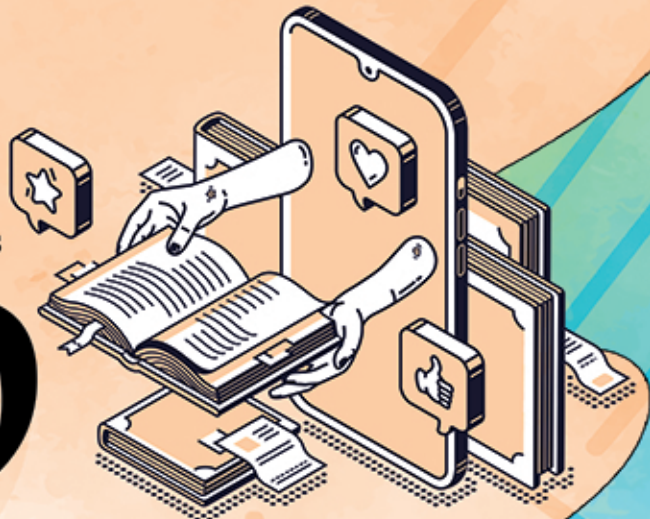International Conference on
Education and New Developments

END
2021

Virtual Conference
26~28 June

BOOK OF ABSTRACTS

Edited by
Mafalda Carmo

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BRIEF CONTENTS

FOREWORD

Dear Colleagues,

We are delighted to welcome you to the International Conference on Education and New Developments 2021 - END 2021, that this year has been transformed into a fully Virtual Conference due to the ongoing Coronavirus (COVID 19) pandemic, and occurred from 26 to 28 of June, 2021.

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. This 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 2021 received 478 submissions, from more than 40 different countries, reviewed by a double-blind process. Submissions were prepared to take form of Oral Presentations, Posters and Workshops. The conference accepted for presentation 160 submissions (34% acceptance rate).

The conference also includes:
- One Keynote presentation by Dr. Hava Vidergor (PhD, senior lecturer of curriculum and instruction in the Graduate School at Gordon Academic College of Education, Israel).
- One Special Talk by Prof. Dr. Nazario Zambaldi (PhD General Pedagogy, Social Pedagogy, General Education and Subject Didactics at the Free University of Bolzano/Bozen, Italy)
We would like to express our gratitude to our invitees.

This volume is composed by the abstracts of the International Conference on Education and New Developments (END 2021), 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 Counselling; 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**: Critical, Thinking; 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.

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

HYBRID LEARNING: KHAN ACADEMY PROMOTING PERSONALIZATION, INDEPENDENT LEARNING AND TEACHER-STUDENT RELATIONSHIP

Dr. Hava Vidergor

Graduate Studies, Gordon Academic College of Education, Haifa (Israel)

Abstract

Khan Academy (KA) is a useful platform for hybrid learning and especially learning math. However, little research has been conducted on how learners perceive using KA. The case study presented here examined the effectiveness of KA used by students at home combined with traditional face-to face learning in the class. Twenty-seven secondary school students (N=27) studying math filled in a reflective diary twice, and 18 of them consented to be interviewed. Main categories emerging from content analysis were the teacher, the student, teacher-student relations, subject and content, and learning environment. Main findings show: a. students perceived themselves as independent learners, investing in and aware of their functions as learners, more committed to the subject of math. b. Teachers using KA were perceived as more professional, dedicated, connected to students' needs, and innovative. c. KA was perceived as encouraging independence, available, and more interesting than books. d. Learning math via KA was more motivating and enjoyable. e. The teacher-student relationship was stressed by students as the most important component, being more valuable than the innovative learning environment. The main conclusion is that KA is effective in promoting personalization, independence, and innovative teaching-learning processes. However, the teacher's mediation of cognitive and emotional learning is crucial. Hence, teachers should use KA in math and other subjects available, while creating and maintaining direct lines of teacher-student interaction.

Biography

Dr. Hava Vidergor, PhD, is a senior lecturer of curriculum and instruction in the Graduate School at Gordon Academic College of Education, Israel. She received an M.A. in educational leadership with distinction from University of Alabama at Birmingham, and a PhD in Education from Haifa University, Israel. Her research interests center on learning in hybrid environments, curriculum planning and design, innovative teaching-learning strategies, and gifted education. She has published numerous papers and presented widely in international conferences. She is the author or editor of several books: Applied Practice for Educators of Gifted and Able Learners (with Carole R. Harris), Innovative Teaching Strategies and Methods Promoting Lifelong Learning in Higher Education: From Theory to Practice (with Orly Sela) and Enhancing the Gift of Leadership (with Dorothy Sisk). She designed a new graduate program called Innovation in Education promoting teacher entrepreneurship in applying new pedagogies and creating and investigating blended learning environments. She serves on editorial board of reviewers of several international and local journals and experienced in editing special issues. Her Multidimensional Curriculum Model (MdCM) focusing on developing high order thinking and future thinking literacy in K-12 students was published in a book titled Multidimensional Curriculum Enhancing Future Thinking Literacy.

POLIS: ARTS-BASED RESEARCH IN EDUCATION

Prof. Dr. Nazario Zambaldi

PhD General Pedagogy, Social Pedagogy, General Education and Subject Didactics,
Free University of Bolzano/Bozen (Italy)

Abstract

Starting from the PhD research Embodied Education through arts and theater and from more than twenty years of artistic and theatrical research applied to education, all the presented projects focus on the city as a metaphor and laboratory of practices with marginalized people. Introduced by a research and training experiences (LEA Languages Expression Arts and META Mediation Theater Arts – shortly after 2000), a research in the psychiatric field is described (with the CRAT Center of Research Art and Theater and the direction of the CRATere festival, small review of arts, theater and humanity – since 2005). A further area of arts-based research is related to inclusion and citizenship in the context of migration with the Theater of Hospitality (since 2014). Starting from these more recent projects, the Polis project is outlined: after the "end of the city", it affirms the need to re-establish communities through the re-appropriation of spaces and experiences – dialogue, ecology, memory – as well as through relationships and new alliances. The conclusions set out the developments of the Polis project, introducing an innovative methodological approach in the field of human rights, that is collocated between arts-based research and phenomenological videographic analysis.

Keywords: Arts, Theater, Embodied Education, Arts-based research, Phenomenology, Videographic analysis, Human Rights.

Biography

Nazario Zambaldi, PhD General Pedagogy, Social Pedagogy, General Education and Subject Didactics at the Free University of Bolzano/Bozen, Italy.
Theater director and visual artist, cultural operator, teacher of philosophy and human sciences in high school.
Topics of research and area of interest: Phenomenology, Arts-based research, Art, Theater, Embodiment, Ecology, Biopolitics, Human Rights.
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THE BASIS FOR A LEARNING VIEW – EDUCATION, EXPERIENCE AND PRACTICE

Joar Sande
Western Norway University of Applied Sciences
Department of Computer science, Electrical engineering and Mathematical sciences (Norway)

Abstract
This article tells about my own experiences as a student and professor in technical education in Norway and USA in the 1980s and 90s, and economic education in Norway the academic year 2000-01. In technical education in Norway in the 1980s it was not necessary to put that much effort into your studies get a good grade. In the United States, on the other hand, students had two work hard to keep up to get good results. Norwegian higher education, however, has become more like American higher education after the Bologna process. A fresh university professor is nothing more than an advanced student, in the beginning one sticks to the textbook, and any deviation from the plan can cause light panic. As time goes by, the professor gains experience and growing self-confidence, and can start to experiment. My journey in teaching control engineering ended up with flipped classroom, based upon sociocultural learning, where both students and professors participate with the knowledge they have. Learning happens best if people interact and construct new knowledge together. The participants in the learning environment extend their closest (proximal) development zone by collaborating with others.

Keywords: Technical education, blended learning, flipped classroom, sociocultural learning, control engineering.

DESIGNING TEACHERS' TRAINING ON ADOPTING OERS IN THEIR TEACHING

Maria Perifanou, & Anastasios A. Economides
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Abstract
During the covid-19, it became apparent the imperative need for openly available digital educational resources to be used in education which has been shifted to Online Remote Teaching and Learning. It is important for teachers to be able to utilize Open Educational Resources (OERs) in education. This paper develops a framework for designing Teachers' Training programmes on how to integrate OERs in the teaching practice. The framework consists from six modules: 1) Introduction to OERs, 2) Exploring & Evaluating existing OERs, 3) Using OERs, 4) Communicating & Sharing OERs, 5) developing OERs, and 6) Open Educational Practices (OEPs). The paper also defines OERs & OEPs competence. Finally, educational policy authorities may use this framework to design training programmes for teachers on how to integrate OERs in their teaching.

Keywords: Digital skills, inclusive education, lifelong learning, OERs skills, teachers professional development.

THE RELATIONS BETWEEN MUSICIANSHIP AND CORE COMPETENCIES IN PROFESSIONAL MUSIC TRAINING—THE TUT EXPERIENCE

Hua Hui Tseng
Tainan University of Technology (Taiwan)

Abstract
After being asked to respond to the Arts Education Act of 2015 by the Ministry of Education, Taiwan, concerning curricula and their impact on music education, what follows are some observations and reflections from the Tainan University of Technology (TUT), Taiwan, about its educators' experiences of

teaching undergraduate music and music degrees. The idea put forward is that skills/knowledge competency reflects an emergent sensibility in contemporary music cultures, and this represents an opportunity for music educators to reconfigure and strengthen their pedagogical approaches. By recognizing the legitimacy of new and varied forms of musicianship and acknowledging the ways in which course curricula continue to grow in their range of practices and necessary literacies, strategies can be developed to support broader, cohesive, inclusive, diverse, meaningful, and useful experiences for music students.

Keywords: Curriculum, musician, core competencies.

EARLY PRIMARY SCHOOL TEACHERS' PERCEPTIONS ABOUT SCIENCE AND SCIENCE PROCESS SKILLS: A CASE STUDY IN SOUTH AFRICA

Monde Kazeni
Science Education, University of the Witwatersrand (South Africa)

Abstract
Early primary school (grades R to 3) science education has been in the spotlight in recent years, as science education scholars are increasingly acknowledging the need to provide a strong foundation in science education, to motivate learners to study the subject in subsequent years. Literature suggests that most early primary school teachers lack the basic knowledge required to introduce young learners to science, and to motivate them in the study of science. Primary school teachers' limited knowledge of science and its processes could affect how they introduce and develop science concepts in early primary school learners. In the South African context, there is limited literature on early primary school teachers' knowledge of science and its processes, as well as on teachers' attitudes towards the teaching of science to early primary school learners. The purpose of the study was to investigate early primary school teachers' knowledge of the concepts of science and science process skills, and to determine their perceptions regarding the teaching of science in early primary school. The study involved four purposively selected early primary school teachers, in the Gauteng province of South Africa. Qualitative data were collected using semi-structured interviews, and the findings showed that the participating teachers had limited knowledge of the concepts of science and science process skills, and that they mostly had negative perceptions about the teaching of science in early primary school. These findings have implications on the training of early primary school teachers.

Keywords: Perception, knowledge, science process skills, primary school.

A FRAMEWORK TO ANALYSE THE QUALITY OF ECEC SERVICES ACCORDING TO THE CHILD-CENTRED CULTURE

Paolo Sorzio, & Caterina Bembich
DiSU, University of Trieste (Italy)

Abstract
In this contribution it is proposed a critical framework, based on Basil Bernstein's theory, for two aims. The first one is a critical reflection on some structural limits of the Indicator Frameworks used to evaluate the quality of Early Childhood Education and Care services (ECEC), since they rely mainly on measures of the structural and processual characteristics of the educational settings. As a consequence, the processual dimensions are reduced to their individual components, overlooking the complex and contingent interactions that create opportunities for learning. The second aim is to propose a framework, based on Basil Bernstein's theory to analyse the different child-centred approaches to ECEC.

Keywords: Child-centredness, quality of services, indicator frameworks, reflective practice.

LIFE SCIENCES TEACHERS' UNDERSTANDING, PERCEPTIONS AND ADOPTION OF INQUIRY-BASED SCIENCE EDUCATION IN SELECTED SOUTH AFRICAN HIGH SCHOOLS

Monde Kazeni, & Nosipho Mkhwanazi
Science Education, University of the Witwatersrand (South Africa)

Abstract
In recent years, Inquiry-Based Science Education (IBSE) has emerged as one of the most effective and beneficial science teaching practices for developing science concepts in learners and for motivating them in the study of science subjects. IBSE is a pedagogical practice that allows learners to develop key scientific ideas and to understand the natural world, using skills employed by scientists. Like most science school curricula around the world, the South African life sciences national curriculum (referred to as Curriculum and Assessment Policy Statement - CAPS), advocates for the adoption of IBSE. Despite the growing consensus about the cognitive and motivational benefits of IBSE, this pedagogical approach is seldom implemented by life science teachers, due to various factors. This qualitative research, involving a case study, explored the knowledge, perceptions, and adoption of IBSE by four life sciences high school teachers, conveniently selected from public schools around Johannesburg, in South Africa. Data were collected using semi-structured interviews, and the findings show that participating teachers have substantial knowledge and positive perceptions of IBSE. However, they are less inclined to adopting IBSE in their life science classrooms due to inhibiting factors. We recommend the training of life sciences teachers in effective way of abating the constraints of implementing IBSE effectively.

Keywords: Inquiry-based, science education, perceptions, knowledge.

TEACHING LIFE SCIENCES USING SECOND LANGUAGE: HOW DO TEACHERS COPE?

Amos Motloung, & Lydia Mavuru
Department of Science and Technology Education, University of Johannesburg (South Africa)

Abstract
Language plays a pivotal role in science teaching and learning as it serves as both the medium through which the teachers and learners think and also communicate in the classrooms. Science and Life sciences in particular comprises of a unique scientific language register with a lot of technical words and terms borrowed from other languages other than English. Previous researchers acknowledged the difficulty teachers face when teaching science in a language different from their own and that of the learners. Consequently, the current study explored the various ways in which English-second-language Life Sciences teachers taught Life Sciences in order to mitigate language difficulties for themselves and those of their learners. The study was guided by the research question: how does English as a second language influence teacher practices when teaching Life Sciences to grade 12 learners? Using a qualitative research design, six Life Sciences teachers with various levels of teaching experience, two novices, two relatively experienced and two very experienced teachers, were purposefully selected from six different schools. The assumption was that teachers at various levels of experience may have different experiences of teaching the subject in a second language. Each teacher was observed once whilst teaching the same topic to grade 11 Life Sciences learners to establish their teaching practices. Incidences of learner engagement with the content, teacher-learner and learner-learner interactions were captured and scored using the Reformed Teaching Observation Protocol rubric. Lesson observations were suitable for data collection as they allowed the researcher to examine even non-elicited behaviour as it happened. The findings indicated that language difficulties were prevalent and affected both teachers and learners in engaging with the concepts at hand. For instance, most of the teachers whether experienced or not, struggled to explain and elaborate vital Life Sciences concepts in a comprehensible manner due to lack of proficiency in the language of instruction. The teachers mostly utilised code-switching as it enabled them to explain and elaborate scientific terms and processes in both English and their home languages. Because learners were allowed to express themselves in their home languages, the level of interaction also increased. In addition, teachers used transliteration and demonstrations as teaching strategies that also reduced the challenges of using English as a medium of instruction. The study informs both pre-service and in-service teacher development programmes.

Keywords: Life sciences, English-second-language-speakers, teacher practices, code switching.

CULTURAL TRANSLATION BEYOND AN INTERDISCIPLINARY EXIT, A MEETING OF KNOWLEDGE

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PhD in social sciences, National University of Entre Ríos/PhD candidate (Argentina)
Atlántida technical school, University of Labor of Uruguay/ Teacher (Uruguay)

Abstract
In a context of intercultural conflicts, of exclusive educational policies, it is necessary to create inclusive perspectives, enabling coexistence between different cultures. A Latin American educational framework rooted in neoliberal policies restricts creative gazes. Two doctoral researches carried out with a perspective of Popular Education, one in Mexico, Costa Rica, Argentina and Uruguay and another on a specific experience in Uruguay show the potential of the emancipatory component. His socio-historical analyzes link the educational proposals with the historical evolution of their problems in relation to their contexts. Cultural translation is presented as one of the potentialities, where weighted popular knowledge is rescued by groups. Some socio-community referents have skills to know, understand and translate the demands. A training obtained from the analysis of the experience and knowledge of the groups stimulates decolonization processes.

Keywords: Cultural translation, popular education, Mesoamerica, southern cone.

LIFE SCIENCES TEACHERS' CONCEPTIONS ABOUT SOCIOSCIENTIFIC ISSUES IN THE TOPIC EVOLUTION

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Abstract
The goal of science education is emphatically positioned on promoting science literacy. The rationale is learners should not only learn about scientific knowledge and processes but also on how to apply the knowledge when making decisions about heterogenous societal and personal issues. Previous research has indicated that by addressing socioscientific issues (SSIs) when teaching controversial science topics, it provides a suitable context for developing scientific literacy in learners. Scientifically literate learners are well-informed citizens with regards to the social, ethical, economic, and political issues impacting on contemporary society. The theory of evolution is one such Life Sciences topic deeply embedded with SSIs. Teachers are conflicted when teaching this topic due to the controversy surrounding the theory as they view the teaching of evolution as a way of negating the legitimacy of their religious and cultural convictions. It is against this background that the study sought to answer the research question: How do Life Sciences teachers conceptualise socioscientific issues embedded in the topic evolution? In an explanatory mixed method approach, a questionnaire with both quantitative and qualitative questions was administered to 28 randomly selected grade 12 Life Sciences teachers. Data was analysed and descriptive statistics were obtained, and themes generated. The findings showed that all the participants were knowledgeable about the SSIs embedded in the topic evolution. In justifying their conceptions 61% of the teachers perceived SSIs as important in improving learners' reasoning and argumentative skills; developing learners' critical thinking skills; and in informing learners in decision making. There were however 11% of the teachers who pointed out that SSIs as too sensitive to deal with hence not suitable to teach young learners. Though the teachers were knowledgeable about the SSIs embedded in the theory of evolution, it does not mean that they could address them when teaching the various concepts of evolution. The main source of the controversy rose from the evolution of humankind versus the Christian belief in the six-day special creation. The participants (25%) indicated that evolution challenges peoples' religious and cultural convictions, which conflicts both the teachers and learners to question or go against their religious beliefs. Several teachers pointed out that some of the concepts on evolution such as 'living organisms share common ancestry (18%) and 'the formation of new species from existing species' (11%), undermine the superiority of human beings over other organisms. The findings have implications for both pre-and in-service teacher professional development.

Keywords: Evolution, life sciences, socioscientific issues.

SPREADSHEETS AND LATEX – A PERFECT UNION FOR THE CREATION OF TESTBANKS FOR ONLINE ASSESSMENT

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[1]*College of Information Technology, United Arab Emirates University (United Arab Emirates)*
[2]*College of Business & Economics, United Arab Emirates University (United Arab Emirates)*

Abstract
The current COVID-19 pandemic forced an instant shift in teaching from the traditional classrooms to an online format. While it was relatively easy to switch the teaching to online mode, the assessment process presents bigger challenges. Specifically, the assessment quality is compromised because during an online test, most students are able to seek help from their fellow test-takers as well as from different online sources. One way of discouraging the students' tendency to share the answers among themselves is to inform them they will be given different questions than their peers. In this paper, we propose to use spreadsheets to create test questions in Latex format, thus making it easy to present each student with a 'unique' question-set during a test. The uniqueness of the testbank questions comes from randomly generated variable values in numerical questions. The spreadsheet also produces the answers to the questions to help automate the grading process. Such testbanks are suitable not only for normally sized courses, but also for the larger massive open online courses. We have successfully used such testbanks for multiple courses in our university's Computer Engineering program. Originally, we had used the testbanks for in-class assessment. After the classes shifted online, we ported the testbanks to our learning management system to enable online assessment.

Keywords: Automated assessment, testbank generation, spreadsheet, massive open online course, learning management system (LMS).

STUDENT MENTOR'S IDEAL FEATURES: PEER CHOICE

Madalena Cunha[1], & Nuno Campos[2]
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[2]*Superior School of Health, Polytechnic Institute of Viseu (Portugal)*

Abstract
Introduction: A student mentor is someone who shares his or her knowledge with a less experienced colleague in order to help the other developing his or her full academic potential by providing him/ her with the right guidance and support during his learning, social and academic integration processes.
Objective: To assess the features higher education students consider to be the most effective characteristics their Student Peer Mentor should possess.
Method: A descriptive-exploratory study, with a cross-sectional focus, involving a sample of 306 higher education health students, with a mean age of 21.15 (± 3,540) years. 81.7% of the participants are female. Data collection was achieved using *Cunha's Ideal Mentor Faces Scale (2017) with images adapted from Botas, Gabriel & Welling, (1997/1998).*
Results: Results show that 61.8% of the students surveyed would like to be student mentors and that most participants (54.2%) look at their ideal mentor as someone who possesses positive features, while 12,1% of the participants would choose for their ideal mentor a student whose features might suggest the existence of a risk profile. Finally, and paradoxically, 33.7% of them would choose a student mentor who tends to exhibit certain negative features.
Positive characteristics were granted the highest mean values. Those values ranged between Satisfied (68%), Tranquil (78.1%); Optimistic (85%); Confident (88.2%) and Interested (87.9%).
Conclusions: Results suggest that higher education students value the existence of student mentors with positive features/characteristics and realize that their existence is of great pedagogical importance. Therefore, there is now a greater need to ask higher education students to participate in Mentoring programs implemented with the support of second or third year Student Mentors who, on a voluntary basis, using their experiences and academic experiences can supervise incoming first year students (Mentee Students) in order to facilitate their integration and their adaptation to the different dimensions (pedagogical, scientific, social and any other) of the academic environment.

Keywords: Students, higher education, features, student mentor.

THE ASSOCIATION BETWEEN STUDENT ENGAGEMENT AND CREATIVITY OF UNDERGRADUATES IN CHINA

Yanan Hu, & Xiaotian Han
School of Primary Education, Shanghai Normal University Tianhua College (China)

Abstract

The purpose of the study aimed to: (a) determine to what extent undergraduates expect their college courses; (b) measure the degree to what extent what degree undergraduates engage in their college courses; (c) measure the degree to what extent undergraduate feel their capability of creativity; and (d) examine the degree to which student engagement and their creativity are associated. The study applied a non-experimental, correlational design and used survey responses from 431 randomly selected undergraduates to address the research questions. The findings are as follows. First, the majority of the students have high expectation on their courses and they put feedback as their first priority. Second, most of the Chinese students still attach great importance to their homework. However, the low percentage in reflection shows that the students still lack the habit of doing self-reflection. Third, Chinese undergraduates have fair creativity ability and the students scored their creativity on behavior highest and the creativity on knowledge system lowest. Fourth, student engagement has a positive relation to their creativity on knowledge system, creativity on behaviors, creativity on personalities and creativity on innovative thinking. Among which, the students' enhanced engagement has a most direct impact on their creativity on behaviors.

Keywords: Higher education, student engagement, creativity, undergraduates.

USING EVERYDAY LANGUAGE TO SUPPORT LEARNERS' ACCESS TO MATHEMATICAL CONTENT KNOWLEDGE

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Abstract

The language of mathematics can hinder the development of some learners' conceptual understanding of mathematics. Language as a whole plays a crucial role in the teaching and learning of mathematics as it serves as the medium in which the teachers and learners think and communicate in the classroom. Ball, Thames and Phelps (2008) argue that the demands of teaching mathematics require specialized mathematical knowledge that only pertains to mathematics teaching and is not required in other mathematics professions. The role of the teacher is to use resources available to them to support learners in accessing mathematical content knowledge. Previous researchers acknowledged the difficulty learners face when trying to interpret the formal language of mathematics in order to access mathematical content knowledge. Consequently, the current study explored the various ways in which the language of learning and teaching can be utilized by teachers to mitigate language difficulties their learners may experience. The study was guided by the research question: What is the informal mathematical language that Grade 10 teachers use to inform effective instruction when teaching functions? This paper aims to describe how teachers use informal mathematical language to teach inequalities and functions. The research is qualitative and the descriptive method was employed, with the researcher serving as the main instrument. The required data was collected by observing two teachers teaching inequalities and functions. The findings indicate that the use of transliteration and demonstrations as teaching strategies reduced the challenges of using English as a medium of instruction to interpret mathematical symbolic language and that the use of everyday language makes a difference in the learning of functions and inequalities. The study informs both pre-service and in-service teacher development programmes.

Keywords: *Mathematics, mathematical language, teacher practice, functions, inequalities.*

FREE TIME AND SOCIAL RELATIONSHIPS IN A GROUP OF STUDENTS FROM TWO HIGH SCHOOLS IN BOTOSANI COUNTY

Adriana Albu[1], Mihaela Vlada[2], Adina Nechita[1], & Florin Dima[2]
[1]*Grigore T. Popa University of Medicine (Romania)*
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Abstract

Introduction: it is necessary to assess the way students spend their free time in the final years of high school due to the poor results that have appeared recently in the baccalaureate exams. *Methods*: the study was carried out using a group of 202 students from the 11th and 12th grades from a National College (117 pupils) and a High School (85 pupils) from the city of Dorohoi, Botosani County. The young people filled in a questionnaire with questions about leisure activities and social relationships. The results were processed using Pearson's chi-squared test. *Results and discussions*: The time allocated daily for physical activity is mostly 15-30 minutes (23.76%) with significant differences between the two schools ($p<0.05$). The time spent watching TV is mostly 0.5-1 hours (35.64%) with insignificant differences between grades ($p>0.05$). Most students (44.05%) do not sit at the computer, the calculated differences being statistically insignificant ($p>0.05$). When looking at social relationships we take into account friends, where in the majority of cases (32.4%) students have „one" true friend. This is a usual result because in this period of the adolescent's life the role the group of friends plays decreases, with significant differences between school years ($p<0.05$). In their free time, they go out into town, mostly 2-3 evenings per week (28.71%), but there are also 31.68% negative answers. Parents are less concerned about school activity ("never" answers – 34.15%) with significant differences between grades ($p<0.01$). Parents are also less concerned with the way their children spend their free time ("never" answers – 34.65%) with significant differences between school years ($p<0.05$). *Conclusions*: there is a series of situations that guide us towards a modest concern for the future, both from students and their parents.

COGNITIVE DIAGNOSTIC MODELS FOR TESTS WITH CONSTRUCTED RESPONSE ITEMS

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Abstract

Multiple choice items are usually used for simple scoring. Constructed response items provide more diagnostic information about learners, however, it is costly and time-consuming to develop constructed response items for automated scoring process. To apply both multiple choices and constructed response items in online assessment would be more efficient. To reach this purpose, an automated scoring method for constructed response items and a statistical model for the assessment with both multiple choice and constructed response items are used in the present study.
The study collected both simulated data and empirical data to evaluate the performance of the proposed model. The results show that the proposed cognitive diagnostic model for both multiple choice and constructed response items outperforms those only considering multiple choice items. As well, the efficacy of test development and data analysis was improved.

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TEACHER TRAINING FOR THE PREVENTION, REPORTING AND ADDRESSING OF VIOLENCE AGAINST CHILDREN

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Abstract
Each year an estimated one billion children (one out of two children worldwide) suffer some form of physical, sexual or psychological violence or neglect (Hillis, Mercy, Amobi, & Kress, 2016). Being a victim of violence in childhood has lifelong impacts on education, health, and well-being. Exposure to violence can lead to poor academic performance due to cognitive, emotional, and social problems (WHO, 2019). The right of the child to freedom from all forms of violence is affirmed by the United Nations Committee on the Rights of the Child, in its General Comment No. 13 (UNCRC, 2011). Moreover, the Sustainable Development Goals contain a clear call to eliminate violence against children, most explicitly in Target 16.2 (UN, 2015).
Many efforts have been made globally to achieve these goals. Schools have been identified as one of the crucial contexts for conducting violence prevention efforts. They offer an important space where children, teachers and educators can learn and adopt pro-social behaviors that can contribute to preventing violence (WHO, et al., 2016). Teachers can play a key role, helping to build a "violence-free world" (UNESCO, WHO, UNICEF, End Violence Against Children, 2020), both by promoting positive relationships and by identifying signs of violence early. In fact, while international strategies provide a necessary framework for the promotion and protection of children's rights, it is the people who can make a difference in the prevention and detection of violence against children (Biffi, 2018).
Based on these premises, the paper will focus on how teacher training can help prevent, report and address violence against children. Teachers are often not trained on this: some of them know the contents, but have doubts about how to deal with certain situations. Teachers should learn what to do with students who have gone through a traumatic experience because children choose someone who can see and recognize them (Miller, 1979, En. transl. 1995; Miller, 1980, En. transl. 1983). To be able to really recognize the child, a training course with teachers is necessary, to raise awareness and help them see the signals that children send (The Alliance for Child Protection in Humanitarian Action, End Violence Against Children, UNICEF, WHO, 2020). This paper, through literature and presentation of a training course with teachers in Italy, will offer a pedagogical reflection on teacher training in the prevention, reporting and addressing of violence against children, in order to start building a common shared strategy.

Keywords: Teacher training, violence against children, prevention, rights of the child, Italy.

EXPERIENTIAL LEARNING PROCESSES USING AN E-DIARY IN STUDENTS' INTERNSHIP

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Abstract
The article/presentation analyses data from e-diary taken by 88 students from three groups of pedagogical programs who were studying in the following school years: 2018-2019 and 2019-2020. As part of the internship tasks, the diary had to be written regularly weekly (for a total of 20 or 22 weeks). According to the provided half-standardised e-diary form, every week, the research participants had to document the most significant/successful/problematic situation in their school internship and raise any questions. The database on an e-diary basis contains 1962 situations of internship pedagogical activity. The data presented in the article is general for the whole group of research participants. The data analysis is based on six stages: access to the data, data coding, finding topics, revision of the topics, a summary of the topics and preparation of the report.
The article presents how the e-diary was designed and how the e-diary stimulates the metacognitive capacity to reflect upon thinking capacities. The thematic analysis of the entries in e-diary has been conducted according to the following three aspects: emotional, cognitive, and the change in internship activity.

The thematic analysis's emotional aspect (which was revealed in the e-diary notes) has been reflected by the dynamics of satisfaction from the professional activity. The intellectual aspect has been revealed by the dynamics of changes in students' self-estimation, attitude towards learning, and the teaching profession. The diaries provided the opportunity to analyse the learning situations via descriptions in the e-diary and the participant's self-reflections on their gained internship experience.

Keywords: Experiential learning, diary structure, electronic diary, case study.

A STUDY ON USING GAME-BASED METHOD TO IMPROVE LEARNING EFFICIENCY OF JUNIOR SECONDARY SCHOOL STUDENTS

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Abstract
Game-based approaches aim at improving participants' engagement and satisfaction, they might have great advantages in solving the issues of students demotivated and uninvolved in learning activities. However, there are few studies on using games elements in education and examining to what extent game-based educational approaches enhance learning. To bridge this research gap, the objective of this study is to examine whether game-based method improves students' academic performance in the school subject Life and Society.
A total of four classes of Grade Seven students and two teachers participated in the study in Hong Kong. Three classes (n= 75) were assigned to the experimental groups and one class (n=30) were assigned to the control group. The experimental group participated in class sessions where they learned the timeline, major events, and factors affecting economic development of Hong Kong by a group-based card game, while the control group were taught by lecture-based method. Using a pre- & post-tests design, data were collected by a tailor-made survey including 9 fact-based questions to assess the learning outcomes. The contents of the survey were judged two experienced teachers and one panel head.
Paired samples t-tests and two-way ANOVA were used to compare the possible changes, group differences and interaction effects. Results showed that both the experimental group and control group significantly increased their academic performance in the post-tests, indeed the average post-test scores of experimental groups were higher than that of the control group. Only one among three classes in the experimental group showed a significant increase in post-test scores, indicating a possibility of teacher difference. Boys in the experimental groups significantly improved in the post-test while girls did not differ significantly from pre-test scores. Both students with low and middle ability levels improved significantly in their post-test scores, while students with high ability level did not reach statistical significance. The interaction effect between gender and student ability level was statistically significant, indicating that the influence of student ability level on pre-test scores depended on their gender. Finally recommendations, implications, and limitations to the study are discussed.

Keywords: Game-based approaches, card game method, academic performance, junior secondary students.

EXPLORING SOUTH AFRICAN PRESERVICE TEACHERS' CONCEPTUAL UNDERSTANDING OF LIGHT PHENOMENA

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Abstract
The wave and particle nature of light poses considerable instructional challenges to both teachers and learners in diverse educational settings. Developing a meaningful conceptual understanding of the wave and particle nature of light is a key requirement for demystifying the complex nature of various optical phenomena. The study adopted an exploratory descriptive survey design and involved purposively selected South African preservice Physical Sciences as participants. Preservice Physical Sciences teachers'

conceptual understanding of light phenomena was explored through the administration of the Light Phenomena Conceptual Assessment (LPCA) inventory. The key findings of the study revealed that preservice Physical Sciences teachers exhibited conceptual hurdles in relation to light phenomena such as reflection, refraction, total internal reflection and light scattering. The prevalence of these conceptual hurdles can partly be attributed to pervasive knowledge gaps manifested as a result of deficient instructional strategies adopted to demystify complex nature of light phenomena. Theoretical implications for initial teacher education are discussed.

Keywords: Teacher education, light phenomena, instructional strategies.

HOW RELATIONSHIPS IMPACT SENSE OF BELONGING IN SCHOOLS AMONGST FEMALE ADOLESCENTS FROM REFUGEE BACKGROUNDS

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Abstract
Education is believed to play an essential role in creating a sense of belonging amongst adolescents from refugee backgrounds. This narrative inquiry study set out to better understand the influence that relationships formed in one Canadian school community played in the development of a sense of belonging amongst female adolescent students from refugee backgrounds. Study participants were from Middle Eastern and East African origin and had been living in Canada for two-years or less. Data were collected over a five-month period through two sets of interviews, and a series of observations. Findings indicated the students from refugee backgrounds sense of belonging in school was strengthened by strong relationships with teachers from whom they perceived a genuine sense of support and care, which resulted in higher academic achievement. The study also conveyed that students felt that their Canadian-born peers largely ignored them in class, which resulted in increased feelings of social isolation and lack of belonging. The female student experience was further influenced by additional familial obligations and responsibilities.

Keywords: Refugees, education, belonging, females, students.

PEDAGOGICAL PRACTICES ADOPTED BY TEACHERS WHEN TEACHING LEARNERS TAKING ENGLISH AS FIRST ADDITIONAL LANGUAGE IN LIFE SCIENCES CLASSROOMS

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Abstract
This study examined pedagogical practices adopted by teachers when teaching learners taking English as First Additional Language in Life Sciences classrooms. The inquiry adopted a generic qualitative design located within the interpretivist paradigm and involved purposively selected Life Sciences teachers and grade 10 learners from South African township schools as participants. Qualitative data was collected through semi-structured interviews and classroom observations. The empirical investigation is underpinned by the Cognitive Academic Language Proficiency (CALP) as the underlying theoretical framework. The study uncovered a myriad of instructional challenges facing Life Sciences teachers and learners associated with the use of English as a medium of instruction while it is taken as a First Additional Language by the learners. In particular, the terminology used in Life Sciences as a key knowledge domain posed fundamental instructional challenges in relation to meaningful development of enhanced learners' conceptual understanding of scientific phenomena. Theoretical implications for meaningful science teaching and learning are discussed.

Keywords: Pedagogical practices, first additional language, life sciences.

BUILDING BRIDGES: BRINGING NONFORMAL PEDAGOGIES INTO THE CLASSROOM

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Abstract

Education systems worldwide have long sought ways to engage and support learners to become self-directed and develop 21st-century skills. This became even more relevant—and crucial—with the COVID-19 pandemic restrictions. Solutions to help formal education systems establish innovative pedagogies and methods to organize learning can be found in places as unpredictable as nonformal education settings. In this study, I interviewed educators with backgrounds in nonformal education to better understand that system's qualities and how they can be transferred into formal settings. Findings regarding practices include teachers prioritizing instructional choice (voluntarism); addressing social-emotional aspects through diverse teaching methods that emphasize students' active learning and real-life experiences (classroom as a social group); and excelling in dialogue and teamwork to sustain solid interpersonal relationships with students and colleagues (relationships and dialogue). Educators working in nonformal settings often know they have a unique collection of difficult-to-articulate abilities. This research presents the voices of youth movement leaders in Israel, who nonformally have been doing what formal educators worldwide are trying to figure out; defines some of their skills; and explores how those skills can be applied in formal settings. This study has been published as a book in Hebrew in 2020. This paper embodies a few aspects of the study and will benefit formal education leaders and practitioners who seek to incorporate methods from nonformal pedagogies.

Keywords: Choice, educational change, nonformal pedagogies, youth movement, teaching.

TECHNOLOGY INTEGRATION IN NATURAL SCIENCES TEACHING AND LEARNING IN SOUTH AFRICAN TOWNSHIP SCHOOLS

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Abstract

This study examined technology integration in Natural Sciences teaching and learning in South African township schools. A mixed method approach was adopted as part of an exploratory descriptive survey design. Data was collected through semi-structured interviews, classroom observations as well as administration of open-ended survey questionnaire. The study involved purposively selected grade 9 Natural Sciences teachers and learners as participants. The empirical investigation is underpinned by technological pedagogical content knowledge (TPACK) as the underlying theoretical framework. The participants demonstrated a positive disposition about technology integration in Natural Sciences teaching and learning. In particular, technology integration was perceived to provide opportunities for the enhancement of meaningful Natural Sciences teaching and learning in township schools. Digital resources were largely viewed as essential educational tools that can be deployed to demystify abstract scientific concepts with a view to enhance scientific literacy. Theoretical implications for technology-enhanced teaching and learning are discussed.

Keywords: Technology integration, TPACK, technology-enhanced learning, digital resources.

PRE-SERVICE TEACHERS' PREPAREDNESS AND CONFIDENCE IN TEACHING LIFE SCIENCES TOPICS: WHAT DO THEY LACK?

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Abstract

Pre-service teachers' preparedness and confidence levels to teach is a topical subject in higher education. Previous studies have commented on the role of teacher in-service training in preparing teachers for provision of meaningful classroom experiences to their learners, but many researchers regard pre-service

teacher development as the cornerstone. Whilst teacher competence can be measured in terms of different variables e.g. pedagogy, knowledge of the curriculum, technological knowledge etc., the present study focused on teacher competency in terms of Life Sciences subject matter knowledge (SMK). The study was framed by pedagogical content knowledge (PCK). The study sought to answer the research question: How do preservice teachers perceive their levels of preparedness and confidence in teaching high school Life Sciences topics at the end of their four years of professional development? In a qualitative study, a total of 77 pre-service teachers enrolled for the Methodology and Practicum Life Sciences course at a university in South Africa participated in the study. Each participant was tasked to identify topic(s)/concept(s) in Life Sciences they felt challenged to teach, provide a critical analysis of the reasons for that and map the way forward to overcome the challenges. This task was meant to provide the pre-service teachers with an opportunity to reflect and at the same time evaluate the goals of the learning programme they had gone through. Pre-service teachers' perspectives show their attitudes, values and beliefs based on their personal experiences which therefore help them to interpret their teaching practices. The qualitative data was analysed using content analysis. The findings showed that whilst pre-service teachers were competent to teach other topics, the majority felt that they were not fully prepared and hence lacked confidence to teach the history of life on earth and plant and animal tissues in grade 10; excretion in animals particularly the functions of the nephron in grade 11; and evolution and genetics in grade 12. Different reasons were proffered for the lack of preparedness to teach these topics. The participants regarded some of these topics as difficult and complex e.g. genetics. Evolution was considered to be antagonistic to the participants' and learners' cultural and religious belief systems. Hence the participants had negative attitudes towards them. Some of the pre-service teachers indicated that they lacked interest in some of the topics particularly the history of life on earth which they considered to be more aligned to Geography, a subject they did not like. As remedies for their shortcomings in the content, the pre-service teachers planned to co-teach these topics with colleagues, and others planned to enrol for content enrichment programmes. These findings have implications for teacher professional development programmes.

Keywords: Teacher confidence, Life Sciences, preparedness, pre-service teachers.

A REVIEW OF PAPERS ABOUT BLOCK PROGRAMMING FROM THE WORKSHOP ON COMPUTING AT SCHOOL

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Abstract
This paper describes a survey to identify how Block Programming is being used in Brazilian schools. The motivation of this research is to provide us with data and insights to support the research project on Block Programming and Computational Thinking in Schools whose goal is to investigate and create a proposal for how Block Programming can be inserted into the school curriculum. The relevance of this research is that the school should prepare the students for the skills (creativity, programming, problem solving, abstraction and innovation) demanded by the job market and for further education (e.g. university courses and qualification courses). In particular, in Brazil the curriculum of schools is governed by a normative document called the Common National Curricular Base (Base Nacional Comum Curricular - BNCC). The BNCC defines that the school curriculum should enable the student to have the following competencies: (1) knowledge; (2) scientific, critical, and creative thinking; (3) cultural repertoire; (4) communication; (5) digital culture; (6) work and life project; (7) argumentation; (8) self-knowledge and self-care; (9) empathy and cooperation; and (10) responsibility and citizenship. Some of these skills can be achieved by learning Block Programming aligned with Computational Thinking instruction. The importance of learning programming in school is justified by the increased use of technology in modern society and the need to be prepared to create and use technological solutions that involve programming and computing. The BNCC highlights that the skills developed by students should be organized by offering different curricular arrangements, according to the relevance to the local context and the possibilities of the education systems. This can be applied in a multidisciplinary way through block programming based on computational thinking in basic education. A literature review was conducted of papers published in the area of block programming at the Workshop on Informatics at School (WIE) between the years 2016 to 2019. The choice of this event is due to the fact that it has been standing out over the years as a forum for discussions where works in the area of digital technologies of information and communication (TDIC) in

formal and non-formal spaces of education have been disseminated. During this period we identified papers that describe the use of several environments of Block Programming (e.g. Scratch) and several experiences and proposals of how to insert Block Programming in the students' education.

GREEK AND PORTUGUESE MATHEMATICS EDUCATION AND PERFORMANCE, THROUGH THE PRISM OF PISA

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Abstract
Greece and Portugal are two Southern European countries, with nearly the same population as well as a centralized educational system that follows the same vertical structure. Both countries were deeply affected by the economic crisis during the last decade. Despite being severely hit by the economic crisis, Portugal has advanced to the OECD average level in students' mathematical performance in the Programme for International Student Assessment (PISA 2018), while Greece has performed below the OECD average. PISA, as one of the most influential international educational surveys, aims to evaluate educational systems and provides a valuable platform for comparisons. Portuguese students outperformed their Greek counterparts by 7 points in the first PISA 2000 and went on to widen the difference by 41 points in PISA 2018. In addition to having increased the average performance in Mathematics, Portugal has managed to reduce the percentage of low-achieving students and at the same time increase the percentage of high-achieving students. According to PISA 2018 reports, Portugal is the only member of OECD that has experienced significant improvement in mathematics performance of their students through its participation in PISA. In contrast, the performance of Greek 15-year-old students in mathematics has not improved and has remained below the OECD average since it participated in PISA. What national strategies have been set up and implemented in Portugal so as to foster student's mathematical literacy competencies? A clear curriculum, students' regular assessment, teachers' training and the Action Plan for Mathematics. But despite that fact, the Mathematics performance of Greek 15-year-olds students in PISA in all cycles of PISA remains below the respective OECD average, in contrast with Portugal, that has registered a quantum leap (Crato, 2020).
The main aim of this research is, through a recording of the Greek and Portuguese students' mathematics achievements in PISA and at the same time of the Mathematics Education in both countries, through available policy documents and research reports, to comment on the current outcomes of the two educational systems and their students' performance in Mathematics.

Keywords: *Mathematics education, mathematics achievement, PISA, Greece, Portugal.*

WOMEN FACULTY AND SCIENTIFIC PRODUCTIVITY IN LATIN AMERICAN CONTEXT: EVIDENCE FROM CHILE

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Abstract
Since the 19th century, the position of women in the context of higher education has undergone multiple changes, although their incorporation has not been a simple or homogeneous task. Currently, women face new consequential challenges of a globalized world and the notion of market education that characterizes institutions nowadays. One of the great challenges is related to the under-representation of women in senior research positions (Aiston and Fo, 2020). In this context, new standards have been established to measure the productivity, quality, and effectiveness of teachers, specifically scientific productivity has been internalized as an indicator of professional progress, the type of publication, its impact, and the citation rates today. They have special relevance, where many times achieving high scientific productivity is very

complex for academics who do not access the teaching staff early (Webber and Rogers, 2018). Furthermore, it is very difficult for academic women to maintain high levels of productivity constantly both at work and home (Lipton, 2020). In this sense, the principles that encourage academic productivity increase competition among teachers and reinforce gender inequalities together with a valuation of male professional life (Martínez, 2017). Indeed, the participation of women in sending articles is much lower than their male counterparts (Lerback and Hanson, 2017). Therefore, the present study aims to visualize the participation of Chilean academics in current productivity indices, based on the description of secondary data obtained from the DataCiencia and Scival platforms. The sample consists of 427 people, of which 17.3% were women, with an average of 10 publications for the year 2019. To achieve the objectives, the following strategy was developed: 1) describe and interpret the secondary data obtained during the year 2019 on each of the platforms. 2) Compare the data obtained to national averages and type of institution and gender. Based on the analyzes, the implications of female participation in the number of women observed at the national level and their position in international indicators and new lines of research are discussed.

Keywords: Women; faculty, scientific productivity, higher education.

IDENTIFYING THE EFFECTIVE TEACHER: THE CONCEPTIONS OF PRE-SERVICE ASSISTANT NURSES

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Abstract
In this paper, we focus on the conceptions of effective teaching that pre-service assistant nurses hold about effective and ineffective teaching during their training in Public Vocational Training Institutes (DIEK) in Greece. We focused on three aspects of teaching effectiveness: 1) The model of Patrick and Smart (1998), who identified three groups of effective teacher characteristics includes; respect for students, ability to challenge students, organisation and presentation skills; 2) Considering the hands-on teaching experiences of pre-service assistant nurses, we explored their conceptions about teaching effectiveness in problem-based learning educational settings, based on Mayo, Donnelly, Nash and Schwartz (1993), who investigated, amongst others enthusiasm, active interaction and providing feedback. 3) The communicational aspect of teaching effectiveness, drawing upon the work of McCroskey and Richmond (1990) about socio-communicative styles, who identified two dimensions of interpersonal communication; namely assertiveness and responsiveness. All three aspects were explicitly investigated for both effective and ineffective teaching. A three-section (in line with the three-faceted conceptualisation of teaching effectiveness), 56 Likert-type items, questionnaire was completed by 125 students. Our analyses allowed us to identify which aspects of teaching characterise the effective teacher and which are present both in the effective and the ineffective teacher.

Keywords: Effective teaching, nurse education, assistant nurses, vocational education, ineffective teaching.

EXPLORING INFORMATION COMMUNICATIONS TECHNOLOGY (ICT) INFUSED MICROTEACHING MODULE AT A UNIVERSITY OF TECHNOLOGY IN SOUTH AFRICA

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Abstract
The concept of microteaching was first introduced in the 1960s at Stanford University in the USA. From there onwards most universities, universities of technologies and teacher training institutions are using microteaching as a technique to train prospective teachers to function within their teaching and learning environment. At the Central University of Technology (CUT) in South Africa, Microteaching is a compulsory module for all student teachers registered for a Bachelor of Education degree. This module

aims to equip student teachers with teaching skills, teaching strategies, teaching styles and confidence needed within the classroom environment. However, with the large numbers of student teacher enrollments at CUT, the delivery of this indispensable teacher training module was faced with a lot of challenges. The challenges, among others are the inadequacies of microteaching laboratories; student teacher peer involvement and evaluation of micro-lessons by lecturers. These challenges called for a review of the present model for microteaching. ICT was infused with microteaching model to solve the above challenges. This article explores the perceptions of CUT student teachers towards the ICT infused microteaching. A questionnaire to obtain student teachers' views about ICT infused microteaching was used to collect data. The findings indicated that student teachers enjoyed the use of this approach and most of the challenges associated with microteaching were solved.

PERCEPTIONS AND PREFERENCES OF ENGLISH STUDENT TEACHERS ON THE ASSESSMENT PRACTICES

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Abstract
Comprehending the role of assessment and the differential effects on developing students' learning processes is still one of the most explored areas in higher education. The aim of this quantitative study is to investigate English student teachers 'perceptions and preferences on the assessment practices (i.e., formative). The participant were student teachers sampled from the Department of Social Sciences and Language Education, Central University of Technology, Free State, South Africa. The outcomes showed that the assessment practices used by lecturers had an indispensable impact on students' motivation, preparation for future learning tasks, and evaluation of study progress. The data obtained also revealed that while peer assessment is one of the least preferred assessment methods, presentations, self-assessments and research papers were the top preferences. The study outcome relates to previous research while also providing a better understanding into the link between individual differences in the assessment preferences and the learning strategies used by students throughout the years of specialization which might offer lecturers way forward for improving their educational practices.

TRANSITIONING ARCHITECTURAL PEDAGOGY INTO THE VIRTUAL ERA VIA DIGITAL LEARNING METHODS

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Abstract
In an age of physical separation, a new pedagogical paradigm was established via the integration of pre-recorded videos, video conferencing, and online assessments to become hallmarks of the "new normal". In architectural education, the hands-on learning methodologies were suddenly compromised, challenging design pedagogy to reconfigure how students integrate collaborative design, studio culture, and develop analog skills into virtual learning. This prompted the question, how can architecture be effectively taught and experimentally explored through distanced and virtual means? The recent COVID-19 pandemic has disrupted this pedagogical environment and extinguished the opportunity of accessioning collaborative facilities considering recent distancing parameters. Conducting a literature review on experiences of virtual teaching in the realm of architecture, the paper explores scenarios, surveys, and adaptations to an unprecedented full online architecture studio. The paper showcases a series of teaching modifications that prove to be useful in maintaining and improving student engagement and performance in virtual architectural pedagogy.

LET'S TALK! PROMOTING MEANINGFUL COMMUNICATION THROUGH AUTHENTIC TECHER CHILD DIALOGUE

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Abstract
The heart of this study is an analysis of teacher–child dialogue in a classroom environment. An authentic dialogue enables children to express their real thoughts and ideas, to present insights, to ask questions, to make comments and to argue about different interpretations.
In an effort to help our future teachers improve the quality of their verbal and nonverbal interactions with children as well as emotional and social support, we created a "community of learners". Mentors and eight students - teachers (Israeli Jews and Arabs) participated in a reciprocal process of learning through experimentation while building new knowledge. Their interactions were examined how the teachers' verbal and nonverbal responsiveness helped them to open or close conversational spaces for children while enabling them to listen to their voices.
The research methodology was a discourse analysis i.e. analyzing the use of language while carrying out an act of communication in a given context. It presents a qualitative analysis of 20 transcripts of students - teacher's conversations with Israeli Jewish and Arab children from ages 4 – 6 years old. The analysis revealed that as teachers provided open conversational spaces with children, authentic dialogue emerged. Both voices were expressed and the child's world was heard. The significance of this study is to demonstrate the importance that authentic dialogue between teachers and young children has on the learning process as well as teacher's acknowledgment on how children think and feel. This offers an opportunity for them to learn with and from the children.

Keywords: Authentic dialogue, verbal & nonverbal interactions.

HIGHER EDUCATION INSTITUTIONS' NEED TO INITIATE CHANGE TO THE ACCOUNTING CURRICULUM DURING THE FOURTH INDUSTRIAL REVOLUTION (4IR)

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Abstract
In South Africa, the Further Education and Training phase (FET) in Accounting faces a major decline in learner numbers. The current format of FET Accounting serves little purpose in preparing learners for Accounting courses at tertiary level, if FET Accounting is not a precondition to Professional and Chartered Accountant courses. This study followed a qualitative research approach, from five Focus Groups at five Secondary schools in the Motheo Educational district, comprising of 16 FET Accounting Teachers to consider possible reasons for the decline of learners in FET Accounting. As result, uncertainty exists regarding the future of FET Accounting and the Accounting profession, when guidance teachers are presumably advising learners to take less suitable subjects, like Mathematical Literacy, History of Geography to enhance school reports. These findings influence the social responsibility of teachers; and it also results in many Accounting students having to spend two or more additional years at university due to their apparent lack of basic Accounting skills. Additionally, the negative perception towards FET Accounting might impact learners' choices who might not plan a career in Accounting, thereby limiting their ability to secure any career in the financial sector. Collaborative social change is required from the Accounting profession and university alike, especially in the Fourth Industrial Revolution era, where a high degree of ethics and transparency are required.

Keywords: Higher education, accounting, further education and training, 4IR.

A REFLECTION ON GENDER ACHIEVEMENT IN SCIENCES` RURAL SCHOOL SETTINGS OF MULTICULTURAL SOUTH AFRICA

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Abstract

The participation of learners in science is important to a country's socio-economic development impediments, therefore, the argument is that the girl learner should be increasingly encouraged to perform well in STEM related subjects (STATS SA). UNESCO indicates 35% women representative in STEM as students in higher education globally, whilst less than 40% of South Africa's scientists, engineers and technologists are women. This situation also relates to the South African education system, particularly in rural schools where girl learners are outperformed by boy learners in STEM, especially, in subjects such as Life Sciences and Physical Sciences. The purpose of this reflective paper is to ascertain the factors prohibiting excellent achievement of females in sciences in rural high schools of South Africa. The data has been gathered from numerous documents such as national and provincial analysis of result, examination and assessment directorate analysis and the district statistics in solidifying our investigation as couched by document analysis. Based on our observations and experiences of the conditions prevailing in rural high schools and less participation of female learner access in STEM, suggestions are put forth as to how their performance can be improved. The investment thereof in the body of knowledge will be to fulfil the concern not only of the country but the world at large when the number of female participants increase in STEM.

Keywords: Gender achievement, science subjects, rural high schools.

INTERCULTURAL PARTNERSHIPS THAT FOSTER CULTURAL COMPETENCE

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Abstract

Institutions of higher education (HE) are emphasizing their capacity to (a) foster equitable access; (b) incorporate global perspectives into teaching, learning, and research; (c) build international and intercultural competence among students, faculty, and staff; and (d) establish relationships and collaborations with people and institutions throughout the world. At Minnesota State University, Mankato, instructors have responded to this emphasis with a specific course for pre-service teachers: *Human Relations in a Multicultural Society*. Based on this experience, the authors based the course on a foundational theory and engaged in scholarship related to teaching and learning. Adaptations were made in one major assignment, a cultural partnership, so that college students could diversify their perspectives and enhance their intercultural skills, even during a pandemic. For three semesters during the pandemic, instructors facilitated virtual "buddy" matches with students at a university in Armenia (English language classes in Spring 2020) or with students in various US cultures (Alaska Natives in 2020 - 2021). The series of related assignments included establishing a partnership, interviews, shared virtual activities, and reflection. This report briefly reports the analysis of data collected with the IDI in Spring 2020, the latest semester for which data was available for this project.

Keywords: Intercultural competence, culture, multiculturalism, diversity, pedagogy.

THE COMPLEXITY OF IDENTITY FORMATION OF BLACK LEARNERS ATTENDING HISTORICALLY WHITE SCHOOLS

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Abstract
This purpose of this paper is to examine the complexity of identity formation experienced by black learners attending historically white high schools in the Northern Cape. Black South Africans were considered and treated as both intellectually and racially inferior during the apartheid years. This may have created an identity dilemma for a number of generations of South African blacks. The situation was further exacerbated, when black learners were admitted to historically white schools. The staff component (mostly white) of historically white schools appeared to be inadequately prepared for these drastic changes. Consequently, the school that should normally contribute to developing a positive identity formation of learners, seemingly had the opposite effect on black learners. An empirical investigation, by way of the quantitative research method was employed, to ascertain the perceived effect historically white schools have on the identity formation of black learners attending these schools. Some of the findings of this study indicate the manifestation of negative influences, low educator expectations, the disjuncture between the home- and school education, as well as the high failure and drop-out rate, of black learners, as having an effect on the identity formation of black learners. Certain suggestions are made as to how to address the situation.

Keywords: Learners, white schools, identity formation.

THE PORTFOLIO OF EVIDENCE IN THE COMPETENCY-BASED EDUCATIONAL MODEL OF THE UNIVERSITY OF GUANAJUATO

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Abstract
In a teaching-learning process, it is essential that the evaluation is summative and formative, from an analytical and holistic basis so that the process is comprehensive and integrates the work that the student has developed throughout the course, for example, a portfolio of evidence. Van der Schaaf and Stokking (2008) state that a portfolio of evidence integrates elements that must be related to each other, in order to be considered valid and reliable to evaluate the teaching-learning process, the elements are: a) the teacher model, b) the task model, c) the scoring model and d) the interpretation model. The objective of this research is to analyze the use of the portfolio of evidence as an evaluation tool within the teaching-learning process, for the Competency-Based Educational Model of the University of Guanajuato. This is a quantitative research with descriptive scope. A 22-item questionnaire was used considering the instrument developed by Romero and Crisol (2011) called "Opinion, satisfaction, usefulness and feelings of students about the use of the portfolio in learning and self-evaluation". The instrument was applied to a sample of 183 students of the Bachelor's Degree in International Commerce of the Economic-Administrative Sciences Division of the University of Guanajuato, distributed in four different Learning Units. The results indicate that students consider important the use of the portfolio of evidence as part of their teaching-learning process. In the part of satisfaction, usefulness and feelings, the students consider that the use of the portfolio is very important as a pertinent and adequate tool, and it is considered useful for learning, since besides serving as reinforcement, it implies a free and creative exercise. As conclusions of the study, the importance of the portfolio of evidence as a method of evaluation in accordance with the Educational Model by Competencies of the University of Guanajuato, which has also been well received at least by the sample of this study, is manifested. As future lines of research, it is expected to expand the sample to other careers and learning units to verify the replicability of the results of the study.

Keywords: Competency-based education model, portfolio of evidence, higher education institutions.

SOCIAL SCIENCE STUDENT TEACHERS' AWARENESS OF THE INTERTWINESS OF SOCIAL SCIENCE AND SOCIAL JUSTICE IN MULTICULTURAL SCHOOL SETTINGS

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Abstract
This qualitative study is an exploration of final year Social Science education students awareness of the intertwined nature of Social Science as a subject and the role of social justice in the classroom of a democratic South Africa. This study finds that South African Social Science teachers interpret or experience the teaching of Social Science in various ways. In the South African transitional justice environment, Social Science education had to take into account the legacies of the apartheid-era schooling system and the official history narrative that contributed to conflict in South Africa. Throughout the world, issues of social justice and equity are becoming a significant part of everyday discourse in education and some of these themes are part of the Social Science curriculum. Through a qualitative research methodology, data was gathered from Focus Group Discussion (FGD) sessions with three groups of five teacher education students in two of the groups and the third having ten participants from the same race, in their final year, specializing in Social Science teaching. The data obtained were categorised and analysed in terms of the student teacher's awareness of the intertwined nature of Social Science and social justice education. The results of the study have revealed that participants had a penchant for the subject Social Science because it assisted them to have a better understanding of social justice and the unequal society they live in; an awareness of social ills, and the challenges of people. Participants identified social justice characteristics within Social Science and relate to some extent while they were teaching the subject, certain themes within the Social Science curriculum. Findings suggest that the subject Social Science provides a perspective as to why social injustice and inequality are so prevalent in South Africa and in some parts of the world. Social Science content in its current form and South African context, emanates from events and activities that took place in communities and in the broader society, thus the linkage to social justice education. This study recommends different approaches to infuse social justice considerations Social Science; one being an empathetic approach – introducing activities to assist learners in viewing an issue from someone else's perspective, particularly when issues of prejudice or discrimination against a particular group arise, or if the issue is remote from learners' lives.

Keywords: Social science, social justice, awareness, teacher education, teaching.

COMPARISON OF THE FIRST YEAR LEARNING OUTCOMES OF DUAL AND NONDUAL STUDENTS IN THE LIGHT OF THE INPUT COMPETENCE SURVEY

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Abstract
The number of students taking part in, and the courses involved in dual education have multiplied since the dual education was introduced. At our university, in the last seven years, some hundreds of students have participated in the training based on the German model, implemented in cooperation with partner companies.
Based on our assumptions at the beginning of the dual training and the experiences accumulated during the training we assume that in general, more motivated students, the ones who are eager to learn and meet the requirements chose this form of education.
The double filter (university and company) makes it possible to choose the best students. The strong selection and the stricter education criteria set by the form of the training (the required progress according to the sample curriculum) results in the students' achievements which are significantly better than the non-dual students' results.
Thanks to the input surveys regarding the dual and non-dual students which have been conducted since 2010 in our institutions, it is possible to measure the competence of dual and non-dual students at the beginning of the training, and we can also get information about the differences between the two groups

and compare the achievements of dual students with the non-dual students. This examination gives a chance to examine how successful the training was for the dual students. The sample of our research consisted of the first year BSc full time students ($n = 1,341$). We applied the sample adjustment according to the points of the entrance tests when we analysed the achievements of the different training systems. In our presentation, we demonstrate the main areas of the competence survey, the results reached in those areas, the differences between the achievements in those areas, the impact of the input results on the success of learning (the impact of the differences on the results of the first year) in case of dual and non-dual students. We highlight those areas which significantly influence the study results regardless of training forms.

Keywords: Higher education, dual training, competence survey.

ASCERTAINING THE USE OF EXTRACURRICULAR ACTIVITIES IN PROMOTING LEARNERS' HOLISTIC DEVELOPMENT IN MULTICULTURAL SCHOOL SETTINGS

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Abstract
Encouraging learners to participate in extracurricular activities should commence in the early phase of their growth where a basis for their personality, learning and development is laid. Extracurricular activities could further assist in improving learners' creativity and artistic talents. Philosophers, such as Rousseau, Spencer and Dewey further reiterate the value of extracurricular activities in developing social relationships and intellectual intelligence. Learners associate with different peer groups which may satisfy their socialisation, self-assessment, self-identification and the fulfilment of their needs in becoming self-actualised. Learners can further be enabled to reach self-actualisation by participating in academic activities, such as maths, science clubs and research projects. Such activities seemingly contribute to learners' academic development which in turn may assist them in mastering certain life tasks; developing leadership roles; increasing their involvement in the community and expressing their civil responsibility. Amidst the latter, it is noted that the lack or in some cases, the non-existence of extracurricular activities hinder learners' growth and learning, especially in multicultural school settings, where the foundation for learners' development has to occur in a conducive environment. Multicultural schools in the Letjweleputswa educational district, Free State province of South Africa seem not to use extracurricular activities as an effective tool in promoting learners' holistic development. The aim of this paper is to ascertain the use of extracurricular activities in promoting learners' holistic development in the Letjweleputswa educational district. Via a qualitative research methodology, three focus group interviews were conducted with 20 learners attached to four multicultural schools. Findings of the study revealed that learner participants are of the view that their involvement in extracurricular activities could give them a greater chance of being employed; of getting a better job; of being accepted into university and of developing certain attributes, such as creativity, innovation, problem solving and endurance. The study further recommends that multicultural schools in the Letjweleputswa educational district need to implement various extracurricular activities as a means of developing various traits and competencies such as learners' physical-, emotional-, cognitive and social skills; moral underpinnings, life-skills, well-being, leadership qualities, analytical thinking processes and communication abilities.

Keywords: Extracurricular activities, holistic development, multicultural schools.

INITIAL AND IN-SERVICE TRAINING FOR SECONDARY SCHOOL TEACHERS TO IMPLEMENT PROJECT-BASED LEARNING (PBL)

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Abstract

The continuous evolution of technology, the gradual abandonment of the industrial society and the increasingly standardised inclusion of emerging methodologies in the teaching and learning processes have a significant impact on the quality and way of life of the people involved in them, making it necessary to integrate them in detail into the education system itself through initial and ongoing teacher training.

This paper reflects on the initial university training that new Secondary Education teachers receive on new methodologies, specifically Project Based Learning (PBL), as well as the ongoing training that current teachers at this educational stage receive for their integration and incorporation as valid methodological systems for their daily classroom practice.

Thus, through an in-depth review of the scientific literature on the subject and our experience as active teachers in the "Master's Degree in Teaching Secondary Education, Baccalaureate, Vocational Training and Language Teaching" at the University of Jaen (Spain), we have addressed these issues, determining that the quality of the pedagogical training of new teachers does not correspond to the reality that they will later face in the classroom, In addition, the in-service training that in-service Secondary teachers receive depends on the intrinsic motivations of the teachers or the manifest resources and legal requirements at the time and not so much on the real needs that the students in the context may require.

Keywords: Formation, teachers, secondary education, PBL.

THE INTERDISCIPLINARITY OF FORENSIC SCIENCES IN THE EDUCATIONAL SPHERE: AN ANALYSIS OF THIS CONTEXT IN SECONDARY SCHOOL

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Abstract

Many students when entering higher education, mainly in courses of exact or natural sciences and engineering, have difficulties in following the initial contents taught, due in part to the lack of knowledge arising from unique traditional methodology applied during their training. Some graduations even promote leveling courses in order to try reducing the deficits brought from previous education. Subjects such as Differential and Integral Calculus that are on the curricular basis of these courses, show high failure rates, strongly linked to gaps in previously acquired knowledge in mathematics. These factors directly contribute to the increase in retention rates and school dropout. So, there is a relentless search for improvement in the teaching-learning of these sciences, in order to motivate students, still in required education to knowledge building. It is commonly observed that young people are very attracted to the scientific disclosures broadcast by the media, as can be seen in the investigative series, which use forensic expertise for solving cases of a judiciary nature. In this sense, this work aimed to summarize studies that have been developed and implemented about the use of forensic sciences in the promotion of teaching-learning in secondary schools. The methodology was based on exploratory qualitative research. The results are based on experiences that occurred in the school context in USA, Brazil and Portugal, where it appears that students are more involved in the development of educational activities when integrated in a forensic like context, benefiting from collaborative work when trying to arrive to a common goal, similar to the assignment of a true forensic scientist. This allows them to recognize the importance of these contents, facilitates the presentation before the classroom, while improving the interaction with the social environment in which they are inserted. Teacher's feedback confirms the beneficial implementation of these activities in the educational context and considers it with potential to attract attention and awaken the interest of these students in the sciences, thus improving the comprehension of theoretical concepts of the contents integrated in the school curriculum. The interdisciplinarity implemented on the production and socialization

of knowledge is necessary and decisive to promote effective teaching and learning. The Forensic Sciences contemplate this interdisciplinarity and contribute that students feel more involved and motivated in learning, reducing retention rates and school dropout and increasing the search for science and technological careers.

Keywords: Teaching-learning, scientific methodology, criminal investigation, school dropout, CSI effect.

SCHOOL-BASED IN-SERVICE TEACHER TRAINING IN LITERACY

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Abstract
The current study is based on a year-long collaboration between a school and a university regarding professional development training of teachers who taught 4th and 5th grade students in an elementary school in the USA. The three-pronged focus of the study was on teacher knowledge, pedagogy and student achievement. We examined how the teacher capacity building affected the performance of underachieving students in Math and Literacy. Students' disaggregated test data was used to meet differential needs of students. Underachieving students were targeted with specific strategies, projects, problems solving stories, self-reflection, higher level thinking questions, to motivate students. Participating students' performance was measured with respect to literacy achievement. Quantitative and qualitative measures were used for data collection purposes. Students showed progress over previous years in reading scores. The results were positive and showed progress over previous years with respect to student achievement. Overall, 93 percent of students passed the writing test. In addition, the benchmark data revealed improvements during the year in reading, editing and writing scores for both 4th and 5th grade students. For three of the four pre and post-test comparisons, the gain in scores was statistically significant.

Keywords: Professional development training, site-based teacher training, literacy training, teacher capacity building in knowledge, pedagogy and student-achievement.

DISTANCE TEACHING AND PRESENCE TEACHING TOWARDS A POSSIBLE AND USEFUL INTEGRATION

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Abstract
The pandemic emergency seems to have extinguished many residual reservations regarding distance learning, but it has created a consensus that is all in all fragile, because it is non-critical and more charged with assimilative pressures.
The problem is not establishing when, where and whether distance learning or face-to-face training should be promoted. The problem is to understand why and to specify, jointly, with which paradigms it is necessary to operate. It is a question of tackling problems that have remained on the sidelines for too long, in order to understand what digital can offer to ordinary teaching and what from ordinary teaching can also be useful for distance teaching. We will stop on two issues only. On the one hand we will try to enhance the logic of the reticularity and composability of knowledge; on the other hand, we will focus on curricular systems, showing how each of these two aspects can benefit both distance and face-to-face teaching and, above all, how it can benefit their possible integration. And this also in order to be ready for the next emergency. Ready, while hoping it won't come.

Keywords: Didactics, new technologies, learning, curriculum.

BURNOUT PREVENTION WITH PSYCHOEDUCATION IN TEACHERS

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Abstract
Our research aims at prevention of burnout, which can be a protective factor in preventing career abandonment and can contribute to creating and maintaining a positive workplace climate. It also promotes the mental well-being and resilience of teachers and students. Therefore, burnout of teachers is especially important in Hungary, as the gradually increasing professional and administrative burden, the lack of social esteem, as well as the changed learning-teaching environment and the methodological shortcomings of general teacher training significantly increase the risk of burnout.
In our research, the staff of the Somogy County Educational Service Center has been involved, mainly special education teachers. The 116-person sample has been conducted with a version of the Maslach Burnout Inventory developed for educators. In our presentation, the test results are presented. According to our findings, out of the three subscales of the subjects' questionnaire, the highest scores were achieved in the Emotional Exhaustion subscale and the lowest in the Depersonalization subscale. However, the emotional exhaustion subscale did not indicate a high burnout value in the study population. The correlations of burnout risk with age and time spent as a teacher has been also analyzed.
Problem-focused and change-oriented psychological counseling models are attracting interest in the international literature today (*Egan*, 2010). By strengthening resilience and supporting a sense of growth, consultation techniques work to strengthen effective interpersonal communication and help the individual plan constructively for the future (*Bonanno*, 2004, 2005; *Kelley*, 2005; *Linley & Joseph*, 2005; *Litz*, 2005; *Maddi*, 2005). All of this are relevant to our research because we plan to provide burnout prevention psychoeducation counseling programs to educators. The literature also mentions the phenomenon of learned helplessness, which has its roots in childhood and is a breeding ground for both depression and burnout (*Seligman*,1991). Learned inertia can influence members of the helping professions toward passivity (paralysis, loss of control, hopelessness, unresponsiveness) and is therefore particularly burdensome for the individual, along with the challenges of helping professions. Results of our research shed light on the burnout level of special educators, personality traits important for coping and related burnout prevention (e.g., empathy, psychological immune competence) and the applied coping mechanisms that guide burnout prevention psychoeducation as a comprehensive concept.

Keywords: Burnout syndrome, psychoeducation, consultation techniques, burnout prevention of teachers.

INVESTIGATING THE USE ACTION LEARNING APPROACHES IN CIVIL ENGINEERING AND CONSTRUCTION STUDIES: A CASE OF SKILLS CENTRE

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Abstract
Civil Engineering and Construction studies are the study fields that embraces practical and theory. While action learning approaches is encompassed with a myriad of teaching and learning methods to closed the deficits. The research aims to investigate the use of action learning approaches in Civil engineering and Construction studies. while the objective of the research is to assess the extent to which action learning approaches is employed in teaching practical and content knowledge in Civil Engineering and Construction studies. The research used a mixed-method approach comprising quantitative and qualitative methodology to collect data. Questionnaire and face to face semi-structured interview were used as the tools to gather data. Participants were all 10 lecturers and assistance lecturers, males and females from different culture, age and race. Findings of the research revealed that lecturers are using action learning approaches unaware. The research, suggests that all lecturer at the skills centres should be afforded opportunities to attend facilitations and assessor courses or Universities of Technology should develop a short education methodology for them of which it will equip their teaching and learning skills.

Keywords: Action learning, civil engineering and construction, skills centre.

PEDAGOGICAL INTERACTIONS IN PRIMARY SCHOOL REINTEGRATION PROCESSES: A CASE STUDY IN CHILE

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Abstract

In Chile, despite the great coverage achieved, there are still children and adolescents who leave school without being able to complete 12 years of compulsory education (Casen, 2015); moreover, among the countries that make up the OECD, Chile is in the first places of deschooling (TALIS, 2013). This marginalization from the school system is affecting a significant number of children and hindering areas of integration and social development, which accentuates processes of social exclusion and violation of rights in Chile (Casen, 2015; Mide-UC, 2016; Mineduc, 2017). This is reinforced by pedagogical practices that strengthen these probabilities of failure (Román, 2013).

The phenomenon of school reintegration has little evidence in relation to the human and technical component in school reintegration processes, either locally (Mide-UC, 2016; UNESCO-UNICEF-Chilean Association of Municipalities, 2012), or internationally (CEPAL, 2010; Contreras et al, 2014; Sucre, 2016), which implies observing and analyzing pedagogical intervention practices in these contexts, in terms of how these dialogical-reflective relational dynamics between teachers and children and adolescents are developed, from the perspective of pedagogical interactions, an area of growing interest in educational sciences, which looks at more than the action itself, at how and what happens in the interaction. (Colomina et al, 2001)

This research from a qualitative, transactional approach, oriented from the perspective of descriptive studies (Hernández, et al, 2010) and enriched with the symbolic interactionism of Blumer (1969), whose contributions indicate that the nature of the teaching-learning processes can only be unraveled through direct examination, seeks to understand pedagogical intervention practices from the perspective of pedagogical interactions which are developed between teachers and their students, within the framework of the specialized protection programs in school reintegration implemented in Chile by the National Service for Minors of the Ministry of Justice and Human Rights, in vulnerable sectors of the communes of Talca, Region of Maule and La Pintana, Metropolitan Region.

The analysis through the theoretical and empirical contributions provided by the scientific evidence on pedagogical interactions, in terms of how they are configured, deployed and how these pedagogical intervention practices are perceived by the actors involved, added to the findings obtained, provides an opportunity to innovate by allowing the observation of school reintegration as a scenario of human relations and to deepen around this professional action as a critical element, constituting the improvement of teaching and effectiveness in school reintegration processes.

Keywords: School reintegration, educational interaction, learning, teacher, students.

REFLECTIVE OBSERVATIONS ON THE DESIGN AND STUDIO ART PROGRAMME AT A UNIVERSITY OF TECHNOLOGY

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Abstract

The Central University of Technology (CUT) in South Africa compels that all programmes without a Mathematics module to offer Numeracy to first-year students. Initially, the Department of Mathematical and Physical Sciences at CUT was requested to facilitate this module from 2014 within the first semester. However, Numeracy was offered in a general manner without considering the applicability to the Design and Studio Art programme. The aim of this study was to revise the current curriculum and modify it to be applicable to the Design and Studio Art programme. Thus, the objectives of this study were firstly, to identify the gap in the current curriculum, which related to mathematical concepts within the Numeracy module which seemed to be not applicable to this programme. Secondly, to identify the mathematical concepts within the Numeracy module that could possibly be applicable to this Programme and modify them, accordingly. These concepts were identified as geometry, ratios and proportions, scale drawings, grid system, units and conversions. The final objective of this study related to the teaching of these concepts into the programme. The purpose of this paper report on the reflective observations on the revision and

modification of the curriculum, more specifically on the application of these concepts in the Drawing module of the Design and Studio Art programme. A qualitative research approach was employed through reflective observations by the lecturer in the drawing lesson of 38 students who were enrolled on this programme. An analysis was further done on students' abilities to apply mathematical concepts in their drawing project and what they have learnt in the Numeracy module. Findings revealed students' abilities to apply mathematical concepts with ease- this after the lecturer explained the relations amongst these concepts to drawing. It appeared as though this intervention benefited mostly the students who were struggling with drawing. A key recommendation is that the application of the stated mathematical concepts be practiced in other modules within the Design and Studio Art programme at CUT.

Keywords: Mathematics, drawing, geometry, ratio and proportion.

THE IMPORTANCE OF REFLECTION-BASED STRATEGIES IN TRAINING PROFESSIONALS WORKING WITH MDVI CHILDREN

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Abstract
This paper focuses on the professional development regarding communication abilities of the teachers and therapists working with children with multiple disabilities and a visual impairment (MDVI). Since the development of communication abilities is a complex process, it must be approached from a continuous, systemic and structured perspective. MDVI children acquire and develop communication skills based on various factors which depend on their specific features and usually they need a large amount of time to learn how to employ different systems of communication so they can express a need or a desire and have an impact on other people or on the environment.

In this context, a team of 3 universities, 4 special schools for the blind and visual impaired, one NGO and one IT company have come together in an Erasmus+ European project called PrECIVIM (*Promoting Effective Communication for Individuals with a Vision Impairment and Multiple Disabilities*) to address the need of a professional training in communication abilities of the specialists working with MDVI children. As a result, a complex training program has been created, based on common experiences, reflective strategies, and different training components.

Method: We have focused on a group of 21 professionals working with MDVI children. They were the beneficiaries of a four-part training programme conducted by three experienced trainers on a time frame of 6 months. The programme was delivered in multiple ways, each of them with great reflective value: training manual (individual study), onsite group training, online group supervision and written individual reflective logs.

Results: The individual feedback of each participant has been processed and discussed revealing significant improvement in their intervention approach toward MDVI children, in their selection of communication methods or in their professional relationship with the MDVI child. The results of the training programme are presented in terms of the efficiency of the reflection-based strategies for the professional development of each participant.

Conclusion: The training programme applied to this group of professionals has emphasized the need of mentors and partners who offer constructive feedback and who implement reflective strategies in the intervention process regarding communication with MDVI children. In this sense, the reflective logs should be considered a great resource in the intervention and therapeutic process of MDVI children.

Keywords: Teacher training, MDVI, reflection-based strategies.

PROJECTS AND TRENDS

GAME-BASED TRAINING: AN EFFECTIVE METHOD FOR REDUCING BEHAVIORAL-FINANCE BIASES

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Abstract
Nowadays, being able to understand and infer reasonable conclusions based on great amounts of numerical information represents a key competence to succeed both in education and work. Numeracy is defined as the ability to understand, think, and reason using numbers and math concepts. Such a competence is key in the field of behavioral-finance where individuals manage numerical information to face important choices. Indeed, numeracy is fundamental to analyze data and to make predictions on the likelihood of future events. Moreover, research shows that individuals who score high on numeracy report higher ability in creating alternative options when it turns to make decisions. Building on the computer-supported collaborative learning and on the technology acceptance model, this study aimed to evaluate the efficacy of different interventions to reduce psychological biases related to numerical information processes in a group of university students (N = 800). Specifically, we devised two training interventions based on the two educational approaches, i.e., the computer-supported collaborative learning and on the technology acceptance model. Participants were randomly assigned to one of the two conditions, and -post measures were collected after the interventions to assess their numerical information processing ability. Moreover, post-training results were compared with the results of a control group. Results of a one-way ANOVA showed that in the control group reported the highest incidence of numeracy biases. Our preliminary findings support the main literature on the use of technological instruments and distant training as keys to develop cognitive and operational competences. Such results are limited since we were unable to collect -pre-measures of participants' numeracy biases. Overall, the present contribution provides initial insights into how different kind of technology-based trainings can be effective to reduce biases referred to numerical information processing.

Keywords: E-learning, distant training, cognitive biases, numeracy, decision-making.

DIGITALLY CHANGING TEACHING PRACTICE ENVIRONMENTS: AN EXPLORATION OF CONCEPTS AND IMPLICATIONS

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Abstract
This paper proposes using different concepts for guiding institutional practices in times of digitally changing professional teaching work environments. This paper draws upon our previous research and offers a first step of a framework, to understand and explore the new digital changes for professional teaching and learning practice, while engaging in online and virtual work and learning environments. Thereby focusing on the notion of a professional and the social implications of digital work technologies that are used for teaching and learning. The theoretical paper is structured around concepts we identified in our previous work and its potential of adopting them in the context of digital communities of professional practices. Addressing these objectives can hopefully help us to understand, what the effects of digital professional teaching work environments on teaching practice and for teacher's professional responsibility are, their social effects in everyday teacher work and their practice related knowledge? What capabilities, features or skills are enabling teachers to do so and what guidelines can help them to cope with the current changes? And ultimately, how workplaces, schools and universities can benefit from these ideas? We focus on both human social factors and digital material factors as being inherent to professional teaching and learning practice. We hereby build upon concepts derived from socio-cultural and socio-material theories which are currently not commonly used in the same context, such as: communities of practice which is popular in

socio-cultural learning theories whereby the understanding of human development relies on the social world; and extending the community of practice with materiality whereby human development also involves the material world. We contribute with this paper by suggesting that our framework, drawing on concepts of two different but related learning theories is useful for further research, such as on the institutional and individual response to digital change in teaching and learning practice. We believe that our theoretical informed conceptual approach enables to inform an increased professionality of teaching professionals in times of digital work change, activates thinking about different concepts, a change of mindset or at least provide the guidelines for an improved understanding among those involved in teaching practice.

Keywords: Education, communities of digital practice, professional practice, digital technologies, participatory learning practices.

DISTANCE EDUCATION AND LEARNING PROCESSES. A SURVEY AT UNIVERSITY OF CATANIA DURING THE COVID-19 PANDEMIC

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Abstract
The emergency situation caused by the COVID-19 pandemic required all Italian universities to implement alternative teaching strategies to traditional face-to-face lessons. At the University of Catania, this situation prompted the start of distance learning paths in a synchronous mode at the very beginning of the emergency. At the same time, the lecturers were encouraged to video-record the lessons in order to make them available to students also in asynchronous mode. On the basis of this emergency situation, an investigation was immediately launched to identify the consequences of the new teaching methods on student learning processes; the research began in the first phase of the lockdown in Italy (March 2020) and ended in January 2021.
The aim of this contribution is to present the results of the research conducted on a sample of 300 students following bachelor degree courses of the Department of Education at the University of Catania. The research aims to detect the students' points of view on the strengths and weaknesses of the synchronous and asynchronous ways of presenting lessons and their respective impact on learning processes. The results of the research could provide useful insights to rethink university teaching even when the emergency situation comes to an end.

Keywords: Learning processes, distance learning, synchronous and asynchronous teaching, higher education, COVID-19.

THE PLIGHT OF FIRST-YEAR TEACHERS IN PUBLIC PRIMARY SCHOOLS

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Abstract
First-year teachers are teachers who are new to teaching. The number of public school teachers is increasing in many countries and areas. Meanwhile, data also showed that some newly qualified teachers anticipated leaving or already left after the first year teaching. The purpose of the study aims to present a review and synthesize literature regarding the challenges of first-year teachers in public primary schools. Peer-reviewed articles (N=30) are collected from Google Scholar via systematically searching key words "first-year teachers" with one or more of the following terms: challenge, difficulty, attrition, leaving, and public primary schools. The results show first-year teachers meet general challenges listed as below: (a) building a professional teacher identity, (b) applying teaching theories in real class practice, and (c) handling the same heavy teaching loads and responsibilities as experienced teachers. In addition, first-year teachers in Shanghai public primary schools also meet the following challenges: (d) not having

enough pre-service teaching programs, (e) facing high competition and a workload, and (f) building positive and stable relationships with parents/administrators. Considering by new qualified teachers' internal motivation and the external challenge they meet, first-year teachers are overwhelmed in dealing with these imbalances.

Keywords: First-year teachers, challenges, public primary schools.

INSTRUCTIONAL DESIGN OF KNOWLEDGE NUGGETS

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Abstract
Throughout their careers, all students experience the same set of learning routines within the same time frame and following the same pedagogical approach based on identical materials. In contrast, Knowledge Nuggets provide students with different opportunities to achieve specific learning outcomes through self-directed learning activities. An individual student's skill inventory could improve the full individualization of the Knowledge Nugget delivery at the start of each class. Knowledge Nuggets are considered learning materials organized within small, defined topics. This granularity makes the content easier to consume at an individual pace. Depending on their scope and size, these Knowledge Nuggets can vary. The level does not indicate the amount of content or the shared knowledge's difficulty but how the learning is prepared and conveyed.
The simplest way (level 1) to share knowledge is only to provide text within a document. The next higher level 2 includes a slideshow explained in more detail by playing an audio podcast - so the combination of visual with audio should attend two senses in parallel. The slides contain images or diagrams in addition to keywords. Video tutorials are the most advanced ways to share knowledge. This type of tutoring allows instructors to visually illustrate content to minimize complexity by combining text, speech, images, and animation. With level 3 (video tutorials), it is possible to address more senses simultaneously.
However, all three levels offer the same characteristics: practicality, reproducibility, and manageable time. These characteristics are of great relevance to be accepted as training methods in any educational program. The progressive redistribution of dimensions occurs in elaboration, the use of technology, and the cognitive load. The paper aims to determine why the different levels are essential for the overall picture and how the measurement of learning success can be measured.

Keywords: Knowledge nuggets, knowledge sharing, cognitive load.

CHANGE MANAGEMENT: EXPERIENCES OF PRIVATE TVET COLLEGE EDUCATORS REGARDING VIRTUAL LEARNING DURING COVID-19

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Abstract
This study explored the experiences of private TVET college educators regarding virtual learning during the Covid-19 school lockdown. The Kanter theory of change is adopted as the theoretical base in this study. Data collection was done through face-to-face semi structured interviews and non-participant observation. Collected data was analyzed using content analysis. Findings reveal that though participants have positive attitude toward the process of change required in transitioning from traditional environment to virtual environment, majority of them did not receive substantive training on how to use technology to support virtual teaching. However, educators indicated that the change process comes with several challenges such as technical problems, ineffective communication from management, workload, inadequate training, lack of access to ICT tools and lack of other structural support within the college which impacts their effective implementation of virtual teaching. Thus, teachers should be adequately prepared, supported and

empowered to cope with the changes and transition processes involved to continue teaching in a virtual environment. More so, TVET college managers and policy makers should priorities change management programmes designed to prepare teachers for the inevitability of technological change in education.

IMPACT OF IDENTITY-ORIENTED LITERATURE EDUCATION ON ADOLESCENTS' INSIGHT INTO THE SELF AND THE OTHER

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Abstract
A mixed-methods quasi-experimental study evaluated the effects of a pedagogical intervention in literature education on Austrian upper secondary high school students' insight into the self and the other. The intervention is based on the newly developed NDR-model, the letters in the abbreviation representing the basic practices of narration, dialogue and response underlying the model. Two cycles of NDR interventions on the identity issues of "happiness" and "relations" were implemented.
An IPA study was conducted to explore how the implementation of the NDR-model of literature education affected participants' learning outcomes (self-understanding and understanding of the other). Qualitative analysis of interview and artefact data suggested that NDR students experienced insight into the self and the other because they were stimulated to engage with literary texts in the context of their personal identities.

"MIND THE GAP": THE TRANSFORMATIVE LEARNING PROCESS OF SECOND LANGUAGE PRACTITIONERS WHEN BECOMING SCHOLARS

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Abstract
This paper is about transformations from knowing to not-knowing and from doing to becoming. The paper's focus is an ongoing research project on a new Doctorate program in Modern Languages studies (DML) and the process that the students in this program undergo when transitioning from being practitioners to becoming novice scholars. This program is part of a conscious effort to create an academic field whereby scholarly and professional types of knowledge are organically co-produced and this interlaced knowledge is expected to fertilize practitioners' professional practices. The program's graduate students are mostly in their mid-career and are motivated to pursue their DML studies for multiple reasons. The necessity of developing a study plan that can foster their transition from practitioners to scholars and help them develop a researcher identity became evident early on. Students were expected to quickly re-adjust their self-image as future theorizers who could carry out independent research and produce original scholarship. While the challenges mentioned above are not unique to this specific doctorate program and are well documented in the extensive scholarship on doctorate students' education, fewer studies have addressed the particular challenges faculty and students face as part of the latter's transition from practitioners to graduate students and novice researchers. Therefore, we ask, what accounts for a successful process of supporting language teachers in becoming novice researchers? Our aim is twofold: first, to detail our pedagogical rationale, dilemmas we faced, and the solutions we carved out; and secondly, to contribute to a nascent discussion on doctorate students' training and academic socialization in applied disciplines. Using Mezirow's adult learning theory of Transformative Learning, we describe the challenge of designing a process of academic socialization that can support adult learners' development and shift in perceptions, skills, and actions. During the first four cohorts of the program, in an introductory course, "Research Foundations," we faced dilemmas regarding reading materials and teaching activities, and collected students' reflections and communications with us, the course professors. Accordingly, the paper explicitly emphasizes our efforts to

actively foster a culture of independent learning and a productive learning community by introducing new knowledge and skills. The paper can benefit instructors who design and lead graduate programs for practitioners in any field of practice.

UNIVERSITY STUDENTS' STRUGGLES WITH ONLINE LEARNING DURING THE COVID-19 PANDEMIC LOCKDOWN

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Abstract
As a result of the COVID-19 pandemic that affected most countries during the year 2020, the society had to adapt rapidly to new forms of working in which the Internet has been an essential tool. And so did the higher institutions around the world, which had to move from a face-to-face classroom environment to an online one. The change from traditional learning to online learning was so unexpected that neither the instructors nor the students may have been prepared for it and could have important consequences on students' learning and academic achievement. The purpose of this study was to explore how university students had to struggle with online learning during the COVID-19 pandemic lockdown attending to three aspects: (a) availability and use of electronic devices, (b) personal factors, and (c) teaching factors. A non-experimental study based on a survey design was conducted, in which a convenience sample of 496 undergraduate and graduate students from two different universities located in south eastern Spain participated. The majority of the participants (66.3%) had very little or no experience in online learning and 55% considered that their academic performance was being worse than in face-to-face classes. Findings showed that most of the students had the electronic devices required for online learning (e.g. laptops, earphones, webcams, smartphones), although they mainly used laptops and earphones. They did not have other devices at home such as desktop computers, printers and scanners. The personal factors that most affected their academic performance were family problems and/or responsibilities (46.6%), psychological or emotional problems (41.6%), an inappropriate study environment (41.2%), and a bad Internet connection (31.4%). With regard to teaching factors, students complained of excessive assignments (82.6%), lack of lesson explanations (78.6%), loss of concentration during synchronous classes (64.3%), having to learn through the computer screen (58.9%), and feeling of being abandoned (57.4%), among others. In sum, university students' struggles with online learning were more related to teaching factors than to personal and material factors. Therefore, higher education institutions and faculty should be prepared to respond to student's needs in different teaching scenarios, and more specifically in online environments, by adapting not only their teaching styles and resources but also the way they interact with students.

Keywords: *Online learning, higher education, academic performance, COVID-19.*

ESCAPE ROOM AS A MOTIVATING TOOL IN THE ENGLISH LITERATURE CLASSROOM AT TERTIARY EDUCATION

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Abstract
The escape room, also known as escape game, is a gamification tool that aims to promote increased motivation and improved teamwork (Wood & Reiners, 2012). Recently, escape rooms have achieved prominence in the classroom as pedagogical instruments valid for any type of discipline. In the educational field in particular, the escape room can be defined as an action game in real time where the players, in teams, solve a series of puzzles or problems and carry out tasks related to the curricular contents worked on throughout the course, in one or more rooms with a specific objective and at a specific time (Nicholson,

2015). To do this, learners must put into practice the knowledge acquired about a particular subject, as well as their creative and intellectual abilities, and deductive reasoning. Despite being a pedagogical tool that has emerged as an innovative element in the last five years or so, the use of escape rooms for teaching-learning the English language at different educational levels has been studied qualitatively and quantitatively (Dorado Escribano, 2019; López Secanell & Ortega Torres, 2020). However, there is no study on the applicability of the escape room in the English literature classroom at the tertiary educational level. This paper aims to demonstrate how the inclusion of this innovative pedagogical tool can serve not only for teaching the language, but also for working on theoretical-practical contents of subjects focused on literary studies of the Degree in English Studies. In order to achieve the proposed objectives, the study will focus on the identification of types of exercises to implement as part of the educational escape room aimed at a sample of students; the preparation of tests/ exercises based on the established objectives; the design of a pre- and a post- questionnaire based on the established objectives; the implementation of the escape room in the literature class and the evaluation of the impact of this educational tool to foster students' motivation.

Keywords: Escape room, new technologies, intrinsic motivation, English literature, higher education.

HIGHER EDUCATION TEACHERS' EXPERIENCE OF TEACHING SYNCHRONOUS SESSIONS IN THE CLASSROOM

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Abstract
Internationally, the connections between the use of learning spaces and effectiveness of teaching and learning in higher education is receiving increasing attention. Bullock (2007) suggests that institutions maintain a positive correlation between new (or renovated) spaces and student learning. The Hong Kong Polytechnic University, in recent years, has had a sustained commitment to rebuilding and revitalizing learning spaces to provide students with a caring and supportive learning environment and a culture in which to develop the desired knowledge, skills and attributes. Our project is funded by the University to advocate the use of blended learning, innovative and collaborative learning in the newly renovated classrooms. With the outbreak of COVID 19 pandemic, the delivery format in all education sectors is undergoing revolutionary changes. In many places, face-to-face teaching has been replaced by alternative modes of teaching. Physical learning spaces became under-utilised. Institutions had to come up with flexible ways to make use of classrooms on campus. Newly renovated classrooms, with updated equipment and facilities, have their unique benefits to offer. In the summer of 2020, PolyU began to encourage and support teachers to deliver synchronous sessions from classrooms on campus in order that the learning needs of different students could be taken care of. A case study was conducted with 6 teachers at PolyU, who shared their perceptions and experiences of conducting synchronous teaching in the summer semester (June-August 2020) or the first semester of the academic year (Sept-Dec 2021). Lincoln and Guba's (1985) case study structure was adopted: an explication of the problem, a thorough description of the context, saliences at the site (elements studied in depth) and outcomes of the inquiry (lessons learned). Teachers agreed that they preferred teaching in the classroom to teaching from other locations, e.g. office, home as it gives a stronger feeling of officially teaching a class of students rather than having a casual chat. They felt the obligation to effectively deliver their teaching. At the same time, they also felt more at ease with the technology, e.g. more stable Internet connection in the classrooms. Teachers in the study demonstrated a range of skills and techniques when coping with teaching synchronous sessions in classrooms, from getting it and doing it "seamlessly" to managing the basics with videoed sessions with occasional questions to the online students. The presentation will also discuss the support by the university to teachers, including a series of webinars, a working group formed to support teaching staff. It is anticipated that teachers in this study as well as in the wider community will be better equipped and more confident in doing hybrid teaching.

Keywords: Higher education, learning space, teaching and learning, newly renovated classrooms.

TEACHING IN DIGITAL SURROUNDINGS – STUDENTS OPINION ON DIGITAL TOOLS AND DIGITAL LECTURES

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Abstract
In today's world, education in higher education institutions needs to use digital technologies to reach students without them being in the same room as the teacher. The "classical lecture", with a teacher talking and writing on a blackboard interacting with students, has been in many ways exchanged with different digital or hybrid solutions. On one hand, it allows teachers to challenge their practices and try new ways of engaging students to learn, but on the other hand, it can be challenging to master different digital solutions in a way that ensures a clear message for the students.
When the whole world went into lockdown, the education at all levels needed to emergency transform learning in classrooms to learning through digital platforms. New structures had to be made, new routines, and new approaches. For some subjects it was not enough to move from sitting in a lecture room to sitting in front of a computer, it was necessary to develop solutions for presenting different programs or motivating students to be active, even if they were without a camera or microphone. Some teachers needed a blackboard to write and draw on while they talk, others needed to change between different programs to show different representations or purposes. In some cases, the digital lectures were synchronous, with teachers and students meeting at the same time to discuss a topic both in small and big groups, other times the digital lectures were asynchronous to give the students more time to prepare themselves and to activate their learning by giving them a responsibility to study individually (self-study).
After few months of trying different solutions, the teachers from Western Norway University of Applied Sciences (HVL) and Volda University College (HVO) have investigated the student's views on the different solutions they have experienced. The students were asked to answer an anonymous questionnaire of their opinion, views, and experiences with different digital solutions. The results were categorized and analyzed to select some tools or approaches that most of the students found either better or worse for their learning.

Keywords: Digital learning, integrated learning, students views on digital tools.

STUDENTS EXPERIENCES ON THE USE OF GOOGLE CLASSROOM: CASE STUDY OF A UNIVERSITY IN RWANDA

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Abstract
Google is a popular Web 2.0 tools with many interesting facilities and applications. Like many other Web 2.0 tools, Google classroom has potential for teaching and learning due to its unique built-in functions that offer pedagogical, social and technological affordances. With this in mind, Google classroom as an open-source learning platform created in 2015 to simplify and enhance user collaboration, was considered a prominent technology tool used to enhance teaching and learning at a particular University in Rwanda. This study adopts a quantitative descriptive design to investigate university students' Google classroom experiences in Rwanda after participating in an online STEM education course. Data were collected using questionnaires sent to students via a Google form link. The collected data were analyzed using frequency and descriptive analysis. The study has generally confirmed that students have a positive cognitive, affective, and behavioural attitude towards Google classroom use. The study also revealed immediate feedback, accessibility, user-friendliness, collaboration, effective and efficient communication as positive experiences recognized by students using Google classroom in their online STEM education course. Nevertheless, students faced problems such as poor internet connection, lack of technology to access the classroom, insufficient time to submit tasks, lecturers inadequate and untimely response to students'

questions, isolated learning, poor knowledge about the user interface, inadequate skills on how to use the classroom. To further encourage the use of google classroom particularly as a learning management system in Rwandan universities and other universities across Africa, findings from this study recommends that education institutions provide students and lecturers with adequate training and platform on how to use the google classroom interface, improve ICT infrastructures, lecturers' use of video chat or asynchronous mode to provide adequate and timely feedback to students within stipulated virtual office hours, ensure quality course content.

Keywords: Google classroom, online learning, Rwandan university, STEM course, students experiences.

TEACHERS` ATTITUDES IN APPLICATION OF TECHNOLOGY AND EFFECTIVE TEACHING PLANNING IN PRIMARY SCHOOL

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Abstract
The planning of teaching with technological tools in Kosovo schools has brought new and challenging experiences for teachers at all levels of education. The purpose of the research is to analyze the attitudes of teachers about the application of technology in effective planning of teaching and raising learning outcomes in primary school. Furthermore, the research determines the impact of age and level of teacher's education on the application of technology according to curriculum areas.
The TPACK model was used as the theoretical framework during the research, which helped us to clarify the notions: technological knowledge, pedagogical knowledge, and teaching contents in the effective planning of teaching by applying technology.
The data were collected from a questionnaire with 25 teachers in an elementary school where technology finds higher applicability in teaching. To analyze the learning outcomes during the application of technology and applicability in other subjects, the Post Hock test, and the Correlation was used to measure the relationship between the two variables, respectively the correlation between the age and the level of education of teachers.
The results of this research show that learning planning through technology affects the increase of focus and gain a higher understanding in each subject, acquiring knowledge of new concepts, raises the desire to learn independently, makes the learning process more innovative and more attractive to students.
The research recommends for the local and central level to give priority to equipping primary schools with technological tools to improve teaching by having the opportunity to plan different practices.

Keywords: Technology, teachers, lesson planning, curriculum, elementary school.

IDENTIFICATION OF FACTORS AFFECTING ELEMENTARY TEACHERS' ATTITUDES TOWARDS INCLUSION IN KOSOVO: THE ROLE OF DEMOGRAPHIC VARIABLES

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Abstract
Inclusion is at the center of interest of international institutions and associations and is considered as one of the main challenges facing education systems worldwide. According to different studies for the implementation of inclusive practices, positive attitudes of teachers are essential in the successful implementation of this change in education. The aim of this paper was to research the elementary teachers' attitudes towards inclusive education and to identify factors that influence their attitudes, such as: gender, age, training for inclusive education, level of education, educational experience, and experience with children with special needs. The methodology of the study is quantitative method. The population of this study include teachers of elementary level of education in the Kosovo and the sample include 300

respondents, who were surveyed with the Teachers' Attitudes towards Inclusion Scale (TAIS). The research findings have shown that the attitudes of primary school teachers towards inclusive education are below the neutral middle point. The findings have confirmed that the demographic variables have a moderate impact on teachers' attitudes, too. A slightly higher impact is noticed while they have been part of trainings and their experience on working with students, who are considered with special needs has also helped in raising awareness.

Keywords: Students with special needs, inclusive education, teacher attitudes, demographic variables.

VERIFICATION OF AFFORDANCE EFFECT OF HMI IN THE VR ENVIRONMENT

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Abstract

There are always big issues to use new technology. The users need to know how to use it, and what will happen if they don't use it properly because of lack of knowledge. Level 3 and 4 automated vehicles will be on the road shortly in Japan. Drivers and pedestrians need to deal with new types of cars to keep themselves safe. It is thought that there are individual differences in the perception of affordances when encountering self-driving cars. In this research, the environment of encounter with an automated vehicle were developed in VR that verified the difference in affordance perceptions depending on individual attributes. As a result, it was suggested that a metaphorical HMI of automated vehicle may promote proactive behavior.

Keywords: Automated vehicle, affordance, VR environment, person centered approach.

A LIFE-HISTORY CASE STUDY ON SELF-RELIANCE EXPERIENCE OF DIVORCED MIGRANT WOMEN

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Abstract

This study aims to examine the life history of migrant women who have experienced divorce in a socio-cultural context. Five people participated in the study, and they have been living in self-reliance support facilities since their divorce. They were selected from interviews on the life history of 80 married migrant women, which were funded by the Korea Research Foundation from 2017 to 2019. The method of research is a life-historical case study. The results of the study are as follow; first, their marriage was to escape gender hierarchy and poverty in their home country. Therefore, it was confirmed that marriage migration took place within the transnational trend of feminization of migration. Second, self-reliance support facilities provide strong social support for divorced migrant women. As a result, it works as an important space that allows them to escape from voluntary self-exclusion and explore new subjectivity. Suggestions of the implications are as follow; the social support from self-reliance support facilities after divorce is a driving factor that is the subjective and active effort of single-parent migrant women. Discussions should continue that those who are free from the spouses of the people can live as practical and public citizens of Korean society.

Keywords: Divorced migrant women, self- reliance experience, self-reliance support facility, life-history case study.

DIGITAL STORYTELLING AND LIFELONG LEARNING EDUCATION IN INFORMAL CONTEXTS: THE MEMEX PROJECT

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Abstract
This contribution intends to present the design, methodology and first results of MEMEX, a 3-year project (2019-2022) funded by the European programme Horizon2020, aimed at promoting social cohesion through collaborative, heritage-related tools that provide inclusive access to tangible and intangible cultural heritage (CH) and, at the same time, facilitates encounters, discussions and interactions between communities at risk of social exclusion. Cultural participation is conceived as a way to engage communities in lifelong learning processes taking place in informal contexts, aiming at promoting social inclusion and cohesion. To achieve these goals, MEMEX uses innovative ICT tools that provide a new paradigm for interaction with heritage through Digital Storytelling (DS), weaving heritage-related memories and experiences of the participating communities with the physical places/objects that surround them. The project encompasses the ICT tools and the use of DS in the framework of Audience Development (AD), defined as a strategic and dynamic process enabling cultural organisations to place audiences at the centre of their action. The use of DS applied to CH is highly related to lifelong learning processes, since it provides knowledge, understanding, awareness, engagement and interest, enjoyment and creativity. The evaluation of a number of DS produced by migrant women participating in a MEMEX pilot project in Barcelona confirms the validity and soundness of the methodology and the power of DS to engage in cultural experiences.

Keywords: Socio-cultural inclusion, participation, digital storytelling, cultural heritage, pilot project.

AN EXPLORATORY STUDY ON THE RESEARCH TENDENCY OF SCHOOL COUNSELORS IN SOUTH KOREA

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Abstract
This study aimed to examine a research tendency through Master's and Doctoral dissertation in South Korea related to school counselors. In this study, school counselors were used in terms that included full-time and contractual counselors. School counselors are teachers who specialize in understanding students' daily psychological counseling, problem behavior and maladaptive counseling and establishing a prevention support system of fundamental reason of problem behavior for students. This is because their tasks required in school are similar. They were deployed to unit schools after Wee Project implemented in 2007 to ensure that students and all students experiencing poor learning and school maladaptation for having a happy school life. This study aimed to lay the foundation for improving and developing policies for improving the welfare and professionalism of school counselors, focusing on the subject of the degree thesis related to school counselors. This study conducted an exploratory study based on the year of publication and topics of the dissertation based on key words extracted from the data. The dissertations were published from 2010 to 2021 and were collected through Riss, a domestic database website in South Korea. This study focused on the frequency of emergence and Word Cloud which shows research tendency based on the year of publication analyzed by the frequency of emergency, title of the dissertation, and key words in abstract of the dissertation extracted from a file in MS Excel from the domestic database homepage. The analysis results of this study are as follows. First, the role and awareness of professional counseling teachers and Wee classes are required. Second, research was conducted to develop the capabilities of school counselors teachers working in the Wee class.it will serve as a foundation for improving professionalism, leading to the protection of ethics as a counselor working in the Wee class and ensuring the rights and welfare of counselors. In order to improve counseling capabilities, supervision and a certain amount of counseling practice are required in the process of training school counselors.

Keywords: Dissertation, exploratory study, school counselor, teacher.

THE IMPACT OF ONLINE ACTIVITIES ON STUDENTS' HEALTH AND THE IMPORTANCE OF TIME MANAGEMENT

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Abstract
The aim of this study is to highlight the importance of time management during online activities for students. At the beginning of the pandemic period, on March the 2020, after the first online activity, a pilot study was conducted to identify the students' perception about online activities, the time they should spend online during the day, the time students spend on different devices (computer, tablet or mobile phone) and the difficulties they have during the first online activities. A number of 106 students (44 boys and 62 girls) in 5th grade, from a middle school located in an urban area, in Romania, participated in this study. The results demonstrate that most of the students (33) representing 31.1% spend 1-2 hours/day online but there are 6 students (5.6%) who spend more than 6 hours/day online. Most of the students (56.6%) consider they should have 3 online activities/day and the duration of these activities should be 40 - 50 minutes. Strategies to promote students' wellbeing during online activities are also presented focusing on identifying the best way to use the time spend online in order to reach the necessary curricular objectives and to avoid health problems. The conclusions highlight the importance of finding the best time management strategies for online activities to avoid future health problems for students, especially in the situation in which at the global level the pandemic period is not even closed to the end point. As screen time is a controversial factor, with high implication for health and education, data are important for sustainability of educational system and future decisions.

Keywords: Time management, online activities, students' wellbeing, IT devices, screen time.

USE OF SOCIAL NETWORKS FOR THE TRAINING OF FUTURE TEACHERS IN EARLY CHILDHOOD EDUCATION

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Abstract
Currently, social networks have a great potential in the educational field, being useful to promote motivation, the active role of students, communication or flexibility in time and space, among others. In this line, this paper shows an experience of educational innovation in higher education mediated by the use of social networks. Specifically, the social network Instagram was used with students in the second year of the Early Childhood Education Degree at the University of Jaen. The objective of this study was to analyze the impact of the use of social networks on aspects related to the quality of the educational process, such as motivation, creativity, communication or monitoring. In order to respond to the proposed objective, a quantitative methodology was used, with a descriptive method and a survey design. The data collection instrument was a student questionnaire through which the impact of the use of the social network Instagram in the teaching-learning process was evaluated. The results point to a positive effect of the use of social networks on the variables under study. It should be noted how the use of this social network has influenced the motivation towards their learning and the communication processes that were developed with all those involved.

Keywords: Social networks, Instagram, teachers training, early childhood education, higher education.

PARTICIPATION TO EMPOWER CHILDREN AND STRENGTHEN THE COMMUNITY

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Abstract

In a pandemic, children's participation is even more important than before. This paper presents the first stage of an exploratory study for my PhD research in Pedagogy beginning in January 2021 in Milan.
The participants are 19 pupils of class 4B (primary school), their parents and the teachers who joined energies to reproject a square, in order to transform it into a welcoming space for the entire community. In Italy, public speeches did not mention children who could not finally use public spaces for months as they were identified as the "plague spreaders".
The project revisits this perspective by considering children as potential actors of the transformation. Only if adults set the conditions for a change, children, their needs and their imagination could become agents for that change and centre of the community. The project name is *Piazziamoci* (*Let's place ourselves here*) to signify the conscious act of taking a place together.
After a theoretical framework of the study within *Student Voice*, I describe the generative circumstances, the context and the first steps of the project. The children explored the square, interviewed the inhabitants, shared information and dreams with their classmates coming up with proposals to present to City Council. This first phase aimed to set the basis of my investigation on the participants self-awareness as people and members of the community; it also focuses on the perception of the square as a common good. To this purpose, this work introduces concepts as the capacity to aspire (Appadurai, 2004), imagination and creativity (Vygotsky, 1930/2004), interdependence (Butler, 2020), and, therefore, a political and educational interpretation of the project.

> *Imagine a city where there is no desire. A city without desire is a city of no imagination.*
> *Here people think only what they already know.*
> *Anne Carson, Eros the bittersweet (Normal, IL, Dalkey Archive Press, 1988, p.168).*

Keywords: *Participation, imagination, community, empowerment, common good.*

DESIGN THINKING IN FUTURE TEACHERS TRAINING

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Abstract

Innovation in education entails not only the incorporation of technological tools and applications, but also the implementation of methodologies that could break the inertia and incorporate processes of Divergent Thinking. Future teachers must be creative professionals capable of developing professional activities to improve and not only to replicate the social experience in order to create new learning experiences.
 In this way, the main aim of our work was to explore how the use of Design Thinking Methodology improves learning processes in a group of 75 college students of the Primary Education Degree. This group of students, divided into 21 smaller working groups, created different educational videos and multimedia design projects through Design Thinking methodology. They were also encouraged to use Social Networks (specifically Instagram) to present and publicize the progress they were making on their work, in order to obtain feedback from their classmates. All the projects developed were related to three thematic areas: Art for everyone; Attention to diversity and Making great neighborhoods. At the end of the creation process, we analysed the students' perception of how the design thinking methodology helps them through their learning process. Based on an *ad hoc* questionnaire, the impact of the use of Design Thinking in the learning process and its influence on variables such as motivation, communication, creativity, among others, was studied. The results show that the use of this methodology had a positive impact on practically all the variables, facilitating and optimizing the learning process of future teachers.

Keywords: Design thinking, innovation, teachers training, creativity.

THE IMPACT OF COVID-19 ON THE SCHOOL WORLD

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Abstract
The COVID-19 pandemic is firstly a health crisis, but also a huge shock for the educational world (from primary school to university). The impact of COVID-19 on the school world has been very strong. Education has been hit hard with schools closing down internationally and students forced to stay home. The global lockdown of schools has caused a severe and probably unparalleled disruption in student learning. In this scenario, teaching has moved online, the school world has suddenly been forced to move towards the dimension of **distance learning**, in Italian DAD. A new acronym, DAD, which is used to identify a type of training and teaching that is implemented, precisely, remotely or where there is no sharing of a space and a physical interaction between teacher and students, but everything is mediated by the use of technological means and the internet.
The article aims to describe to a teacher audience, the most important steps in online/distance learning, DAD, adopted during pandemic in Italian school system, with its implications for teachers and students. After a brief overview of the main theoretical frameworks, we will try to describe the current state, in our country, of this methodology, its characteristics, its objectives and the roles of the actors involved. This article is an exploratory case study that involved the use of an observational research technique. It sought, through "living the situation in first person", to critically consider the advantages and disadvantages of this new didactic approach, of this different way of studying/teaching and the future prospects in restarting lessons in a Covid world.

Keywords: Distance learning, face-to-face learning, pandemic, digital technologies, COVID-19.

MASSIVE OPEN ONLINE COURSES CAMPS: BEFORE AND DURING THE PANDEMIC

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Abstract

MOOC Camps have been used as a successful blended alternative to more traditional MOOCs (totally online). A "camp" here means "an informal gathering of learners working together to discuss new ideas and concepts" (Sowell, 2019). MOOC Camps combine the positive aspects of MOOCs, such as high-quality of professional development and low cost for participants with the advantages of using the "camps", such as adaptation to the local context and a simpler way of promoting interaction among participants, who consequently feel highly motivated to complete the online course (Cardoso, 2020).
The aim of this presentation is to consider the effects of the physical distance imposed by the COVID-19 pandemic in the MOOC Camps been offered by an extension and research project developed at a public university in Rio de Janeiro, Brazil (CEALD/UERJ) in partnership with the American Government (RELO-Brazil) since 2019. The main objectives of these MOOC camps are: (a) to promote language and methodology development; and (b) to build stronger communities of teachers and teachers-to-be, by giving them the opportunity of sharing their experiences. However, in 2020, due to the pandemic, the camp had to be adapted to a remote mode, using a web-conference platform. Therefore, this action-research study compares and contrasts the MOOC Camp participants' feedback given before the pandemic with their responses to the activities developed during the pandemic. In this way, the idea is to understand how the adaptations we were forced to make have influenced the development of the camps and possibly affected participants' interest.

The discussion considers some of the advantages and drawbacks of adopting the remote mode for the camps, and a better understanding of some theoretical concepts, such as: blended learning (Gruba et al., 2016); blended MOOCs (Albó et al., 2015; Orsini-Jones, 2018, 2019), online interaction (Silva, 2014), and education in the pandemic context (Liberali, 2020).

Keywords: MOOC camps, pandemic context, online interaction, blended learning, remote teaching.

STORYTELLING AND DIGITAL ART AS A MEANS TO IMPROVE MULTILINGUAL SKILLS

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Abstract
The use of storytelling and digital art as tools to understand a migrant family's life path will be in the center of an innovative methodology that will ensure the acquisition of multilingual skills and the development of plurilingual awareness, reinforcing the various dimensions of language (aesthetic and emotional, in addition to cognitive), in a creative, collaborative and interdisciplinary work environment. This is especially important among students who are not likely to receive further language training.
It is not yet clear how teachers can explore multilingual experiences of learners, both in terms of language learning dimensions but also related with the multiple cognitive connections and representations, as well as to the awareness of language diversity.
The JASM (*Janela aberta sobre o mundo: línguas estrangeiras, criatividade multimodal e inovação pedagógica no ensino superior*) project involves a group of students of the 1st cycle in Media Studies, from the School of Education of Viseu, who will work using photography, digital art and cultural communication, collecting information pertaining to diversified cultural and linguistic contexts of the city of Viseu (Beira Alta, Portugal), both in French and English, centered on a tradition or ritual of a migrant family.
Based on an interview, students write the story (in French and English) of the life of migrants and use photography to highlight the most relevant aspect of the migrant's family life. Using as a starting point an object associated with religion, tradition or a ritual, students create an animated film, in both languages. This approach will allow the exploration of culture and digital scenography, integrating in an innovative interdisciplinary pathway, digital art, multilingual skills and multicultural awareness. Students' learning progress and teacher roles are assessed during this process, using tests from the beginning to the end of the project.

Keywords: Pedagogical innovation, higher education, project-based learning, foreign languages and cultural diversity, multilingual and multimodal artistic creativity.

USING AI CHATBOT TO ENHANCE MILITARY TRAININGS IN ROC ARMED FORCES

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Abstract
Due to gradual military trainer downsizing, one-on-one training is unlikely an option, and personnel familiarization with procedures is difficult to confirm. In view of the fact that the US military has introduced chatbot (Auto Tutor) as digital training material, in order to enhance training effectiveness and avoid damages. Therefore, in order to ensure that the personnel is familiar with the maintenance procedures of

important weapons and equipment, it is necessary to build an AI chatbot to simulate personalize learning and improve the effectiveness of maintenance training for avoiding equipment damage caused by errors in maintenance procedures. This research uses LINE to develop an AI chatbot and uses aircraft engine maintenance procedures as teaching materials. Selected 40 people and divided them into two groups of experiments. The chatbot was applied for the experimental group and traditional instructor teaching for the control group. The pre-test/post-test scores of the personnel were analyzed. From paired t-test, the difference in average scores between pretest and posttest were 46.5 and 23.5 for the experimental group and the traditional instructor teaching, respectively. The two groups showed a statistically significant improvement in their learning performance. The results of ANCOVA showed a significant difference between the two groups. The adjusted mean of the experimental group was 25.98 higher than it of the control group.

Keywords: Military, aircraft, fighter jet, training, chatbot, AI.

4TH IR – IMPLICATIONS FOR HIGHER EDUCATION BY LOOKING AT THE USE OF MOBILE TEACHING DEVICES

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Abstract
Students and lecturers use mobile devices more and more and within a few years they will become indispensable tools in the classroom. Recent research clearly indicates that mobile devices such as smartphones, laptops and tablets are the tools of choice for students, scholars, teachers and lecturers. It will play a major role in teaching and learning, especially in higher education as the 4th IR, the development of artificial intelligence and new ways of communication need to take their place in the classroom. The integration of these new technologies into the teaching and learning experience in the classroom will be dependent on effective pedagogical implementation and planning to be successful. Taking this into account, this paper explores the effect that mobile devices have in the classroom on the teaching and learning experience of the student. The advantages of the implementation of mobile devices must be weighed against the negative influence they may have. All of the participants in the study reported that they have access to and use mobile devices to access the internet to source information.

Keywords: Mobile technology, 4th IT, 4th industrial revolution, higher education.

ANALYZING CPS BEHAVIOR TRANSFER PATTERN OF STUDENTS ON TECHNOLOGY ENHANCED SELF-REGULATED LEARNING CLASS

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Abstract
In self-regulated learning (SRL) integrated with co-regulated learning and socially shared regulation, there are four sessions self-learning session, co-learning session, mutual learning session, and teacher directed learning (Ho, 2014). However, in the mathematical lesson, students often lose their discussion in co-learning and mutual learning sessions. In this study, the collaborative problem solving (CPS) framework shown in Table 1 (OECD, 2017; Li & Liu, 2017; Kuo et al., 2020) was applied to co-learning and mutual learning sessions. Students have to write down their math problem-solving process on a personal worksheet on Google Jamboard (GJ) before the discussion first. Then they post their personal worksheet on a group worksheet on GJ for sharing their understanding. Moreover, they can learn and discuss each other based on the personal worksheets to obtain a group consensus. 7 students participated in technology-enhanced SRL math classes and were divided into two groups. The co-learning and mutual learning sessions were recorded by video and audio. This study encoded students' CPS behavior patterns based on the CPS framework. In addition, the latent sequential analysis (LSA; Bakeman & Quera, 2011) was applied to analyze the CPS behavior transfer patterns of groups and students. One group showed high CPS skills and students could

discuss by themselves to meet a consensus (see Figure 1 (a)). However, the other group showed that teachers often needed to interrupt the discussion (B1→T and B2→T) and instructed them to have a deeper and more accurate discussion (T→A1) shown in Figure 1 (b). Note that the code T means the instruction by the teacher. Furthermore, comparing students' CPS behaviors after a semester, students learned how to collaborate with others and really enhanced their CPS skills.

Keywords: *Self-regulated learning, collaborative problem solving, latent sequential analysis, behavior transfer pattern.*

Table 1. Collaborative problem-solving framework.

CPS skills		Collaboration skills		
		(1) Establishing and maintaining shared understanding	(2) Taking appropriate action to solve the problem	m (3) Establishing and maintaining team organisation
Problem-solving skills	(A) Exploring and understanding	(A1) Discovering perspectives and abilities of team members	(A2) Discovering the type of collaborative interaction to solve the problem, along with goals	(A3) Understanding roles to solve the problem
	(B) Representing and formulating	(B1) Building a shared representation and negotiating the meaning of the problem (common ground)	(B2) Identifying and describing tasks to be completed	(B3) Describe roles and team organisation (communication protocol/rules of engagement)
	(C) Planning and executing	(C1) Communicating with team members about the actions to be/being performed	(C2) Enacting plans	(C3) Following rules of engagement, (e.g. prompting other team members to perform their tasks)
	(D) Monitoring and reflecting	(D1) Monitoring and repairing the shared understanding	(D2) Monitoring results of actions and evaluating success in solving the problem	(D3) Monitoring, providing feedback and adapting the team organisation and roles

Note. From PISA 2015 collaborative problem solving framework (p. 12), by OECD, 2017.

Figure 1. Transfer patters of two groups.
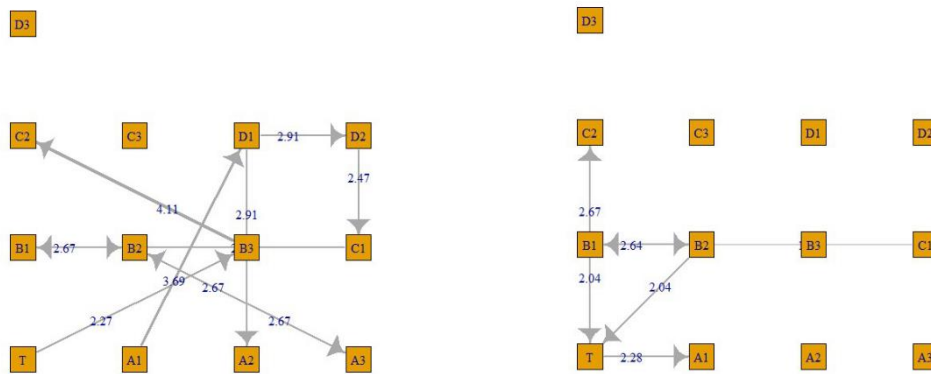
(a)   High collaborative group   (b)   The group that needs more teacher's instruction

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REFLECTIONS ON OFFERS AND USE OF DIGITAL MEDIA FOR TRANSFERRING KNOWLEDGE IN TEACHER EDUCATION

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Abstract
Digital processing, augmented reality and virtualisation have been developed and tested in the gaming world and working environment for some time. In educational settings, media should become learning objects that arouse the interest of learners, establish a connection to their previous knowledge, and enable interactive action and self-control (cf. Göhlich & Zirfas, 2007; Sesink, 2008). In parallel with technological developments, the question of imparting knowledge methods as well as increasing learners' knowledge is consistently subject of debates on competence in higher education didactics (see Erhardt, 2010). In terms of knowledge theory, the question arises to which extent knowledge changes as a result of media processing and, not least, how students' knowledge assets build up, transfers and influence each other (see Stadler-Altmann & Keiner, 2010).
In the first decade of the millennium, numerous activities introduced in higher education had been carried out related to media-based knowledge transfer and information acquisition in the context of curricular offerings, pilot events or third party financed projects with non-university cooperation partners (Iske & Meder, 2010; Gördel at al., 2018; Hofhues, Jochuma & Kohrs, 2013; Reinmann, Ebner & Schön, 2013). In this paper, concepts of media-supported teaching and learning environments in the context of the training of pedagogical professionals in South Tyrol are depicted. Didactic designs for lectures and seminars are presented and critically reflected. These two teaching formats are mainly intended for the one-level master's degree in Primary Education at the Free University of Bozen-Bolzano. The design research approach chosen for this purpose does not diminish input-output comparisons, but rather raises the question of which media-pedagogical innovations and didactic interventions can improve the existing teaching-learning situation (Fishman et al., 2013). First, the pedagogical fields of action are analysed by considering both the specific context of the given structure at university and the existing teaching-learning settings. Consequently, impulses for a didactic re-framing in the context of the methodological dimensions of control and teaching style will be discussed in the light of the current state of research.

Keywords: Digital added value, transfer of knowledge, active learning, university didactic, design research approach.

DISTRIBUTED INTERCULTURAL PROJECT-BASED LEARNING
- A NOVEL APPROACH -
EXPERIENCES FROM A QUADRILATERAL INTERDISCIPLINARY COLLABORATION

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Abstract
This paper describes a new concept and experiences of a distributed interdisciplinary learning programme for students across continents. The aim is to provide students with a truly Global Intercultural Project Experience (GIPE) by working together with peers from around the world, and solving real-life client's problems. We have received seed-funding for four annual projects to engage students from Germany (Europe), Namibia (Africa), Indonesia (Asia), and Peru (Latin-America). In 2020, 30 students from four continents engaged in a one-semester distributed software development project for a Namibian client. Despite Covid-19 they successfully completed the project expressing deep appreciation for the learning opportunities overcoming challenges of working across wide-spread time zones, cultures, changing requirements, and various technical challenges. Considering the vast learning benefits, we suggest to incorporate such projects in all tertiary education curricula across the globe.

Keywords: Project-based learning, COIL, distributed software development, intercultural collaboration.

THE EFFECT OF A ONE-ON-ONE DIALOGUE-BASED MATHEMATICAL INTELLIGENT TUTORING SYSTEM FOR LEARNING EQUIVALENT FRACTION

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Abstract
The purposes of this study are to develop a one-on-one dialogue-based mathematical intelligent tutoring system (ITS) for learning equivalent fraction in the 4th grade math, and evaluate its learning effect. The system used the course content and dialogue script designed by the math teaching experts in advance, and a computer agent teacher asked questions based on the course script. After the student answered, the system was able to identify the error pattern and misconception according to the student's response, then provided each student with adaptive teaching guidance or feedback. Students could construct correct equivalent fraction concepts through a series of interactive dialogues between students and the computer agent teacher step by step. In order to evaluate the effectiveness of this ITS, a quasi-experiment design was conducted. The pretest and post-test were parallel tests involving equivalent fraction. The participants of the study were 76 students in the fourth grade of two elementary schools chosen from midland of Taiwan. They were divided into the experimental group of 39 and the control group of 37. The experimental group used the "one-on-one dialogue-based mathematical intelligent tutoring system" for teaching. The control group used traditional classroom instruction by a human teacher. The learning content and time were controlled to be the same. Finally, the learning effectiveness and learning interest were assessed by comparing the pre-test and post-test performance of students. The results of the study showed that both teaching methods can significantly improve the students' learning achievements of equivalent fraction, and the learning effectiveness of "one-on-one dialogue-based mathematical intelligent tutoring system" was significantly better than that of traditional classroom instruction. In the "one-on-one dialogue-based mathematical intelligent tutoring system" group, the learning improvement of students with different genders and different ability levels were also reaching a significant level. It indicated that this system benefited the learning achievements of students with different genders and different abilities. Furthermore, from the response data of the learning interest questionnaire, both teaching methods could significantly improve the learning interest of students. But there was no significant difference between the two teaching methods. By interviewing students, the probable causes included that low learning interest students of the experimental group also lack interest to familiar system operation, and some students think this ITS is not interesting enough because of lacking learning games.

Keywords: One-on-one, dialogue-based mathematical intelligent tutoring system, basic concepts of fraction, learning effect.

THE GOOD, THE BAD AND THE FUTURE – THE CHALLENGES, POSITIVES AND FUTURE STRATEGIES FOR HIGHER EDUCATION BLENDED TEACHING

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Abstract
There have been many changes that have taken place in all levels of education since the Covid-19 pandemic, including at Higher Education (HE). While the swift pivot to blended teaching has been challenging and not welcomed by all, there are some positives have come about because of it and it would be good to be able to hold on to these. The challenges include moving learning materials (written, video and audio) online, engaging with students in a constructive manner and how to do assessments that are academically rigorous and have academic integrity. It is difficult for those who are used to teaching in a face-to-face environment to suddenly switch over to developing online resources and know who do this effectively and efficiently. Interacting with students online requires a different skill set than in a face-to-face environment and educators should not be expected to acquire these skills automatically. Closed-book, invigilated exams are the norm in HE institutions and ensure a level of academic integrity that has worked well for many years. It is difficult to switch from this scenario to an open-book, non-invigilated exam. It means that questions have to be re-thought to explore the students' understanding in an academic rigorous manner. Ideally, it would be good to be able to address these challenges as they mean a less positive experience for both educators and students.

The positive aspects include a more flexible approach to teaching and learning, facilitation of different modes of learning and in some cases, more interesting and authentic assessments. A more flexible approach enables students to learn at a time and place that suits them and is in keeping with the needs of the more diverse population that makes up student body in HE today. While there is a debate around learning styles, providing learning materials in a variety of formats is beneficial for all students. While it is definitely more difficult to develop open-book assessments, it is also an opportunity to do more real-world, authentic assessments that assess students' higher order skills. This moves assessment further along the Bloom's taxonomy.

This paper looks at the challenges and positives outcomes of the move to blended teaching and learning and how the challenges can be addressed, the positive aspects maintained and how a sustainable approach can be adopted to ensure that future changes to teaching are less challenging and more positive.

Keywords: Blended learning, online learning, teaching and learning, authentic assessment, future sustainability.

ASSESSING THE ACADEMIC WRITING SKILLS OF FINAL YEAR ENGLISH SECOND LANGUAGE (ESL) EDUCATIONS STUDENTS TO DETERMINE THEIR PREPAREDNESS AS LANGUAGE TEACHERS: A PRACTICAL APPROACH AT A UNIVERSITY OF TECHNOLOGY

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Abstract
The schooling system plays a significant role in teaching basic literacy skills such as reading and writing, yet students from al schooling backgrounds find it challenging to uphold an acceptable standard of academic writing in higher education in comparison with their advantaged peers. The fact that universities have adopted English as the medium for teaching and learning purposes makes it difficult for students to demonstrate the ability to write in their own words, as they are second or third language speakers. Student success at institutions of higher learning depends largely on the adequate mastery of reading and writing skills required by the discipline. The article assesses the academic writing skills of final year education students completing their studies at a University of Technology in South Africa. This study was necessitated by the realisation that students at both undergraduate and post-graduate level are struggling to express themselves through writing in the academic language which is critical for them to succeed at university. The article draws on a writing process skills questionnaire administered to fourth year students and English lecturers in the Department of Education and Communication Sciences. General academic writing conventions such as organisation, development, building an argument, grammar, and spelling were examined through an academic essay. The results highlight the poor writing skills and lack of mastering of academic writing skills of students.

Keywords: Academic writing, Academic literacy, Writing skills, Final-year, Education.

LEARNING ANALYSIS IN PEER INTERACTION PATTERNS AS DISCOURSED BY ON-LINE GROUP PROBLEM SOLVING IN MATHEMATICS

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Abstract
Studies have confirmed that group problem solving can not only increase students' confidence in learning mathematic, but also assist students to comprehend and further construct the mathematical concept. In addition, during the pandemic era of COVID-19, a better understanding about online peer student discussion is important. This research explores how online small group problem solving impacts the students' learning mathematics. The 55 students from the ninth grade of Taiwanese junior high school were

assigned into 15 small groups heterogeneously according to the pretest results. By providing the web-based learning with on-line forums for student small group discussion, each small group is assigned to solve 10 tasks related to "Pythagoras Theorem" unit of mathematics. The students were not allowed to physically interact with each other when they took part in the on-line group problem solving activity except using the on-line discussion forum. Students can write complex mathematics formula on the paper and then upload it. The on-line dialogue was logged in the database for detailed analysis. In the data analysis, the issue-based information system (IBIS) model is used to structure discussion activities of collaborative design. There are three elements, issue, position, and argument in the IBIS model. The epistemic Network Analysis (ENA) is used for identifying and quantifying connections among elements in coded data and representing them in dynamic network models. The two independent coders performed the coding of discourse interactions based on the IBIS model. The inter-coder reliability for each analysis was at least 90%, indicating adequately reliable in the coding. Analysis of peer discourse revealed that students suggested a total of 434 positions in response to the 80 issues. Each issue stimulated an average of 5.43 (434/80) positions in response. The 208 arguments representing opinions that support or object to a position were provided by the students. The results of epistemic Network Analysis showed that there was a significant difference in peer interaction patterns for high-achieving group and low-achieving group $(t(27,20)=-2.13, p=0.04,$ effect size$=0.73)$. The correlation of answer and prompt is stronger for-achieving group than that for low-achieving group. The correlation of answer and agreement is stronger for low-achieving group than that for high-achieving group. The correlation of answer and seeking help is stronger for low-achieving group than that for high-achieving group.

Keywords: IBIS, ENA, on-line, group problem solving.

SHOULD VIRTUAL TEACHING REPLACE IN-CLASS TEACHING? A FOCUS GROUP APPROACH

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Abstract
Virtual teaching has been replacing in-class teaching to higher or lesser extent in order to adjust to the new teaching environments provoked by the current pandemic. The present paper addresses this issue by adopting a qualitative research method, i.e. focus group discussion, among university students. The purpose is to examine the undergraduate students' viewpoints on the current switch from in-class to online sessions. In particular, six focus groups were created to discuss whether virtual teaching should replace face-to-face teaching in classrooms, to what extent, how and why. Each group consisted of six to seven students, overall representing 14 different European countries. The study took place at a Spanish university in November 2020. Results show that three groups mostly or strongly believe that virtual teaching should not replace in-class teaching, while in other three groups opinions are somehow divided. Some differences in cultural terms are also observed. Overall, results suggest preference for in-class teaching mostly because of social contact, interaction and increased engagement that face-to-face classes make possible, in addition to decrease of attention and motivation, distracting factors and technical problems that are frequently associated with online classes.

Keywords: Virtual teaching, in-class teaching, focus group, university students, culture.

EXPERIMENT D' – SERIOUS GAME FOR THE DEVELOPMENT OF INTERCULTURAL COMPETENCES. CONCEPT, CONTENT, AND EXPERIENCES

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Abstract
The paper presents an intercultural serious game 'Experiment D', which was developed in a cooperation between the junior professor of Intercultural Competence (Chemnitz University of Technology) and the chair of Social Work Management (FHD Dresden – University of Applied Sciences). The game was successfully tested and assessed in the summer term 2017 and 2018. The main plot consists of a communicative negotiation and strategic handling of a complex situation at university that involves various stakeholders, both within and without it. The game fosters cultural awareness and self-reflection, appreciation of and a creative approach towards diversity, as well as general communicative, social, and team competences. Since it does not require any specialised prior knowledge, 'Experiment D' potentially addresses students of all disciplines. The participants of the two test sessions were students of the study fields MERGE Technologies for Resource Efficiency (study component "Soft Skills", Faculty of Mechanical Engineering) and Intercultural Communication and Competence (compulsory study component Intercultural Learning, Faculty of Humanities) at the Chemnitz University of Technology. Ethnicity, nationality, first language(s), degree of proficiency in English and German, and academic background were all factors that engendered a highly diverse game setting. Aside from the concept of the game, as well as its methodology and didactics, the paper also discusses the results of its assessment.

Keywords: Diversity, interculturality, intercultural competence, intercultural learning, serious games.

ONLINE CLASS MANAGEMENT DURING THE PANDEMIC AN EMPIRICAL EVIDENCE

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Abstract
Owing to the COVID-19 pandemic, switching to online classes has been highly encouraged in Higher Education Institutions (HEIs). This work attempts to understand university students' opinions on how should online classes be managed by providing an empirical evidence from a sample of university students from 25 different nationalities. In particular, duration of classes, recommended breaks in classes, and adopted methods and technology tools for online class development are considered from the student perspective. Data collection took place in December 2020 among 122 undergraduate students studying at the University of Valencia in Spain. Results suggest that most of the students believe that the optimal duration of online classes is between 45-60 minutes and 60-75 minutes, respectively. A great majority of students considers online classes should not have breaks, while those who believe they should, prefer having breaks of 5-10 minutes. In addition, students mostly think that online classes should consist of theory explanations and quizzes, being teamwork and solving doubts the least desirable methods. Blackboard Collaborate and Kahoot are confirmed as favorite technology tools. The use of Teams, Google Drive, Zoom and YouTube is also found to be highly encouraged, while options like live-streaming classes are not that much desirable. Finally, the use of Moodle, Canvas, Socrative and Dropbox received the lowest preference levels.

Keywords: Online class management, COVID-19, class duration, class methods, technology tools.

ATTITUDES OF GRADE ONE EDUCATORS TOWARDS THE IMPLEMENTATION OF INCLUSIVE EDUCATION IN CLASSROOMS AT BOTSHABELO SCHOOLS

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Abstract

The provision for learners with disabilities has been part of a process and the development of an inclusive education system can be traced back to the nation's founding document, the Constitution of the Republic of South Africa 108 of 1996. Creating an inclusive education environment is about celebrating diversity among learners and creating a welcoming culture where all learners are valued and made to feel that they belong. Inclusivity is about recognising that no two children are alike, and all children can learn. Most children with barriers to learning are accommodated in ordinary schools. Frequent causes of barriers to learning include discriminatory attitudes, labelling and discouragement. The study investigated Grade one educators' attitude towards the implementation of inclusive education at selected Botshabelo Primary Schools in the Free State Province. The study adopted an interactive qualitative approach. The population comprised educators and principals from selected primary schools in Botshabelo. A non-probability selection of participants was used to randomly select educators and principals from five schools. Data were analyzed by means of thematic analysis. The results of the study revealed that there are different factors contributing to the attitudes of Grade one educators towards the implementation of inclusive education in classrooms, amongst others, untrained educators for inclusive education; unsuitable environment for the disabled learners with learning barriers; lack of resources for inclusive education and curriculum at the level of learners with learning barriers; lack of parental involvement; and classroom overcrowding. The results revealed solutions to the negative attitudes of Grade one educators towards the implementation of inclusive education in classrooms which include training educators for inclusive education; parental involvement in learner's education; a suitable environment for disabled learners and those with learning barriers, consideration of learner-teacher ratio; availability of suitable resources for inclusive education; and availability of inclusive curriculum.
The study recommends that educators should be developed professionally by being trained about inclusive education; parents should be involved to support educators and their children; the school environment and buildings should be free from hazards; and overcrowding in classrooms should be avoided.

Keywords: Learning barriers, inclusive education, disability, educator, mainstreaming, attitude, inclusive, inclusion, curriculum.

CHALLENGES WITH THE IMPLEMENTATION OF THE ADMISSION POLICY FOR GRADES R AND 1 IN THE MOTHEO DISTRICT IN THE FREE STATE PROVINCE OF SOUTH AFRICA

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Abstract

At the beginning of every year thousands of learners report for Grade R and Grade 1 across schools in South Africa. Unfortunately, many learners are refused admission to these grades when parents apply. The national policy that guides and governs admission of learners to public schools is the South African Schools Act (SASA) 84 of 1996. This policy stipulates that the admission age of a learner to a public or independent school for Grade R is age four, turning five by 30 June in the year of admission. For a learner to be admitted to Grade 1, the learner has to be five, turning six by 30 June in the year of admission (SASA 1996 Section 5a-6; Ramadiro and Vally 2005:1). But SASA (1996: Section 3(1) also states that attendance is compulsory in the year in which a learner turns seven. According to the National Education Policy Act (NEPA) 27 of 1996 and SASA (1996: Section 5) the Admission Policy of a public school is determined by the School Governing Body (SGB). However, according to the findings of the research there is no uniformity and consistency in schools as far as admission to Grades R and 1 is concerned. In addition, the study reveals

that many parents are unaware of the age requirements for Grades R and 1. Although SASA does stipulate the admission age to Grade R and Grade 1, it also states that schools, in the form of the SGB, can determine their own Admission Policy. Hence some schools admit learners according to SASA, while others ignore the requirements stipulated in SASA and determine their own Admission Policies. The study aims to determine what the challenges are with the implementation of the policy. A qualitative research method in the form of interviews was conducted to collect data from teachers, parents, SGBs, school principals and departmental officials. Based on the findings recommendations were made, one of which is that there should be uniformity amongst schools as far as policy implementation is concerned. The theoretical framework that guides this study is document phenomenology.

Keywords: Admission, policies, grade R, grade 1, admission age.

THE ROLE OF COMMUNICATION AS THE DRIVE FOR IMMIGRATION: A CASE STUDY IN FINLAND

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Abstract
Recently many studies have remarked migration issues. Thus, in countries such as Finland, having a governmental strategy for increasing the number of migrants, especially educated immigrants or encouraging international students to stay, is highly important. While Finland is recognized as the happiest country, it would be arguable why it is not included in the list of top destination countries for immigration. The literature shows communication is one of the most issues for immigrants and international students, particularly those from Asian countries. Therefore, this study aims to understand how technology-based communication such as the use of social media influences international students' decision to immigrate. Respectively, 23 Iranian tertiary-level students were interviewed as the case of the study. Uses and Gratification theory was employed to investigate the role of media usage among the participants. The findings showed that although there is high desire among the participants to immigrate to Finland, the difficulty and unpopularity of the Finnish language and culture of distance in Finland reduces the motivation to emigrate and made the participants feel being the outsider in the university and society. The use of communication media has facilitated university admissions and communication with family, friends, compatriots and other international students, but has not been able to connect them to Finnish society. While educated immigrants in every country are human resources, the results of this study draw our attention to explore different aspects of communication, identifying motivating factors and reducing frustration among international students for immigration. These results emphasize on the development of strategies and tools for harnessing the potential of media and technology to connect international students as future educated immigrants in the host community.

Keywords: Communication, international students, Finnish culture, media, immigration.

EDUCATION AND TECHNOLOGY DURING COVID-19 TIMES

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Abstract
It is difficult to separate technology from education because technology is embedded in teaching. The best technology for teaching is the one that does not interfere with the communication between the teacher and the students. In other words, it should be barely "noticeable" in how it is used, and easy enough to use that it does not require special training, such as window in a room to see the flowers outside, without interfering in any way. The technology used during an in-person classes is so basic, transparent, and simple, since it consists of a classroom, chairs, blackboard and pieces of chalk. However, a piece of chalk could break. In this case, the flow of information is interrupted; which is why the plastic whiteboards and markers are preferable and cleaner. An electronic board may seem to be better with its many improvements with

computers; however, its higher technology could get in the way if it is not used properly. During the pandemic, different technologies, like computers and cell phones, connected to internet were massively used. Yet, computers and cell phones with the appropriate software and apps had an additional cost; with no guarantee of antivirus applications against viruses or worms, leaving aside protection for documents, software and hardware. On top of that, a Zoom, Google or any similar online platform was necessary. Using these platforms, other technologies had to be relied on, including Ethernet or a USB adapter. On the other hand, in developing countries before the pandemic, low-tech was used by most students to store and pass information to their peers and teachers. They would use mainly pens and notebooks to write notes, or CD-Rs or USB to pass information. However, during the pandemic, with the advances in internet speed, many students have now moved on to using e-mail and cloud drives where they can transport their files. All the electronics listed to make online education or tech-based education needed electricity to work. In other words: no electricity, no class; no electric supply or stored electricity in batteries, no class. In this paper we analyze the role of technology in education, and how this technology could enhance or obstruct the communication between the teacher and the students.

FLIPPING A 700 STUDENT CLASSROOM

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Abstract
Because of the pandemic, we had to switch our first-semester informatics course with 700 students from lecture hall teaching to online teaching. We used the opportunity to rethink our approach and come up with forms of teaching that fit the circumstances. In the evaluation, we found that students generally appreciated our efforts, and although we raised the requirements for a positive grade, the share of students who passed the course was higher than usual.

INTEGRATION OF PEDAGOGY INTO TECHNOLOGY: A PRACTICAL PARADIGM

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Abstract
Technology, with its rapid growth and vast impacts on all areas of human life, has increased well-being and facilitated daily tasks in our private life as well as in business and marketing, medical and healthcare services, and education. The global Covid-19 pandemic has shown the importance of Internet and technology to keep businesses running and reduce the problems emerging from social distancing and even saving lives through healthcare systems; likewise, educational systems speeded their technological facilities to run and develop normal educational activities. Although many studies had already acknowledged the necessity of using technology in education, the lack of facilities and knowledge of using technology in educational systems was reported in the beginning of the pandemic. The pandemic pushed educational systems to integrate technology into pedagogy by facilitating information transfer and communication. However, the challenge of enhancing the quality of information is still prevalent. This paper focuses on a bilateral necessity of integration of pedagogy and technology: while the potential of technology in educational systems is widely acknowledged, the practical usage of learning theories and pedagogical principles in designing digital services is far from a completed mission. Many user-experience (UX) studies determine technological, behavioral, social, and motivational factors to promote user-centric design to enhance the quality of content, while limited attention is given to pedagogical factors. We introduce integration of pedagogy into technology as a new paradigm in user-centric design, not only in the educational system but also in a general context. Mishra and Koehler (2006) introduced integration of technology into pedagogy (TP) through the Technological Pedagogical Content (TPACK) framework as

required knowledge for teachers. This paper employs the TP concept in a broader context of Technological Pedagogical Content Design (TPCD), which utilizes the pedagogical element in the user-experience based practice to develop a user-centric design approach.

Keywords: Technology integration, TPACK, TPCD, user experience, user-centric design.

DEVELOPMENT OF HEALTH-PROMOTING BEHAVIOUR OF A CHILD AS AN EDUCATIONAL GOAL IN FAMILIES OF HANDICAPPED MOTHERS WITH MENTAL HEALTH DISORDERS

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Abstract
The mental health of adult women is an important attribute of their motherhood. Weakening of mental health poses a threat to activities in the field of self-care and healthy development of their children. Even under these conditions of health disadvantage, women-mothers remain as the main mediators of health-promoting habits for their children, thus they become theirs first educators. The health literacy of these women also plays a role in this regard. For this reason, it is crucial to provide these women with sufficient special education that takes their individual needs into account.
This research project is focused on finding connections between the mental health disorder of mothers, their health literacy with manifestations in the field of health-promoting behaviour, and with the need for support in the relevant area of childcare by professionals and close family members.
The author will present an overview of research focused on this issue as well as her own proposal for a research solution, which received the support of the Charles University Grant Agency for the years 2021-2022.

Keywords: Mental health disorders, women with mental illness, health literacy, shared childcare, research.

ONLINE SPEECH AND LANGUAGE THERAPY. FOCUS-GROUP BASED STUDY

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Abstract
In March 2020, due to the pandemic situation from our country, the National lockdown was imposed for almost two months. Speech and language therapy field was very affected in this period of time and harsh decisions were to be taken. Children who strongly needed therapy were in the situation to either go on with the rehabilitation process in an online setting or to wait and postpone therapy sessions. The aim of this research is to present the situation in a SLT (speech and language therapy) private specialized center and to underline the advantages and the disadvantages of SLT online therapy after one year (from March 2020, till March 2021). In the beginning of March 2020, 37 children attended SLT sessions in this private center, 2 of them were recently assessed and they were supposed to begin therapy exactly on the first lockdown day. From all of them, 20 children (54 %) switch to online therapy sessions progressively. Starting with April 2020, after a three weeks break, 9 children diagnosed with mild to moderate speech and language disorders, switch from face to face to on-line. In May, 6 more children and in June another 5 children were brought back to therapy, even if we remained in an online setting. The other children, 17 (46%), either stopped all therapy sessions or began therapy in other centers that organized onsite therapeutic sessions after the lockdown period of time. At this present moment, in March 2021, at one year distance, the SLT center offers SLT services exclusively online, both assessment and therapy and the number of cases asking directly for online therapy is increasing daily (in March 2021, N=31). Results of this study, organized as

focus-groups with 3 parents, 3 children and 3 therapists underlined that online SLT is very efficient as long as parents` involvement is high. The main advantages listed by all persons in the research, even by children are: easier to be more consistent; the attendance in the SLT sessions is definitely higher, parents can participate directly in these activities, resources are easily to be found. Among disadvantages, the fact that parents have to be very involved in this therapeutic process seems to be the most frequently listed. In discussions and conclusions of this study a profile of the online SLT users is about to be depicted, a profile related to the one found in specialized literature from the field.

UPGRADING MOOC STUDENTS' ENGAGEMENT AND PARTICIPATION IN HUMANITIES-ORIENTED ONLINE COURSES: THE EXAMPLE OF THE MOOC BASED ON THE PROJECT "DETECT"

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Abstract
Massive Online Open Courses (MOOCs) have become a grounded reality and a stable concept in the distance education panorama with worldwide universities continuously creating and offering every year broad selections of online courses. Nevertheless, despite the many developments in terms of individual and distance learning approaches, it is indetermined if MOOCs can deliver effective pedagogical methods and tools suitable for the implementation of online courses in the categories of art and humanities as well as in creating environments that give equal space to the two complementary layers of distance learning and distant teaching. Consequently, also the development of a valid, and captivating e-learning experience able to effectively reach out to students of different backgrounds, creating an impactful learning community represents a challenge. This issue acquires certain relevance particularly in relation to the much-debated question around the most effective pedagogical methodology to deliver humanities-oriented knowledge in a distant learning context. This paper provides an overview of the educational and pedagogical formulas adopted for the creation of a MOOC on European Crime Fiction, currently being developed in the framework of DETECt – Detecting Transcultural Identity in European Popular Crime Narratives (https://www.detect-project.eu/) a project funded by European's Union Horizon 2020. The MOOC concept presented in the framework of this research concentrates on the development of mixed e-learning and e-teaching strategies, that leverages the application of pedagogical elements like social network and independent learning and combines them with users' engagement methods. On the one hand, this research aims to challenge the debate related to the effectiveness of teaching and learning a humanities-oriented subject in a distance learning environment. On the other hand, intends to recreate a vibrant learning community capable of broadening the academic research carried out by the project enabling the collaboration between the MOOC public and the researchers and teachers.

DIGITAL ENGINEERING: COMPETENCE ACQUISITION AND PROGRAM DEVELOPMENT AS AN OPEN CO-CREATION PROCESS

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Abstract
Dealing with the increasingly complex interrelationships in companies, technologies and markets requires engineers to have a holistic, systemic understanding of digital change. Future engineers need future skills and must be able to react to ever faster changing technical requirements by independently expanding their knowledge, developing (technology-based) solution strategies as well as designing, evaluating and communicating these with regard to social, ecological and cultural aspects and requirements. In order to

integrate these future skills into existing curricula, study programs must be designed in such a way that they are permeable to continuous and agile adaptation in relation to new knowledge and new technologies. This process can only succeed if universities see themselves as open learning systems that promote co-creation processes among all university stakeholders.

The Faculty of Process Engineering, Energy and Mechanical Systems at TH Köln/University of Applied Sciences has recently recognized the resulting need for a transformation process in program development and has further developed the consecutive master's program "Mechanical Engineering/Smart Systems", in which agile learning environments and innovation spaces are created. However, the redesign and further development of modules is not enough. A holistic, systemic understanding in dealing with transformative technologies requires a cultural change in which lecturers and students shape the digital transformation on an equal footing. In a joint learning and research process, they iteratively and agilely test which competencies best prepare students for an increasingly digitalized workplace and which analog and virtual learning spaces this requires.

As part of the project "Digital Engineering - Competence Acquisition for Mechanical Engineers in the Digital Age", the faculty is currently implementing the Technology Area, a measure whose aim is to accompany these digital transformation processes at the faculty and to provide lecturers and students with the necessary freedom to experiment with new technologies in teaching. Here, subject-specific teaching and research concepts for the use of new technologies are to be developed and tested together in a co-creation process. The first concepts developed in the Technology Area as well as other Best Practices from the faculty will be presented in the paper. These include the Mixed-Reality-Game FutureING, the Serious Game Worlds of Materials and the development of a StudiCoachBot. In order to promote co-creation processes within and outside the university, a Digitalization Conference was held in May as part of the project to present innovative and forward-looking innovations in engineering education. The reflection of all of the presented initiatives is structurally anchored and professionalized by the House of Excellence in Engineering Education.

Keywords: Engineering education, digital transformation, digital engineering, co-creation processes, program development.

ANALYZING INDIGENEITY IN ACADEMIC AND ARCHITECTURAL FRAMEWORKS

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Abstract
While the Truth and Reconciliation Commission of Canada fosters agency for Indigenous Canadians, this mandate like others, attempts to Indigenize an existing colonial system. The acknowledgement of the Indigenous experience within academic institutions must begin with a deconstruction of educational frameworks that are enforced by pre-existing neo-colonial policies and agendas. The colonial worldview on institutional frameworks is rooted in systemic understandings of property, ownership and hierarchy that are supported by patriarchal policies. These pedagogies do not reflect Indigenous beliefs or teachings, resulting in an assimilation or dissociation of Indigenous members into Western-centric educational systems. Addressing this disconnect through Indigenizing existing institutional frameworks within state control favours a system that re-affirms settler-societies. The tokenization and lack of Indigenous participation in the decision-making process reinforces misinformed action towards reconciliation. decentralized. The case studies explored emphasize the rediscovery of an authentic culture-specific vernacular, facilitation of customs through programme, and the fundamental differences between Indigenous and colonial worldviews. The critical analysis of these emerging academic typologies may continue to inform future architectural projects while fostering greater responsibility for architects and positions of authority to return sovereignty to Indigenous communities and incorporate design approaches that embody Indigenous values. This paper will propose the decolonization of academic frameworks to reconstruct postcolonial methodologies of educational architecture that serve Indigenous knowledge and agency.

Keywords: Indigenous, decolonization, architectural design, indigenizing education.

SOCIAL SKILLS TEACHING PROCEDURES IN ASD-HF

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Abstract

Introduction. Autism Spectrum Disorders (ASD) refer to a heterogeneous group of clinical disorders that share a qualitative alteration of Social/Communication and an atypia of the Repertoire of Activities and Interests with poor cognitive flexibility and a tendency to perseverance (APA, 2013). The Core Deficit is represented by a fall in Social Reference with a consequent alteration of Mentalization Processes and Social Skills.

Materials and Method. In this study, three Social skills teaching procedures are compared: Role Play and Instructional Feedback (RPIF), Self-Videomodeling (SVM) and Virtual Reality Training (VRT). The sample is composed of 45 Subjects with Autism Spectrum Disorder - High Functioning (ASD-HF) who were divided into three groups: the ASD-HF Gr1 trained through RPIF, the GR2 performed training through SVM and the Gr3 which performed a VRT. For the three groups, it was required to learn two social skills: (a) starting and maintaining a conversation for 10 minutes with a peer; (b) starting and maintaining a pleasant activity with a peer.

Results. The evaluation parameter used for both social skills was the time of acquisition. The Gr3 showed faster learning compared to the other two groups; the Gr2 showed, for both tasks, a faster acquisition compared to the Gr1, but slower than the Gr3.

Conclusions. In this study we tried to reduce any differences in stimuli exposures between the three groups. Therefore, VRT has indeed proved to be the best teaching procedure for rapid acquisition. The immersive nature of VRT could actually explain much of the benefits of teaching in Virtual Reality. In fact, this procedure allows an active participation in the learning context so that, even subjects with ASD-HF, can improve their acquisition speed.

Keywords: Virtual reality, self-videomodeling, role play, instructional feedback, autism spectrum disorders.

ENSURING SUCCESS IN THE FLIPPED CLASSROOM WHEN TEACHING ON-LINE

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Abstract

As teaching moved on-line we had to rethink and readjust what approaches to use in order to reach the outcomes. Adjustments had to be made to the designed activities especially when groups had to meet in breakout rooms.

We will present the various aspects that came under scrutiny, as for example, peripheral participation, the development of mini-communities of practice, cooperation, collaboration and mediation.

We analyzed instructor's journal notes and students' products. There were 53 students in the classes concerned.

The main research question is what was effective in making participants improve learning and how did the implementation increase their understanding of working together virtually.

The method used is qualitative (Creswell, & Poth, 2018). The instructor took observational notes of processes and actions during planned activities. These notes were analyzed to uncover insights. In addition, student 'products' of group work were analyzed for the triangulation of results.

Results show that the effort put into creating more engagement in the module brought about a number of interesting results that increased student understanding. Overall, findings show that participants reiterate expectations and summarize them, the repetition allowed a better grasp and this could also be due to the fact that during the reconversion, participants had to make sure they really understood the contents, i.e. ensuring that the meanings were clear which, in turn led to a better intake of specific features. As regards working together, several issues were identified, yet overall, all students were highly successful, due mostly to a supportive approach as regards feedback or a 'feed-through' approach.

The theoretical underpinnings came from research on learning and pointed to the requirement of additional insights on the part of instructors especially when teaching has to take into account equity, diversity, inclusion and indigenization (EDII). Instruction had to be more connected to students' lives. Bransford et

al (2000) assert that "to develop competence in an area of inquiry, students must: a) have a deep foundation of factual knowledge, b) understand facts and ideas in the context of a conceptual framework, and c) organize knowledge in ways that facilitate retrieval and application" (p. 16).

Keywords: Learning in the flipped classroom, examining success, issues and insights.

VIRTUAL LEARNING APPLYING EDUCATIONAL STRATEGIES IN TIMES OF COVID-19; CASE OF TECHNOLOGY IN MILITARY SCIENCES

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Abstract
The educational system in times of pandemic has had to transform itself urgently and unexpectedly to a virtual modality. This paper presents an exploratory study on the main difficulties encountered in the Soldiers Training School "Vencedores del Cenepa", where the objective of this work was to expose some strategies mediated by ICTs, for the virtualization of the teaching-learning process; When the didactic and functional methodology was applied in virtual education, I necessarily involve externalizing the demands of the teachings where they are enrolled; in this online educational process-COVID 19; the students of the institution consider their class grade as a basic educational tool, where the student himself,
Virtual learning behaves as an extension of the face-to-face classroom, mainly supported by technologies that allow, even remotely, activities that challenge students to produce a collective text, electronic portfolio, infographic or video that address a topic, can be worked collaboratively. in particular related to the topic of the class, they are generally more accepted by students than exercises or questionnaires whose objective is to record the content of a discipline; Therefore, we must see the opportunity that shortens the distances and enriches the teachers' process, maintaining their structure and development of methods according to reality; where the development of study programs is allowed, strengthens relationships and instills collaboration among all actors.

Keywords: Educational system, pandemic, virtual modality, Virtual learning, electronic portfolio.

SERVICE LEARNING INTEGRATED WITH FOREIGN LANGUAGES LEARNING: PROMOTING TRANSVERSAL COMPETENCIES

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Abstract
In this article, the author will present an innovative way how to develop students' foreign language communicative and intercultural competence alongside with a whole set of transversal competencies via an innovated version of foreign language courses. They may be attended by both university students or secondary school students. The basic idea of such a course, in our case called "Global Encounters in Local Settings", is giving students space to create a service-learning project for a community. Students have to work in linguistically and ethnically mixed groups. Each group decides to about the focus of their project and the procedures of its implementation. Via these cooperative projects accomplished while using various foreign languages - suitable also for online learning space, the students can develop various transversal competencies, such as critical and reflective thinking, plurilingual and intercultural competence, problem-solving, team-work skills, interpersonal and other social competencies, willingness to take risks and seek challenges, leadership development skills, time management and planning skills, inclusive approach, and active citizenship. The first version of such course was tested on several groups of university students in Slovakia (in 2020). The post-tests and reflections after accomplishing this course showed evident growth in the above-mentioned competencies.

Keywords: Innovation, service learning, transversal competencies, foreign language learning.

TEACHING AND LEARNING

VIEW OF SECONDARY TECHNICAL SCHOOL STUDENTS ON THE PATHS AND BARRIERS TO THEIR PROFESSIONAL DEVELOPMENT

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Abstract

Students in the Czech Republic are increasingly interested in secondary school studies with a universal technical focus providing job security and a swift path to retraining according to existing labour market requirements.

The aim of the paper is to find out how Czech students of secondary technical schools evaluate their professional development in the course of their secondary school studies. Qualitatively oriented research is focused on the quality of development of the secondary school studies as regarded by the secondary technical school students in the Moravian-Silesian Region of the Czech Republic. The research outputs provide suggestions for students to improve their professional development throughout the secondary school studies, as well as suggestions for procedures that may help remove the occurrence of barriers in their educational paths to a technically oriented profession. A partial output of the research questionnaire survey is to describe, characterise and evaluate the idea of secondary technical schools' students about their future profession and the level of their motivation to study at Czech technical secondary schools.

Students consider the low number of teaching hours per week for teaching new modern technologies and computer-controlled machines to be a critical external barrier in their professional development. They admit low motivation to learn a large amount of theoretical information, without linking theory with practice. Practical work in workshops belongs among popular subjects.

Keywords: Professional development, students of secondary technical schools, barriers in educational paths, motivation to study, idea student´s about profession.

EXPLORING THE RELATIONSHIPS BETWEEN CONSTRUCTIVIST LEARNING ENVIRONMENT AND CRITICAL THINKING ABILITY OF SECONDARY SCHOOL STUDENTS

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Abstract

Constructivist learning environments are a core instructional factor affecting students' critical thinking (Mathews & Lowe, 2011). However, few classroom environment research have specifically investigated relationships between students' perceptions of their learning environment and their critical thinking ability (e.g., Fraser, 2012), especially in the context of Chinese learners. Therefore this study would fill this research gap by investigating the relationships between constructivist learning environments and critical thinking ability among Hong Kong secondary school students.

The study used a cross-sectional survey design to collect data from a convenience sample of 967 students studying Liberal Studies or Integrated Humanities in Secondary Three (Grade 9) in Hong Kong. The respondents completed a self-administered questionnaire which included the Constructivist Learning Environment Survey (CLES), Cornell Critical Thinking Test Level X, and demographic information on age and gender.

The findings showed that students perceived their learning environment to be moderately constructivist in nature, and scored a moderate level of critical thinking ability. Both age and school banding differences were identified in which younger and students in schools with higher banding tended to perceive a higher degree of constructivist characteristics in their learning environment and they obtained higher critical thinking ability scores. Multiple regression analyses indicated that five of the seven independent variables were predictors of critical thinking ability. Shared Control was the strongest predictor and negatively associated with critical thinking ability. Personal Relevance, Critical Voice, and Uncertainty were

positively while age was negatively related to critical thinking ability. The hypothesized model of seven demographic and CLES variables accounted for 10% of variance of critical thinking ability, suggesting a medium effect size. Findings of the study are discussed with reference to developing students' critical thinking ability in classrooms.

Keywords: Constructivist learning environment, critical thinking ability, secondary school students.

ONLINE LEARNING QUESTIONNAIRES BASED ON RENEWABLE ENERGY RESEARCH EQUIPMENT

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Abstract
This paper resumes the main ideas to develop different sets of questionnaires based on renewable energy research equipment to improve online learning in engineering education. These educational activities, on the one hand, promote the connection between technological and education environments and, on the other hand, improve the motivation for studying theoretical and practical issues. The implementation of the proposed teaching and learning tasks will contribute to integrate students with different motivation and attitudes since the use of the close physical equipment for questionnaires development has an evident educational benefit when using it as a study model.
The evolution of technological environments to educational units involves a functional Disassembly/Analyze/Assembly conversion to different modules adapted to specific subjects, the link with the theoretical knowledge, and finally, the questionnaire construction.
The combination proposed offers the following positive results in master or grade studies: the effectiveness of competences training is improved, the students experimental work progresses significantly and the students' motivation for better theory comprehension is more intensively developed.
The use of these kind of questionnaires as educational tools is not new and their advantages are well known: the quick feedback results and the systematic data collection to support the educational proposal effectiveness, among others. Nevertheless, this tool has become a necessity with the massive use of online education.
In summary, promoting the evolution of engineering education to online techniques and the use of renewable energy research equipment to promote the students' vision on social necessities are two examples of educational goals stated in this paper.

Keywords: Engineering education, renewable energy, learning methodologies.

EDUCATIONAL INITIATIVES TO DEVELOP TRANSVERSAL SKILLS IN THE MANAGEMENT SUBJECT OF MASTER'S DEGREE IN INDUSTRIAL ENGINEERING AT UNIVERSITAT POLITÉCNICA DE VALÉNCIA

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Abstract
This work presents an improvement of the structure and methodology of a subject entitled Management, belonging to the Master's Degree in Industrial Engineering (ETSII) at the Universitat Politècnica de València (UPV). The presented subject deals with the basic and fundamental aspects that the student will need in order to correctly perform the functions of business management in changing and competitive markets and environments and contributes to the formation of professionals capable of carrying out management, direction and evaluation tasks in productive organizations. From the subject, the students'

management skills are strengthened to elaborate and build strategic alternatives of decision, both in relation to the understanding of the problems, as well as in the decision making and in the evaluation of the consequences that the own actions can have for the company and for the people. It is centered on the improvement of professional skills. In this context, UPV transversal competences (TC), aim to synthesize a competence profile acquired by all UPV graduates. This study comes from an Institutional Educational Innovation and Improvement Projects to develop a methodological coordination through webs of support in ETSII CT (PIME/19-20/151). The main goal of this project was to make easier our students to acquire the more complex CTs-UPV with an effective model that does not place an additional burden on instructors, providing students with e-learning resources such as support for their training.

This study is focused in CT04.-Innovation, Creativity and Entrepreneurship. Innovation is shown as a key competence for companies to remain competitive in the market. Innovation is based on creativity, knowledge and organization, understood as a way of working to achieve objectives. A new trend in higher education is the current shift towards improving innovation, creativity and entrepreneurship of students.

To work on these skills, students of Management have to do different exercises in groups where there are 4 to 6 randomly selected students with different roles. Each working group will start by creating a company, on which the different tools and methodologies will be developed through practical cases to achieve innovative and creative solutions that add value to the main stakeholders.

The achievement of the proposed techniques for developing Innovation, Creativity and Entrepreneurship competency has been revealed as a significant aspect for the students, and the web CTs-UPV designed on the project (https://ctetsii.blogs.upv.es) has been considered as a strong support for their achievement.

Keywords: Transversal skills, web ETSII transversal competencies, innovation competency, group dynamics.

ANALYSING LESSON-BASED INTERVIEWS USING THE LESSON ACTIVITIES MAP (LAMAP) AS A VISUAL TOOL

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Abstract
During training as generalists, some teachers find it complex and challenging to teach songs and lead class singing. The Song Leading research project longitudinally examines case studies of 16 trainees to explore how they acquire and develop the knowledge and skills to conduct a class singing lesson. The data corpus consists of video-recorded lessons, audio-recorded lesson-based interviews and personalised open-ended questionnaires. In this paper some phases of the interview analysis are presented. As each interview is conducted while watching the video-recorded lesson, its analysis should not be separated from the lesson content. The central question guiding this analysis is: How can the analysis of a lesson-based interview be combined with the video analysis of the lesson itself? We present a visual system to combine the analysis of interviews and videos. This system involves the use of the Lesson Activities Map (LAMap) – the transcript of the class singing lesson – based on the methodology developed in the Song Leading project. During the thematic analysis of the interviews, the LAMap is a visual tool that allows the researchers to systematically describe the lesson moments that were the starting points of the teachers' reflections. In addition, LAMap is a visual tool for collecting initial codes and identifying relationships between potential interview themes. The implications of the use of a visualisation system for lesson-based interview analysis are an added value for the coherence of case study interpretation. The paper contributes to research in education by providing concrete examples of how to make a qualitative analysis process explicit.

Keywords: Lesson activities map, reflexive thematic analysis, professional development, song teaching, song leading.

PRE-SERVICE TEACHERS' CRITICAL REFLECTION ON THE KNOWLEDGE AND SKILLS LEARNED IN LIFE SCIENCES METHODOLOGY MODULE

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Abstract
The complex roles teacher educators and teachers face require their ability to critically reflect on their practices. The question is on whether teachers are trained to make critical reflections of learning experiences for them to be able to critically reflect on their teaching practices. Based on constructivist approach, teacher educators continuously reflect on their practices in order to modify and improve their modules. It is however imperative that pre-service teachers who are the recipients, be given an opportunity to critically reflect on the services they receive and at the same time develop critical reflection skills. By creating reflective teaching and learning environments in the Life Sciences Methodology and Practicum module at the beginning of the academic year, 77 Bachelor of Education students specialising in Life Sciences and in their last year of study at a South African University, were purposefully selected to participate in a qualitative study. The study sought to answer the research questions: 1. What are pre-service teachers' reflections on the knowledge and skills learned in their last year of study? and 2. What pedagogical and content knowledge aspects can be drawn from pre-service teachers' critical reflection for the improvement of the module Life Sciences Methodology and Practicum? In collecting data, each pre-service teacher was tasked to compile a critical reflection report which they submitted towards the end of the year, and was analysed through content analysis. The findings showed important knowledge and skills learned which included the contextualization of teaching to ensure learners comprehend abstract concepts such as immunity. Amongst the teaching approaches and strategies covered in the module, argumentation as a social constructivist strategy stood out particularly when teaching controversial topics embedded with socioscientific issues e.g. genetics and evolution. The pre-service teachers indicated that the way practical work was taught, equipped them with knowledge and skills on how inquiry-based approaches can be implemented in the classrooms. Suggestions to improve the module included the provision of pre-service teachers with opportunities to conduct virtual micro lessons in light of COVID-19 pandemic; that the testing of Life Sciences concepts should include the assessment of pre-service teachers' capabilities to teach the same concepts in the classrooms. The pre-service teachers' argument is that since they are in their final year, the focus of the module should be on the development and assessment of their pedagogical content knowledge (PCK) and TPACK. The findings of the study have implications for teacher professional development.

Keywords: Critical reflection, life sciences, knowledge and skills, pre-service teachers.

SLEEP QUALITY AND SLEEP HABITS IN STUDENTS

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Abstract
Introduction: The student stage is marked by many changes that will affect different aspects of young youth life, including changes in sleep patterns. Sleep is known to play an active role in the overall development of students, mainly because of its restorative functions and an insufficient number of hours of sleep can be associated with consequences on physical and mental health.
Objectives: To analyze the factors that interfere with higher education students' sleep quality.
Methods: A systematic review of the literature was carried out drawing on a selection of articles published between 2012 and 2020, following the method proposed by the Joanna Briggs Institute and according to the Preferred reporting items for systematic reviews and meta-analyzes (PRISMA). This selection was carried out using PubMed, B-On and SCIELO search engines. The review was based on 5 articles whose methodological quality was found to be undeniable.
Results: Results show that, on the whole, students suffer from a poor quality of sleep. This situation is commonly associated with factors such as being a higher education student worker, shift work, or caffeine, alcohol, and tobacco use, among others.

Conclusions: In view of the outcomes, it became clear that higher education students need to be made more aware of the importance of sleep habits and daytime sleepiness, and to improve their health literacy. They need to be informed and trained in these areas so they may reduce or at least prevent certain risk behaviours that increasingly threaten their sleep quality and overall health.

Keywords: Students, sleep, sleep disorder, health, higher education.

A QUESTIONNAIRE FOR EVALUATING PUPILS' COGNITIVE PATH ABOUT SYMMETRY AT PRIMARY SCHOOL

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Abstract
The fundamental role of symmetry has to be more closely enhanced in the interplay between mathematics and physics to foster the teaching of the Nature of Science. In our presentation, we explore the positive effect of introducing the modern concept of symmetry viewed as "*sameness within change*". A teaching-learning sequence (TLS) was conducted to test the challenges of an interdisciplinary approach based on symmetry and invariance in the educational context, namely at the primary school level. In the design of this sequence, solving the game of closing special cardboard boxes provides a fundamental role. The study evaluates how the specific teaching action makes the modern concept of symmetry in principle appropriate for primary school students through manipulative games. We investigate the students' cognitive paths about symmetry during the sequence by analysing pre- and post-sequence questionnaires. The questionnaire comprises four questions with dichotomous choice, items text, narrative text, and open justification. It is structured mainly in three domains devoted to cognitive, affective, and psychomotor dimensions. The analysis is composed of a mixed method approach. The investigations incorporate qualitative data with Text Analytics and Natural Language Processing (NLP) statistics to identify and extract information from pupils' written reflections. Our study also explores whether the emotion experienced by students plays a role in the TLS. Results show that educational activities induce the increasing knowledge and skills of students. In particular, most students interpreted the lessons as experiences rich in stimuli and insights on symmetry and mathematics in general. The findings also bring important suggestions and contents of reflection that teachers can consider for exploiting the potential learning path on symmetry and invariance.

Keywords: Nature of science, symmetry, questionnaire, cognitive path, primary school.

TEACHERS EXPERIENCE WITH INTRODUCING PROGRAMMING IN DIFFERENT COURSES FOR NON-COMPUTER SCIENCE STUDENTS

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Abstract
Digital literacy has become more and more important in the last decade, and many people predict that in the future, the need for digital skills will be even more crucial than it is today. The dynamic development and use of technology are becoming increasingly common in all areas of life, changing demands of modern life and the labor market, which makes it necessary to educate students from many different study-programs on how to use different digital tools and how to program.
Depending on different professions, there are different requirements on what it means to have digital literacy. For some it is most important to know how technologies are created or to use the product effectively, for others it is the security of data transfer that is essential. The different professions have different needs for digital literacy and different use for programming skills.
Teaching computer programming can be particularly difficult in the case of introducing programming for non-computer scientists. While computer science itself (programming) is relatively well described in the subject's literature, the use of programming in other professions is not well defined. There are

different suggestions, recommendations according to the level of education (primary, secondary, higher) or the study-programs the students take. There is no definition of what digital literacy is in different professions, what it means to know computer programming in different professions, and to what extend the students from non-computer science courses should master digital literacy and programming. That can cause challenges for the teachers and students in non-computer science professions that are required to know computer programming for their future jobs. There is no doubt that academic computer science skills for non-programmers can mean/contain different knowledge depending on course curriculum, teachers' experience, chosen literature, but the level of obtaining digital skills should be comparable, adequate, and relevant for the modern citizen.

This article presents requirements, some descriptions/cases of introduction to programming for non-computer scientists from a teacher's perspective. An adaptation of the general programming knowledge into the specific need of different subjects. The data is collected from higher education teachers that have different backgrounds and are teaching at different study-programs to get various views and experiences. The analysis of the findings uses SOLO-taxonomy to compare to what extend the different courses introduce programming to students.

Keywords: Digital literacy, programming for non-computer scientists, introduction to programming.

QUALITY CONTROL TOOLS IN THE ANALYSIS OF COVID-19 CAUSED PROBLEMS

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Abstract
Quality control tools are taught in engineering careers to analyze and try to solve problems in the production of goods and in the performance of service businesses. Those tools can be used to analyze and understand many problems. The coronavirus pandemic has caused many problems around the world, like many people infected in people's agglomerations in public transportation, in celebrations like parties, in political rallies and in public markets because of the people not wearing masks. A Pareto diagram clearly shows the most dangerous comorbidities in case of covid-19 infection. A lot of doctors and nurses have been contagious around the world in many cases because of lack of protection materials for them, hopefully health and safety procedures (check lists) and Poka Yoke devices are being created and implemented to reduced contagion. In this paper we identified and analyzed some covid-19 caused problems using basic quality control tools and for some cases we proposed solutions to them. Examples of a Pareto Diagram in analyzing the death rate in age ranges is used to explain the decrement in deaths in the United States of America if certain age groups are first vaccinated, an Ishikawa Diagram is used to analyze the ineffective distant learning in Mexico, a Check List is elaborated to avoid contagion in shopping and a Dispersion Diagram is used to find a relation between the number of contagious and the number of deaths in many countries of the world. Some other tools are briefly explained and some problems which could be analyzed with those are identified. The examples could enhance the interest of the students in learning the usefulness of those tools in a variety of fields.

Keywords: Teaching-learning process, covid-19.

THE FACTORS INFLUENCING THE PEDAGOGICAL ORIENTATIONS OF THE FINAL YEAR PHYSICAL SCIENCES PRE-SERVICE TEACHERS

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Abstract
Almost all pre-service teachers enter the profession of education with a strong belief that their efforts will make a positive contribution to society and the lives of individual learners. The statement above can be achieved or not achieved depending on different factors influencing pre-service teachers' pedagogies. The purpose of this study was to establish and explain factors influencing Physical Sciences pre-service

teachers' pedagogical orientations. 'Orientation' refers to teachers' knowledge and beliefs about teaching sciences. There are various classifications of pedagogical orientations and they can be classified into Direct Didactic, Direct Active, Guided Inquiry and Open Inquiry. A qualitative approach was adopted to establish factors influencing the Physical Sciences pre-service teachers' pedagogical orientations. The data was collected through an existing instrument called the Pedagogy of Science Teaching Test (POSTT) and interviews. A POSTT was administered to final year undergraduate secondary school Physical Sciences pre-service teachers and is comprised of five items portraying an actual teaching scenario for a particular Physical Sciences topic. When responding to the POSTT, pre-service teachers were requested to select the most appropriate and the most inappropriate pedagogical orientation from the four options given and justify their selected option. Eight Physical Sciences pre-service teachers were purposefully selected for interviews. The interviews were part of the study to give pre-service teachers a chance to elaborate on their POSTT responses. The findings of this study revealed that the Physical Sciences pre-service teachers' pedagogical orientations were influenced by the following factors: time constraints, availability of resources, and curriculum goals to mention a few.

Keywords: Pedagogical content knowledge, pedagogical orientations, inquiry-base learning.

ACTION RESEARCH - APPROACH FOCUSED ON THE DEVELOPMENT OF EDUCATIONAL PRACTICE

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Abstract
The aim of the paper is to introduce a different approaching perspective of the children with internalizing behaviors using the implemented action research. In fact, this action research is a tool for approaching to the study of the internalizing behavioral problems. Practitioners and other participants of the research can awake their own practice and thus start some changes and improvements while using it. Considering the fact that in the literature are not many described models of prevention, support and action targeted to these behaviors, especially in the facilities of early and preschool education, the approach using action research has been imposed as the most appropriate. It is the most suitable for working with children who do not manage to create social opportunities by themselves nor develop their social and emotional skills and resistance. The largest part of this research is referred to direct interaction of children identified as reclusive, shy and fearful. Specific workshops and targeted activities contributed to a significant change in children's social skills. This research will result in strong awareness of educators, expert teams, principle and parents for the necessity of the children. A different organization of educators' working hours will influence the quality of support which has proven to be an irreplaceable reliance of safety, so it is important that it is available to children even after structured working hours. Hence, the principle introduces a special professional training and different structure of working hours in order to keep the quality of support reached through this research.

Keywords: Internalizing behaviors, action research, action research outcomes.

STUDENTS' ATTITUDES TOWARDS SCIENCE: WHERE DO WE GO FROM HERE

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Abstract
Students' attitudes towards science have long occupied the interest of the scientific community. The confirmed decline of students' interest in pursuing the study of science, alongside the increasing recognition of scientific knowledge's importance and economic utility, makes the issue even more imperative for any society attempting to raise its standards of scientific literacy. Attitudes towards science have been found to depend on variables like instructional teaching and curriculum. The latest research indicates that childhood experiences serve as a major influence on academic interest. The broad recommendation is to concentrate

on improving 10 to 14-year-olds' experience of science. Despite the recent flurry of media interest and the latest research in the scientific community, the school curriculum in most countries is still teaching obsolete science with scarce reference to current, cutting-edge scientific research. There is an urgent need to introduce the concepts of 20th-century Physics within the curriculum and exciting science programs that will enhance the interactive learning experience among students, as is shown by evaluating reports of OECD and PISA results. While this has led to several changes in the curriculum of secondary schooling in some countries, it is still an imperative case for others and definitely for Greece. There are some individual or institutional projects around the globe that introduce modern science and technology to upper primary students, yet of no nationwide effect. This paper aims to review the latest research on students' attitudes towards science and to present the possible next research steps in amplifying students' interest and engagement in science.

Keywords: Attitudes, scientific literacy, education research, STEM.

EDUCATIONAL UTILIZATION OF NARRATIVE MEDICINE IN KOREAN MEDICAL SCHOOLS

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Abstract
The purpose of this study is to explore current status and future task of educational utilization of medical humanities, focusing on narrative medicine in Korea. For this end, firstly, this study reviewed Korean research literatures on medical humanities. Second, this study reviewed the educational utilization of narrative medicine in medical education and humanities education in Korea. Lastly, this study provided the implication and future task for education and research. This study is expected to be a useful reference for developing teaching and learning model to nurture medical professionals, counselors and therapists, and researchers.

Keywords: Medical humanities, narrative medicine, narrative, current status, teaching model.

RETHINKING THE OTHER FOR MULTICULTURAL EDUCATION – FOCUSED ON THE PHILOSOPHY OF BUBER AND LEVINAS

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Abstract
The number of foreigners residing in Korea exceeded 2.5 million for the first time ever. As the ratio of foreigners to the total population approaches 5%, it is evaluated that Korea has actually entered a multicultural society. It is known that among the types of foreigners staying there are many young foreigners who visit Korea for the purpose of employment. The number of marriage immigrants was 16,025, an increase of 4.3% from the previous year. Of these, 82.6% were women. Entering a multicultural society in a situation where empathy for each other is insufficient can lead to social conflict. In particular, in the COVID-19 pandemic, hostility toward foreigners is more prevalent, and hatred for strangers is increasing. This study critically analyzes these social phenomena and seeks to raise the philosophical basis for multicultural education by establishing a concept with a new perspective on the other. This paper focuses on the philosophy of Buber and Levinas. By establishing 'I and You' as a meeting, Buber presented a new relationship with others. Meanwhile, Levinas emphasized human ethics and responsibility as the absolute and infinite being of the other.
According to Buber, in the world there is a relationship between 'I-You' and 'I-It', and in order to live a true life, you must establish a relationship between 'I and you'. The relationship between 'I and it' is a temporary and mechanical relationship where objects can be replaced at any time by looking at the world from an instrumental point of view. However, the relationship between 'I and You' is a relationship that faces each other personally, and the only 'I' that cannot be changed with anything and the 'You' that cannot be replaced exist in deep trust.

In phenomenology of otherness, Levinas intends to describe the encounter with the something outside the subject. The concepts of possession, distinctiveness and understanding are replaced by those of approaches, proximity, care and fecundity.

In Korean society, a policy that seeks to use foreigners as human resources and, especially in the case of marriage immigrant women, as a solution to a society with low birthrates along with the labor force, shows how society treats others. Therefore, multicultural education must rethink the existence and dignity of human beings through the perspective of the other as asserted in the philosophy of Buber and Levinas.

Keywords: Other, multicultural education, philosophy, Buber, Levinas.

THE TEACHER TRAINING DURING COVID-19 PANDEMIC: AN EXPLORATORY STUDY ABOUT ONLINE LABORATORIES QUALITY

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Abstract
The spread of novel Corona Virus and the resulting Covid-19 Pandemic has had a profound impact in our lives and most of daily activities have been upset. Negative effects crushed education and all around the world schools, universities and tertiary institutions had to shut down moving to Distance Learning. Distance Learning was in fact the global answer to continue educational activities and preserve students' right to education. The United Nations Organization for Culture and Education (UNESCO) reports that ten months after rising pandemic, more than 331 million students worldwide are affected by the Pandemic and in 28 countries the schools are still closed (updated 09.12.2020). During the months of the first contagion curve, only 15% of teaching activities were delivered remotely, globally, thanks to Distance Learning. More than 1.5 billion students worldwide are or have been touched by the closure of schools and universities due to the Covid-19 Pandemic.

Teachers and instructors world-wide had to find the best solution to fix the pedagogical challenge. For this reason, teaching strategies, methods and materials have been adapted to the online learning environment. Distance Learning refers to an electronic learning environment; generally, it is used if time and/or geographic conditions do not allow a direct contact between educators and students (King, Young, Drivere-Richmond & Schrader, 2001). UNESCO (2002) asserts that Distance Learning includes learning process carried out separately in time and space, through artificial electronic or print media; this holds also for a part of the educational process. Distance Learning requires specific evaluation procedures throughout qualitative and quantitative methodologies, focusing the performance assessment and the learning process (Benigno & Trentin, 1999).

This article is a part of a wider research that wants to investigate the students' experience about online Laboratory classes during Pandemic crisis. Based on a quantitative, non- experimental and ex-post-facto research, this article specifically investigates the strategies used during remote Labs students attended during the sanitary emergency. Data was collected through a no-tested research survey administered with an online free app. A voluntary response sample from 749 Single-cycle Primary Teacher Education students, from first year course to the fifth, attending university in one of the most important athenaeums in Southern Italy, at the end of their last second semester. Results from the closed-response questions show the use of a variety of strategies whose effectiveness should be assessed based on empirical evidence.

Keywords: Teacher training, distance learning, Covid-19, laboratory classes, quality.

THEORY AND PRACTICE OF STORYTELLING WITH SCRATCHJR TO DEVELOP EARLY MATHS SKILLS

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Abstract
This paper seeks to contribute to the debate surrounding children and digital storytelling by focusing on its application in preschool to develop early maths skills. Starting from a literature review, the paper describes a brief relevant question of how storytelling and teaching programming can be mutually supporting and

outlines the educational potential of this approach. At the crossroads between the examination of some pedagogical practices, the paper shows a modality of didactic work that is relevant and practicable for conducting digital storytelling activities in the preschool.

Keywords: Digital storytelling, early math skills, preschool, ScratchJr.

MOTIVATION IN FOREIGN LANGUAGE LEARNING: THE DYNAMIC INTERACTIONS OF MANY FACTORS

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Abstract
As all educators know so well, motivation is one of the most, if not the most, challenging aspect of language learning and teaching that they must deal with in their classes. We are therefore presenting a review of the last 10 years' literature on the major constituents of motivation, and on the intrinsic factors (anxiety, emotions, attitude, etc.) that have a deep impact on L2 learners' motivation.

Keywords: Motivation, anxiety, emotions, self-concept, personality.

THE DEVELOPMENT AND PILOTING OF AN INSTRUMENT TO MEASURE NATURE OF SCIENCE (NOS) UNDERSTANDING

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Abstract
The study describes the development of an instrument, to measure NOS understandings of science teachers and a subsequent pilot study to test the instrument. The pilot measured NOS understanding of two teachers using a questionnaire that had been developed by the researcher. The objective of the study was to construct a questionnaire that could measure NOS understanding based on the family resemblance approach (FRA). The NOS is a construct that has been defined by various scholars and there exists multiple perspectives. For this study, two schools of thought defining the nature of science: the consensus view (CV) and the reconceptualized family resemblance approach to NOS (RFN) were considered. The CV has been widely accepted for years to represent the NOS through its tenets, and there exists reliable tools to document NOS. Based on the CV researchers developed an instrument, views of nature of science (VNOS), to document NOS understanding. In the past decade, scholars have challenged the CV of NOS and highlighted shortcomings in its tenets. FRA was developed that depicts science in a holistic system with dynamic interactions unlike the CV that represents NOS as independent tenets. From FRA, emerged RFN consisting of social and cultural categories that affect how science is done. The approach of RFN due to its holistic approach will be preferred in this study. The authors of RFN developed a RFN questionnaire to assess views about NOS using a Likert scale. Due to the limitations of the Likert scale, an open-ended approach is preferred in the qualitative analysis of views of NOS as is found in the VNOS form. To collect data on NOS understanding, the researcher compared VNOS and the RFN questionnaire and developed an integrated family VNOS (IFVNOS) questionnaire.
The IFVNOS questionnaire was administered in a pilot test followed by interviews to elaborate on responses. The responses were analysed by two coders and triangulated to ensure reliability. The responses were allocated codes to document NOS understanding, on a range from naïve to explicit understanding. The findings revealed that the IFVNOS questionnaire developed can be used as a tool to measure NOS understanding and more testing is required to assess reliability.

Keywords: Views, nature, science, family resemblance.

PROCESSABILITY APPROACHES TO RECEPTIVE THIRD LANGUAGE ACQUISITION: IMPLICATIONS FOR MULTILINGUAL CLASSROOMS

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Abstract
Existing research indicates a qualitative difference between Second Language Learning and Third Language Acquisition, and certain psycholinguistic and developmental aspects to multilingual learners merit investigation. The present paper examines stages in receptive learner acquisition of English as a Third Language at Italian-medium primary schools in South Tyrol in Italy employing a picture selection task and implicational scaling analysis. It highlights the role that processing approaches to acquisition proposing constraints on developmental readiness and cross-linguistic influence may play for the emergence of receptive competence in morpho-syntactic structures.

Keywords: Teachability hypothesis, processability theory, third language acquisition, receptive competence, multilingualism.

COGNITIVE AND LINGUISTIC SKILLS ASSESSMENT PROTOCOL: ADAPTATION AND VALIDATION FOR EUROPEAN PORTUGUESE

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Abstract
Linguistic and Cognitive skills play an essential role in the development of communication, language and literacy. Therefore, their assessment of school children is crucial since it allows the child's cognitive and linguistic profile characterisation, according to the school year she attends.
This study intended to describe the adaptation and validation process of the instrument – Cognitive and Linguistic Skills Assessment Protocol. This Protocol was adapted from a Brazilian (Portuguese) version to a European Portuguese version to evaluate the cognitive-linguistic skills of school children (1st to 5th grade). It consists of two versions, the collective version and the individual version.
The collective version consists of writing, arithmetic, auditory processing and visual processing skills; the individual version consists of reading, metalinguistic, auditory processing, visual processing and processing speed skills.
After adapting the linguistic aspects (morphosyntactic and semantic), a pilot study was carried out to verify whether the instrument was well-adapted and easy to understand for the study's target population.
The sample consisted of a class for each school year, excluding children with special educational needs or intellectual/auditory deficits. A total of 75 children were evaluated: 12 children of the 1st grade; 18 of the 2nd grade; 15 of the 3rd grade; 15 of the 4th grade; and 15 of the 5th grade. The results showed that the protocol was, in general, well adapted.
The instrument was then applied to a larger sample (2 classes per school year) in a total of 157 children (without special educational needs or intellectual/auditory deficits), and the data were processed in the statistical program IBM SPSS.
In general, the mean values were the expected ones in all subtests of the Protocol Collective Version and some tests of the Individual Version, from the 1st to the 4th grade, but not the 5th grade, which showed non-expected mean values.
This work provided the possibility for developing the subsequent phase of the study, where percentiles will be calculated to obtain the standard/normalised values to classify children's performance as standard, above average or lower than expected.

Keywords: Cognitive-linguistic skills, validating, protocol, school children.

MOTIVATIONAL POWER OF GAMIFICATION: THE EFFECT OF PLAYFUL LEARNING ON PSYCHOLOGICAL NEEDS OF SELF-DETERMINATION THEORY

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Abstract
Gamification, i.e. the integration of game design elements into a non-gaming environment, aims to increase users' engagement and motivation to achieve their goals regarding a given task. It is placed at the border between formal and informal learning approaches. Motivational difficulties are well known in educational settings, especially in Computer Science, where strict formal content meets very playful computer gamers. Hence, we followed the approach of gamification to raise the motivation of learners in the field of Business Process Management (BPM) lifecycle. We developed a board rallye game, based on 16 game design elements. The core of the rallye game is to convey knowledge in a playful way. In order to be able to determine the effects of the rallye game on several aspects, e.g. knowledge transfer and (learning) motivation, we carried out field experiments with 57 students at the Technische Hochschule Ingolstadt and at the Hochschule Augsburg. In this paper the perspective of self-determination theory (SDT), that has found general acceptance in motivational research, is used to understand and analyze the motivational power of gamification.

Keywords: Gamification, game based learning, business process management, self-determination theory, knowledge transfer.

TEACHING SETSWANA PROVERBS AT THE INSTITUTION OF HIGHER LEARNING IN SOUTH AFRICA

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Abstract
The paper sought to investigate how first year University student's-teachers understand and instil appreciation of the beauty of Setswana language. Since the proverbs are carriers of cultural values, practices, rituals, and traditional poetry, they are rich in *meaning*, they can be used to *teach* moral values for the sake of *teaching* character building among the students and *teaching Setswana* at the same time. *Proverbs* contain values of wisdom, discipline, fairness, preparedness, destiny, happiness, and efforts. *Proverbs* are short *sayings* that contain some wisdom or observation about life and or role-play and to use a few of the *proverbs* to reinforce the *meaning*, using proverbs as a pedagogical strategy, the researcher has observed that student teachers find it difficult to learn and teach learners at school. Students-teacher's think and feel about how they conceptualize proverbs, how they define their knowledge and use of Setswana proverbs. The lecturer observed how the nature of proverbs are linked to the culture embedded in the language. In Setswana language there is a proverb that says, "Ngwana sejo o a tlhakanelwa" (A child is a food around which we all gather) which implies that the upbringing of a child is a communal responsibility and not an individual responsibility. Put in simple terms, a child is a child to all parents or adults, since a child's success is not a family's success but the success of the community. In doing so, the paper will explore on how student-teachers could make use of proverbs to keep the class interested in learning Setswana proverbs. As a means of gathering qualitative data, a questionnaire was designed and administered to student-teachers and semi-structured interviews were conducted with student teachers. The findings revealed that despite those students-teachers' positive attitudes towards proverb instruction, they did not view their knowledge of Setswana proverbs as well as the teaching of proverbs. The paper displays that proverbs constitute an important repository of valid materials that can provide student-teachers with new instructional ideas and strategies in teaching Setswana proverbs and to teach different content, which includes Ubuntu and vocabulary and good behaviour.
Proverbs must be taught and used by teachers and learners in their daily communication in class and outside the classroom in order to improve their language proficiency.

Keywords: Setswana language, proverbs, student- teachers, teaching and learning, Ubuntu.

FACULTY & STUDENT RETENTION: KEEPING OUR HBCU-UDC ALIVE DURING THE COVID-19 PANDEMIC

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Abstract
There is a national crisis around recruiting and retaining students from HBCUs. The Journal of Blacks in Higher Education surveyed 64 of 100 HBCUs and found that only five of the schools surveyed graduated more than 50 percent of their students. The statistics are startling because HBCUs, some of which date to Reconstruction in the South after the Civil War (widely accepted as the period from 1865 to 1877), ostensibly was designed to improve an underserved community. Despite the large number of freshmen admitted each year to Historically Black Colleges and Universities (HBCU), a low number graduate (Tinto, 1993). It is, therefore, imperative that HBCUs implement strategies most likely to increase retention and persistence rates.
When it comes to taking a closer look at pedagogy and practice in teaching, the COVID-19 Pandemic has created innovative environments for faculty to assess the students. The new perspective has many faculties utilizing evidence-based practices regarding performance-based assessment and other innovative techniques to assess students learning. Online teaching & learning and online assessment are likely to occupy a higher percentage of the future curriculum, which can be seen as a positive development for online learning.
A correlation assumed that university faculty satisfaction and fair promotion could have a positive effect on student retention and engagement with a comprehensive analysis of these studies. It is paramount to consider that not only was fundamental student engagement found of tremendous relevance, but the literature is evident that student engagement during the entire higher education experience also leads to higher student retention rates and increased institutional commitment (Burke, 2019).
This paper defines retention and persistence at HBCUs and presents the results of a systematic literature review that (a) identifies the challenges that impact student retention and persistence at HBCUs during the COVID-19 Pandemic and (b) delineates research-based practices/strategies recommended to address the academic, socio-emotional, and financial and health/wellness challenges of students attending HBCUs.

Keywords: Universal design, teaching strategies, HBCUs, retention, persistence COVID-19.

STUDENT TEACHERS' OPINIONS ABOUT USING AUTHENTIC MATERIALS AND TASKS FOR ACQUIRING ESTONIAN CULTURAL HISTORY

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Abstract
According to the Estonian National Curriculum for Basic Schools (2011), students should value their cultural heritage. Therefore, schools should do everything to develop students' cultural awareness and knowledge. Despite the importance of the topic the curriculum does not specify how and where it should be taught and does not say which material to use. One possibility to address the problem is to use authentic materials and tasks. The latter offer numerous ways to learn about one's cultural history, and help to create a bridge between the classroom and real life. Authentic materials are not specifically created for pedagogic purposes while authentic tasks require students to learn, practise and evaluate material the same way as they would do in real life. The focus of the use authentic materials has so far been mostly on foreign language teaching and learning. However, they have a huge potential in acquiring cultural knowledge as they offer both current and historical information. The aim of the study was to find out future primary school teachers' opinions about the authentic materials and tasks used during the course "The Child in Estonian Cultural History". 25 first-year students who attended the course participated in the study. The data was collected from the students' written reflection and analysed qualitatively. The results revealed that the students understood the relevance of authentic materials and tasks in acquiring and appreciating one's cultural history. They believed that authentic materials and tasks enrich the teaching and learning process, and help to make connections to their everyday life. It also became evident that the students needed better instructions of how to find appropriate authentic materials and exploit them effectively in their future teaching career.

Keywords: Authentic material, authentic task, cultural history, students' opinions.

TRANSFER EFFECT OF *N*-BACK TRAINING: MATHEMATICAL IMPLICATIONS IN SCHOOL-AGE CHILDREN

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Abstract
Working memory (WM) is the system which is used for short-term storage and where information about cognitive tasks is manipulated. One of the most important characteristics of WM is its limited capacity, which restricts cognitive performance. Despite of this limit in WM capacity, the efficiency of WM can be improved with WM training and this training effect can be transferred to performance on complex tasks, such as mathematical operations. Such training tasks are complex and necessarily include core processes and these measures, therefore, contribute to difficulty to design tasks and interpret the outcomes for specific changes gained from the training. For example, *n*-back tasks which are used in a wide range of research are based on core training. Since core trainings address the executive functions of WM and enhance the domain-general aspects, increasing performance on domain-general factors may promote both near and far transfer effects of training. In the current study, WM training will be constructed on the basis of the interference framework that characterizes individual differences in WM performance. The aim of this study is to explore individual differences in training and the way transfer effects occur, evaluating gains from Mathematics proficiency. An adaptive version of *n*-back tasks will be implemented for the proposed study, within WM load and interference lures. The study will be carried out with 40 school-age children between the ages of 9 and 12, and Solomon four group design method will be used to group them. *d' (D-Prime)* theory will be conducted in order to obtain detailed comparison between groups as well as interpretation of individual differences in processing of information.

Keywords: Working memory, n-back training, near transfer effect, far transfer effect, mathematics.

ORGANIZATIONAL ISSUES

SMART CV FOR LIFELONG QUALIFICATIONS CERTIFICATION BASED ON BLOCKCHAIN

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Abstract

There is a need for fast, automatic, and trusted verification of a person's qualifications. This paper proposes the Smart CV (Curriculum Vita) that contains links to Blockchain-based certifications of the person's qualifications. Also, the paper proposes an architecture for the Blockchain-based Smart CV consisting of five layers: 1) Trusted certificate Issuers; 2) Trusted Distributed Ledgers; 3) Trusted management; 4) Smart CV; 5) Users. Educational institutes, accreditation organizations, public authorities, employers and others can cooperate to issue and accept these Blockchain-based certificates presented on a person's Smart CV.

Keywords: Accreditation, blockchain, certificates, lifelong education, qualifications certification.

KNOWING TO EMPOWER: STUDY OF THE DIFFICULTIES OF THE INFORMAL CAREGIVER

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Abstract

The Informal Caregiver (IC) faces multiple difficulties in caring for the dependent person. Thus, the purpose of this study is to identify the levels and dimensions of the difficulties experienced by ICs in caring for the dependent person. Methods: Observational, cross-sectional, and descriptive quantitative study, using a non-probability convenience sample composed of 119 ICs from the Central region Portugal. The measuring instrument used included a sociodemographic data form and an Informal Caregiver Difficulties Assessment Scale (EADCI). Results: Moderate difficulties were mostly observed, which were higher in the dimensions caring for myself and activities of daily living. On the other hand, health status/ risk prevention and community and social resources, were assessed in a more positive way. Conclusion: These results indicate that ICs have difficulties at various levels of caring for the dependent person, strengthening the need to implement new strategies capable of responding to these challenges.

Keywords: Informal caregiver, difficulty, care, dependent person.

WOMEN IN ENGINEERING, FACULTY OF ENGINEERING IN BILBAO

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Abstract

The situation of women in the engineering world has different aspects. On the one hand, it can be stated that women are well received in certain areas of the technological world, and they are very integrated into academia. In other areas, such as the world of industrial business, recognition is more complex being those less open environments.

Last century, the woman who broke the taboo in Spain was the mayor of Bilbao and the first industrial engineer graduated in Spain in 1912, Pilar Careaga. By means of her public presence, her message could reach the general society, but as something exceptional. At the Faculty of Engineering in Bilbao, the first female Industrial Engineer was Pilar Ipiña, graduated in 1965. Fifty-three years had passed.

Women in Engineering, more than a century later, remain a clear minority. While it is true that the presence of women in engineering schools is socially fully accepted, it is no less true that many young women dismiss the possibility of approaching that world from an early age. The lack of benchmarks seems to be a clear factor. Many of the engineers who are being interviewed in the search for ideas to motivate girls and young women, end up seeing lacks of references when asked about it.

While the experience of being a woman in such a traditionally male field has lights and shadows, reflect of what can be seen in different referenced studies, a positive message must be transmitted, as this has been the experience of both engineering students and workers in academia or in the business world.

Proposing solutions to smooth out the differences in numbers between men and women in the world of Engineering and Science requires knowing the causes, in order to be able to carry out actions that lead to collecting women's talent and with the appropriate training give it all the value that can achieve, both in the improvement of society as a whole and in the personal development of each of them. The aim is to achieve real equal choice between women and men and put everyone at the service of a better society. Equality is theoretically achieved, but it can still be improved.

Keywords: Women in engineering, engineering education, gender.

CREATING LOVEMARKS THROUGH STUDENTS OF PUBLIC UNIVERSITIES IN IRELAND

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Abstract
This research was carried out to examine the role of educational brand capital applied to public universities in Ireland. To this end, the main contributions in the literature related to the study of brand capital and its application in the Irish educational sector were analyzed, identifying which variables determine brand capital in this sector. Once a suitable model was established, an empirical study was realized using a sample of 423 valid responses from students at the two main public universities in Cork (Ireland). The results obtained will show the repercussion of each variable of the brand capital relative to the determining variables (brand awareness, brand image, perceived quality, and brand loyalty), while laying the foundation for university managers to develop marketing strategies adapted to maximize the building of educational brand capital.

Keywords: Marketing, brand capital, higher education, public universities, Ireland.

THE IMPACT OF COVID-19 ON RESIDENTIAL CARE SERVICES FOR CHILDREN: A CALL FOR FAMILY-BASED APPROACH IN ALTERNATIVE CARE

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Abstract
Children's rights and needs are at the center of the United Nations 2030 Agenda for Sustainable Development, where education is viewed as crucial for providing the opportunities for sustainable, peaceful and equitable coexistence in a changing world. Alternative care settings are educational contexts (Tibollo, 2015) that deal with children in vulnerable conditions (UN General Assembly, 2010). For this reason, they can be considered as a sort of "field test" or "magnifying glass" on how the progress in striving to the implementation of the goals is proceeding – no one must be left behind. The 2020 global pandemic provoked an external shock to current socio-economic dimensions of sustainability. Education has been one of the most struck systems – let's think of the 1,6 billion learners that have been affected by school closures (UNESCO, 2020).

With this global framework in mind, the contribution aims at offering a pedagogical reflection on the impact the Covid-19 pandemic is having on children living in residential care centers (RCC).

Worldwide, many RCCs, following the ongoing global pandemic, have been closed with the consequent return of children to their families of origin (CRIN, 2020). This process of deinstitutionalization, however, has not been overseen by rigorous monitoring, leading to increased risks of violence for children. This urges authorities to take carefully planned measures with respect to deinstitutionalisation in light of the COVID-19 pandemic (Goldman, et al., 2020). But Covid-19 is not only a health risk for children in RCCs. Because of the complex impact that the pandemic has had on the lives of children, on one side care responses are required, and on the other psycho-social and educational ones are also crucial (SOS Villaggi dei Bambini Onlus Italy; Save The Children, 2020). In Italy, for example, special guidelines have been drawn up to mitigate the spread of the virus within residential structures, that sometimes are overcrowded (Istituto superiore di sanità; SOS Villaggi dei Bambini Onlus Italia, 2020). In addition, tools have been provided to support the mental health of the children and adolescents that are deprived of opportunities for socialization given the closure of schools. In some cases they are isolated within the services themselves to mitigate the risk of the spread, causing a limitation in the possibility of seeing people outside the institution as their parents.

Covid-19 underlines the urgency of promoting family-based alternative care for children. In particular, this paper aims to read through a pedagogical lens, the European scenario of residential services for children, to explore the impact of Covid-19 in these services; and to promote a family-based approach in alternative care preventing the risk of institutionalization in children welcomed.

Keywords: Alternative care, children, covid-19, de-institutionalisation, family-based approach.

CONSIDERATIONS OF TALENT MANAGEMENT IN RETENTION OF ACADEMICS IN THE NATIONAL UNIVERSITY OF LESOTHO

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Abstract
The aim of the study was to examine the contribution of talent management practices at the National University of Lesotho in the retention of talented academics. The university has immense competition within the local, regional and international labour market. It is threatened by high mobility and low retention of highly qualified staff, which has affected the quality of learning, especially postgraduate programmes. The study employed Bourdieu's social theory and Adam's theory of equity as a theoretical lens to understand talent management practices to retain talented academics. Bourdieu's theory was used to offer insight on the various forms of capital, and how the capitals could be instrumental in the design and implementation of talent management practices in order to increase retention of talent in universities. In this study 'talent' is used to refer to holders of doctorates, associate professors and professors or researchers of new information and theories and inventors of new technology with great potential to make a significant impact on the university's productivity. A literature review was undertaken to examine how the social theory of Bourdieu, particularly the conversion of different kinds of capital (symbolic capital) are used by the university to recognise the value of talented academics in order to retain these academics. Following a qualitative methodology and purposive sampling, data was generated through semi-structured interviews and document analysis to advance a critical and interpretive understanding of the perspectives of talent management from both management and talented academics in the university. Thematic analysis was used to synthesise the data. The data from fourteen (14) participants composed of management and academics revealed that, though the university is implementing talent management practices, it does not have an official and structured talent management program, which is imperative in retaining academics. This study concludes by advocating the design and implementation of a formal, contextual and structured talent management framework, in consultation with all key stakeholders, in order to increase retention of talent academics in the National University of Lesotho.

Keywords: Equity theory, Bourdieu's social theory, talent management, talented academics.

HIGHER EDUCATION: SUSTAINING THE FUTURE OF STUDENTS DURING A PANDEMIC

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Abstract
The COVID-19 challenge is unprecedented; its scale still is not fully understood. Universities in the South Africa do have plans in place to continue the academic year in 2021 but have no idea to what extent education will resume to normal face to face activity. Although the future is unpredictable, given the uncertainty in the epidemiological and economic outlooks, universities have to ensure quality and sustainability for the medium and long-term implications for teaching, learning, the student experience, infrastructure, operations, and staff.
Amongst the range of effects that COVID-19 will have on higher education this year, and possibly into future years, admission arrangements for students is one of the biggest. It is also one of the most difficult to manage because it is inherently cross sector, involving both schools and higher education. There is no template in any country of how to manage education during the pandemic. However, there are major concerns that exist, in particular, regarding the impact on learners from low income and disadvantaged groups. Many are vulnerable and cannot access the digital platform.
Post 1994, the South African government placed emphasis on the introduction of policies, resources and mechanisms aimed at redressing the legacy of a racially and ethnically fragmented, unjust, dysfunctional and unequal education system inherited from apartheid. Many gains were made over the past two decades especially, in higher education, two of which were access and funding for the disadvantaged students to attend university. However, the pandemic in 2020 disrupted this plan, causing the very same disadvantaged students to stay at home without proper learning facilities, poor living conditions or no access to devices and data. The paper argues that the tensions and challenges that dominated the Covid-19 digital educational reform have resulted in a significant paradigm shift focused on out of classroom experiences as expressed in the new ways of teaching and learning and possibly leaving certain groups of students behind.
Consideration is given to three broad areas within higher education in South Africa. Firstly the current dilemma of teaching and learning, secondly, the access or lack thereof to the digital platform and challenges facing students, and the thirdly, the issue of admission to higher education.
All three areas of concern represent the degree to which we face educational disruption during the pandemic.

Keywords: Access, digital learning, equality, sustainability, teaching.

ENABLING TRANSFORMATIVE INCLUSIVE LEARNING PEDAGOGIES OF PRESERVICE TEACHERS IN MULTICULTURAL HIGHER LEARNING CONTEXTS

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Abstract
Several studies echo the role of participation and interaction in learning activities as crucial to valorise all students equally. Inclusive pedagogy should recognize the disputed nature of inclusive education and the subsequent unpredictability in teaching practices as a means of identifying students requiring additional learning support particularly amid the COVID-19 pandemic. Such variability raises significant questions about the nature and value of educational provision, around the globe, but particularly in the South African multicultural higher learning context. Having applied a transformative learning methodology this paper explores the influence of inclusive learning pedagogies in shaping preservice teachers' repertoires in multicultural higher learning contexts. The findings suggest that transformative learning promotes specific practices such as trusting relationships within the learning context and an appreciation for diversity and inclusivity, opportunities for critical reflection, shared and collective learning, and transformative leadership development. Ultimately, when circumstances permit, transformative preservice teachers move toward a frame of reference that is more self-reflective, integrative and inclusive of experience.

In conclusion we suggest that stakeholders in higher education contexts consider creating institutional spaces for preservice teachers to change their frame of reference in approaching their own teaching and learning repertoires in transformative and inclusive ways.

BRANDING IN PRIVATE UNIVERSITIES AT EL SALVADOR: BRANDS THAT THE PUBLIC FALL IN LOVE WITH

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Abstract
This research was carried out to examine the role of educational brand capital applied to private universities in El Salvador. For this purpose, the main contributions of the literature related to the study of brand capital and its application in the educational sector were analyzed, identifying which variables determine brand capital in the higher education sector. Once a suitable model was established, an empirical study was realized through a questionnaire in digital format, using a sample of 381 valid responses from undergraduate students from a private university in San Salvador (El Salvador). In order to validate the proposed construct, structural equation modeling will be applied, using SPSS v.19 and EQS 6.2 as working tools. The results obtained will show the repercussion of each variable of the brand capital relative to the determining variables, which are: brand awareness, brand image, perceived quality, and brand loyalty.

TRANSFORMATIVE LEADERSHIP IN MULTICULTURAL SCHOOLING CONTEXTS: A CRITICAL REFLECTION OF IN-SERVICE TEACHERS' PRACTICES AND SCHOOL MANAGERS' ROLES

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Abstract
In exercising their power and authority, School Management Teams (SMTs) should engage in transformative leadership which commences with interrogations regarding social justice, democracy and social responsibility. According to Freire's philosophy of education it is further expected of SMT members to support and shape the belief that autonomy is a condition arising from the responsible engagement with decision-making; that we are 'unfinished' in our development as human beings; and that we are responsible for the development of a critical consciousness as a necessary condition of freedom and the creation of democratic and equitable learning spaces. In a transformative leadership context, authority must inform all critical practices of pedagogical intervention and goal setting should support in-service teacher's autonomy, self-worth and develop their potential and the level of intrinsic motivation to flourish in inclusive school settings. This paper reports on a qualitative pilot study conducted with SMT members and teachers in the Northern Cape Province of South Africa to gain their insights regarding their roles as leaders in devising mechanisms to invest in radical democratic principles and the promotion of inclusive school practices. The key findings indicate that the SMT's role require that they interrogate their frame of reference and transform their thinking in terms of social justice in multicultural school settings and create opportunities for in-service teachers to develop professionally and use digital technology creatively to enhance teaching and learning. As a force for transformation, we conclude that transformative leadership may be a catalyst to engage school leaders and teachers in individual and combined processes of awareness of inclusive practices and action.

ENHANCING EDUCATORS' CREDIBILITY IN INTELLIGENT LEARNING ENVIRONMENTS

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Abstract

The deployment and use of Artificially Intelligent tools and techniques has proved to be effective and convenient, rendering them highly popular and desirable within any application. The benefits that such smart services provide are increasingly becoming popular within virtual learning environments as educators and learners continue to revert to such online portals during the academic process of higher education programmes. However, numerous educators have been sceptical of the inferences made by the machine learning techniques that implicitly at the background of the learning environment are monitoring the learner and collecting data to optimize the educational process as well as the learning experience. In an effort to enhance such a credibility we present an intelligent learning environment that justifies its decisions and propositions through an explainable interface that tracks back its conclusions to reasonable and plausible justifications. In this paper we present our research work together with our experiences in developing and deploying such a ground-breaking concept.

Keywords: Artificial intelligence in education, intelligent learning environment, learning analytics, eXplainable AI.

EXPLORING THE IMPLEMENTATION OF TEACHER LEADERSHIP IN LESOTHO HIGH SCHOOLS

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Abstract

Whilst teacher leadership is an evolving concept with a potential that has yet to be realized, the fostering of teachers' leadership growth remains a sustainability element in education worldwide. Teacher leadership for sustainability indicates a fresh and extended consideration of leadership emphasising sustainability principles and providing leadership that transforms the school environment while engaging in collaborative efforts to do so. Located in the interpretive paradigm, this qualitative study sought to elicit the views of Heads of department (HoDs) and District Education Managers (DEMs) in Lesotho high schools to explore the views they consider most relevant in developing teacher leadership skills to ensure leadership succession as sustainable practice. The findings reveal that to achieve sustainable teacher leadership, there is a need to withdraw from a top-down hierarchical model of leadership towards more flexible, transformative, and empowering approaches to leadership. Furthermore, in order to maintain sustainable teacher leadership, HoDs and DEMs must be innovative in providing reflective plans for professional development that can sustain teachers throughout their careers and foster learning environments that are healthy for teachers, learners, and the school. The study recommends that school leaders should mobilise the leadership expertise of teachers in their schools in order to create more chances for transformation and capacity building. Sustainable teacher leadership can help bring about great improvements in a school, including extending the scope of leadership beyond what the HoDs and DEMs cannot achieve alone, and building their relationship capacity to become collaborative change agents.

Keywords: District education manager, school management team, sustainable teacher leadership, teacher leadership.

POSTERS

TEACHERS AND STUDENTS

THE LEARNINGS OF THE BASIC EDUCATION TEACHER

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Abstract

The research has as object of study the learning of basic education teachers in order to identify the learning of basic education teachers in their professional performance that contribute to their teacher education. The survey was conducted through a questionnaire using the Lickert scale answered on the google forms platform. 370 teachers from all regions of Brazil participated in the research. The study references are based Zeichner (2008), Martins (2009, 2016). In the analysis of the answers, the highest index of the scale was considered for the indication of the percentages. None of the answers obtained a 100% indication of the highest index on the scale. The responses with the highest number of responses were grouped into the following categories: teachers learn in (i) collective teaching practice and management in the school space; (ii) in their own teaching practice; (iii) with the reflection of its practice; (iv) in courses, lectures and (v) by conducting individual studies. The responses with the lowest index refer to learning: in informal spaces, on the internet and with the parents of their students. The most valued responses refer to learning: sharing problems; of ideas and opinions about education; planning classes in collaboration with school teachers; teaching together with another teacher in the same class; insertion of new teaching methods and innovations; they participate in school coordination councils where new possibilities are discussed and in many situations they read, consult; they prepare and develop workshops at the school to support teachers at the school and other schools. Teachers emphasize as a strong possibility of reflection and investigation their practice in the act of teaching and learning by reviewing the experiences: contradictions between the ideas about teaching and how they are put into teaching practice; when the teacher describes his practice to other people. By examining his experiences in practice, observing the strengths and weaknesses, and in reflections on his own beliefs and conceptions about teaching, the teacher has the opportunity to change his practice. The conclusions indicate that the teacher's practice contributes to his education.

Keywords: Teaching practice, teaching, basic education, teacher education.

WHAT DOES A STUDENT OF A TEACHING DEGREE LEARN APART FROM SUBJECTS?

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Abstract

Awareness of emotional experiences, vicarious learning and values, in relation to teaching profession, had emerged as a core of interest in previous research. This case study aims to activate awareness of future teachers in several ways. It is about developing critical reasoning about learning from a complexity perspective: (a) training the ability to contextualize learning with their personal beliefs and values, (b) improving strategies to transfer it, and (c) accompanying construction of professional judgment.

The intervention is carried out during two academic years with students of Teaching Degrees in Saragossa (Spain). Learning goals and evaluation are maintained, but teacher-student and peer communication styles are modified. The key to the new methodology is to strengthen the personal and professional narrative in coherence with the subjects. It is a priority that students feel synergies between what they learn, their vicarious knowledge, their emotional memory and the vocation for teaching.

After each semester, discussion groups have been held, obtaining 14 hours of video recording, with the oral narrative data of 215 students divided into groups of 5. Three emerging categories have been obtained (professional vision, professional development and appreciation of teaching action), and nine subcategories have been defined on a second phase of the analysis. During university education, there are memorable teachers who motivate action and career leadership, others who go unnoticed, and some who perform a negative influence. The reason is, first, in the unconscious inference of their pedagogical models; and second, in the feelings that have emerged during the time shared with them.

Keywords: Preservice teacher education, case study, affective pedagogy, vicarious learning, teacher beliefs.

INTERDISCIPLINARY AND INTERSECTORAL DOCTORAL EDUCATION DESIGNED TO IMPROVE GRADUATE EMPLOYABILITY

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Abstract
Typically, less than half of doctoral graduates will be employed in academia immediately after graduation, with less than 10%-15% achieving a long-term academic career. This leaves 85-90% of PhD graduates seeking employment outside the academic setting, for example in industry and government. The objective of the CHAMELEONS study (CHampioning A Multi-sectoral Education and Learning Experience to Open New pathways for doctoral Students) is to develop innovative educational interventions that shape more adaptable, entrepreneurial, and employable graduates, ready to meet the challenges of the future. Stakeholders from the connected health industry, clinical care, charities, patients, patient representatives, government, recent doctoral graduates, and academics were invited to participate in a "World Café" participatory method for collecting qualitative data. Owing to the COVID-19 health situation this took place via Zoom. Analysis of the results revealed 4 key learning objectives for doctoral graduates to: 1. Develop networking and communication skills. 2. Understand user centred research design. 3. Market research capacity and research skills. 4. Build an understanding of themselves and others. This led to the development of three bespoke doctoral modules: 1. Forging relationships: Building and Sustaining your Doctoral Network; 2. Managing the Project: Keeping on Track with an Eye to the future; Module 3: Starting your Career: Future Proofing your Career and Getting a Job. These modules are available to doctoral students across five European Universities.

Keywords: Intersectoral, interdisciplinary, doctoral, education, participatory.

CULTURALLY RELEVANT WRITING ACTIVITIES FOR ENGLISH LANGUAGE LEARNERS

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Abstract
This presentation will highlight that language instruction needs to reflect the students' home culture and community. When lessons are relevant for English Language Learners (ELs), they are more motivated to learn. Teachers can use purposeful writing to empower ELs to the extent it allows them to present their personal stories and culture. The presenters will discuss how teachers can design purposeful writing activities which are meaningful, relevant and useful to students.
These writing activities stimulate the students' curiosity about new content and engage them in creative literary work. We will share samples of purposeful writing activities for teachers who work with ELs to encourage the students to develop their English language proficiency and to learn content knowledge.
Purposeful writing motivates students to learn across the content to solve real issues that matter and promote a better society. The presenters will demonstrate how purposeful writing is designed to give ELs an opportunity to express a personal meaning and to convey intended ideas to an audience. Purposeful writing focuses on the writing process over the product; supports students with a print-rich environment; provides choice within a variety of forms and genres; allows an experience of the recursive writing process; and gives an opportunity to interact with peers and teachers in response to text.

Keywords: Purposeful writing, English language learners, language proficiency, content knowledge.

PROJECTS AND TRENDS

IMPORTANCE OF DIGITAL COMPETENCES AND ATTITUDES TOWARD RESEARCH IN MEXICAN TEACHERS

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Abstract

The aim in our study was to determine the importance of digital competences and attitudes regarding research to teachers, according to various variables such as gender, age, and level of studies. A questionnaire was used to gather information from 28 teachers at the Escuela Normal de Educacion Primaria "Rodolfo Menéndez de la Peña", in México. The questionnaire was developed based on Aldana y Joya (2011), and the GIDU-EDUTIC/IN research group from the Universidad de Alicante. The questionnaire comprises 48 questions on the importance of digital skills and 50 questions on attitudes towards research. All questions use a Likert scale with 5 answer options. Cronbach's Alpha was used to determine the reliability of the instrument. It was found that the questions related to the importance of digital competence an alpha equal to 0.912 and for the questions of attitudes towards research an alpha equal to 0.854. It was found that teachers considered important the five digital competences dimensions. It also was found that they considered that creativity and innovation as the most important dimension and the use and access of information as the less important. The participant teachers' attitudes towards research were more neutral. It was found that the cognitive dimension was the one with the highest score, while the behavioral dimension the one with the lowest score. It is concluded that training needs are detected to improve their digital skills and their attitude towards research, the need for further research on the effect is perceived that could have for the development of research groups in this institution.

Keywords: Digital competences, attitudes, attitudes toward research, teachers, Mexican teachers.

SELF- AND PEER-ASSESSMENT TO ENHANCE STUDENT ENGAGEMENT IN UNDERGRADUATE GROUP PROJECTS

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Abstract

Group projects are an important part of undergraduate computer science learning because of their role in developing working skills which are vital for professionals in the computing industry. While group projects offer many potential learning benefits there is no guarantee that the development of working skills will be achieved. In fact, group projects introduce their own stresses and strains for students due to the need to share the workload as fairly as possible, in how individual contributions are measured and recognised, the effect this has on individual performance, and ultimately how this contributes to the student's success in the course. Group projects which are not designed, supervised and assessed in a way that promotes meaningful teamwork and collaboration can lead to failure. In this paper we demonstrate practical use of the WebPA system to allow students to perform self- and peer-assessment to effectively measure individual contributions within group projects. The impact of the tools in supporting and measuring performance is validated through quantitative student feedback where we demonstrate significant student engagement in the assessment process and student satisfaction in mark allocation.

Keywords: *Peer-assessment, self-assessment, group projects, computer science, WebPA.*

MOOCS AS A TOOL FOR VIRTUAL UNIVERSITY ORIENTATION

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Abstract
The Covid-19 era, and its enforced transition of all teaching and learning activity to the online space, is potentially leading to reduced university enrolment rates. International student enrolments are predictably down due to travel restrictions and concerns about student safety, but even at home the same trends are being observed. One of the conversations around this issue is the value-for-money question in relation to a perceived reduction in the quality of the overall student experience when the networking opportunities of on-campus life and study are taken away. A further question is the level of digital readiness of staff and school-leaver students, and whether they are able to deal successfully with preparation for final-year school exams, university choice, and for university entrance tests in remote learning. Federica Web Learning, the University Centre for Research Innovation and Dissemination of multimedia and distance learning, has long been making the case for MOOCs as a valid tool for virtual orientation. In the current climate, MOOCs can provide chunks of ready-made quality learning content for use as the asynchronous component in today's hybrid online courses, meaning that the time teacher and class spend in plenary, in video-conferencing, can be devoted to discussion and more in-depth analysis of the learning objectives. The MOOCs can be specially chosen from the growing range on offer from university providers around the world: some provide remedial content in problem subjects and topics; some offer specific exam preparation content and others offer university orientation, or study skills.

Keywords: MOOCs, university entrance, hybrid models, digital readiness.

IMPROVISATION IN THE TIME OF COVID: FINDING NEW THEATRICAL FORMS TO ACCOMMODATE DISTANCE LEARNING

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Abstract
Teachers of theatrical performance, specifically improvisation, have been particularly hard hit by COVID-19's physical restrictions and/or move to online video learning platforms, mainly because improv mostly progresses through physical cues. Typically, groups of scenes or "sets" are built around a strict physical model where two or more performers create a scene while the remaining players stand upstage side by side in a line ("the backline"). New scenes are indicated ("edits") when actors from the line touch (or "tag") other actors or run directly in front of them ("sweep"). In the spring of 2020, when university mandates shut down live instruction and courses in improv training moved online, teachers struggled to translate their normal course of instruction to a video format which has its own fragmented visual language and mode of communication. Even professional improv theatre companies that attempted online performances proved uninstructive – they failed to address the complexities of removing proximity, the engine that drives this theatrical medium. In this presentation, I will show best practices for teaching advanced forms of improvisation online by demonstrating structures that excel in this new virtual environment, some of which can be utilized when face-to-face instruction returns.

Keywords: Teaching, theatre, performance, improvisation, COVID-19.

HERITAGE AND ART EDUCATION THROUGH THE SCREEN. FILLING THE SPACE BY PERFORMATIVE METHODOLOGIES

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Abstract
Long before the pandemic, museums started to invest, experimenting with some performative practices (Bishop 2006; Lista 2006) as a method and tool to foster access and participation of different audiences to their heritage. Since the advent of the #culturequarantine, in which most of the educational activities have taken place through a digital space, care and attention to gesture and space have become a key to respond effectively to the needs of educators and users. After an initial phase of rejection and disorientation, teachers, educators and trainers had to find new answers. The aim of this contribution is to describe some of these answers looking at methodologies coming from the field of choreographic and performance research. The argumentation will pass through the narration of some international proposals, three action research experiences accomplished with museum educators and schoolteachers, through which it was possible to observe how the needs and requirements changed as the lockdown conditions changed. The outcome of the research, which took about one year, is the reconsideration of the body as a mediator of the educational and training experience. On the one hand we see the "body as archive" for new knowledge, on the other hand, the space of digital educational activities is reified, thanks to this new role of the body.

Keywords: Heritage and art education, distance education and elearning, learning space, performance, challenges and transformations in education.

CREATING A VIRTUAL STUDY ABROAD EXPERIENCE TO RUSSIA

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Abstract
COVID-19 has drastically altered our world. Though travel is halted, global education does not have to stop. We used this time to reconceive the notion of study abroad and designed a study abroad program that could be facilitated virtually and enhanced with face-to-face classroom interaction. We were inspired to embark on this journey for several reasons. First, the realities of the pandemic create risks associated with international travel. Second, international experiences need to be more accessible–more students should be able to participate in global education, even if they do not have the means or ability to do so. We present our design considerations in building and implementing this virtual study abroad program. As part of the design, we partnered with VEXA (Virtual Experiences Abroad), a Moscow-based company that built the online interface and facilitated the interactions between our students and Russian citizens, including visits to a Russian Orthodox Church, the Bolshoi Ballet theater, and elementary and middle schools. We also brought elements of Russian culture to life through face-to-face experiences including a live cooking session with a Russian chef, discussions with a Russian Orthodox priest, and a ballet lesson with a company member of the Bolshoi theatre. These types of experiences facilitated group discussions and social interaction opportunities, crucial for establishing relationships. Overall, our main goal was to reconceive the traditional notion of study abroad while garnering results that would match the transformational gains that global education provides.

Keywords: Study abroad, technology, multicultural education, global education.

NEW ACTIVE METHODOLOGIES FOR CRITICAL LEARNING IN THE FIELD OF BIOCHEMISTRY OF HUMAN NUTRITION

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Abstract

Background: The teaching of the subject "Biochemical Basis of Human Nutrition" of the Degree in Biochemistry is based on the premise that students apply the knowledge acquired in previous courses concerning biochemistry and metabolism. However, for many topics covered in this subject, not rigorously application of this knowledge has been detected, existing influences derived from non-expert information available in the media. To a large extent, this problem lies in the fact that nutrition is a topic widely covered in the media, although often in a generalized, incomplete and not very rigorous way.

Methodologies: In this project we proposed students to apply a critical view on nutrition-related information available in the media, with special emphasis on the hottest topics, such as transgenic foods and Mediterranean diet. For this purpose, we designed two strategies: (1) a mini-workshop activity in connection with the subject "Food Biotechnology" focused on the use of transgenic foods; (2) involving students in the creation and management of a web page aimed at dealing with topics related to nutrition, worked from two approaches (informative and scientific). For the development of these activities, students were assigned to different working groups and information about the knowledge of the students in the topics was collected in pre- and post-activity tests. In this way, we involved students in real activities of expert search and screening of information, in order to communicate it in different environments.

Results: The project was developed during two academic years, involving students from two successive promotions (30 students in the first year and 39 in the second year). The activities proposed within the project were voluntary, and the percentage of adherence to them was 100% in both cases, indicating the high degree of acceptance among the students. We created a website (*www.lawebnatural.com*) in the context of this project. In the activities aimed at researching and writing articles on specific topics within the web page environment, questionnaires were carried out prior to the development of the activities to evaluate the degree of knowledge that the students had about the topics to be worked on in the activities. The implementation of post-activities questionnaires showed an improvement percentage of 85% in the knowledge of the topics. The elaboration of graphic material on transgenic foods for the mini-workshop activity, was another profitable activity contributing to a better understanding of the topics.

Conclusions and implications: The use of these dynamics concerning the active participation of students in creative tasks based on information search improves the quality of learning. The choice of current topics in nutrition awakens the students' critical spirit, as they confront their pre-established ideas about these topics with the new knowledge acquired.

Findings: This communication is derived from the Educative Innovation Project PIE19-068, funded by University of Malaga. Websites were supported by funds from My Scientific.

Keywords: Nutrition learning, web page creation, critical learning, nutrition topics.

BLUEPRINTS FOR CHANGE: WHAT MULTICULTURAL EXPERIENCE OFFERS INSTRUCTORS OF PRE-SERVICE EARLY EDUCATION TEACHERS

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Abstract

This research is part of a long-term study focused on the redesign of pre-service early teacher education based on observations of schools that use a multicultural inclusive model. The Swedish school highlighted in this research provides a case study in how international standards are appraised by education stakeholders (researchers, educators, the local community, etc.) and then transformed into curricula in local practice. The key to this Swedish approach is the emphasis on democratic values in education. This gives the educators at the preschool in question a traditional "Swedish" basis for their progressive efforts to rise to

the challenges presented by their multicultural student body, challenges they meet by creating a warm and welcoming atmosphere for all members of the school community, students, teachers, and parents alike. The goal is to make each person feel valued and included in the educational process. The emphasis is on inclusivity for all, whatever their background, religion or socio-economic status. The approach of the Ringmuren Forskolan is presented as a potential model for institutions that have the responsibility of preparing pre-service teachers for their work in an increasingly multicultural world.

Keywords: Multiculturalism, pre-service, inclusivity, preschool.

SCHOOL LEADERSHIP AND TEACHERS' IMPLEMENTATION OF CURRICULUM REFORM IN TAIWAN: MEDIATING EFFECT OF TEACHERS' ORIENTATION

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Abstract
In response to the global education development trend, Taiwan had officially launched the Competency-based Education Reform in 2019. Although school leadership has been linked to teachers' changes, the relationship's underlying mechanism remains unclear. Thus, we aimed to examine the mediating effect of teachers' orientation toward curriculum changes on the relationship between school leadership and teachers' implementation of reform. In October 2020, we conducted a questionnaire survey on teachers in 53 elementary and middle schools among six counties/cities in Taiwan. Among 506 valid responses, 345 teachers are women (68.2%) and 161 are men (31.8%). We adapted the Education Reform Scale developed by Ramberg in 2014. The dependent variable was "Teachers' Implementation of Curriculum Reform (3-item)". The main predictors included "School Leadership (4-item)" and "Teachers' Orientation toward Changes (3-item)". Each item was responded to on a 6-point scale from strongly disagree to strongly agree. We used SPSS PROCESS macro to conduct the mediation analysis. After controlling for teacher's characteristics, the regression model showed that school leadership is positively associated with teachers' implementation of reform ($\beta=0.450$, $p<0.001$). After adding teachers' orientation in the model, the association of school leadership with teachers' implementation of reform attenuated but remained statistically significant ($\beta=0.286$, $p<0.001$). Teachers' orientation showed a significant indirect effect on the association between school leadership and teachers' implementation of reform ($\beta=0.164$; Bootstrap 95% CI=0.105 to 0.227). This study suggests that teachers' orientation toward curriculum changes partially mediates the relationship between school leadership and teachers' implementation of the Competency-based Education reform.

Keywords: Competency-based education, curriculum reform, school leadership, teachers' orientation, Taiwan.

TEACHING AND LEARNING

A MOTOR INTERVENTION TO PREPARE LEARNING TO WRITE

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Abstract
Writing is a complex activity that requires the automation of graphomotor skills. Unfortunately, 10 to 30% of primary school students have difficulty at this level, which impairs the development of writing skills. It therefore seems judicious to intervene in kindergarten to support motor precision as well as visuomotor capacities, considered as prerequisites for writing by many researchers. The purpose of this study was to investigate the effect of motor training on visuomotor integration, motor precision and handwriting performance (speed and readability) in 5-year-old children. According to a quasi-experimental design (pretest, post-test with control group), 34 children participated in an intervention in subgroups, twice a week for 6 weeks. The mean and standard deviation were calculated for each of the tasks performed. Statistical tests (t test) were then carried out. The results show that the children in the experimental group improved their motor precision as well as their graphomotor skills compared to those in the control group. This project provides new insights into the benefits of working on basic skills in preparation for learning to write and will equip teachers on how to guide and support graphomotor skills before entering first grade.

Keywords: Motor intervention, handwriting, kindergarten.

ORGAN DONATION: AN EDUCATIONAL PACK FOR HIGH SCHOOL STUDENTS

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Abstract
Blood, bone marrow and organ donation is a major issue that concerns all of us. Even though 18 is the age of eligibility to become a donor, awareness should be raised earlier through education. To this end, and given that this issue is marred by prejudice and misconceptions, we developed an educational pack, aimed at senior high school students, which may be delivered in the context of a biology or sociology course. The proposed teaching intervention follows a three-fold approach: (1) First, students are educated on monoclonal antibodies and relevant biotechnology tools and their role in organ transplantation via a board game, (2) Second, we promote empathy using a free writing exercise that employs art prompts and audiovisual material, (3) Third, we assign students with research projects that involve building questionnaires, collecting and analyzing data and producing a science poster to be posted on the school website. Importantly, the aim of this proposed intervention is to educate and to raise awareness while students build on their research, technology and writing skills.

Keywords: Organ donation, science literacy, research thinking, active learning, secondary education.

PERSONAL PERSPECTIVES THAT MATTER

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Abstract
The purpose of this paper is to contribute to the existing literature about the theoretical and practical aspects of lesson study and its usefulness in preservice teacher reflectivity. Lesson study is a professional development model that began in Japan and is used in schools and universities among educators in many

different parts of the world. Collaborative research lesson study, a variation of lesson study that maintains essential elements of lesson study used in Japan, has been used with preservice teachers at a small university in Hawai'i. This paper seeks to highlight the differences and suggests areas of study for further consideration.

Keywords: Lesson study, collaboration, groupwork, inquiry, reflection.

CO-CONSTRUCTING A LEARNING EXPERIENCE TO APPROACH MENTAL ILLNESS IN THE CLASSROOM: A TEACHING MICRO-SCENARIO

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Abstract
Social distancing, isolation, stress, and fear in the times of the COVID-19 pandemic are factors that trigger or exacerbate mental health conditions. Further to this, mental health literacy is particularly relevant to secondary education as puberty is a common age of onset of mental disorders. Nevertheless, the topic is somewhat overlooked due to teaching challenges that involve potential emotional triggers, the complex and sensitive nature of the issue, as well as a limited pool of educational resources. Here, we propose a teaching micro-scenario that addresses the topic of mental health literacy via an interdisciplinary approach that promotes active learning. First, students are introduced to the neurobiology of mental disorders by means of engaging with interactive audiovisual materials and a 3D brain simulation. Then, students work on their statistics skills by calculating estimates on affected populations including the school community. Finally, art and creativity are employed to explore healing and public health. The evaluation of the proposed learning intervention is achieved in the form of plenary discussion.

Keywords: Mental health literacy, secondary education, active learning, interdisciplinary education, STREAM.

ORGANIZATIONAL ISSUES

TELECAREER: ANTECEDENTS AND CONSEQUENCES OF STRATEGIC CAREER BEHAVIOURS ON IBERIAN TELEWORKERS

Joana Carneiro Pinto
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Abstract
This paper aims to present the state of the art, objectives, methodology and expected results of a project that investigates the nature, causes and consequences of the use of strategic career management behaviours in an Iberian sample of teleworking adults. Specifically, our purpose is to analyze the strategic behaviours - authenticity, balance and challenge - according to the Kaleidoscopic Career Model developed by Sullivan and Mainiero (2008). The role of self-efficacy beliefs, the desire for career control, and perceived organizational support, as antecedents of those career behaviours, will be assessed, as well, as the consequences of their use on perceived career control, objective and subjective career success, and career satisfaction. The aim is to develop an explanatory model of career management for Iberian teleworkers, with implications for the design of human resource development programmes in organisational contexts. It is an innovative project on the international scenario, by the target population on which it focuses, but also by the combination of the selected career variables.

Keywords: Strategic career behaviours, human resources management, teleworkers, empirical model.

WORKSHOPS

TEACHERS AND STUDENTS

RADICAL PRESENT AND REFLEXIVE CONNECTIONS.
DIDACTICAL APPROACHES TO ALIENATED SPACES

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Abstract
Our starting position is the observation of disappearing public spaces and due to that an increasing alienation in social structures (the global pandemic situation having accelerated this). From two different fields of pedagogy (philosophy of education and performative arts) we aim to set up didactical approaches that give a counterbalance to those tendencies. Especially growing possibilities and challenges of digital formats lead us to a pedagogy of the "Radical Present". On the basis of our previous theoretical research and practical work in schools and workshops we want to discuss and apply concepts and methods of "Reflexive Connections" and „Whole-Body-Performances" as ways of initiating experiences in pedagogical settings. Anyone who shares the interest of finding ways of connection as a joint democratic idea is welcome to participate e.g. teachers, graduate students, masters or doctoral students, researchers and others (8-12).

Keywords: Radical present, reflexive connections, spaces of empathy, „soft eyes", experience.

ORGANIZATIONAL ISSUES

PRINCIPLES FOR HOW WE TREAT EACH OTHER: EQUITABLE CONVERSATIONS IN OUR EDUCATIONAL AND PERSONAL SPACES

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Abstract
Educators have the unique opportunity to promote equity, change, and social justice ideals to an entire generation. Through daily lessons, classroom norms, and beliefs, classroom teachers can disrupt inequity among students. The Peace and Justice Institute (PJI) at Valencia College has worked with approximately 140 educators through the week-long PJI Teachers Academy over the past three years. This workshop explores the basis of the PJI philosophy, the Principles for How We Treat Each Other: Our Practice of Respect and Community Building (PJI Principles), and discusses social justice practices and norms that research indicates support equity and inclusion in the classroom. This workshop will begin with a brief introduction to the Peace and Justice Institute and the presenter backgrounds. Research has indicated that the practice of reading the PJI Principles aloud, discussing them with members of the community, and focusing on application impacts the way we communicate with each other in our personal and professional spaces. In this session participants will read the PJI Principles aloud, hearing the voices of their online community as they discuss the implications of a standard set of norms. Following the initial reading, the presenters will dive deeper into three of the principles, working with participants to explore practical applications of the PJI Principles. With the understanding that social change towards equity and justice can begin with teachers and their classrooms, this workshop will conclude with research regarding personal and professional change related to the PJI Principles. This presentation is open to all participants.

Keywords: Equity, inclusive, social justice, education.

AUTHOR INDEX