques for pre-service teachers and then to serve as a departmental expert and leader in training colleagues. Students have been able to observe a PLC at work much like the PLCs in which they will participate during their future career as teachers. Moreover, the use of cutting-edge technology and innovative instructional practices may impact the work that our pre-service teachers do in their own classrooms, thereby promoting greater opportunities for academic success for their own students.

**Keywords:** *Teacher education, professional development, higher education, collaborative communities, innovation.*

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## **INCREASING QUALITY OF SCHOOL EDUCATION ACCORDING TO CORRESPONDING EDUCATIONAL TECHNOLOGY CORRELATION WITH MODEL OF MIND ACTIVITY**

**Dr. Olga Nikolaevna Kapelko<sup>1</sup>, Dr. Alla Vasilievna Guseva<sup>2</sup>, Dr. Ekaterina Kozina<sup>3</sup>, & Anna Kruglikova<sup>4</sup>**

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<sup>4</sup>*Adama (Israel)*

### **Abstract**

New requirements and societal expectations placed on graduates for the XXI century, demand increasing quality of education at every step and level of learning. The conception of 'lifelong learning' demands understanding of quality ways of learning for receiving significant results. Our experience of connecting



educational process using mind model / also referred to as an information perception by a student, is based on the concept of triadic code. The results of the research work that used triadic code show increase attainment of students and generally better results of studying in all levels of school education. Overall, the quality of the product could be assessed in the following way – is the means by which to reveal the correlation between the end product to a standard product (relative quality) or the ideal product – the absolute quality. We suppose that in order to reach the absolute quality in education we must take into account the differences between our students when designing the curriculum. In our methodology we use the theory of a triadic code as base for educational technologies. In philosophy the idea of a triadic code goes back to ancient times. Plato used this idea for description of a society.

On the one hand, it can be argued that education has two main functions: to educate and to train. If they don't go together in childhood, the education of a student can deteriorate and it will be difficult to correct it. To clarify each of the issues, when developing a curriculum first, we have to teach 'WHAT IS IT?' On the other hand we represented education as a process by means of which a teacher teaches 'What is it?', 'How to use it?' and 'Why should I know it?' These are also the major questions we ask ourselves during our lifetime and which are raised by our thinking.

*Keywords: Quality of education, image of mind activity, triadic code, model of information thinking, personality model.*

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## **CREATING ONLINE COMMUNITY THROUGH E-LEARNING FACULTY MENTORSHIP PROGRAMS**

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### **Abstract**

Research indicates that faculty mentorship provides the needed academic guidance and personal connection that many students desire and require in order to be successful in higher education. Researchers suggest that these mentorship relationships between faculty and students should be based on trust, integrity, and opportunity. The inclusion of faculty mentoring has been described as creating a zone of proximal development in which students are able to receive support based on their current academic skills and needs. The role of faculty mentors goes beyond them simply being an advisor. These individuals provide students a wealth of resources, support, wisdom, guidance, and encouragement. Ultimately, faculty mentors generally provide students with both academic and career guidance as well as psychosocial support. Through these mentorship relationships, students are able to gain self-confidence, develop appropriate goals, and continue to successfully progress through their doctoral programs. Students also receive support that helps them develop and enhance their graduate and professional identities, which can have a significant impact on student persistence. Thus, mentor relationships have been shown to positively impact student retention, student connections and feelings towards their education, dissertation completion and research productivity, and students' potential career advancement. Researchers have also found that students who are more actively involved in their colleges/universities are more likely to graduate.

The research literature specifically documents the positive impacts of faculty and student mentor relationships with first year undergraduate students, first generation students in college, students seeking degrees in the medical professions, minority and female students, and doctoral-level students. While traditional mentoring has generally taken place face-to-face, the growth of online education has created the need for mentoring to take place from a distance, yet to still produce the same supportive results. Particularly, faculty may need to carefully consider how to most effectively develop online mentorship programs that emphasize students' experiences to ensure academic growth and empowerment. The inclusion of these types of programs have become significantly more important in online learning contexts due to the growth and continual popularity of e-learning programs.

This presentation will focus on means of creating and building a constructive faculty and student mentor relationship through the uses of technology and e-learning as a method of creating engagement in students' learning, research interests, and future career success. Additionally, this presentation will provide insight into the development of an online faculty mentorship program and strategies for creating a supportive and engaged community of learners.

**Keywords:** *Faculty Mentor Relationships; Doctoral Faculty Mentorship; E-learning Mentor Relationships.*

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## **CLASSROOM-BASED VALUES EDUCATION IN VIETNAM: IMPLEMENTATION AND ISSUES**

**Quynh Thi Nhu Nguyen**

*Faculty of Education, Monash University (Australia)*

### **Abstract**

Values education from the whole school approach is examined at three levels including the school level, the classroom level and the community level. At classroom level, values education is enacted and interpreted from general curriculum to specific values-focused lessons and activities for each class community. Values education is also implicit through the teacher-student relationships and teacher modelling. This paper explores how values education is implemented at the classroom level in two upper secondary schools in Vietnam. The study follows a qualitative research design with semi-structured interviews of sixteen teachers and observation of their teaching. The findings focus on the most important values should be taught, implicit and explicit teaching methods and evaluation of values education at the classroom level. It reveals tensions in teaching values and initiatives which teachers used to promote values. The study concludes that it is necessary to select the value - *honesty* to teach in upper secondary schools in Vietnam. Furthermore, new educational strategies should be developed to help teachers regarding values education pedagogy and evaluation.

**Keywords:** *Values education, teacher-student relationships, teacher modelling, curriculum, upper secondary school*

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## **EDUCATIONAL PROFESSIONALISM AND TRAINING OF SECONDARY EDUCATION TEACHERS**

**Manuel Delgado-García<sup>1</sup>, Francisco Javier García Prieto<sup>1</sup>, Pablo Maraver López<sup>2</sup>,  
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### **Abstract**

The training of secondary school teachers in Spain has suffered a substantial change since 2006 when the Spanish Organic Law on Education promoted the creation of the Master's Degree in Secondary Education and Vocational Education and Teaching of Languages (MAES) as a necessary requirement for teaching at this stage of education. As a consequence, the configuration of current curricula is at the center of the criticism of the educational community and hence, this work tries to deepen an essential factor linked to the training of future teachers as is the configuration, as well as the development of their professionalism and teaching identity.

This work is part of a study carried out with 198 students from MAES of the University of Seville (Spain) and is structured based on a mixed methodological design. Through a brief semi-structured survey, composed of 5 multiple-choice items and 1 open-ended item, the students' opinions are more deeply related to factors that, linked to initial training, contribute to the development and achievement of a process of constructing the significant teaching identity, while also exploring the interest in teaching and the relevance of the teaching vocation.

The results obtained place us at a starting point in which 89.9% is clearly positioned in the line of having a clear interest in teaching in the secondary stage. Since then, a large majority of students (70.1%) maintain that although vocation is an essential quality for the exercise of the teaching profession, this is not achieved in pedagogical training courses. On the other hand, the factors that contribute to the significant configuration of this teaching identity, are included in three main focuses of action: teachers (need for a motivated and experienced teacher), curricular planning (period of more extensive professional practices, subjects Associated with didactics or psychology) and didactic methodology (use of active methodologies, work with real cases, promotion of communicative skills and competences, motivation, conflict resolution in the classroom, etc.).

In short, the students focus on three key areas to be revitalized by the institutions, to avoid that the current initial training of secondary school teachers is committed to a course of initiation to secondary education empty of meaning.

**Keywords:** *Teacher Education Programs, Secondary School Teachers, Vocational Education Teachers, Professional Identity, Professional Development.*

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## **INVESTIGATING THE RELATIONSHIP BETWEEN THE READING COMPREHENSION LEVEL AND WORD PROBLEM ANALYSIS BY LIFE SCIENCES STUDENT TEACHERS AT A UNIVERSITY OF TECHNOLOGY**

**Wendy Setlalentoa**

*Department of Mathematics Science and Technology Education, Central University of Technology, FS (South Africa)*

### **Abstract**

This study aimed to investigate the relationship between reading comprehension level and word problem analysis skill of Life Sciences Student Teachers at a university of technology through a correlational design. Convenience sampling was used. Data were collected from a convenient sample of fifty (50) life sciences student teachers using a questionnaire comprising fifteen (15) questions comprising Life Sciences Genetics word problems and the Scholastic Reading Inventory (SRI). The results revealed a Cronbach's alpha value of 0.87 which is interpreted as excellent. Furthermore, the research results revealed that 36% of the respondents are below basic and 14% are advanced readers. Findings also revealed that 50% of the respondents have a word problem analysis skill that is equal to their level of study. A Pearson-r formula giving a coefficient of 0.376 was utilized to correlate the two variables. Based on the results, there is a low positive correlation between reading comprehension and word problem analysis. A regression analysis conducted to determine a simple relationship between the two variables showed that there was an average increase of 0.53 points per 100 point-lexile increase from a standard average score of 7.45 out of 15 items; which implies that reading comprehension minimally affects the word problem analysis of the students.

**Keywords:** *Word problem, reading comprehension.*

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## PROJECTS AND TRENDS

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### **VIDEOS, EDUCATIONAL ROBOTICS AND PUPPETS: AN EXPERIMENTAL INTEGRATION OF LANGUAGES**

**Lorenzo Denicolai, Renato Grimaldi, & Silvia Palmieri**

*Department Philosophy and Education, University of Turin (Italy)*

#### **Abstract**

This paper aims to present the results of an experimental activity in Media Education and Educational Robotics, based on the integration of the audiovisual language (video), the Robotics language (LOGO) and the ancient theatrical language of marionettes (puppets of the Italian Dynasty of the Lupi Family). This case study is part of a wide research about the role of the multimedia language and innovation in Education, Pedagogy and Anthropology of Media.

Our research group works following two experimental directions: first, we consider Media Education as a method to teach the grammar and syntax of the multimedia language, to help students not only to read with media but also to write (they can participate in the collective creation of materials for the increase of the cognitive surplus). Of course, we want to educate them to communicate and produce meanings. They should acquire technological skills and digital competences, and overcome some learning difficulties. Secondly, we use educational robotics to increase some basic notions about the visual and spatial skills (above all, in primary schools) and to help students acquire some processes of reasoning, such as the logic of problem solving and creative problem solving. At the same time, we want to help students develop a comparative awareness between the ancient and traditional language of the theatrical puppets and the modern video language and the robot language.

Starting from these aspects and from previous technological and media laboratories (with primary and secondary school students), we experiment with an innovative methodological approach to realize storytelling videos with robots and puppets. In this activity, students create some short films, starting from their imagination and working on the storytelling process; robots (Bee-bot and Pro-bot) and marionettes are the protagonists of these videos. Students must ideate the tale (which is about a comparison between the traditional age and the postmodern-technological age), build the scenography, programme the robots and realize the video, thinking about how robots can move and interact with others and with space, according to the script. In this way, students must consider the skills to realize a communicative video and, at the same time, the code requirements to move a robot as well as how it is possible to create a meaningful product with these technologies. In this paper, we describe this experiment, its educative aims and its results (obtained during the 3rd edition of the Summer Junior University, 2016, Turin, Italy). R. Grimaldi and S. Palmieri wrote 1 and 4 paragraphs; L. Denicolai wrote 2 and 3.

***Keywords:** Audio-visual Language, Educational Robotics, Theatrical language, Innovation, Media Education.*

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### **USING IMPULSES AND DILEMMA STORIES FOR STUDENTS' VALUES EDUCATION IN STEM CONTEXT**

**Birgitta Kopp, Katrin Wallner, & Heinz Mandl**

*Department of Psychology, University of Munich (Germany)*

#### **Abstract**

Values education is a main objective of education in general and of schools in particular. In a global world, in which multi-culturalism is part of our daily lives, values get more and more important. Specifically dilemmas are used in diverse approaches for values education in school, e.g. the Values and Knowledge Education approach. But such approaches implement dilemmas mainly in language education or social subjects, not in scientific subjects. Thus, we didactically enriched experiments with impulses and dilemma stories in order to sensitize students for values like environmental consciousness or self-activity. We evaluated its realization with two experiments in a third and a fourth grade of an elementary school using qualitative observation and interview data with teachers. Results indicate an effective integration of impulses and dilemma stories in the experimental material in order to foster the sensitization for values.

For both classes, a combination of impulses and dilemma stories at the end of the lesson was most effective. Furthermore, students were able to take the protagonists' perspective in the dilemma story and discussed diverse opinions. As the students' activity is of great importance to stimulate reflection on values, this didactical realization was helpful. Overall, this study gives first indications that impulses and dilemma stories are adequate didactical methods to stimulate the sensitization for values in STEM context for students in elementary schools.

**Keywords:** *Impulses, Dilemma Stories, Values Education, STEM Context, Elementary Schools.*

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## **CRITICAL SUCCESS FACTORS OF DISTANCE–LEARNING: QUALITY CONSIDERATIONS**

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### **Abstract**

The objective of this paper is to map the published literature with respect to the factors that are likely to influence distance learning implementation. A systematic literature review (SLR) was conducted to identify relevant publications using as a source for the review the following three databases: Emerald, Elsevier (Science Direct), and Wiley. The literature was assessed based on analysis of characteristics relating to publications and authors. Of the 230 publications identified, 81 were included for systematic review. One of the main findings of this research is that the distance learning appears to be in the state of an emerging field, in the sense that it is intended to emphasize specific issues only, not the “big picture”. Also a number of meaningful factors were extracted from the publication list of those three databases, which will be the basis of future empirical research in order to develop a more complete picture of the relative impact of each to influencing DL implementation. By only using the three electronic databases the study may not have allowed a complete coverage of all empirical articles in the field of CSFs in DL implementation. Also the fact that the literature review was restricted to specific search terms this could also be a limitation of this study. Nevertheless, it is believed that the findings provide a valuable understanding of the current situation in this research field.

**Keywords:** *Assessment, Literature review, critical-success-factors, distance- learning, quality.*

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## **THE FUNDAMENTAL VALUES FOR INTERCULTURAL MEDIATION IN MELILLIAN SCHOOLS**

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### **Abstract**

Melilla is a Spanish city situated in the north of Africa. This city reflects the cultural diversity currently enjoyed by most European cities it receives a large number of immigrants. So much so, that in the last decades Melilla has been enriched by the different cultures and people from the south of Africa, Pakistan or Syria. This fact has complemented the current cultural diversity which already exists. This cultural mix manifests the need to educate young people in common values in the classroom to guarantee the peaceful coexistence and the cultural tolerance of students. For this reason we focus on the diagnosis of intercultural values in the Melilla school classrooms (N = 150). These values are evaluated through the intercultural values questionnaire (Tomé, 2012) and analysed through the latest version of the statistical software (SPSS). This questionnaire collects data about three types of intercultural values: primary, secondary and tertiary. The purpose is to detect the goals in which the role of teachers in Melilla (as cultural mediators) should be focused. This research is financed by the Institute of the Cultures of Melilla through the competitive program of scholarships about this topic.

**Keywords:** *Intercultural Values, Intercultural mediation, Intercultural Education, Melilla, Institute of the Cultures.*

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## **TEACHING PLACEMENTS ABROAD: A PILOT PROGRAM ON THE ACQUISITION OF INTERCULTURAL COMPETENCES**

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### **Abstract**

This study describes a pilot programme within a European project on transferable skills acquired on work placements abroad. During three different placement periods from 2012-15, groups of up to twelve Primary Education students from the University of Alicante participated each year during three months on a pilot programme to measure the acquisition of intercultural competences. The study was divided into various phases: initial testing, pre-departure training, reflection diaries and post testing. Firstly, the students were asked to take the Intercultural Development Inventory (IDI) test prior to their departure. Based on the results, pre-departure intercultural training was designed and delivered at the home institution. In the next step, during the twelve weeks of the teaching training placement at different Primary schools in England, Italy and France, the students wrote an on-line reflective diary that had a dozen guided questions. Each week they had to reflect and write about a different question. Lastly, upon their return, these students took the IDI test a second time to measure competency gain. The results of this pilot programme show the benefits of pre-departure training and reflective diaries to aid students in the acquisition of intercultural competences on work placements at schools abroad.

**Keywords:** *Teaching placements, abroad, intercultural competence, diaries, reflection.*

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## **COLLABORATIVE LEARNING FOR ENHANCING PRACTICAL SKILLS FOR PATIENT-FOCUSED INTERVENTIONS IN GAIT REHABILITATION AFTER ORTHOPEDIC SURGERY**

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### **Abstract**

The present paper presents new approaches in orthopedic training with the use of a Learning Management System delivered through the Internet within the framework of COR-skills project. COR- skills is an EU funded project under ERASMUS+ that started in December 2015 and will finish in December 2017, based on collaboration between hospitals and Higher Education Institutes and aiming to develop, test and adapt a continuous vocational educational programme, developed on an exhaustive needs analysis and focusing on a “real-life” transnational approach. One major output in our project is the development of the Guidelines of operational standard procedures in lower limb orthopedic surgery. OrthoGuidelines is an online information resource providing up-to-date treatment guidelines to orthopedic surgeons and professionals. The guidelines contains 12 standard procedures for hip, knee and ankle surgery which will be proposed for implementation in the medical world of work from participant countries. The innovation consists in development of procedures that will allow to advance the physician-patient communications process and enhance the diagnosis and treatment of musculoskeletal conditions. The recommendations associated with each procedural step are aligned to the existent medical evidence, as for each procedure there are correspondent videos, capturing in real practice the maneuvers presented in the guide, enabling the user to watch the procedure that is presented in the text and ensuring a better connection between knowledge and skills development.

**Keywords:** *Online education, lower limb orthopedic surgery, guidelines, standard procedures.*

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## **EDUCATIONAL BLOGS AND NARRATIVES TO DEVELOP A PROFESSIONAL NOTICING: EXPERIENCES OF PRE-SERVICE SPANISH LANGUAGE TEACHERS**

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### **Abstract**

The following paper presents a study in which Education students at the University of Alicante used narratives and blogs in their development of professional noticing regarding their own teacher education. These tools were chosen as they can aid students to identify and reflect on the learning contents and teaching objectives in the classroom. In this study, one of the specific goals for Primary Education and Master's students is to identify how learning takes place in the area of Spanish Language and Literature. Firstly, the narratives of a group of Primary Education pre-service teachers are analyzed during their school placements. The narratives allow us to see how students perceive the direct experience of giving a real class of Spanish Language and Literature during their placements. Students compile and describe teaching situations where the expected subject contents are presented and taught in the Primary classroom. The narratives explore the differences between the theory and the reality of teaching in the Primary classroom. Secondly, the Master's students' blogs during their placements are analyzed. These blogs offer multiple perspectives of learning situations in the Spanish Language and Literature classroom and collectively foster teaching competences from different perspectives as multiple contributors discuss and describe classroom experiences. In both cases, the need to foster a professional vision on teaching is fostered through the use of narratives and blogs. The analysis of these show how pre-service teachers identify the development of the competence in linguistic communication, reading comprehension and literary education in the subject of Spanish Language and Literature in Primary and Secondary school students.

**Keywords:** *Spanish Language and Literature, blogs, narratives, professional noticing.*

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## **REHABILITATION GUIDELINES OF OPERATIONAL STANDARD PROCEDURES IN REHABILITATION AFTER LOWER LIMB ORTHOPEDIC SURGERY**

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### **Abstract**

Rehab Guidelines is an online information resource providing up-to-date treatment guidelines to medical doctors – residents and specialists in physical and rehabilitation medicine and to rehabilitation professionals. We decided to develop the Rehab Guidelines of operational standard procedures in rehabilitation after lower limb orthopedic surgery, as one of the major outputs of COR-skills project, funded by ERASMUS+ and addresses to Vocational Education and training (VET) on higher education level. Designed to help therapists provide post-surgical rehabilitation based on best practices and evidence-based research, this comprehensive reference presents effective guidelines for rehabilitation postsurgical interventions. Our Strategic Partnership involves a diverse range of partners in order to benefit from their diverse experience, profiles and specific expertise to produce relevant and high quality project results. The consortium includes hospitals, and higher education institutions well known in the field, with consistent experience and strong networks with their target groups from 3 countries (Romania, Bulgaria and Turkey) with high qualified specialists in orthopedics & traumatology and in physical & rehabilitation medicine with a longstanding reputation for providing student- focused programs for health education. This guideline introduces a brief picture of 12 selected standard rehabilitation operational procedures after lower limb orthopedic surgery for hip, knee and ankle, aiming to develop basic skills for medical specialists in rehabilitation (theoretical and practical skills for assessment, decision, and rehabilitation treatment in different pathologies). For each procedure, there are correspondent videos, capturing real practice maneuvers presented in the guide that will create support for autonomous learning

practical skills for the trainees. Each presented procedure includes: the rationale for the procedure, role of diagnosis, preliminary recommendations, rehabilitation timing and methodology, early postoperative exercises and prophylaxis of complications, intermediate exercise program, advanced exercises and activities, complex PRM program and communication with patients. The easy to follow guidelines enable practitioners to look up pathology and quickly see the recommended rehabilitation strategy. Phases of treatment are defined to clearly show goals, precautions, treatment strategies and criteria for rehabilitation. This summary of recommendations is not intended to stand alone. Treatments and procedures applicable to the individual patient rely on mutual communication between patient, physician and other healthcare practitioners. We aim that this partnership between education and employment will stimulate the flow exchange of knowledge between higher education and hospitals / medical clinics and will lead to the development of high quality VET with a strong work-based learning component.

**Keywords:** Vocational education, rehabilitation, guidelines, procedures, lower limb.

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## **EDUCATIONAL TECHNOLOGY AS A KEY FACTOR FOR SOCIAL DEVELOPMENT, AS SOCIETY ENTERS TO THE NEXT TECHNOLOGICAL MODE**

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### **Abstract**

We can see a global process of changing technological mode that demands specialists for the new branches of Technologies. To make education more effective for preparing future specialists, we need understand future needs that connect with next Technological Mode. To illustrate these tendencies, firstly we will present and discuss how the waves of World economical development described by Russian economist Nicolay Dmitrievich Kondratyev are connecting with requirement of changing educational approaches for the new technological modes. Every technological mode is linked to a specific type of educational system that is prevalent in a given society, as we also argue.

Secondly, we will show correlation between the changing mode and the need to prepare personnel to be equipped to use the new technologies such as bio- and nano-technologies, multimedia-programs and IT technologies used in humanitarian purposes in forecasting and foresight, based on mathematical modeling. We argue that these processes have become the base for development of social system.

**Keywords:** Strategic purposes of education, economical waves, economical cycles, interdisciplinarity, innovative education.

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## **TECHNOLOGY (GEOGEBRA) AND MATHEMATICS CREATIVITY IN TEACHING AND LEARNING: A CASE STUDY OF 9<sup>TH</sup> GRADE**

**Aldina Rodrigues**

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### **Abstract**

Recent investigations have shown the advantages of using the *software* Geogebra in the mathematics' classroom and in mathematics teaching. More studies have shown that mathematics students' creativity can be promoted through new teaching methodologies and that means implementing tasks and the use of technology. In general, the students they have difficulties in the learning of mathematics and lack of motivation. The contexts using technology to facilitate the learning of mathematical concepts and promoting to mathematics creativity. The attempt to overcome this problem situation was the motivation for this investigation. This study addressed whether a teaching experience performed with dynamic geometry *software* Geogebra, to analyze the participants' conceptions about the use of the software, their contributions and mathematical creativity and to evaluate the mathematical creativity of the participants in the resolution of tasks involving the quadratic function. The study sample was two classes of total 32



participants (12-16 years old) the 9th grade of a public school in the northern region of Portugal, in the school year 2014/2015. The methodology used was qualitative, following a case study and the instrument for data collection was the questionnaire survey and mathematics productions tasks, implemented in mathematics' class. In the data processing it was included the analysis of the responses of students in the questionnaire survey and in tasks, using content analysis by formulating categories of analysis. Analyzing the results, it can be concluded that participants associating mathematics creativity concept the "Innovation", they liked to use Geogebra in class because allowed to learn in innovative way, facilitating the learning of concepts. In evaluated the mathematics creativity, the teaching experience showed that the fluency and flexibility were the dimensions of the most representative mathematical creativity varying in student's responses in different items of the task. This investigation contributed to show wick can the promotion of participants' mathematical creativity with the use of technology and the motivation for the discipline.

**Keywords:** *Mathematics Creativity, Teaching and Learning, Geogebra, 3<sup>rd</sup> Cycle of Basic Education.*

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## A METAPHOR FOR OUTDOOR TRAINING

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### Abstract

On the basis of experiential learning, outdoor training and metaphorical learning theories, this paper demonstrates theoretically and methodologically how fishery can become an effective experiential learning environment. "Being in the same boat", in this paper, is not just a metaphor but the learning setting. In this learning setting the group, under the trainer's careful monitoring/facilitation, has the opportunity to experience itself in a highly stimulating and participatory environment, gaining relational and communicative skills.

**Keywords:** *Experiential Learning, Outdoor Training, Metaphorical Learning, Adult education.*

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## THE USE OF ITC IN THE LEARNING PROCESS OF STUDENTS WITH CEREBRAL PALSY

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<sup>2</sup>*Member of Edutic-ADEI Research Group, University of Alicante (Spain)*

### Abstract

We live in a society where technology is one of the most important elements. Anyone is fully integrated if they don't know how the use this instrument. It offers a gret variety of possibilities to the students present in our classroom. Perhaps one of the least studied disabilities is cerebral palsy. There are a lot of computer applications that have not found their use in specific cases. Therefore the aim of our research was to analyse and reflect about the contribution of ICTs in the motor, cognitive and soci-affective structure of this students. Moreover it was analyse the improves of this methods in front of classical methodologies. In order to obtain this goal we made an Intervention proposal using ICB (Interactive Communication Board) that was applied to an eleven year-old student inside her learning environment. Using direct observation and serving us a registration desk we analyse the skills put in place by the students in the different methodologies ( Using TIC and classical material). This Intervention was produced during three months. Each seassion lasted one hour twice a week. The results indicated a higher degree of motivation, development of motor skills, independence and self-esteem in the interactive activities. It's indicate he importance of the use of ICT in the learning process of students with special education needs.

**Keywords:** *ITC, Cerebral Palsy, Learning process, special need educations, disability*

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## **UBIQUITOUS INDIGENOUS AFRICAN LIFELONG EDUCATION AS “NEW” FOUNDATIONS FOR SUSTAINABLE HUMAN DEVELOPMENT**

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### **Abstract**

The call for alternative approaches and to education in the age of globalization has come from many fronts including from outside education. The call has especially been accentuated by the fact that most researchers and authors have affirmed growing inequity across the globe and the widening of the poor-rich gap. Most have queried the role of education in addressing the slanted “development” in spite of the resources committed to education. Part of the conclusion from most analysis is the fact that education has not hitherto truly been serving the cause of the “common good” of humanity. UNESCO has, in a 2015 book entitle *Rethinking education*, argued for an almost root and branch re-setting of education. Their argument builds on the premise that education is still the most viable source of building sustainable human and social development. However, the most compelling argument in the face of the irresistible diversity of the global community is the need for education to look beyond the status quo and often Eurocentric frameworks of education.

This paper presents indigenous African lifelong education as one of the many new approaches that complement and enhance the push towards a universal and humanistic approach to education for sustainable human and social developments. It combines theorizing from literature with the authors’ empirical and existential connections to indigenous African education to offer an alternative approach. It summarizes the comprehensive, critical, eclectic, humanist, womb-to-tomb (lifelong), and ubiquitous nature of indigenous epistemology. The paper concludes by presenting African indigenous lifelong learning as one of the “new” and necessary foundations for education that serves the common good of humanity.

**Keywords:** *African, indigenous, lifelong-learning, teaching.*

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## **THE USE OF THE INTERACTIVE DIGITAL WHITEBOARD IN STUDENTS WITH ATTENTION DEFICIT DISORDER AND HYPERACTIVITY: INTERVENTION PROPOSAL**

**Gonzalo Lorenzo<sup>1</sup>, Graciela Arráez<sup>1</sup>, Asunción Lledó<sup>1</sup>, & Alejandro Lorenzo-Lledó<sup>2</sup>**

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### **Abstract**

We live in a society where different types of technologies exist. Everybody has their own mobile phone, tablet or other technological elements. This types of instrument are beginning to be used in our classes. In fact if we visit some of them, we will be able to see how children use it from very young. One of the elements that has evolved most is the blackboard. Now they are interactive and digital and allow the students to created new learning environments. Hence the diversity of our class, the main objective of our research is the development of an educational initiative focused on the interactive digital whiteboard in students with Attention Deficit Disorder and Hyperactivity. Moreover we want to improve attention and the impulsiveness of this students. We applied our activity to one student who is studying 3rd Primary at ordinary public school. This student was nine years-old and thus the proposal was adapted to this level. The results have shown that we can enhance the learning of students in attention deficit, using new technologies such as interactive digital whiteboards, which nowadays can be found in almost all schools and all classrooms.

**Keywords:** *ADDH, ITC, Intervention, hyperactivity, disorders.*

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## **MAKING A CASE FOR A STUDENT CENTRIC LEARNING MODEL**

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### **Abstract**

In this paper we propose the Whole Person Learning Model which is comprised of seven components, which include (1) assessing and customizing a student's learning and thinking styles; (2) incorporation of the Whole Brain Teaching Model; (3) individual student coaching; (4) effective use of technology in a curriculum; (5) learning motivation; (6) Psychological Capital; and (7) establishing a standard for assessing or adapting a teacher's pedagogical style. This model gives students the ability to take more ownership of their own education and encouraging them to become more motivated in this new educational age.

**Keywords:** *Whole person, student centric, education, online, whole brain.*

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## **HEARING AID USERS: UNDERSTANDING THEIR DIFFICULTIES IN SOUND LOCALIZATION AND SPEECH RECEPTION WITH BACKGROUND NOISE**

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### **Abstract**

Individuals with functional diversity associated with hearing loss show significant difficulties to locate the origin of the sounds and to understand the speech reception in a noisy classroom. The aim of this study has been to analyse the difficulties that interfere in different environments and situations to develop the skills to locate the source of the sound and speech reception in users of hearing aids. The method used to achieve this goal revolved around the creation of a discussion group formed by 6 children– 3 of them users of binaural hearing aids and the other 3 with binaural cochlear implants– whose ages ranged between 6 and 17 years old.

The information-collecting process was oriented to offer an individual and a collective description of the factors that interfered with the ability to adequately locate the origin of sounds and speech reception in the immediate environment. Our findings revealed that the main difficulty is understanding the speech in environments in which there is background noise. The paper concludes with a number of orientations and proposals which are likely to bring an improvement in the acquisition of skills in their ability to determine the location of a sound and to recognize speech in a noisy background

**Keywords:** *Hearing aids, hearing loss, discussion group, sound localization, speech reception in noise.*

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## **HOW TO USE ROBOTICS IN EDUCATION ACTIONS**

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### **Abstract**

The extensive contact with various electronic devices and the massive implementation of the so-called Internet of Things (IoT) make children, from a very early age, interact with such devices more and more frequently, influencing everything from their habits and likings to their predisposition to absorb new concepts and ideas. A growing movement on the global stage is the integration of technological learning with the standard school subjects, in order to make the students put into practice the knowledge obtained in the classes, fostering the logical reasoning and stimulating the interest. This does not only in the courses of the Mathematic's area, but also in the courses of the Human Sciences', especially in those courses in which they find themselves discouraged in the face of more complex situations.

The use of educational robotics to stimulate student learning in the public school system is a reality in several developed countries of the world. However, this does not apply to Brazil, as this type of methodology is almost non-existent in the country's public schools. With educational robotics, it is possible to develop interactive, practical and playful learning instruments aimed at children and teens in order to, mainly, aid the theoretical knowledge of Mathematics and Physics areas, along valuable competencies like teamwork and critical thinking.

This work proposes the development of didactic material and application methodology of a mini-course of Educational Robotics for teachers and students of high school, being able to be adapted for other professionals and enthusiasts who wish to work with this theme. The mini-course covers the topics and concepts of electronics and programming based in Arduino Platform, aimed at presenting the main resources of this platform, both hardware and software, available to propose and develop educational projects. As a concrete development of our group, working at the Center InovEE – Innovation Center for Energy Efficiency, located at the Sao Paulo State University (UNESP), we will present and discuss the results of the application of a short duration course for high school students in the Vale do Paraíba region, Brazil, performed at the UNESP- Campus of Guaratinguetá.

**Keywords:** *Educational Robotics, Arduino, Robotics Platform.*

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## TEACHING AND LEARNING

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### LEARNING CLASSICAL MUSIC THROUGH IMPROVISATION: (A NEW APPROACH?) INSTRUCTION FOR USE

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#### **Abstract**

The author takes the cue from some historical considerations about modern teaching & learning process in classical music. While in the past most renowned musicians have considered improvisation and composition as a complementary aspect of performance, today for almost all music students the practice of improvisation seems to be not necessary at all, and often only a very basic knowledge of harmony and theory is requested to complete their studies. Presently it is very rare to find a classic music student able to improvise a short prelude or compose a little music piece with confidence. Investigating possible reasons of this shift, we may notice that by one side since the last post-war a remarkable significance has been given to technical approach, on the other side music teaching has been reduced essentially on the reproduction of the symbols of the music score. In order to re-establish the lost balance among improvisation, composition and performance, the author proposes a different approach to classic music, starting from improvisation and consequently understanding of musical structures. In his almost ten-year experience of teaching in Asian countries, he developed the idea that the proper way to approach classical music should not be based on a mere reading of the notes without awareness of the musical structure, as well as fulfilment of a given composition should not be based on reiterated mechanical repetitions of the same passage. The author elaborated a simple as well as efficient method to introduce students to improvisation: starting from the invention a melodic and/or rhythmic fragment, the student is led step by step to the creation and completion of the musical piece. During class students have chance to discover, experiment, test diverse possibilities and get familiarity with essential elements of the music. The study of improvisation let students look at the music under a different perspective: it represents a valuable support for the real understanding of the music score, an aid to penetrate composer's mental process and an unique way to learn how to create music.

*Keywords: Improvisation, piano pedagogy, learning process, practicing methodologies.*

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### TEACHING HEALTH SCIENCE IN GENERAL EDUCATION

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#### **Abstract**

For all students, learning health science is as important as learning mathematics or writing. In general education, the emphasis is on reading, writing, arithmetic, critical thinking, and communication; this article claims that teaching health science to all students is equally important. Students come to school with a hope that school is the place where they can learn to change their future regarding their social value and financial outlooks. The author claimed that academic achievement could only provide little benefit to a student who suffers from chronic debilitating health symptoms. Even a healthy person needs to learn how to stay healthy because s/he may lose many influences in the academic and in real world if s/he becomes a victim of a wearying disease. After the completion of the degree, to move forward in life, a good health remains as essential as a good academic achievement if not more. After a degree is complete, the diploma and the record of academic achievement will stay with the student for the rest of his or her life; however, good health will always require their attention and remains a prerequisite for success.

By looking at the social aspect of it, one can hardly overemphasize the fact that health care cost is increasing significantly in the US and in many other western nations. The solution to such escalation lies in the old proverb, "Prevention is the best cure." But, the focus of mainstream research is on maintaining the symptoms of diseases—not on preventions.

This article brings to focus that almost all serious health afflictions are rooted in habits. Their symptoms always start inside the body, but the internal mechanism of the body continuously repairs the small damages caused by habits. Unfortunately, as people age, body's capacity to make necessary repairs diminishes often requiring medical intervention, but medicine can suppress the symptoms—it cannot cure a body, which has lost its ability to self-repair.

The author claims that achieving and maintaining good health requires lifelong learning. It involves listening to the body. Through the immune system, a body continuously communicates to its resident, but then again, some contacts come through only when it is too late—it is just a message that a severe damage has occurred such as high blood pressure, diabetes, and stroke. This article discussed some new developments in health sciences that all students need to know to protect themselves from these deadly diseases and argues that, for this purpose, colleges and universities can be venues for all students.

**Keywords:** *Arterial Calcification, Chronic Disease, Health Science, Lifelong Learning, Menaquinone.*

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## **DIFFICULTIES ASSOCIATED WITH TEAMWORK IN A PROJECT-BASED LEARNING EXPERIENCE**

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### **Abstract**

With the aim of reproducing in the University the labor world to which the graduates will incorporate in the future, the University of Alicante decided to develop the last year of the Degree in Multimedia Engineering through a project-based learning methodology in work teams. Students develop the learning activities within a university framework that simulates a work environment. The objective of this research is to know how the teams work and the difficulties that the students find in the development of the projects. To carry out the projects, the students form teams with an indeterminate number of members, since they are given the freedom to group according to their preferences. The sample of this research was made up of 59 students enrolled in the last year of Multimedia Engineering. To know the organization of the groups, the students were surveyed using an anonymous questionnaire on the degree of personal satisfaction related to issues about the functioning of the teams. The questionnaires were administered through the Moodle platform at the end of the academic year. Students responded to questions through a Likert scale (1 strongly disagree-5 strongly agree). From the answers provided by the students, it has been verified that most students evaluated the functioning of their groups in a positive way. However, it is noteworthy that in many cases the students in a group know each other in advance because of the freedom to make up the teams. This aspect influences the good functioning of the teams and it is important to emphasize that, in an actual work environment, people joining work teams seldom has the possibility of choosing who they want to work with. Despite the fact that the students' choices in the formation of the work teams were free, it should be noted that there were some negative opinions: 12% of the students negatively perceived a member of the group by barely letting others intervene, 14% were dissatisfied with the assumed role, 19% reported lack of motivation, 20% considered that the group size was inadequate, 24% perceived ineffectiveness, 27% detected a lack of participation by all members, 22% reported the lack of a leader and up to 50% considered that they had a bad organization in the group, with the consequent wasted time.

**Keywords:** *Project-based learning, teamwork, generic skills, difficulties.*

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## **EMOTIONAL COMPETENCES AND SOCIAL SKILLS FOR TEACHING IN HIGHER EDUCATION**

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### **Abstract**

Within the field of education, the influence of social and emotional aspects in the teaching-learning process is increasingly evident. The interactions that occur between professors and students are marked by the social and emotional skills they possess. In the case of the professors, they act as a socializing agent for the students, so their actions play a fundamental role in establishing optimal interaction conditions.

In this article we present a series of shared reflections by a team of higher education professors from the University of Huelva (Spain) in relation to the development and acquisition of the social and emotional skills necessary for an adequate teaching exercise, based on their experiences.

Specifically, this paper aims to analyze what should be the emotional competences and social skills that can enable a university professor to mediate and lead the teaching-learning processes that are established in Spanish universities classrooms in the present.

In this way, we have performed an analysis throughout the teaching exercise. The initial period is usually characterized by lack of experience, feelings of frustration and restlessness. As the professional trajectory progresses, the approach of different questions arises as well as the search for educational responses generating a series of guidelines that consolidate over time and which show the main social and emotional skills for teaching in higher education.

Based on the experience presented and the literature review carried out, it is evident the importance of emotional competences and social skills for the teaching-learning process, in which university professors participate, as well as the need to develop training programs for teachers, providing them with the necessary emotional and social skills.

**Keywords:** *Emotional Competences, Social Skills, Teaching, Higher Education.*

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## ORGANIZATIONAL ISSUES

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### MEASURING INFORMATION AND COMMUNICATION TECHNOLOGIES FOR EDUCATIONAL POLICY IMPROVEMENT: EDUCATION INFORMATIZATION INDEX

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#### **Abstract**

The extent by which a geographical area, an economy or a society is becoming information-based, i.e., increase in size of its information labor force, is referred to as informatization. How can we know what our position is in the process of global informatization? What development strategies should be taken? To reap the benefits of the rapidly changing information society, governments need to monitor and benchmark progress based on measurable indicators with a view to designing and reviewing national policies and strategies. On the other hand, the principles and government policy-making in the educational sphere, as well as the collection of laws and rules that govern the operation of education systems are educational policy. Seeing the informatization as a measure of the educational policy and starting from the available indicators in the World Economic Forum's Global Information Technology Report (GITR), we follow the methodology for calculation of the Chinese National Informatization Index Quantity (NIQ) to propose an informatization level assessment framework and introduce a composite indicator – Education Informatization Index (EII). Although it is made up of only two main categories (Educational Policy Implementation subindex and Educational Policy Creation subindex) and a total of six individual indicators, it captures well all the socio-political flows in the educational sphere in the Republic of Macedonia in the past five-year period (2012-2016). The Education Informatization Index (EII) is calculated as a weighted sum, and weights of subindexes and indicators are assigned by applying the Rank-Order Centroid method. As the selection of indicators is often the result of a process of trade-offs and negotiations among stakeholders, national respondents and international experts (one group of countries may perceive certain indicators as very policy-relevant and unproblematic, while other countries may judge the same indicators as irrelevant or too complex), there still remain some open questions about the number of subindexes, the number of aggregation levels, the number of indicators, methods for weight assignment, feasibility for collecting reliable data, and international comparability. Having in mind that policymakers can review progress of the country over time in comparison with their nationally defined targets and other relevant reference countries, the presented methodology and the results can help them in making informed decisions or in demonstrating greater commitment to integrating ICT into the education system. The ICT utilization in education should be promoted effectively, in line with the policy aiming to create a learning system and schools suitable for the 21st century.

*Keywords: Informatization, educational policy, composite indicators, Education Informatization Index.*

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### A NEW U.S. HIGH SCHOOL RANKING SYSTEM WHICH COMBINES STUDENT PERFORMANCE AND COLLEGE MATRICULATION

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#### **Abstract**

This study aims to find a new indicator to compare or rank US secondary schools. Firstly, most currently existing rankings are only applicable to a specific type of institution, such as private or public. Collecting different school systems together in any existing ranking system does not give any meaningful guidance. Secondly, most current ranking systems, especially when college matriculation is considered, neglect the initial academic competitiveness in the student pool of each school. To resolve the above drawbacks, this



study has reviewed and compared the most popular existing ranking systems for US high schools, and discussed their advantages and drawbacks. Using an analysis of the results, a novel ranking index and model is proposed. The new proposed ranking model finds a common base applicable to all types of secondary schools. Not only does it take consideration of college matriculation rate, but also includes a competitiveness or performance index in each school, thus the new method has eliminated the bias resulting from different school size, student performance, student selectiveness and sector (private or public). This converged method applies uniformly to all schools and becomes a practical indicator to help parents and student in making enrollment decisions. To conclude, a sample of selected competitive US high schools ranked and compared using different ranking methods is presented, which reflects the unique aspects of this new proposed method over others.

**Keywords:** *Ranking, matriculations, US high School, national merit semifinalists.*

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# WORKSHOPS





## TEACHERS AND STUDENTS

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### ELEMENTS OF ACADEMIC WRITING STYLE

**Gregory VanderPyl**

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#### **Abstract**

First year composition (FYC) course requirements at universities worldwide create multitudinous hurdles for incoming freshman. Students are expected to pioneer writing assignments, analyze critically, adhere to strict formatting guidelines, include properly referenced scholarly sources, abide by enforced deadlines, and decipher complex grading schema – a daunting array of tasks indeed. In addition to the aforementioned challenges, a student desirous of success must absorb the subtle nuances of academic writing style.

This workshop is designed to engage both educators and students alike in an interactive lesson that aims to facilitate the development of academic writing style through narrated classroom activities, exercises and discussion.

**Keywords:** *Academic writing style.*

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## PROJECTS AND TRENDS

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### **EMBEDDING RESEARCH EXPERIENCES INTO THE SCIENCE UNDERGRADUATE CURRICULUM**

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#### **Abstract**

The Life Sciences undergraduate curriculum at Canterbury Christ Church University is designed to provide students with opportunities to develop their profile as researchers who are industry-ready. We believe that the development of a ‘students as researchers’ ethos helps to enhance students’ employability; research helps to foster critical thinking and enhances students’ ability to become independent learners, while at the same time they can practice valuable subject specific knowledge. We have structured our programmes to create a series of opportunities throughout the whole student journey, so students can engage in research and research-like activities both as part of their taught curriculum, as well as beyond. Research and research-like activities are put at the centre of the curriculum, and students move from being recipients of knowledge to collaborators in its production. We call this approach “research-involved teaching”. The aim of this workshop is to share strategies to develop an undergraduate curriculum with a strong research focus.

**Keywords:** *Research-involved teaching, employability, students as researchers.*

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### **VOLCANOES, MERMAIDS, CASTLES AND FORESTS: UTILIZING CREATIVITY TO ENHANCE STUDENT ACHIEVEMENT AND ENGAGEMENT WITH UNIVERSITY SERVICES**

**Joanna Peksa, Matthew Lawson, & Faith Dillon-Lee**

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#### **Abstract**

Student engagement with university programmes and services is an important indicator linked to retention and achievement (Trowler, 2010; Kuh, 2009). However, while much literature exists concerning connecting students with lecturers and subject materials, achieving engagement with support services such as mental and physical health, and academic skills support can be challenging. We consider how, by creating a welcoming and enjoyable student experience, engagement with support services can be increased.

The Student Success Festival (SSF) was designed to actively encourage student participation through the concept of areas on ‘Adventure Island’, a visual metaphor conceptualising the various academic support services, wellbeing services, physical activity, nutrition and mental health: all contributing to the development of a successful student (see Kuh, 2009). Utilizing theories of gamification and dialogical learning, students were encouraged to visit different areas on the island, to play study-skill based games and receive advice and help from staff, as well as booking follow-up workshops to access further support. We outline how student dissatisfaction and a lack of engagement with a previous, more static event led to this. We also refer to the strategic drivers behind the SSF, outline challenges we faced implementing the various elements in collaboration with a wide range of services and the Student Union, and reflect on what we have achieved and how the SSF might develop. Employing an interactive approach, we encourage participants to reflect on and consider student needs in their own institutional context, with an aim of sharing and co-creating best practice.

**Keywords:** *Engagement, Retention, Success, Creativity, Innovation.*

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## ORGANIZATIONAL ISSUES

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### FREE FLOWING CONTENT

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#### **Abstract**

Higher education institutions around the world are exploiting information and communication technologies by increasing the use of videos both online and in class. This move was initiated by the 'early adopters' who by definition are I.T. literate and favor ICT innovation. However increasingly it is institutions making strategic decisions which impact departments or courses. Consequently there are many teachers involved who are not well equipped to transition. The literature is rich with case studies and quantitative research on implementing video in the classroom based on adopting new techniques, although by design they focus on the early adopters and ICT literate. The fallacious assumption that all teachers are IT literate and preapred for this new form of teaching is illustrated by Brecht for example "Using a personal computer, an instructor can create them quickly and easily" (2012p. 75). At a management level, asking teachers to radically change practice could cause anxiety in those for whom ICT is intimidating and this can lead to uncertain outcomes. The purpose of this workshop is to discuss how barriers to implementation can be removed. Participants are expected to be a mix of educational researchers and institutional leaders. It is hoped to expose the researcher, who by enlarge will be early adopters of ICT, to concerns of the management in imposing radical technological change. This paper sets out the methods used to assist teachers take the maximum benefit of their existing content as presentation style lectures and utilize them in both flipped and online classes. At its core, the practical part of the workshop is about removing the fear of the presented self and enabling participation in creating active learning environments. The methodology utilized in the workshop unlocks the potential for whole institutions to make course and department wide moves towards better classroom practice and e-learning opportunities.

**Keywords:** *Flipped class, online teaching, active learning environments, video lecture, recording lectures.*

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