

DAUGAVPILS UNIVERSITY

The 15th BBCC/JTES Conference on
Sustainable Development,
Culture, and Education:
Interplay of Tradition and
Innovation for ESD

ABSTRACT BOOK

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Edited by:

Dr. Javad Gholami (Urmia University, Iran)

Dr. Astrīda Skrinda (Daugavpils University, Latvia)

Dr. Anita Pipere (Daugavpils University, Latvia)

PhD. Dzintra Iliško (Daugavpils University, Latvia)

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KEYNOTE SPEAKERS

Educating for Sustainable Development in the Public Sphere: Dublin in the Coming Times city-wide initiative

Charlotte Holland

Dublin City University, Ireland

A key challenge in ESD is the engagement of the members of the public discourse in matters relating to ESD. This keynote presentation outlines an innovative approach to ESD that was activated within the partnership of RCE Dublin, a Regional Centre of Expertise in ESD acknowledged by the United Nations University in 2014. The Dublin in the Coming Times project is a city-wide initiative led by a founding partner of RCE Dublin, namely Fighting Words, and includes the partnership of Dublin City Libraries, Dublin UNESCO City of Literature, Dublin City Council, museums, and community groups across the greater Dublin region. The aim of the project was to stimulate discussion among the citizens of Dublin about the future of the city. The project was initiated through the publication of a series of works envisioning Dublin city in the future. These artistic works were created by renowned Irish artists, writers, musicians, and performers and published in a leading national newspaper, The Irish Times, over a 6-week period from February to March 2016. This was followed by a series of creative writing workshops (facilitated by the aforementioned partnership) that enabled citizens to articulate their own vision of Dublin city in the future. 3500 citizens of a region in Dublin have participated in the workshops including adults, youth, school-going children, active retirement groups, and special needs groups.

Keywords: Sustainable development, Dublin, creative writing workshops

Good teachers/trainers are jugglers: process options in teaching and teacher training

Javad Gholami

Urmia University, Iran

After a teacher training program, one teacher told me that there was very little to learn from what I presented, but she was very much inspired by and benefited from how I kept running the sessions. These days, how means teachers and trainers achieve their educational goals (i.e. process options) are as important as the content of the programs they deliver. Inspired by McGrath (1997), this study aims to introduce process options and their judicious employment in teaching/training contexts. What process options are predominantly employed or deemphasized in teaching and teacher training programs? To what extent do teachers/trainers utilize knowledge-oriented and teacher/trainer-centered processes and action-oriented and learner/trainee-centered processes along with reflecting in their classes? In light of multiple intelligences, it also discusses various instances of process options in learning and teacher training contexts and in what ways these options could effectively be customized and sequenced in learning and teacher training environments.

Keywords: process options, teacher, trainer, learner, juggler

The transformation of Japanese schools that significantly addressed Education for Sustainable Development

Tomonori ICHINOSE

Miyagi University of Education, Japan

Education for Sustainable Development (ESD) requires learner-centred and interactive teaching strategies such as critical thinking, participatory decision-making, values-based learning, and multi-method approaches, all of which to some degree contrast traditional lecture-based teaching practices. This paper focuses on the transformation achieved by and the effectiveness of a pluralistic ESD approach to teaching in the context of formal education in Japan. Based on answers from a questionnaire administered to head teachers in 469 ESD schools, this research shows that teachers recognise that students' motivation and desire to play an active role in finding solutions to create a sustainable society are realised to some extent. In the holistic understanding entailed by ESD, there are three essential aspects of holism – environmental, social, and economic – and connecting these three dimensions is important. This research also reveals that in Japan, the concept of 'locality' includes environmental, social, and economic dimensions. Familiarising themselves with local issues allows students to tackle the problems faced by local areas and to think about how to sustain the beauty of nature and culture by engaging with local resources (including human resources) – an important aspect of ESD. However, it cannot be said that teachers clearly understand their role as coaches and change agents, and there were no reported cases of teachers and students collaboratively designing school activities. Thus, there is still space for more profound teaching and learning growth in ESD in Japan.

Keywords: Pluralism, UNESCO-Associated Schools, Locality, ESD Calendar, Whole-School Approach

SECTION 1

Transforming the World into a Better Place Through Higher Education and Research

Dialogicality as a principle of complexity: making meaning in transdisciplinary context

Anita Pipere

Daugavpils University, Latvia

This conceptual presentation aims to show how the field of education per se and sustainability as a system of human meaning making, perceived as a wicked problem, would benefit from the acknowledgement of some previously unrecognized links between complexity and dialogicality. The concept of transdisciplinary will be introduced as a scientific approach to deal with wicked problems. Also, the taxonomies of dialogue will be discussed to grasp the main principles of how to use dialogue in the transdisciplinary framework of collaboration. Different classifications of dialogue in social sciences and education will be provided and the specific types of dialogue like inquiry and discovery will be analyzed in a detailed way. The ways for tackling wicked problems, namely authoritative, competitive and collaborative strategies along with their dialogical features will conclude this theoretical exercise on making our world a better place.

Keywords: complexity, dialogicality, education, sustainability, transdisciplinarity

Contradictions in Higher Education

Laura Dzelzkaleja

Riga Technical University, Latvia

The paper is an attempt to summarize the current contradictions in higher education system. Despite of the research and rapidly developing knowledge and technological possibilities, it seems that higher education system is not changing accordingly. Hence, it is important to understand the underlying reasons and historical background in this regard to move towards sustainable higher education system. This paper provides an overview of seven main contradiction groups. Shortly, the groups are as follows: Willingness to teach comprehensively VS availability of finance; Traditions VS. novelties; Willingness to learn VS financially survive; Student x VS student y; “Women professions” VS “male professions”; The mission of a higher education institution; Graduate skills and knowledge VS skills and knowledge needed by the employer. The analysis is more focused on situation in Latvia and the post-soviet space since the authors are well acquainted with the system. The research site was selected to be university mission. This was due to the mission statement analysis which found that low rated universities ignore the distinction between education and training and focus dominantly on training. Besides, this fact may lead to future problems interfere with the sustainable education goal.

Key words: gender issue, higher education, male/female professions.

Educational Construction of Europe

Elizabeth Enogbu Balogun

St. Annes Academic Research Center, Nigeria

Although it is generally acknowledged that the building of mass schooling systems must be considered in close relation to the emerging nation-states of the long 19th century, few published studies discuss the interrelation between the actual foundation of the (nation-) states and the introduction of the modern school. This article examines the role constitutions play in the construction of national citizens as an expression of a particular cultural understanding of a political entity and then discusses European examples, indicating how the particular constitutional construction of the citizens of European countries almost immediately triggered the need to create new school laws designed to organize the actual implementation of the constitutionally created citizens. The focus is on the specific need to 'make' loyal citizens via creating the symbiosis between the nation and the constitutional state as well as emphasizing the cultural differences between the individual nation-states and their overall curricula. The article concludes with the formulation of research desiderata which envision a transnational curriculum history that is emancipated from national and global research agendas, enabling a European educational history that respects cultural distinctions rather than leveling them into one grand narrative.

Keywords: citizens, culture, education, nation-state

Marking the cultural aspects of ESD competences in teacher education

Ilze Briška, Gunta Siliņa-Jasjukeviča

Latvia University, Latvia

Education for sustainable development cannot be considered without a teacher who thinks systematically and critically, reflects on cultural and sustainable values, and is an authentic, self-conscious, creative, self-confident, and communicable person. The aim of the present study is to explore the cultural aspects of ESD competences within Latvian teacher education programs in order to examine student-teachers' learning experiences and teacher educators' beliefs and expectations. A content analysis of documents and focus-groups discussions was run. The conclusions indicated good practice examples of the development of cultural aspects of ESD competences in teacher education in Latvia, and the main challenges – Which cultural components of ESD competences are ignored or not appreciated highly? The discussion suggests the pedagogical ways of further development of ESD competences in teacher education in Latvia.

Keywords: aims, outcomes, learning content, environment, process, the overall purpose for societal transformation

The Contemporary E-Learning Community in the Context of Sustainable Education

Sabine Grinberga

Riga Technical University, Latvia

Sabīne Grīnberga, Riga Technical University, Latvia

Nowadays, the contemporary globalized, complex, diverse, and multicultural social environment requires people to learn throughout their lives. Thus, the question of using technology in education is topical, while at the same time not forgetting the existence of a human being as an individual in a virtual environment and an e-learning community. It is crucial to remember that not only the effective design of curriculum and online instruction but also situated learning based on the real life situations as well as guiding the interaction and cooperation among e-learning community members are of high importance. It will help to strengthen social capital, which is the driving force of humanity development and well-being. The e-learning community is a future learning environment for lifelong learners. It is essential to perceive e-learning community members as individuals. Situated learning is one of the fundamental sustainable learning strategies that can help to strengthen social capital, which, in turn, can improve well-being of humanity.

Keywords: community, e-learning, situated learning social capital, sustainability

Academic and business career of students from the Baltic States in abroad: a case study in the UK

Rasa Račiūnaitė-Paužuolienė

Vytautas Magnus University, Lithuania

Aleksandras Stulginskis University, Lithuania

This paper explores academic and business-related experiences of the students from the Baltic States in the UK. It focuses on the experience of students in the prestigious universities of the UK. Three prestigious universities of the UK were selected in this project. The research took advantage of the accession of new countries to the European Union on 2004 to explore the consequences of granting EU citizens' rights to migrate in the UK. The paper examines studies process in abroad, employers' recruitment practices, and, placement of graduate students of the prestigious universities of the UK in the labor market. In particular, this paper tries to find out what the perceived advantages of migrant labor are. The paper also describes the perceptions of a new identity of young immigrants from the Baltic States in the UK. The main source of this work derives from the narratives of the fieldwork gathering in the UK and Lithuania in 2017. The fieldwork research methods are interviews, conversations, and observation. The research surveyed and interviewed over 50 students and workers. The ethnographic material was gathered by the author using the questionnaire form, discussions, structured and semi-structured interviews, and observations methods. During the research respondents from different social classes were questioned (students, white-collar workers and intellectuals). This research is based on the project "Cultural and Religious Identity of Lithuanians in England" co-funded from the Council of Protection of Ethnic Culture in Lithuania in 2017 (Reg. No. SA-1).

Keywords: academic and business career, employers' recruitment practices, fieldwork.

STEM Education: A Tool for Sustainable National Capacity Building

Loreta Juškaite

Riga Technical University, Latvia

The perspective in this paper shows that STEM offers implications to the workforce development and other sustainable educational policies. The goals of STEM education are to increase the proficiency of students in STEM and the number of students who pursue STEM careers in advanced studies. This is because STEM occupations remain influential in driving economic growth and innovations. The current economic and social situation in Latvia requires paying closer attention to the learning of STEM disciplines. The labor market demand for professionals in engineering is also supported at the national level – compared with other universities Riga Technical University (hereinafter - RTU) has the greatest amount of state-funded study places. The Opportunity for studying at public expense in the current economic circumstances is certainly an essential factor for young people when choosing a higher education institution. After finishing their secondary education many young people plan to continue their education in technology and engineering specialties in technical universities; however, for conducting successful studies in this field (along with successfully entering the best technical universities and obtaining a funded study place), it is necessary to have very good or excellent knowledge of mathematics, physics and chemistry. Young people who have completed secondary education do not always have sufficient knowledge in these subjects, but at the same time, not all of them have equal opportunities in this field. To open doors at RTU for future students, now is the right moment to raise the question of the extreme importance of acquiring exact sciences at secondary education level. The reason for that lies in the problem that the majority of young people are unable to continue their education in technology and engineering specialties in technical universities and according to the data of RTU's Career Centre and Student Service Centre, the greatest number of students is ineligible due to the poor results during their studies. In Latvia, there is no comprehensive education policy in terms of career education and, at the national level, appropriate professional competence training for early maturity age group (19-25 year olds) is not available.

Keywords: knowledge, professional competence, skills, STEM disciplines, sustainable education

Learning sequence analysis to assess completion rates for online learning programs

Rūdolfis Gulbis

Riga Technical University DESC, Latvia

The goal of self-directed learning and the distance learning programme is to monitor students through the learning process to give them timely assistance for the successful completion of the learning program. To help achieve completion rates, a research analytical algorithm was developed to assess the learning progress of different student learning styles. From the information extracted, a comparative study was carried out that assessed the relationship between the learning styles and approaches to the materials and the successful completion of the course sequence. Most importantly, the research-based algorithm was able to identify potential learning problems and give timely feed-back. The study also indicated that those students who followed the learning sequence of the course modules were able to successfully complete the course; while those students who approached the learning haphazardly, jumping from module to module at random, most often did not complete the course. The evidence indicated that the greatest predictor of learning completion success was the sequential approach to the learning modules. The method is useful for predicting online learning completion rates and to assist with learning problem identification and give timely feedback on student support needs.

Keywords: e-learning, free learning, self-learning, learning path, learning sequence, self-learning, self-directed learning

Digital Certificates, Open Badges, and the Future of Learner Assessment

Merija Jirgensons

Distance Study Educational Centre (DESC), RTU, Latvia

With the growth of educational technology with capability for delivery in a variety of media formats, encrypted credentials giving users direct, immediate access make sense and eliminate need for third parties such as universities and organizations. Personal encrypted learning accounts would allow users to add-on and shape learning pathways throughout their lifetime in a digitally secure environment. Badging was the initial response to online credentialing that created a virtual “wild west” of digital achievements. In 2011 Mozilla designed an open digital framework that is transparent, reliable, and significantly free. It standardize the metadata that gives details of issuance complete with electronic signatures “baked” into the graphic badge. The badges can be incorporated into e-portfolio, shown in Face Book, and other social networks. The problem is that badges may be “siloesd” or worse become “zombies” when issuers no longer wants to host badges even when the credentials are still valid. There are some experiments with blockchain technology to create comprehensive electronic student records that that may be updated throughout a person’s lifetime and give learners direct access, either by smart phones or online. The MIT Incubator Lab has produced a model for encrypted digital credentialing that can accommodate all kinds of formatting. It has kept closely to Mozilla specifications. The technology is available in Open Source. Stanford Business School has also produced an encrypted prototype. Blockchain technology is under consideration at the EU Joint Research Commission. It is also a way to end the skills gap by pegging informal and non-formal learning.

Keywords: Open Digital Badges, Educational technology, Comprehensive electronic records, Blockchain technology

The Need for Entrepreneurial Education at University

Rita Vaicekauskaitė¹, Asta Valackienė²

¹ Klaipėda University, Lithuania

² Kaunas University of Technology, Lithuania

It would be difficult to overestimate the role of entrepreneurship for nowadays society. However, for many years entrepreneurship was mystic phenomenon. E. Ries (2011, p. 3) notes that startup success is not a consequence of good genes or being in the right place at the right time, it is a lot about education. In recent decades, we have witnessed more and more evidence-based data in which way education impact entrepreneurship. Much research has proven that special education programs in entrepreneurship are related to positive student outcomes (Maritz & Donovan, 2015; Ali, 2013; Ronkko & Lepisto, 2014; Farhangmehr, Gonçalves, & Sarmiento, 2016). However, many researchers admit that the direct impact of education is difficult to prove because of the lack of a comprehensive methodological framework and the complexity of the phenomenon (Ali, 2013; Piperopoulos & Dimov, 2015; Maritz & Donovan, 2015; Karimi, 2016; Farhangmehr et al, 2016). This paper contributes to the existing research by introducing both a theoretical analysis and qualitative research that explores entrepreneurship initiatives.

Keywords: entrepreneurial Education, university, higher education

The development of implementation of learner-centered assessment in pedagogical requalification studies

Rima Bakutyte

Siauliai University, Lithuania

The presentation disclose the results of two empirical researches conducted in 2010 and 2015 with the graduates of pedagogical requalification studies. Referring to the analysis of the data of scientific sources and factor analysis the approaches of student-centered assessment have been emphasized, the results of both researches have been presented and referring to them the dimensions of student-centered assessment are highlighted. It has been stated that in the university under investigation, according to the graduates, student-centered assessment is becoming more and more predominant. Moreover, having performed a correlative analysis it has been shown that the respondents' age and working experience did not have significant influence on their opinion about student-centered assessment.

Keywords: learner-cenered assessment, pedagogical requalification

SECTION 2

Reorienting Pedagogical Practices to Build a Better Future for All

The synthesis of visualization and contemplation for sustainable education

Alexander Boche

Daugavpils University, Latvia

Contemporary pupils are often in need of a serious assistance in developing the perception of a holistic perspective. This would allow them to better understand each other and become part of the society and environment around it rather than seeing only themselves. This presentation will discuss the possibility of applying the method of contemplation in the pedagogical process. The development of visualization skills promotes the use of contemplation skills, since it as such enhances contemplation by making a person to take a closer look at one's own self and perceive those nuances which might be ignored in terms of everyday processes. Through visualization, a person sees the community of objects and phenomena which are being shaped in the sense of perception. This is very essential for both arts education and education in general. The presentation will deal with the role of visualization in the context of evolution and with the acquired abilities to see contexts and the environment. It will offer the interpretation of interrelationships between contemplation and visualization using the perspective of developing the perception, the quest for stimulating a deeper visualization, and the employment of these phenomena at a lesson.

Keywords: contemplation, holistic perspective, sustainability, visualization

Teachers' Perceptions of the Sustainability of a Social Emotional Learning Program in Latvia: A Focus Group Study

Baiba Martinsone, Sabīne Vilciņa

University of Latvia, Latvia

During the past several decades, an increasingly greater attention has been paid to studying the effectiveness and sustainability of social and emotional learning (SEL) programs. The aim of the present study was to provide an initial evaluation of different aspects of sustainability of the first SEL program, which has been implemented in Latvia. Since the academic year 2012/13, this program has been implemented in 41 Latvian schools with more than 13 000 pupils. In order to address the teachers' perceptions of issues of program sustainability, seven focus groups were organized. Teachers who continued the active maintenance of the SEL program were invited to participate in the focus groups 58 of which teachers agreed to participate. The mean age of the participating teachers was 46.43 years ($SD = 8.51$), with the teaching experience $M = 22.83$ ($SD = 9.40$). The following research questions were raised out: 1) In the opinion of the teachers, how is the SEL program being maintained in the school at different level and in the school as a whole?; 2) What kind of support do the teachers need for successful maintenance of the SEL program at their school?, 3) What do the teachers consider as facilitative and risky factors in regard to sustainability of the SEL program in their school? The thematic analysis of the focus group discussions indicated the benefits of the program, the dissemination of SEL principles, the support of the school administration, and teachers' reflections on importance of their own active role in the process of social and emotional learning. The views expressed by the teachers are aligned with previous studies indicating the importance of external support and the teachers' own understanding of SEL principles as well as their willingness to be actively engaged in facilitating quality maintenance of the program.

Keywords: Social Emotional Learning Program, sustainability.

Sustainability competencies in the vocational school: the experience gained in the international project

Dzintra Iliško, E. Oļehnoviča, I. Ostrovska, V. Akmene

Daugavpils University, Latvia

There is a widespread concern that the mode of development across the globe is unsustainable. We are faced with the urgent need to rethink and to reshape our ways of living and being from the unsustainable towards the ones that strive to enhance the well-being of all human beings within the limits of our planet. The study reveals the efforts and the process of integration of sustainability education leading to a development of sustainability competencies of learners of a regional vocational school. The study reveals findings gained within the framework of the international Erasmus+ project „Methods for ESD – competencies and curricula” (MetESD), Nr.2015-1-DE-02-KA202-002346 lead by Fechta University. The methods employed in this study include an inquiry carried out prior and after the project with the students of the vocational school as well as semi – structured interview with the staff members of the school. It was discovered that on a personal level, participation in the project provided the teachers with a broader understanding of sustainability issues and enhanced the competencies to reflect on their practice. On a structural level, teachers developed networking, holistic thinking, cybernetic thinking or complex problem solving that was used in the project as a framework for understanding complex sustainability issues.

Keywords: s competencies, complex issues, sustainability, vocational school

The Prospects of Transdisciplinary Approach in Promoting Learners' Cognitive Interest in Studying Natural Science at School

Inese Jurgena¹ Dagnija Cēdere² Ingrīda Keviša³

¹ University of Latvia, Latvia

² University of Latvia, Latvia

³ Academy of Culture, Latvia

The use of a transdisciplinary approach for promoting learners' interest in the acquisition of natural sciences at school provides new opportunities for a complex explanation of the phenomenon and improving the quality of learning. The results of research conducted in several European countries reveal the signs of un-sustainability in the process of learning since traditional approaches do not always promote learners' interests in studying natural science. The data analyzed in the present article were gathered during 2015, 2016, and 2017. The number of the respondents was 563. The survey characterizes students' subjective evaluations about the correlation between their personal participation and cognitive interest in the subjects of biology, chemistry, physics, and mathematics and the learning approaches used by teachers in. The survey questionnaire was designed electronically as a link in Google disc. The analysis of the data was carried out by means of the software SPSS. The results of the survey show that interest in studying natural sciences is not high. Twenty eight % (yes) and 36. 2% (mostly yes) of the respondents gave positive replies to their interest in biology, 18.4% (yes) and 2 8% (mostly yes) in chemistry, 19.2% (yes) and 3 1. 8%, (mostly yes) in physics, and only 24.8% (yes) and 28. 2% (mostly yes) in mathematics. The analysis of the data also showed contradictory results with regard to the students' evaluations of their own learning. The respondents devoted little of their free time to science subjects. As to teachers' activity, a variety of teaching approaches is used so that students would gain comprehensive and integrative knowledge. This approach demonstrates teachers' readiness to develop the transdisciplinary approach further and enhance the level of science education at school.

Keywords: cognitive interest, personal participation, teaching approach, transdisciplinary approach

Challenges in teaching new Z generation

Jelena Fedosejeva, Marija Romanova, Aleksandrs Boče

Daugavpils University, Latvia

The new generation, which is relatively called the “Z” generation, continues to develop. This generation lives in the era of information technologies, and this makes teachers to introduce and apply new inter-disciplinary teaching methods. Now the “Z” generation experiences difficulties in choosing their professions, which require great precision and attention. Unfortunately, as it has been observed, many young people have an inadequate (low) sense of responsibility, since they perceive life like a game and do not appreciate the seriousness of situation. This research was carried out within the framework of the project in which 15-19-year-old learners from Lithuania and Latvia took part. The research resulted in producing recommendations and developing methodological materials for teachers working with the “Z” generation. The paper reflects the theoretical substantiation and practical application of the research findings. Both quantitative and qualitative research methods have been used in the research. The findings show that the learners’ interest in the selected profession has to be developed and, at the same time, there is value in convincing them of what they do and motivating them to become more responsible persons. Concerning sustainability, the new pedagogical teaching methods worked out within the frame of the project the application of which can enhance the development of a more responsible and more serious attitude of young people towards what they are doing. This, in turn, will promote resolving those social problems which relate to the development of the sense of responsibility.

Keywords: Information technologies, sustainability, teaching methods, “Z” generation

Assesing the First Language Acquisition Process of the Children via Mean Length of Utterance

Abdülkadir Kabadayı¹, Erol Yıldız²

¹Necmettin Erbakan University, Turkey

²Ministry of National Education, Turkey

It is a natural desire for parents to witness their children to perform a normal development through their life. However, the number of any deficiencies is not very few, especially in mother language acquisition and development. In case of any doubt in a child's language performance, it is not always useful to refer to an expert or a language therapist in order to check the level of his/her acquisition. Nevertheless, there is a simpler and more practical way: Mean Length of Utterance (MLU). MLU is a way of diagnosing a child's language acquisition and development level. This seminar presents what MLU is as well as a collection of the findings and discussions of what MLU proposes for parents, caregivers or teachers about our pupils' language development status in Turkey and in the world.

Keywords: children, language acquisition, development

Risks of educational social exclusion among adolescents of migrating families

Ilze Trapenciere

University of Latvia, Latvia

The objective of the paper is to research the influence of parental migration on children left behind at the rural areas of Latvia. Education and training play an important role in determining levels of human capital of a young person and, in general, have an impact on economic growth of the rural area. Therefore, understanding the importance of education of disadvantaged rural youth has a crucial importance in understanding the risks of social exclusion of disadvantaged youth in rural areas. The risks of social exclusion of disadvantaged youth residing in remote rural areas of Latvia during rapid economic and demographic changes are becoming more evident. The objective of this article is to analyze the impact of several factors that affect the risks of social exclusion of youth such as influence of educational opportunities (availability, accessibility and affordability of education) in remote rural areas and impact of parental migration and family problems. Research methods – desk research, which includes educational and social policy developments, demographical and educational statistics, secondary data analyses, and analyses of qualitative interviews with disadvantaged youth, teachers, parents/foster parents, guardians, and institutional representatives. Educational and employment opportunities and realities in remote rural areas, the importance of education and qualification, and risks of social exclusion due to the lack of qualification are discussed. Disadvantageous family background as a risk factor of social exclusion of youth is also elaborated on. The groups included: disadvantaged family background, youth under guardianship or in step-parent/foster families, children/youth left behind. The author discusses the influence of several factors that affect the risks of social exclusion of disadvantaged youth, starting from the poor educational motivation and poor outcomes, which are related both with school closure and level of human capital in disadvantageous families, and impact of parental migration and family problems on the educational path and social and psychological well-being of adolescents.

Keywords: adolescents, migrant families, risks, social exclusion

Culture for all, culture for each

Kibende Kibula Jonathan, Pululu Noella, Nzumba Kundenga Agathe
Universite Libre de Kinshasa, Congo

By the time the culture seems to make one of its basic paradigms evolve-cultural democratization, which is how to understand the eruption of the expression 'culture for each and semantic innovation or sign of a strategic reorientation of the cultural policy'. An analysis of the positions, main texts and speeches coming from the culture will try to enlighten this evolution that current actors consider sometimes as a renunciation, sometimes as the consideration of new social models, and the experiment of new modalities of public intervention in cultural field.

Keywords: culture, evolution

Evolution and sustainability of ideas in education

Antra Balode, Ieva Lazda

Rīgas Vājredzīgo un Neredzīgo biedrība “Redzi mani”, Latvia

Innovations in education go through several stages during its development, in which the idea is formed, discussed, matured, and introduced in practice as innovation. After several ups and downs, some of the innovations become viable, while others are rejected. In this study, we analyze the evolution and life cycle of ideas and innovations in education as well as the features that characterize a sustainable, self-sustaining system through the case of e-Twinning platform in Latvia.

Keywords: Evolution, innovation, life cycles

Gender identity of students and teachers: Implications for a sustainable future

Jeļena Badjanova, Anita Pipere, Dzintra Iliško

Daugavpils University, Latvia

Considering the gender identity as a crucial aspect of the culture that shapes our daily life and recognizing, the present research gaps on this topic in the context of sustainable education. The presentation describes the quantitative cross-sectional study on gender identity of students and teachers comparing the respondents by their age and gender. Three age groups (106 women and 62 men) participated in the study: pupils from comprehensive and vocational schools (n=59), university students (n=52), and teachers working at respective schools and universities (n=57). The original Bem Sex Role Inventory was administered to examine the general index of androgyny as well as individual traits of masculinity, femininity, and androgyny. In general, the sample self-ascribes itself as androgynous, scoring high on both masculinity and femininity. While no gender differences were found in the study, the pupils and teachers had higher index of androgyny deviating towards femininity in comparison with university students who had the lower androgyny deviating towards masculinity. Dominance of androgynous individuals challenges the current approaches in gender education in the context of sustainable development.

Keywords: androgyny, femininity, gender identity, masculinity, students, teachers

Interdisciplinary approach in Physics and Mathematics

**Laima Tukāne-Grosa, Lolita Jonāne, Eridiāna Oļehnoviča,
Dzintra Iliško**

Daugavpils University, Latvia

According to the UNESCO Sustainable Development Goals posed in 2015 and Latvian Education Development Guidelines in 2014 – 2020, there are now new challenges in education in that people with increasingly better skills are needed to facilitate economic development. Therefore, while being a pupil, one should learn to transfer and meaningfully use acquired knowledge and skills in novel situations, to improve, to expand these knowledge and skills, and to use them in life to solve practical problems. Consequently, teachers should also master the competences which correspond to the 21st century paradigm. Collaboration of teachers, acquisition of interdisciplinary skills, and supporting an interdisciplinary approach are the main directions of changes. The interdisciplinary approach to the teaching and learning process in secondary schools facilitates entrepreneurship and entrepreneurial business (Oganisjana, 2015), develops information literacy, and promotes mastering studying skills. This research is focused on the following questions: 1) How is the understanding of the concept of the interdisciplinary approach developed in pedagogical theory and in practice of organizing the process of teaching and learning Physics and Mathematics?; 2) What is the regulatory framework for such school subjects as physics and mathematics in a secondary school to implement the interdisciplinary approach?; 3) What is physics teachers' experience and what are the possibilities for promoting students' meaningful studying while implementing the interdisciplinary approach? In this empirical study, viewpoints of 60 secondary school pupils and 43 physics teachers were investigated. The findings reveal that most of the surveyed physics teachers communicate with math teachers on a regular basis and they also search for new approaches to acquire or reinforce certain points of teaching and learning content. However, most of the teachers focus on teaching their subject in the traditional way, demonstrating restrictions imposed on them through educational curricula and final examinations. Such constraints obstruct implementing interdisciplinary approach in the wider context.

Keywords: interdisciplinary approach, math, meaningful learning, physics

The Benefits of Project-based Learning on Learners of English Language's Motivation

Sarwar Ganjo

Ministry of Higher education and scientific Research, Iraq

This experiential study aims to help students improve their learning skills for the survival in a knowledge-based society. Motivation is one of the main aspects in this study since without motivation, the goal of learning is difficult to be reached. The motivated students will participate in classroom activities and have an active role in learning processes. This study focused on the activities such as solving problems, building self- confidence, depending on themselves, doing group work activities, and creating social connectivity and overcoming shyness. The aim of the study is to increase students' motivation and challenge as well as to provide suggestions as to how to improve learning motivation. There is a need to help teachers find the ways of eliciting learners' desire to learn. To this end, it is of great importance to organize in-service training that will enable teachers to improve their pedagogical knowledge about intrinsic motivation as it plays an important role in learning another language. Maintaining 'intrinsic motivation' mostly depends on the types of classroom activities. Project based learning activities are believed to foster 'intrinsic motivation'. Experiential study especially project based learning always aims to help students improve their learning skills for the survival in a knowledge-based society. The motivated students will participate in classroom activities and have an active role in learning processes. This will result in learning English well.

Keywords: Project-based learning, motivation, English Language teaching

Learning from teaching experiences: what is it like to be a novice teacher in Latvia?

Olena Zhukova, Dzintra Iliško, Ilona Fjodorova

Daugavpils University, Latvia

This article presents the results of the pilot study conducted to identify and examine major challenges and successes faced by novice teachers in Latvian schools in the initial years of their careers as well as to find ways of how to improve beginning teachers' professional preparation and teaching quality. This qualitative study involved 27 Latvian novice school teachers with 3 years of teaching experience. The data for the qualitative study were collected using face-to-face semi-structured interviews and questionnaires that inquired into various aspects of novice teachers' pedagogical study and work experience. The author of the study sought to answer the following questions: 1) What are the major difficulties, challenges, and uncertainties faced by novice teachers in the beginning of their pedagogical careers?, 2) What kind of methodological, professional, socialization, and psychological support (if any) do novice teachers require during their pre-service training and subsequent initial teaching years in order to improve their teaching quality and effectiveness? The findings of the survey revealed that almost half of novice teachers felt a high level of need for professional development on such subjects as classroom management, lesson and course planning, diversity and inclusive teaching, and student discipline and behavior problems. Nearly, one third of the new teachers reported the need for psychological and socialization support as well. These findings of the study might have implications for school administrators, teacher educators, teacher training institutions that provide teacher professional development courses as well as for education policy makers and novice teachers themselves.

Keywords: novice teachers, teacher induction, teaching quality, teacher socialization

Action research for the promotion of sustainable education: Experience of scientifically-practical conferences in Daugavpils University

Ilga Salite, Elga Drelinga, Lolita Jonāne, Sandra Zariņa
Daugavpils University, Latvia

The changes in society outline a different approach to educational stages and levels - from pre-school to higher education and lifelong learning. The focus is on high-quality, easy to access, value-oriented, inclusive education for personal development, prosperity and sustainable national development. Creativity must be promoted in education in order to enhance the ability to solve local problems and respond to the challenges of today's global world. The teacher, to a large extent, is the carrier and implementer of changes; therefore, the research question about how to more effectively assist teachers in solving topical problems in his/her field of professional activity, and how to help to improve their professional skills in accordance with the educational goals and challenges of the 21st century, thus gradually improving their professional capacity, is topical. Within the framework of the action research, thematic teachers' conferences have been organized in Daugavpils University already for four years, where more than 600 teachers, academic staff of higher educational institutions, scientists, researchers, representatives of the Ministry of Education, authors of textbooks and publishing houses have participated. The conferences are organized as a framework in order to facilitate the exchange of information between specialists in the field of education, for mutual enrichment and to identify new perspectives for further education. Content analysis of participants' opinions shows how the attitude towards the content and form of the conference changes. The study concludes that the purposeful involvement of teachers in creating synergies between practice and theory, sharing experiences, promotes a deeper understanding by teachers about the goals of sustainable education and their implementation.

Keywords: action research, scientifically-practical conference, sustainable education

Predicting academic motivation in higher education: impact of gender identity

Vitālijs Raščevskis, Anita Pipere, Jeļena Badjanova

Daugavpils University, Latvia

Implicating that principles of sustainable higher education could be applied only with the change the motivational discourse of university students, the present study investigates the impact of gender identity on the academic motivation in higher education. Undergraduate students (N = 125) was asked to complete 1) the College version of Academic Motivation Scale (Vallerand et al., 1992) to describe their intrinsic, extrinsic and amotivation and 2) the original Bem Sex Role Inventory (Bem, 1974) to indicate the masculinity, femininity, androgyny and undifferentiated gender identity. The majority of sample was detected as having both intrinsic and extrinsic academic motivation as well as a high index of androgyny. As assumed, the regression analysis showed the significant association between the self-determined types of academic motivation and androgyny. The results of this study emphasize the importance of exploring the potential influence of gender-related constructs on academic behavior in higher education.

Keywords: intrinsic motivation, extrinsic motivation, academic motivation, gender identity, self-determination theory, higher education.

Science Teachers' learning team model for improvement of inquiry teaching in chemistry

Jelena Volkinsteine

University of Latvia, Latvia

One of the most significant aspects in the new science secondary education standards in Latvia is the requirement for student scientific inquiry in the learning process. A closer investigation of teachers and students, centralized examination scores in chemistry, as well as expert lesson observations revealed that teachers still need help with many issues. This study was aimed to find out how the work in teacher learning teams for the action research facilitate improvement of their inquiry teaching practices. Two teams of science teachers were formed for the purposes of the research. The efficiency of the learning team performance was analyzed utilizing Dictaphone recordings and transcripts of the sessions, the team leaders' notes and teacher pre and post surveys as well as students' progress reports. The findings show that the learning team teachers apply action research to facilitate improvement of their inquiry teaching skills, and analysis and reflection skills. Student progress in scientific inquiry is one of the aspects that demonstrates improvement of teacher inquiry teaching practice. By the end of the year, student scientific inquiry skills from insufficient and sufficient level had reached an optimal level. The teacher learning team model is a successful science teacher professional development form to improve teaching inquiry. Teachers work on action research in the learning team facilitates improvement of their inquiry teaching practice. Skills to organize student scientific inquiry, skills to analyze their personal performance, skills to reflect on their personal performance, and skills to collaborate with colleagues from the group were improved among the teachers. A tendency towards student progress improvement and positive attitude to inquiry was observed. Teachers gave positive feedback about their participation in the learning team. They noted personal gains related to organization of student scientific inquiry, as well as changes in their thinking and approach to the learning process. Work in the learning team encouraged positive emotions, assurance and sense of security about their performance toward improvement of inquiry based learning.

Keywords: Science teacher, Continuous Professional Development, learning team, action research, inquiry teaching

The concept of reading skills, its interpretation in the view of primary school teachers

Andris Kriekis

University of Latvia, Latvia

The concept of reading skills has been interpreted very differently in the current educational issues. It may depend on the philosophy of the state educational system, the period of time in which the concept has been analysed as well as on the field of study and its aspects which have been taken into account. In the development of reading skills for primary school students, one of the most essential aspects in the development process for all involved parties is to interpret and analyse the reading skill concept itself in similar categories. The aim of the article is to reflect the diversity of the reading skills concept interpretations of primary school teachers and to state the common features.

Keywords: the development of reading skills, the concept of reading skills

SECTION 3

Accelerating Action for Sustainable Development

Sustainable Development: Definition Challenges And Measurability

Kibende Kibula Jonathan, Pululu Noella, Nzumba Kundenga Agathe
Universite Libre de Kinshasa, Congo

Sustainable development is an increasingly widespread concept, but the issues surrounding its definition and measurability are still under question. The most widely used definition of development belongs to the Brundtland Report that was published in 1987. However, there is no consensus on how to achieve sustainable development and the indicators that can evaluate it. Indeed, internationalization of the concept of sustainable development has encouraged the creation of new indicators to measure the level of progress achieved by a State. However, the great discrepancy among the results of the various indicators can sometimes leave researchers perplexed as to the very usefulness of the concept sustainable development. We argue that the concept of sustainability and its interpretations are measures that make an assessment of the indicators of sustainable development possible in that there is a correlation between the degree of sustainability indicator and the results it produces. In order to test this hypothesis, we present an analysis grid of evaluation based on the main indicators of sustainable development, namely the ecological footprint, the Happy Planet Index (HPI), the Wellness Index (IB), and the index of environmental performance (EPI). This qualitative test allowed us to systematically differentiate the four indicators according to their durability. Finally, a comparative study of the results of the four indicators helped us test this method of analysis and verify the conclusions.

Keywords: Sustainable development, Brundtland, ecological footprint, environmental indicator, environmental performance index, wellness index

The Influence of Transdisciplinarity and Innovative Learning Methods on a Development of Dynamic Capabilities in Lithuanian Freight Transport Enterprises

Sandra Trinkūnienė

Utena University of Applied Sciences, Lithuania

Innovations, globalization, technological change, intense competition, fluctuating consumer demand, and economic-political changes encourage managers to act proactively. Competitive advantage can be achieved as long as the enterprises can develop their dynamic capabilities and react to a changing environment. This article aims to explore innovative approaches to learning opportunities, analyses in detail the innovative learning method by using interactive learning tools, and creative and non-traditional methods. The case studies in Lithuanian transport companies revealed meaningful connections between the ability to compare and adapt both theoretical and practical skills in case of transdisciplinary and innovative learning experience. Freight forwarders and transport managers from investigated freight transport enterprises have the ability to solve daily tasks by using creative and non-traditional methods as a result of problem based learning, problem-solving learning, and other creative and non-traditional methods. Furthermore, transdisciplinarity in education and innovative learning methods together with the creative and non-traditional methods in the first year of practice determine sustainable development of dynamic capabilities in Lithuanian freight transport enterprises.

Keywords: dynamic capability, freight transport, innovative learning methods, sustainable development, transdisciplinarity

Concept Maps as a diagnostic tool for analyzing students' perceptions of players and conflicting goals within the topic "sustainability and mobility transition" – the necessity of considering all dimensions of sustainability using the example of the German diesel scandal

Katharina Hiller, Andreas Brunold

Augsburg University, Germany

The German diesel scandal – "Diesel Gate" is a prominent topic not only in Germany but also in the international media. In this presentation, this topical subject is used to prove the necessity of considering all dimensions (economical, ecological, social and political dimension) when considering the latest development regarding mobility transition. A quasi-experimental trial has been introduced which analyzed German grammar school students' perceptions by using concept maps as the diagnostic tool. By constructing a concept map, which focused on all named dimensions and their players, knowledge about different groups and their (difficult) relationships were revealed. This was an essential step for planning effective and adaptive lessons on the topic mobility transition – a topic which is a crucial and prominent subject in our time. For the study at hand, three researchers working in the field of civic education and three grammar school teachers developed a concept map, which focused on the different players and conflicting goals. German grammar school pupils of Form 10 (n=322) were asked to complete the maps only by using their perceptions and previous knowledge. The tool CMap, a software to generate and analyze concept maps, and a multi-level and mixed method ways were used to analyze the outcome of the survey instrument. In the second part, the first implications of these results are discussed. Besides, a general discussion of the findings and a connection to and its consequence for the current topic of the emission scandal has been established.

Keywords: Concept maps, Cmap, Diesel Gate, mobility transition, sustainability,

Education for Sustainable Human Resource Management

Barbara Mazur

Lublin University of Technology, Poland

In management theory, the mainstream of research refers to the concept of homo economicus as a model for conceptualizing human being. In economic theory, business is viewed through the lens of economic gain and human relations, in this perspective, are perceived as ordinary transactions. However, in the last decade, the concept of humanistic management, referring to the broader essence of humanity, appears more frequently. The reason for a greater interest in the humanistic aspect of management can be traced to a significant growth in the number of questions and problems related to humanities research area which includes the subject of human destiny in organizations. The economic side of management does not take such matters into consideration. It answers the question of how to run a business, whereas the humanistic management explains why one does it. Sustainable human resources management is an approach combining both management models and answering both questions at the same time. Although in the didactic processes the majority of management schools still use the syllabuses based on the economic paradigm in management, the humanistic paradigm should be introduced as that approach in theory of management which leads organizations to a more sustainable future.

Keywords: homo economicus, human resource management, sustainable future

School-based teacher training: towards sustainable professional development

Ahmad Alkhaldeh

University of Jordan, Jordan

In spite of the challenges in developing a school-based sustainable teacher training and development and the various demands in implementing this type of teacher professionalism to achieve sustainable teacher development, this new trend seems indispensable both for Jordanian teacher education and many other similar world educational systems. This qualitative study robustly relied on a set of self-reports developed by 12 doctoral students who took a teacher education course at the University of Jordan in the second semester in 2017. They self-reported on their perspectives regarding the school-based teacher training in terms of its significance, requirements, challenges, and possible solutions to develop this route to teacher training in a country which, like several other educational systems worldwide, was dominated by an academic theory-based route to teacher preparation and qualification. Their self-reports were analyzed and their patterns concerning the reasons behind adherence to school-based teacher training and the facilities to promote it and the challenges for school based teacher training were collected and meticulously probed. The findings of the study noticeably advocated the school-based teacher training as a major route to teacher training. They clearly considered this training approach as a method to transfer training experience to the teachers' classroom instruction. Some recommendations were proposed calling for adopting this new training direction and conducting further research in this emerging paradigm.

Keywords: professional development, school based training sustainability, teacher training

9-box grid – a handy tool for managers in the corporate settings and educators for talent development

Edite Kalnina

AbbVie, Latvia

Not only companies in all industries are striving to find the candidates with the highest learning ability but as well educators should identify the high potentials to focus on and draft development plans accordingly. The 9-box grid is widely used in the corporate settings by the managers and human resources practitioners in succession planning as a method of evaluating an organization's talent pool and identifying potential leaders. When used in succession planning, the X-axis assesses leadership performance over time and the Y-axis assesses leadership potential (learning agility). The combination of the X and Y axes determines where the leader is placed in the 9-box grid. Individuals in the upper right quadrant will then be identified as high-potential candidates in the company's succession plan. Individual developmental plans for both high- and low-performing employees are then designed. 9-Box grid is a valuable tool for an organization but professionals should get familiar with the use of it. The author has implemented the tool in practice at a number of multinational companies and have educated the use of the tool for educators, career consultants, members of Teaching for All Latvian branch (Iespejama Misija) and youth leadership programmes as Go Beyond in Latvia. The author will share the challenges on transferring know-how from the corporate settings to the schools and educators.

Keywords: leadership, multinational companies, leader, talent pool, high/low employed

Smart Growth in Latgale region: sustainable perspective

**Ludmila Aleksejeva, Inta Ostrovska, Viktirija Šipilova,
Elita Jermolajeva, Dmitrijs Oļehnovičs**
Daugavpils University, Latvia

One of the approaches to achieve sustainable development is based on smart specialization. The vision of the Latgale region (Latvia) is aimed at promoting smart growth, which can be achieved by applying the concept of smart specialization. One of the challenges is to understand the peculiarities of smart specialization and its potential drivers in the Latgale region and its districts from a sustainable perspective. The national research program EKOSOC-LV has developed a methodological solution for the assessment of smart growth in rural areas of Latvia, taking into account the sustainability aspects. Within the methodological solution proposed by EKOSOC-LV, both quantitative and qualitative indicators (expert opinions from the state, science and business sectors) are considered that allow characterizing the process and level of smart growth, as well as developing scenarios for the future. The results of the research might facilitate the understanding of the support measures of smart specialization and the opportunities for sustainable growth in rural areas, taking into account the level of the regional socio-economic development and the rate of development, as well as regional differences on the level of districts.

Keywords: Smart growth, specialization, Latgale

SESSION 4

Local Hub of Graduates of DU in Research and Education – for Sustainability Education

Formation of Self-Regulation Habits in Pre-School Age – a Basis for Sustainable Development

E. Krastiņa, E. Drelinga, L. Silova, S. Zariņa
Daugavpils University, Latvia

The new age requires transition from teaching to learning. Self-regulation habits are related to socially-emotional learning and learning to learn, which, if purposefully driven, are formed in early childhood. Self-regulation habits promote lifelong learning. The EU documents highlight the fact that one of the most important tasks of pre-school education is to develop and implement such educational programs that are equally well suited to all areas of skills and competence. Taking into account the fact that some teachers are not trained to work with pupils, in order to promote self-regulation and learning discipline, it is necessary to update the study of these problems and put into practice the positive experience. The article analyses the theoretical aspects of the formation of self-regulation habits and the practical possibilities to improve them in preschool and school, by starting systematic training.

Keywords: self-regulation, self-regulation skills, habit, determination, reflection

Communication element in the content and language integrated learning process at the preschool

Inese Eglīte

Latvia University, Latvia

The social, political, economic, and globalization process provides that the man of the 21st century has to be proficient in several languages. As language proficiency becomes the main tool in the promotion of integration, tolerance, cohesion and affiliation not only in the whole country, but also for each individual separately, then it is important for the pre-school children to do this purposefully and in accordance with the child's ability. At the end of the 90s of the 20th century, a new language learning approach has emerged in Latvia, for which indication the English abbreviation CLIL (Content and Language Integrated Learning) has been used. This approach admits that a child simultaneously and inter-relatedly learns language and gets knowledge about the world around him, as well as the ability to discover it in different communication situations. To analyse the conditions for implementation of the communication elements in the process of content and language integrated learning in the pre-school. The article analyses the psychology and psycholinguistics theories on the principles of the language and speech development of the pre-school children, pedagogical theories on the planning of pedagogical process in preschool and the theory of bilingualism and bilingual education.

Keywords: pre-school pedagogical process, integrated content and language learning, communication, culture, content and cognition components model.

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