

## Session A 1

27 August 2017 10:30 - 12:00

Pinni B 1097

Roundtable

Motivational, Social and Affective Processes, Teaching and Teacher Education

### Motivation and Emotion

**Keywords:** Assessment methods and tools, Educational Technology, Higher education, Motivation, Motivation and emotion, Teaching / instruction, Teaching approaches

**Interest group:** SIG 08 - Motivation and Emotion

**Chairperson:** Ellen van den Broek, Radboud University Nijmegen, Netherlands

### How do we approach student meaning making of online peer- and self-grading in higher education?

**Keywords:** Assessment methods and tools, Educational Technology, Higher education, Motivation and emotion

**Presenting Author:** Maria Hvid Stenalt, Aarhus University, Denmark

Background: Although blended learning has been proposed as one of the solutions to enhance student learning and engagement in higher education, it faces difficulties in fulfilling the stated potential. Review studies suggest to further our understanding of qualitative improvements in learning by exploring contextual, affective and motivational aspects of blended learning. In order to contribute to this process, I propose to include the framework of student agency, which refers to student ability to control one's life and give it direction.

Aim: The present study was conducted as an explorative pilot study in relation to a PhD project. It was motivated by a group of teachers' interests in testing a new educational practice – in specific online peer- and self-grading. Following almost full student participation in the first grading assignment, the activity experienced decreasing student participation. In order to explore students' meaning making of the activity and evaluate the concept of student agency as framework in this context, the following questions were addressed: 1) How do students experience blended activities in relation to other course activities and the course as a whole? 2) In which aspects do student agency contribute to student construction of participation?

Methods: A sample of first year law students in a large Danish University (N=74) participating in a mandatory course were invited to participate in the online peer- and self-grading activity. Empirical data was collected through focus group interviews with a purposive subsample of students (N=8). Results: The study is ongoing. Discussion: I would like to discuss the challenges specific to the use of the concept of student agency and the relevance of my adaptation of the concept to blended learning. I would also like to discuss the potential pitfalls of using student agency with regard to the process of data collection and analysis of data.

### Need Satisfaction in Higher Education: Providing Structure

**Keywords:** Higher education, Motivation, Teaching / instruction, Teaching approaches

**Presenting Author:** Martijn Leenknecht, Roosevelt Center for Excellence in Education, Netherlands; **Co-Author:** Lisette Wijnia, Erasmus University Rotterdam & University College Roosevelt, Netherlands; **Co-Author:** Sofie Loyens, University College Roosevelt, Netherlands; **Co-Author:** Remigius (Remy) Rikers, UCR / Utrecht University, Netherlands

Extended abstract In curriculum design in higher education, (learning) tasks are often sequenced in such a way that the complexity of the task increases, while the level of teacher guidance decreases. It is assumed that by decreasing the level of guidance throughout the program, students gradually learn to autonomously regulate their own learning. However, it is unclear whether the level of teacher-provided guidance is in accordance with students' needs. According to Self-Determination Theory (SDT) three basic psychological needs, have to be met before students are able to autonomously regulate their learning: need for competence (i.e., feeling efficacious), autonomy (i.e., feelings of ownership and being in control), and relatedness (i.e., connectedness with others; Ryan & Deci, 2000). Teachers can support students' needs respectively by providing structure, autonomy support, and showing involvement (Stroet, Opdenakker, & Minnaert, 2013). Providing guidance and clear expectations (i.e. providing structure) is expected to support students' need for competence. In the last years however, it has been debated whether students can actually differentiate between these three types of need support (e.g. Leenknecht, Wijnia, Loyens, & Rikers, in preparation). Does structure only support students' need for competence, or does it also affect their need for autonomy and relatedness? And how do students perceive the provision of instructional guidance? In the current study the effects of decreasing instructional guidance (i.e. structure) throughout the educational program on students' fulfillment of basic psychological needs and need support is investigated in a semi-experimental design. The level of teacher structure (in terms of instructional explanations and guidelines) is manipulated, differentiating between study years. The effect on students perceptions of need-supportive teaching is investigated. Changes in autonomous and external regulation of the students is measured using pre- and posttests. The study will be completed fall 2017.

## Session A 2

27 August 2017 10:30 - 12:00

Pinni B 3116

Roundtable

Educational Policy and Systems, Lifelong Learning, Motivational, Social and Affective Processes

### **Learning and Professional Development**

**Keywords:** Communities of practice, Developmental processes, Educational policy, Lifelong learning, Qualitative methods, Social aspects of learning and teaching, Social interaction, Vocational education, Workplace learning

**Interest group:** SIG 14 - Learning and Professional Development

**Chairperson:** Sotiria Pappa, University of Jyväskylä, Finland

### **The impact of managerial conflict styles on employees' intrapreneurship behavior**

**Keywords:** Developmental processes, Vocational education, Workplace learning, Lifelong learning

**Presenting Author:** Benjamin Jaecklin, Otto-Friedrich-University of Bamberg, Germany

In light of increasing global market dynamics, innovations seem to be a relevant success factor. Consequently, innovative and entrepreneurial thinking and acting is expected from employees across all hierarchies. The phenomenon of individuals proactively seeking to develop and implement new products, services or processes can be defined as 'intrapreneurship'. Besides individual aspects like need for achievement or organizational conditions like reward systems, managers are regarded as relevant promoters for intrapreneurship behavior. Due to their hierarchical position, managers can support their subordinates and encourage them to engage in intrapreneurial projects. However, as innovative ideas often scrutinize current processes, they have the potential to cause conflicts in and across teams. If managers succeed in seizing these ideas in open and constructive discussions, it is conceivable that their subordinates are more likely to engage in intrapreneurial processes. Therefore, the question arises as to what extent managerial conflict styles have an influence on employees' intrapreneurship behavior. In order to examine this assumption, a mixed-methods research design is planned. In a first step, an online questionnaire will assess the supervisor's conflict behavior, perceived by his subordinate. For this purpose, the Rahim Organizational Conflict Inventory-II (ROCI-II) shall be employed, which differentiates between the conflict styles integrating, obliging, dominating, avoiding and compromising. Employees' engagement in intrapreneurial processes shall be measured using the intrapreneurship behavior inventory of Stull & Singh, which rates intrapreneurial thinking and acting in the dimensions proactiveness, risk-taking and innovativeness. In a second step, qualitative interviews with employees and managers shall shed light on the supposed correlations and identify patterns of typical conflict situations in the context of innovative ideas. An examination of this assumption could foster a deeper understanding of the development of employees' intrapreneurship behavior. Moreover, deficits concerning managerial conflict management could be detected, which might offer useful implications for future management trainings.

### **The influence of social network support on the expertise development of musicians**

**Keywords:** Communities of practice, Developmental processes, Social aspects of learning and teaching, Social interaction

**Presenting Author:** Manuel Laengler, University of Regensburg, Germany; **Co-Author:** Markus Nivala, University of Gothenburg, Sweden; **Co-Author:** Hans Gruber, University of Regensburg, Germany

Evidence from research on expertise in music shows that deliberate practice leads to skill development through substantial cognitive adaptations. This seems to be a valid assumption although considerable differences exist concerning the quality of performance and the practice processes comparing different skill levels. Musicians have to invest much effort to steadily continue in the long practice processes that lead to the acquisition of excellent individual skills. To be successful as a musician well-adapted practice strategies and psychological support for e.g. motivation, goal attainment, self-efficacy, etc. are required necessarily. It seems likely that the support by social networks, as a powerful learning environment, is a premise for the required endurance. Surprisingly, there is little research about such contextual factors within research on music expertise. The proposed paper aims to contribute to the understanding of how social networks of musicians serve as powerful learning environments and thus support individual skill development. It will be investigated in how far social networks – defined as sets of related actors – contribute to the development of expert musical performance. The Social Network Analysis (SNA) methodology will be used in each of the studies to analyse the structure of networks and their impact on individual attributes of music expertise. Based on research in other domains it is expected that social networks are very conducive for the development of expertise in music. The kind of actors within the network and their kind of support for psychological factors and practice might differ comparing the genres. Additionally, this network approach could help to expose important actors within the social network who were previously unrecognized. The results should contribute to a better understanding of the relation between the social context and intraindividual processes in the development of music expertise and, thus, to an enhanced understanding of learning and instruction in the domain of music.

### **Lifelong learning policies and young adults at risk in Germany**

**Keywords:** Educational policy, Qualitative methods, Vocational education, Lifelong learning

**Presenting Author:** Alina Florentina Boutiuc-Kaiser, University of Education Freiburg, Germany

This paper explores how lifelong learning (LLL) policies influence or change the individual life projects of youth and young adults at risk like students at risk of leaving school, with migration background, early school leavers, youth and young adults not in school nor in training (NEETs), single parents, etc. As these groups are heterogeneous, there are substantial variations in their living conditions, their position in the education system or in the transition school to work and their freedom and autonomy at local and regional German level. In many cases, the LLL policies steer youth and young adults at

risk to assume standardized life projects according to economic needs, and thus create new life course normality expectations. The main questions of my paper will deal with the concept of autonomy of the young adults at risk from a macro/policy level, a meso /institutional perspective and a micro/individual level. These perspectives will rely on three theories: cultural political economy (Jessop, 2010), life course research (Heinz et al., 2009, Walther, 2005) and governance perspective (Bevir, 2013). At the macro/policy level, policy documents will be analysed, in order to see how/if the autonomy of the young adults is supported by the LLL policies, especially from the following three sectors: education, labour market and youth and social policies. This research project will conduct 15 biographical narrative interviews with young adults at risk and 8 with managers and street level professionals. Questions like: How do different LLL policies promote or allow for young adults' freedom and autonomy in their biographical decisions? and How are young adults engaged in LLL policies decision-making connected to their autonomy? are at its core. The policy document analysis and the interviews with experts and young adults will be analysed with the „grounded theory“(Glaser & Strauss, 2009).

### **Session A 3**

27 August 2017 10:30 - 12:00

Pinni B 3111

Roundtable

Assessment and Evaluation, Learning and Instructional Technology, Motivational, Social and Affective Processes

#### **Learning and Instructional Design**

**Keywords:** Competencies, Educational attainment, Educational Psychology, Educational Technology, Experimental studies, Intelligence, Motivation, Secondary education, Vocational education

**Interest group:** SIG 01 - Assessment and Evaluation, SIG 06 - Instructional Design

**Chairperson:** Anita Krausz, University of Szeged, Hungary

#### **Does goal clarification and progress-oriented feedback foster students' motivational functioning?**

**Keywords:** Educational Psychology, Experimental studies, Motivation, Secondary education

**Presenting Author:**Christa Krijgsman, Ghent University, Belgium; **Co-Author:**Tim Mainhard, Utrecht University, Netherlands; **Co-Author:**Jan van Tartwijk, Utrecht University, Netherlands; **Co-Author:**Lars Borghouts, Fontys University of Applied Science, Netherlands; **Co-Author:**Leen Haerens, Ghent University, Belgium

Goal clarification (GC) and providing progress-oriented feedback (PF) aim at improving learning and according to Self-Determination Theory, might stimulate volitional types of motivation particularly if communicated in an autonomy supportive rather than a controlling way. Moreover, previous research mainly relied on cross-sectional or longitudinal data. Therefore, the present study aims to test the effects of GC, PF and communication style, by conducting an ecologically valid experiment. Participants will be physical education students (12-13 years old) who engage in their first lesson on a new motor skill. Sixteen classes (n=400 students) will be randomly assigned to one of the eight conditions (n=50 students or 2 classes/condition) of a 2x2x2 factorial design, for which GC (presence vs. absence), progress-oriented feedback (intra-individual feedback, vs. inter-individual feedback) and communication style (autonomy supportive vs. controlling) will be manipulated (see Figure 1 in the hand-out). Students' motivational functioning, to be specific, need satisfaction and frustration (BPNSFS; Chen et al., 2015) and quality of motivation (BRPEQ; Aelterman et al., 2012), will be measured prior to the lesson. Experienced GC, PF (instrument GC and PF to be developed for this study; manipulation check), communication style (TASCQ, Belmont et al., 1988; PCT, Soenens et al., 2012; manipulation check), and motivational functioning will be measured post-lesson. Simultaneous, all classes will be filmed to observe the manipulations (questionnaire GC and PF will be translated into an observation tool; observation tool teachers' communication style; Haerens et al., 2015). Multilevel analyses will be employed. It is expected that students' positive motivational functioning will benefit most in the 'GC x PF x autonomy supportive' condition and that students' negative motivational functioning will be stimulated most in the 'no-GC x inter-individual-feedback x controlling' condition. The researchers seek to elicit a discussion about this study's design and the employed measures.

#### **Mindset interventions in Secondary Vocational Education and Training (VET)**

**Keywords:** Experimental studies, Intelligence, Motivation, Vocational education

**Presenting Author:**Jaap Glerum, UCR / Utrecht University, Netherlands; **Co-Author:**Sofie Loyens, University College Roosevelt, Netherlands; **Co-Author:**Remigius (Remy) Rikers, UCR / Utrecht University, Netherlands

Students with a growth mindset or an incremental theory of intelligence believe that intelligence is malleable and can be developed by learning. Previous studies have shown that mindset plays a pivotal role in academic achievement; the performance of students will improve when they succeed in developing a growth mindset, particularly in difficult courses. Several training programmes have been developed to promote a growth mindset by explaining the incremental theory of intelligence to students, in order to improve student's learning. Despite the large amount of literature on mindset, little is known about mindset in Secondary Vocational Education and Training (VET). In our first study we investigated the role of mindset in VET with 1005 students attending nine different vocational programmes in the Netherlands. Findings from our first study indicates that VET students' mindset does not substantially differ from results that were found in other forms of education. However, a large majority of VET students does not have a growth mindset and hence there is still room for improvement. We did not found any significant relation between Mindset and Academic achievement. In our second study,

with a quasi-experimental design, we tested an online intervention to promote a growth mindset among VET students within mathematics. Students were distributed by class to the intervention and to the control group. Our online growth mindset intervention was based on the Brainology program and findings from more recent research. In line with previous studies, we expect to find a positive effect from the intervention on both mindset and results of mathematics. As in our first study, we did not find any significant relationship between mindset and results of Mathematics in our second study. Nor did we found a significant positive effect of the intervention on the mindset of the students.

### **Integrated Learning and Assessment System in Competency-Based Higher Education Program**

**Keywords:** Competencies, Educational attainment, Educational Technology, Motivation

**Presenting Author:** Iryna Ashby, Purdue University, United States; **Co-Author:** Secil Caskurlu, Purdue University, United States

With the expanding implementation of competency - based education (CBE) across secondary and higher education and work settings, comprehensive monitoring of learner's plans, progress, and achievements based on their individual learning needs and professional goals becomes essential. In contrast to seat-time adopted by a large number of colleges and universities, competency attainment focuses on mastery of knowledge, skills, abilities, and attitudes (or competency) at the level specified by an educational establishment (Freeland, 2014; Gervais, 2016; Silva, White, & Toch, 2015; Twyman, 2014). In a competency - based environment, it is essential to create awareness among learners, mentors, and other stakeholders (e.g., employers) about key elements under each competency, and how such competencies should be or have been acquired (Pittinsky, 2015). Currently, several learning management systems offer an opportunity to align individual course objectives, student mastery and even an option to track student mastery across multiple courses (e.g., Instructure, 2017; Moodle Pty Ltd, 2017; Steele et al., 2014). Yet, existing solutions lack features to support stakeholders (e.g., Steele et al., 2014). In 2016 National Educational Technology Plan, U.S. Department of Education (2015) outlined a need for an integrated rigorous digital system that would effectively combine personalized learning with the intent to move towards a competency-based environment and effective assessment at each stage of learning mastery. This paper proposes a system for an integrated competency acquisition progress tracking system (iCAPTS) to support students, instructors, and mentors working with students on managing competency pathways. The system includes four major parts, namely, 1) planning; 2) assessment; 3) curriculum sequencing; and 4) achievements, credentialing, and progress dashboard. The interactive iCAPTS system would offer an easy access to learner's aggregated progress data, including goals and learning pathways, assessment, and competency acquisition process. Future efforts will focus on design and development of a prototype, user testing, and beta-implementation.

### **Session A 4**

27 August 2017 10:30 - 12:00

Pinni B 3110

Single Paper

Cognitive Science, Learning and Instructional Technology

### **Cognitive Development and E-Learning/Online Learning**

**Keywords:** Cognitive development, Cognitive skills, E-learning / Online learning, Educational Psychology, Higher education, Learning analytics, Learning approaches, Learning Technologies, Mathematics, Student learning

**Interest group:** SIG 27 - Online Measures of Learning Processes

**Chairperson:** Francisco Iniesto, Open University, United Kingdom

### **Wholistic versus Analytic cognitive style and graph problem solving: An eye movement study**

**Keywords:** Cognitive development, Cognitive skills, Educational Psychology, Mathematics

**Presenting Author:**Ortal Nizan-Tamar, Bar Ilan University, Israel; **Co-Author:**Bracha Kramarski, Bar-Ilan University, Israel; **Co-Author:**Eli Vakil, Bar-Ilan University, Israel

Despite the widespread use of graphs in day-to-day activities, very little is known about the strategies employed to analyze graphs, or about the characteristics of the graph which invite these strategies. In addition, based on the assumption that graph analysis is impacted by the learner's preferred cognitive style (CS) and by the match/mismatch between that style and the nature of the task, this study will utilize eye movements (EMs) technique during a graph analysis test, taking into account the learner's CS and the nature of the task. Since, tracking the learner's EMs provide a fascinating view of the nature of the cognitive processes, in real time. Therefore, the current study has two main goals: First, to identify patterns of EMs characterizing wholistic/analytic strategies during graph analysis. Second, to examine the influence of the task type on the strategy employed when analyzing graphs. Fifty-six students of the Social Science faculty at Bar-Ilan University of Israel, completed the E-CSA-W/A test to evaluate each participant's CS (twenty-five defined as "wholistic" and thirty-one defined as "analytic"). Immediately after this test, participants completed a graph test which was designated/not-designated for the use of either a wholistic/analytic strategy, EMs were recorded simultaneously. The results revealed that the wholistic strategy was characterized by fewer fixations on the axis and fewer transitions between the axis and the diagram area, compared to the analytic strategy. In addition, while wholistics fit their strategy to suit the nature of the task, and were thus more efficient in solving the test, analytics consistently adhered to an analytic strategy. Therefore, it would seem that the wholistic style is more efficient and tends to be flexible in using different strategies while analyzing graph tasks. With regard

to the educational aspect, it is worth placing more emphasis in class on acquiring wholistic strategies for solving graphs.

### **A Flipped Classroom Model: Students' approaches to learning chemistry in the online component**

**Keywords:** E-learning / Online learning, Higher education, Learning approaches, Student learning

**Presenting Author:**Rena Bokosmaty, The University of Sydney, Australia; **Co-Author:**Adam Bridgeman, The University of Sydney, Australia; **Co-Author:**Meloni Muir, The University of Sydney, Australia

In the last decade, the flipped classroom model has gradually emerged, receiving increased recognition in the higher education sector as it has the potential to revolutionise traditional didactic teaching paradigms. This instructional approach encourages students to be initially exposed to learning new material outside of the class in the online learning space prior to attending the face-to-face component where students engage with interactive learning activities during the lectures. Research has suggested the design of the Flipped Classroom Model has the potential to influence how the students' approach their learning. Some studies have suggested that students adopt a deep approach towards learning particularly in the face-to-face sessions, as students are required to be actively engaged in the learning process. This claim however, has only been examining within the face-to-face component of the flipped classroom with limited focus on the online component. This paper examines students' approaches to learning in the online component of the flipped classroom model implemented in a first year undergraduate introductory chemistry course at the University of Sydney. It identifies key aspects in the design of the online learning activities and factors that influenced students' approach to learning. To investigate this, quantitative data from the R-SPQ-2F questionnaire identified students with different learning approach preference for follow-up observation of their interaction with the online learning activities. The data reveals an inconsistency between the students' identified learning approach when compared to the observed interaction with the online learning activities. Interview responses identified the student and teaching factors from the presage construct of Biggs's Presage-Process-Product Model (3PM) that influenced students' use of a particular learning approach. Students' responses outlined the design features of the online quizzes and the videos that affect students' adoption of a particular approach. These results inform future initiative to improve the online component to support students' to adopt a deep approach to learning chemistry.

### **Analyzing Online Learner Behavior: Learning Analytics on Virtual Learning Environment Usage Data**

**Keywords:** E-learning / Online learning, Higher education, Learning analytics, Learning Technologies

**Presenting Author:**Justian Knobbout, HU University of Applied Sciences Utrecht, Netherlands; **Co-Author:**Huub Everaert, HU University of Applied Sciences Utrecht, Netherlands; **Co-Author:**Esther van der Stappen, HU University of Applied Sciences Utrecht, Netherlands

The increased use of blended and fully online learning allows for the large-scale collection, analysis and visualization of learner data. Based on this data, instructors can perform pedagogic interventions, improve education, and enhance the environment in which this learning takes place. This process is called learning analytics and is performed at a growing amount of (higher) educational institutes. The study aims at describing the online behavior of students following six blended courses of an international minor program. Data from Moodle – a virtual learning environment – are analyzed in order to answer three research questions related usage of the learning environment. This required extensive data transformation and cleansing, which this paper describes in detail. As the data contains many loose events which are not readily assigned to one of the focal courses, descriptive statistics as shown in other literature may be biased. To overcome this problem, we use learning sessions to link the loose events to the course they most likely be part of. The results of the subsequent analysis show that students in the minor program tend to use the virtual learning environment for passive learning activities, that large differences between the usage between students exist, and that students from different nationalities do actively interact with each other rather than sticking together with students from their domestic country. The study has practical relevance as many educational institutes nowadays use virtual learning environments to support blended learning activities and are exploring the possibilities of data-analysis on data from these environments but face challenges related to data collection, transformation, cleansing and analysis. Suggestions for future research include a more detailed study with the existing dataset and the design of a prediction model which incorporates the use of learning sessions rather than event frequency.

### **Session A 5**

27 August 2017 10:30 - 12:00

Pinni B 3108

Single Paper

Instructional Design, Learning and Social Interaction

### **Collaborative Learning and Writing/Literacy**

**Keywords:** Attitudes and beliefs, Collaborative Learning, Communities of learners, Design based research, Peer interaction, Pre-service teacher education, Qualitative methods, Technology, Writing / Literacy

**Interest group:**

**Chairperson:** Jason Holmes, The University of Alberta, Canada

### **Teachers' experiences on international learning networks**

**Keywords:** Collaborative Learning, Design based research, Peer interaction, Qualitative methods

**Presenting Author:** Saara Nissinen, University of Eastern Finland, Finland; **Co-Author:** Henriikka Vartiainen, University of Eastern Finland, Finland; **Co-Author:** Petteri Vanninen, University of Eastern Finland, Finland; **Co-Author:** Sinikka Pöllänen, University of Eastern Finland, Finland

This study aims to present teachers' experiences on novel international forest-related learning networks, where the participants collaboratively and actively worked on solving glocal, real-life learning challenges. The participants extended the learning activities from formal to informal communities and utilized expert knowledge and expert tools in the process. In addition, the learners worked in collaboration and shared knowledge with their international peers using modern technology to built the connection between the peers. The participants of this study were three volunteer school classes from Finland and United States. The pupils (N=59) aged 12-14 years were working with their teachers (N=3) on a shared task of forests around us. Two of the participating classes formed international peer classes and were sharing information and knowledge on their process via class blogs. The third class was working independently, with the global perspective rising from the learners' cultural backgrounds. The qualitative data of this study consists of teachers' interviews, teachers' project reports and students' blogs used as means for communication and sharing of the knowledge. The data was first deductively analyzed using Atlas.ti program and then by two individual coders by QCAmap software. Also, an inductive analysis was used to complete the analysis and the categorization. The analysis provided an understanding of the international collaboration between the school classes, and also valuable experiences of the teachers on the current practices and resources on implementing these kinds of extended learning networks. The results show that the teachers' experienced the international learning networks as valuable means for connected learning, and glocal cooperation as it joined peers and experts from both global and local communities. However, the teachers' experiences also point out some challenges in the current school cultures that need to be re-designed for the teachers to have better possibilities in implementing these practices.

#### **The learning of student teachers and museum docents in a professional learning community.**

**Keywords:** Collaborative Learning, Communities of learners, Design based research, Pre-service teacher education

**Presenting Author:** Mark Schep, University of Amsterdam, Netherlands

For museum docents in art and history museums who give tours to school groups it is important to keep developing their pedagogical competencies in order to improve the quality of museum tours. An important questions is how museum docents and objects in interaction with pupils can contribute to pupils interest in art and history, acquiring of knowledge, insights and development of skills. These domains-specific skills are also central in teacher education programs of art and history teachers. In this study we research to what extent museum docents and student teachers can learn with and from each other. Therefore, in this multiple case study we investigate two learning communities consisting of three museum docents (tour guides) and three student teachers. Both groups are tutored by a museum educator and a teacher educator. Over a period of four months, four group meetings of 120 minutes are scheduled. The groups collaborate on the redesign of parts of a guided tour or develop a pedagogical approach. Data on the learning community are collected through video-recordings of the four group sessions, learner reports after each session, pre- and post- questionnaires and interviews, and a motivation questionnaire. The data of this study will be collected in the period February-June; therefore the final results are not yet available. In order to determine the learning value of collaborating in a professional learning community we use Kirkpatrick's four levels of learning evaluation. Kirkpatrick divided the evaluation of a program in: (1) Reaction, (2) Behavior, (3) Learning and (4) Results. We expect that, performing a design-based research in a professional learning community enhances participants' motivation and that the collaboration in a learning community can help docents and student teachers to professionalize and thus enhance the learning experience of pupils in art and history museums.

#### **Writing Skills ans Self-perceptions´ (knoweldege, Attitudes and Self-efficacy in writing)**

**Keywords:** Attitudes and beliefs, Design based research, Technology, Writing / Literacy

**Presenting Author:** Catarina Araújo, Institute of Education - University of Minho, Portugal

This study attempted to analyze the effects of the SRSD model (with or without Information and Communication Technologies), in the quality of writing of 4th grade students and students' perception about their knowledge, attitudes and self-efficacy in writing. This random sample involved the participation of 390 students of 23 classes. Previously, 10 of the most homogeneous classes were selected by way of socio-economic status, students' writing performance and their perceptions to writing prior to the intervention, and teachers' practices in writing with and without ICT, leaving 178 students for our initial study sample (22 students transferred to another school, 10 students were absent during the intervention or missed the pretest or posttest). The participants were then divided into two groups, each composed of five classes. Each group was involved in a different intervention: (A) the SRSD model and (B) the SRSD model with self-regulated use of technologies, for 12 weeks, with duration of 90 minutes. Comparison of writing was carried out before and after this intervention based on the quality of writing, number of structural elements, number of linking words and essay length. Our expectations are that all these variables show high efficacy after implementation of the new model as well as a relationship with the quality of writing. For instruments that are being constructed, we similarly expect an improvement especially regarding multimodal texts. In conclusion both the SRSD model and the SRSD model with self-regulated use of technologies improved the structural quality and number of linking words in students' writing performance. The practical implications of this study are: a) to propose new ways of using the SRSD model using ICT; b) to analyze the effect of SRSD model and SRSD+ICT model in the performance of writing and c) to better understanding the influence of students'

perceptions about their knowledge, attitudes and self- efficacy in their individual writing performance.

## Session A 6

27 August 2017 10:30 - 12:00

Pinni B 4117

Single Paper

Assessment and Evaluation, Cognitive Science

### Competencies

**Keywords:** Assessment methods and tools, Citizenship education, Communities of learners, Competencies, Knowledge creation, Primary education, Problem solving, Quantitative methods, Science education

**Interest group:** SIG 03 - Conceptual Change, SIG 13 - Moral and Democratic Education

**Chairperson:** Sharisse van Driel, Open University, Netherlands

### Metalearning in Primary classrooms: research-based theoretical advances

**Keywords:** Communities of learners, Competencies, Primary education, Knowledge creation

**Presenting Author:** Paraskevi Mylona, University College London Institute of Education, UK, Greece

Abstract Metalearning is concerned with personal, yet socially mediated constructions of learning, and has been theorised as a process of making sense of one's experiences of learning through reflective examination of cognitive, affective, motivational, and situational aspects of a learning experience. This process is motivated by the need to improve the way in which one applies themselves to classroom learning and is actualised by using the sense made of past and current learning experiences and projecting it to future learning situations. As such, metalearning constitutes a virtuous learning cycle of improvement through the construction and use of *metalearning strategies*, a learner's unique approach to being aware, in control, and in executive command over one's own learning in the classroom. As a field, metalearning has advanced through the production of theoretical and didactic suggestions, but with very limited empirical research to validate or extend theory. This paper provides empirical descriptions of how pupils (N=23) constructed and experienced metalearning in the specific learning environment of their Year 4 Greater London Primary classroom. Based on a case-study design, the research presented follows a methodology of locating metalearning in pupils' reflections on accumulated past, and specific present learning experiences in the classroom. A succinct review of the major findings on classroom metalearning points towards two levels of metalearning at interplay: Classroom metalearning *structures* (upholding the classroom version of metalearning) actualised through routines, rites, and communication media, and *personal metalearning strategies* constructed through diachronic and synchronic sense-making with a view to improving future learning. The (meta)learner can therefore be seen as learning *from* structure in order *to* structure, enacting the roles of both *agent* and *actor*. This paper proposes that such an understanding of classroom metalearning should result in more careful and deliberate consideration of the structures and language through which learning is presented to pupils in classrooms. *Keywords Metalearning, classroom learning, sense-making, metalearning strategy*

### EDGE IN PROBLEM SOLVING – SCIENTIFIC MODELING AS ENABLER FOR PERFORMANCE IN CONTEXT-BASED TASKS

**Keywords:** Assessment methods and tools, Competencies, Problem solving, Science education

**Presenting Author:** Susanne Digel, University of Koblenz-Landau, Germany; **Co-Author:** Alexander Kauertz, University of Koblenz-Landau, Germany; **Co-Author:** Jochen Scheid, University of Koblenz-Landau, Germany

The positive influence of context on the interest of students makes the use of real-world problems desirable in physics classroom. Although students (and teachers) prefer contextualized tasks, they perceive them more difficult to solve. Furthermore, it is in context-based tasks where variations in students' performance manifest. One might conclude that variations in physical content knowledge and problem solving strategies account for students' disparate performance, but students with appropriate problem solving strategies seem to fail to make use of it in context – a phenomenon referred to as production deficiency. Recent research on context-based tasks shows the limited influence of content knowledge on the problem solving performance and at the same time emphasizes the importance to apply a physics model in the problem solving process. Although considerable amount of research has been dedicated to the moderating variables of the relation between availability and usability of knowledge (e.g. motivation and metacognition), the competences needed to overcome the gap in problem solving remain unidentified. A promising basis for the application of problem-solving strategies and physics content knowledge is modelling competence, since scientific models 'embody a form of flexible knowledge that can be applied to transfer problems' (Clement, 2000, p. 1042). Hence this project aims at answering the question how skills in scientific modelling foster the problem solving performance in context-based tasks. To make scientific modelling tangible, we developed a competence model and the corresponding assessment tool for scientific modelling in the physics domains optics and kinematics. The pilot study (N = 82, grammar school students age 15-19) showed good EAP/PV-reliabilities (optics 0.80, kinematics 0.91) along with a satisfying item fit. A model comparison gave favour to a three-dimensional model in both domains. Empirical results (N = 200, grammar school students age 15-19) and structural analyses will be presented at the conference.

## **Economic-Civic Competence: Revision and Validation of a New Test Instrument**

**Keywords:** Citizenship education, Competencies, Problem solving, Quantitative methods

**Presenting Author:** Nicole Ackermann, Institut für Erziehungswissenschaft (UZH), Switzerland

*Economic-civic education* aims to enable everyone to handle *complex socio-economic situations* in everyday life. *Economic-civic competence (ECC)* is a learnable and context-specific combination of cognitive and non-cognitive *dispositions of the individual* to handle these socio-economic demands successfully and responsibly. In a constitutional democracy with a liberal economic and social system, major citizens are involved in private, business and political decision-making processes. They are, for instance, periodically invited to express their opinion on economic and social issues via public debates and referenda. In Swiss high schools, economic-civic education is primarily taught in the subject "economics & law" (E&L). Promoting ECC depends on the curriculum of E&L (learning contents, number of lessons) and on the instruction in E&L. However, ECC of high school students and its correlation with the curriculum of E&L and the instruction in E&L at high schools is widely unexplored. The *first research goal* of this PhD research project is to revise the original ECC test, to develop a context questionnaire, and to validate both instruments regarding psychometrical and subject-didactical quality criteria. The *second research goal* is to collect and analyse data on ECC as well as on its school, non-school and individual context factors in order to assess values of ECC as well as to identify effects between ECC and these context factors. The *third research goal* is to elaborate a competence level model and/or a competence structural model for ECC. This paper focus on the revision and validation of the ECC test and presents preliminary results. *The instruments* used for the *data collection* are the revised ECC test and the newly developed questionnaire on ECC context factors. The sample covers about 400 students, either enrolled in the major subject E&L or in another major subject. The *data analysis* is conducted by methods of probabilistic test theory (IRT) and classical test theory.

### **Session A 7**

27 August 2017 10:30 - 12:00

Pinni B 3118

Single Paper

Assessment and Evaluation, Learning and Instructional Technology, Motivational, Social and Affective Processes

### **Learning and Motivation**

**Keywords:** Achievement, Educational Psychology, Goal orientation, Learning approaches, Meta-analysis, Motivation, Quantitative methods, Self-efficacy, Technology

**Interest group:** SIG 08 - Motivation and Emotion

**Chairperson:** Claudia Cristina Brandenberger, University of Bern, Switzerland

### **Test-taking motivation in educational context: A literature review**

**Keywords:** Achievement, Educational Psychology, Meta-analysis, Motivation

**Presenting Author:** Gerli Silm, University of Tartu, Estonia; **Co-Author:** Olev Must, University of Tartu, Estonia; **Co-**

**Author:** Margus Pedaste, University of Tartu, Estonia; **Co-Author:** Karin Täht, University of Tartu, Estonia

Tests are extensively used to evaluate and assess people's different traits, characteristics and abilities mostly in the fields of education and psychology, but also elsewhere. As tests are often low-stakes for the test-takers, concern about construct irrelevant variance has emerged. This in turn has given rise to the research on test-taking motivation. This article presents an overview of how studying test-taking motivation has evolved during the last decades. The term "test-taking motivation" and other similar were searched for in the EBSCO Discovery database. Peer reviewed full text articles in English that answered the posed research questions were included in the qualitative and quantitative synthesis. In addition we looked for relevant articles in the references that were also added to the sample. Sixty-nine articles were left in the analysis after assessing abstracts and full texts for eligibility. Effect sizes were calculated for 12 experimental studies concerning different methods of raising test-taking motivation. From the results it can be seen that the number of articles about test-taking motivation has started increase significantly from the current century. Most of the studies about test-taking motivation have been conducted in low-stakes testing condition using different measures of test-taking motivation posed by the researchers. The measures can be divided into self-report instruments and indicators of test-taking behaviour derived from the log-files of computer-based tests. The effect sizes (Cohen's *d*) for different interventions for raising test-taking motivation ranged from .08 to 1.54 for test-taking motivation and from -.28 to 1.2 for test performance. Three main kind of motivating strategies could be distinguished from the experimental research: providing motivating instructions, monetary incentives and monitoring the test-taker. An emerging subject is studying how item properties may positively impact motivation and performance. Based on the literature view further directions in the field are indicated.

### **Students' perfectionistic strivings: Stability, change, and associations with achievement goals**

**Keywords:** Achievement, Goal orientation, Learning approaches, Motivation

**Presenting Author:** Jenny Ståhlberg, University of Helsinki, Finland; **Co-Author:** Heta Tuominen, University of Helsinki, Finland; **Co-Author:** Antti Pulkka, National Defence University, Finland; **Co-Author:** Markku Niemivirta, University of Oslo, Norway

In the present study, we investigated the interplay between perfectionistic strivings and achievement goal orientations. The

aim was to examine 1) what kinds of perfectionism profiles can be identified among general upper secondary school students, 2) how stable these profiles are over time, and 3) how they are linked to achievement goal orientations. The participants were 172 first year general upper secondary school students (57% female, aged 16-17 years). By using latent class clustering analysis, students were classified based on their perfectionistic strivings (standards and discrepancy). The stability of perfectionism profiles was examined using configural frequency analysis, and one-way analyses of variance (ANOVA's) were used to explore group differences in achievement goal orientations (mastery-intrinsic, mastery-extrinsic, performance-approach, performance-avoidance, and work avoidance orientations). Based on statistical criterion, four groups of students with different perfectionism profiles were identified as follows: "*dissatisfied*" (44,5%), "*perfectionists*" (25,3%), "*ambitious*" (21,5%), and "*non-perfectionists*" (8,7%). Significant stability in the perfectionism profiles was found; it was typical for the students to display the same profile over one academic course. Moreover, it was untypical for dissatisfied students to move to ambitious students group and vice versa. In sum, 60 percent of the students held identical perfectionism profiles over time. There were significant and meaningful differences between the profiles in relation to achievement goal orientations: both the perfectionists and the ambitious students highlighted mastery-intrinsic and mastery-extrinsic orientations, but the perfectionists emphasized more performance-related goals along with mastery-related strivings. The dissatisfied students emphasized performance-avoidance and work avoidance orientations, while the non-perfectionists had relatively high scores on the work avoidance orientation and low scores on all the other orientations. To conclude, distinct perfectionism profiles can be found among general upper secondary school students, the profiles remain fairly stable over time, and students with different perfectionism profiles differ in their adoption of achievement goal orientations.

### **What influences whether students use mobile devices for learning?**

**Keywords:** Motivation, Quantitative methods, Self-efficacy, Technology

**Presenting Author:**Liina Adov, University of Tartu, Estonia; **Co-Author:**Olev Must, University of Tartu, Estonia; **Co-Author:**Margus Pedaste, University of Tartu, Estonia

Technology (e.g. mobile devices) has increasingly bigger role in our everyday life while also posing many new possibilities to make support learning. However, not many students nor teachers use these possibilities. The aim of our study was to find out whether school level variables as teachers' attitudes towards mobile devices and study attitudes can predict students' mobile device use in school. To this end, one aim was to test which attitude factors (towards the use of mobile devices in teaching) could be differentiated on Estonian teacher sample. We conducted a large-scale study in Estonia questioning 3521 students from 6<sup>th</sup> (n=2673) and 9<sup>th</sup> (n=848) grades with the average age of 13.3 (6<sup>th</sup> grade  $M = 12.6$  and 9<sup>th</sup>  $M = 15.6$ ) and 377 STEM subject teachers from 147 schools. Based on results we could differentiate following 7 attitude factors for mobile device use for teaching: self-efficacy, social influence, anxiety, performance expectancy, effort expectancy, enjoyment, facilitating conditions. The best fitting multilevel model explained 29% of the total variance in students' mobile device use in school, respectively 41% of the initial variance in school level and 17% of variance in individual level. Results suggest that students' and teachers' attitudes towards mobile device use as well as students' study attitudes and academic achievement predicts the use of mobile devices in school for learning. Furthermore, results suggest that students with higher motivation may use mobile devices more often for learning – to search information, communicate with others or to make presentations for example. The negative relationship between academic results and mobile device use for learning gives also reason to think that students' who do not have that good grades use more often mobile devices for learning. Our results suggest that mobile device use could be predicted also through academic achievement. Suggestions for future studies are outlined further in the article.

### **Session A 8**

27 August 2017 10:30 - 12:00

Pinni B 4115

Single Paper

Assessment and Evaluation, Learning and Special Education

### **Educational Evaluation, Accountability and School Improvement**

**Keywords:** Assessment methods and tools, Case studies, Comparative studies, Early childhood education, Educational policy, Mixed-method research, Social development, Social interaction, Social sciences

**Interest group:** SIG 01 - Assessment and Evaluation, SIG 23 - Educational Evaluation, Accountability and School Improvement

**Chairperson:** Katerina Sykorova, Masaryk University, Czech Republic

### **Engaging children's perspectives in assessing quality in ECEC**

**Keywords:** Assessment methods and tools, Comparative studies, Early childhood education, Educational policy

**Presenting Author:**Dana Haring, German Youth Institute, Germany

Engaging children's perspectives in ECEC quality - A Systematic Comparison of Different Methodological Approaches in Belgium, Denmark, New Zealand and Slovenia

High quality is crucial for children's learning and development in early childhood education and care settings (cf. Sylva et al.

2004; Burchinal et al. 2011; Tietze et al. 2012; Yoshikawa et al. 2013). Therefore, a lot of countries enforced quality development and assurance processes in early childhood education and care (ECEC) and/or implemented monitoring systems (cf. Klinkhammer et al. forthcoming).

Based on children's rights movements and new childhood studies that propose to enhance children's *being* rather than *becoming*, children are thereby regarded as (active) participants in early childhood education and care (e.g. Qvortrup 2009; Clark/Moss 2011; Puroila/Estola/Syrjälä 2012). Therefore children may not only contribute to quality improvement (cf. Schwartz forthcoming), but must be involved when talking about ECEC quality (cf. Thematic Working Group on Early Childhood Education and Care 2014, 58). Considering this, it appears important to engage children within the process of (systematic) quality development and assurance in ECEC. However, including the children's perspectives in quality development and assurance systems still seems to be scarce (cf. Klinkhammer et al. forthcoming). This paper aims at bundling different approaches engaging the children's perspectives in quality development and assurance and compares them systematically to understand if and how children's perspectives can be included. Therefore four examples from Denmark, Slovenia, Flanders (Belgium) and New Zealand are presented and compared regarding their methodological approaches. In this context, the authors also critically discuss whether the different approaches actually include children's perspectives. Furthermore, implications are drawn from these results for the feasibility in systematic quality development and assurance when including children's perspectives and challenges as well as opportunities when including children are presented.

### **A Comparison of Parents' and Self' Perspectives – The Social Competence of 12-Year-Olds**

**Keywords:** Assessment methods and tools, Social development, Social interaction, Social sciences

**Presenting Author:**Carina Schoenmoser, Leibniz Institute for Educational Trajectories, Germany

Prosocial behavior and peer problems are two indicators of social competence, which is very important for the human development and functional cooperation. It encourages the quality of friend- and partnerships as well as the academic performance. Therefore, it is important to observe children's social competence and this requires an understanding of the assessed data. The data on social behavior is generally collected by means of self- or external assessments. Due to several reasons, an objective measurement is thereby almost out of question: A person's behavior varies within social contexts. To obtain the most comprehensive impression of peoples' social behavior, researchers refer to a Multi-informant-perspective. The different informants tend to vary from each other in their evaluation. Apart from the different contexts, there might be other reasons for the disagreement among evaluators like diverse standards and interests as well as stereotypes. Using the data of the starting cohort 3 (SC3) of the National Educational Panel Study (NEPS) and running multi-level models, I analyze the parent's- and self-assessment of the 12-year-olds' social competences while controlling for several features (e.g. the child's sex, number of siblings and indicators for the social background). In the NEPS the social behavior has been measured with the help of the Strengths and Difficulties Questionnaire (SDQ, Goodman 1997). After considering all relevant variables, the data consists of information on 2,809 12-year-olds with one self- and one parent-assessment of prosocial behavior and peer problems each time. As expected, the correlation of the self- and the parent-assessments of social behavior is rather weak. Furthermore, the results show that parents assess their children more prosocial and less problematic than the targets themselves do. Assessing the targets' social competence, parents and the adolescents consider the targets' sex as well as their social background in different intensities. These factors vary between the assessment of prosocial behavior and peer problems.

### **Status of inclusive education in selected Ethiopian schools**

**Keywords:** Case studies, Early childhood education, Educational policy, Mixed-method research

**Presenting Author:**Abebaw Yirga Adamu, Addis Ababa University, Ethiopia

The main purpose of the study was to examine the status of inclusive education practice in the school system in the City Government of Addis Ababa. The study mainly focuses on examining awareness of inclusive education among stakeholders, implementation of inclusive education in schools, and accessibilities of schools to children with disabilities. The study used mixed research method and the necessary data were collected from school teachers, school principals, special needs education experts, special needs education teacher educators, and representatives of Civil Society Organizations. The necessary data was collected using questionnaire, interview and observation. The study also employed thematic analysis strategy. The result identified that despite the fact that the infrastructure, material resources and other important activities for the learning of students with disabilities are not at satisfactory level, most schools unlike in previous years are becoming more and more accommodative. However, schools were found to be weak in adapting the curriculum and the school environment, providing different activities and services to support the learning of students with disabilities, and implementing inclusive education policy. Parents of children with disabilities tend to perceive schools more as day cares which keep their children than places where their children get education. Moreover, despite the fact that significant number of children is attending preprimary and primary education in private schools, the result shows that private schools are not very much involved in most issues related to inclusive education. To effectively implement the inclusive education strategy and thereby address the educational needs of children with disabilities, policy makers and implementers need to make sure that the education system and schools adapt themselves to the learners rather than the other way around. Moreover, as a signatory to various international conventions and declarations on the rights and education of people with disabilities, the government should feel more responsible and accountable for the inclusion of children with disabilities.

## Session A 9

27 August 2017 10:30 - 12:00

Pinni B 1100

Single Paper

Instructional Design, Teaching and Teacher Education

### **Argumentation, Dialogue and Reasoning**

**Keywords:** Argumentation, Cognitive development, Instructional design, Primary education, Reasoning, Teacher Professional Development, Teaching / instruction, Teaching approaches, Writing / Literacy

**Interest group:** SIG 12 - Writing, SIG 26 - Argumentation, Dialogue and Reasoning

**Chairperson:** Renee Jansen, Utrecht University, Netherlands

### **The Three Domains For Dialogue: a model for analysing and promoting dialogic teaching and learning**

**Keywords:** Instructional design, Teacher Professional Development, Teaching / instruction, Teaching approaches

**Presenting Author:** Elisa Calcagni, University of Cambridge, United Kingdom; **Co-Author:** Leonardo Lago, University of Cambridge, UK, United Kingdom

Dialogic teaching is grounded in the assumption that language plays a key role in shaping thinking and participation. Rich involvement in oral communication would be key to develop thinking and learning. Nevertheless, classroom research shows that this is not the case in most situations around the world, where education tends to be transmissive. In response, there is a growing number of approaches in the dialogic teaching literature. This theoretical paper introduces the Three Domains for Dialogue Model (3D4D model), developed to address current challenges in the literature about dialogic teaching, such as the lack of cumulativeness and common terminology across authors. The available approaches tend to focus on patterns of talk, but mention other aspects of dialogue (e.g. tasks) that are less systematic. Given the links between dialogic teaching models and Teacher Professional Development [TPD] programs, another challenge is to operationalise these aspects and make them communicable in TPD. We propose a model with three interrelated domains: (A) Practice, (B) Instruments and (C) Assumptions, featuring components that we deem central to dialogic teaching and learning. Domain (A) Practice corresponds to what takes place in lessons and includes patterns of talk, relationships and the flux of content or knowledge. (B) Instruments refers to material and symbolic teaching tools that shape the teaching and learning practices, and have affordances for dialogic practices. This domain includes learning goals, learning tasks and resources, arrangement of participants, and evaluation. Domain (C) of Assumptions includes beliefs, norms and educational goals that shape what is done and valued in the classroom. To illustrate the use of the model, we apply it to the influential Thinking together programme (Mercer and colleagues) focused on dialogue. We think that there is potential in this model, both for comparing and bridging between available dialogic teaching models and for informing research employing TPD.

### **CHILDREN'S DEVELOPMENT OF THE CONCEPT OF EVIDENCE IN DIALOGIC ARGUMENTATION**

**Keywords:** Argumentation, Cognitive development, Primary education, Reasoning

**Presenting Author:** Andrea Miralda-Banda, University of Barcelona, Spain; **Co-Author:** Merce Garcia-Mila, University of Barcelona, Spain

Teaching argumentative processes contributes to the development of multiple cognitive and metacognitive skills relevant for learning. These skills are crucial to develop critical thinking and are an essential part of scientific literacy. Although several studies have explored children's and adolescent's argumentative abilities in a scientific context, these studies reported discordant results, mainly related to the performance level and the age in which students can reach the evaluation of evidence and distinguish it from their theories. Such studies do not consider students' generation of evidence, nor do they explore their concept of evidence. Consequently, the aim of the present study was to explore the development of the evidence concept, and children's ability to justify their opinion based on evidence in two groups (N=66) of fourth (9-11 years old) and 6th (11-13 years old) grade students. Data were collected through an individual semi-structured interview. A five point ordinal rubric was designed to conduct qualitative and quantitative analysis of students' evidence's definition and on how they used this definition to justify throughout the interview. Preliminary results showed significant differences between groups in the Concept of Evidence (4<sup>th</sup> grade  $\bar{x}$ =0.64(0.78), 6<sup>th</sup> grade  $\bar{x}$ =1.42(1.06),  $p$ =.001) and the Comprehension of its function (4<sup>th</sup> grade  $\bar{x}$ =0.52(0.56), 6<sup>th</sup> grade  $\bar{x}$ =1.06(0.70),  $p$ =.002), being performance better in the oldest group, which may suggest a developmental trajectory. Even though no significant differences were found for pre and post measures of Justification level, a strong positive correlation was found between Concept of evidence and the level of Justification (Spearman's  $R$  = .311  $p$ =.011, Spearman's  $R$  = .516  $p$ =.000). This study suggests that elicitation of the concept of evidence could improve students' metacognitive skills associated with argumentation process, which, in turn, will help them develop their critical thinking. Results also provide insights for the design and implementation of interventions to develop argumentative competency.

### **Effective writing interventions via revision instruction: The role of explicit process strategies**

**Keywords:** Instructional design, Primary education, Teaching approaches, Writing / Literacy

**Presenting Author:** Paula Lopez, University of León, Spain; **Co-Author:** Raquel Fidalgo, University of León, Spain, Spain;

**Co-Author:**Gert Rijlaarsdam, University of Amsterdam, Netherlands; **Co-Author:**Mark Torrance, Staffordshire University, United Kingdom

This study aimed to determine whether 6<sup>th</sup> grade students need to know and apply explicit procedures for revising their text, or whether similar (or greater) benefit might be gained from developing their understanding of how readers respond to text combined with encouragement to revise but no teaching of explicit revision strategies. Our sample comprised 142 six grade Spanish students divided into 6 classes from two schools, with two classes per condition. In all conditions, students started by learning strategies for planning their text, at the same time that it was also stressed as the start point for revision in both experimental conditions. In the Observing Reader condition (OR) students observed the instructor reading and commenting on imperfect texts as input for revision. In the Observing Writer condition (OW), students were taught explicit revision-procedure strategies, principally by observing these being modelled by the instructor. In the control condition the instruction focused on set communicative goals for planning. The study followed a pretest-posttest-transfer test-follow up test design. Text quality was assessed by rating scales supported by anchor texts. Also, the intervention effects on revising skills and self-efficacy, as well as the moderator effect of self-efficacy and writer style on the final writing quality were tested. We found evidence of immediate and sustained benefits for text quality and revision skills of both interventions, relative to controls. However, we found no evidence of a benefit of learning revision strategy over observing a reader. No effects were found neither self-efficacy or the moderator effect of the variables tested on writing quality. Therefore, both procedures seem to be equally effective to improve writing quality via revision after a short intervention in upper-primary typical developing students. Key words: Writing skills, Strategy-focused instruction, Revision process, Text quality, Revision strategy, Audience needs

### **Session B 1**

27 August 2017 13:00 - 14:30

Pinni B 3108

Single Paper

Lifelong Learning, Teaching and Teacher Education

#### **Professional Development and Learning**

**Keywords:** Action research, Attitudes and beliefs, Collaborative Learning, Communities of practice, Early childhood education, Lifelong learning, Survey Research, Teacher Professional Development

**Interest group:** SIG 14 - Learning and Professional Development

**Chairperson:** Külli Kori, University of Tartu, Estonia

#### **Exploring secondary education teachers' research attitude**

**Keywords:** Action research, Attitudes and beliefs, Teacher Professional Development, Lifelong learning

**Presenting Author:**Kitty Leuvenink, Tilburg University, Netherlands; **Co-Author:**Rian Aarts, Tilburg University, Netherlands

The aim of the present descriptive study was twofold. The primary aim was to explore the research attitude of secondary education teachers who participated in a professional learning community (PLC) of teachers doing teacher research under supervision of two experienced researchers of Tilburg University. In order to evaluate the research attitude in secondary education teachers, we needed to construct a measurement instrument. Therefore, the second aim in this study was to operationalize the concept of the research attitude in order to construct an instrument by which the research attitude in secondary education teachers could be evaluated. Ten different aspects of teachers' research attitude were distinguished in the literature and measured on a 50-items questionnaire. Questionnaire analysis showed low reliability scores for the ten aspects. A factor analysis showed that nine aspects form the basis of the research attitude. The questionnaire was taken at the start (September) and end (August) of the school year 2015. 29 teacher researchers of nine schools participated in the study. Questionnaire outcomes were compared with a control group of 97 teachers who did not participate in the PLC. Findings show that the research attitude of the teacher researchers increased during the school year, but the difference with the beginning of the school year was not significant. Compared to the teachers who were not engaged in the PLC, the teacher researchers had a significantly higher research attitude at the end of their research period. Overall, this study has provided a renewed insight into the research attitude by operationalizing the concept. This study also showed that we should nuance the suggestions that teacher research has impact on the development of a research attitude as results of this study cannot plainly support the claim that teacher researchers develop a research attitude when conducting teacher research.

#### **SHARED PROFESSIONAL AGENCY, AS A SPACE TO ENGAGE TEAMWORK IN EARLY CHILDHOOD EDUCATION**

**Keywords:** Action research, Collaborative Learning, Communities of practice, Early childhood education

**Presenting Author:**Anitta Melasalmi, University of Turku, Finland; **Co-Author:**Jukka Husu, University of Turku, Finland

**SHARED PROFESSIONAL AGENCY, AS A SPACE TO ENGAGE TEAMWORK IN EARLY CHILDHOOD EDUCATION: STUDY OF THREE TEAMS** Abstract In this study Finnish early childhood educators' perception of their shared agency in three different teams is studied. Our interests were to examine shared agency within contextual circumstances as a phenomenon of negotiated agentic transactions. The data, consisting of videoed discussions of the educators' videoed professional actions, were gathered during one semester. Results show that the domains of the educators' perceived

individual agency dispositions contained personal, professional and structural entireties. The shared dispositions framed differently their relational engagement – responses of others. When viewed in a temporal scope, the relational engagements of withdrawal, compliance, and engagement with dispositions, formed together the team's characteristic shared space of engagement. This revealed also the teams' level of shared agency. Particularly relational engagement as compliance and withdrawal, related to past time with emphasis on structural dispositions, yielded a low level of the team's shared agency, thus, shared space characterized as "struggling with embedded past". Dispositions containing personal and professional issues with relational engagement embracing a high level of shared agency, and their shared space was characterized as "striving to enhance and change, shared practices". Teams with high levels of shared agency focused more on mirroring children's agency, emotions and understandings, i.e., their learning. Thus, we argue that enhancing shared agency supports the growth of the community as a professional learning community, as the key to improved learning for children is continuous, job-embedded learning of educators. These results indicate that the shared nature of agency can be a powerful factor supporting both children's learning and professional development in early childhood education. Implications to the field of early years are discussed. Key words: teacher agency, shared agency, team work, professional development

### **Can concrete survey items make a difference?**

**Keywords:** Attitudes and beliefs, Early childhood education, Survey Research, Teacher Professional Development

**Presenting Author:**Hanne Jensen, The LEGO Foundation, Denmark

**ABSTRACT** In the context of professional development (PD), early childhood practitioners' beliefs about teaching and learning are found to influence the extent to which new knowledge is taken in and acted upon. Using surveys as an effective means to gauge these educational beliefs holds great promise for identifying patterns within and across larger groups. However, educational beliefs researchers continue to find a discrepancy between practitioners' self-reported beliefs, and their classroom practices. A mismatch in levels of measurement specificity has been offered as part of this issue; that is, what practitioners respond to general questions about developmentally appropriate practice is not likely to correlate with their concrete classroom behaviours. Instead, both should be measured at a similar level of generality or specificity. The present study investigates this question using a newly developed survey, which uses concrete activities children might do as items. A contextualised version of the survey was completed by 96 South African early childhood practitioners taking part in a PD programme promoting play-based practices. Through subsequent cluster analysis, two groups of respondents emerged from the responses: *All play* (respondents rate a wide range of activities highly play-like) and *Traditional* (respondents have lower ratings, and distinguish between child-led and adult-led play activities). Data from classroom observations and video-stimulated recall interviews were also collected from a subsample of practitioners, who represented diverse survey responses. This paper examines the degree of alignment between these practitioners' perceptions of play and learning, thoughts informing classroom decision-making and interactions in the classroom. The results showed that in 5 out of 8 cases, practitioners' survey responses were reflected in the qualitative data from their practice. Implications for practice and future research are discussed in light of the South African early education context, as well as wider tendencies in early learning and teaching.

### **Session B 2**

27 August 2017 13:00 - 14:30

Pinni B 3111

Single Paper

Educational Policy and Systems, Learning and Social Interaction

### **Moral and Democratic Education**

**Keywords:** Citizenship education, Cognitive development, Interdisciplinary, Philosophy, Quantitative methods, Secondary data analysis, Social aspects of learning and teaching, Social interaction, Values education

**Interest group:** SIG 13 - Moral and Democratic Education

**Chairperson:** Erja Kilpeläinen, University of Eastern Finland, Finland

### **Exploring effects of learning environments on inequalities in participatory attitudes of 8th graders**

**Keywords:** Citizenship education, Quantitative methods, Secondary data analysis, Social aspects of learning and teaching

**Presenting Author:**Daniel Deimel, University of Duisburg-Essen, Germany; **Co-Author:**Bryony Hoskins, University of Roehampton, United Kingdom; **Co-Author:**Hermann J. Abs, University of Duisburg-Essen, Germany

Social inequalities may result in unequal political participation. This may be seen as a threat to democratic societies. The schools' integrative function is to foster reflective participation in a political and social environment. This may be seen as one central outcome of education. Schools may also reproduce social inequalities. Based on Dewey's (1916/2008) theoretical works and newer empirical findings (e.g. Geboers et al., 2013; Knowles and McCafferty-Wright, 2015; Hoskins, 2017), active citizenship can be stated to be learned through participating in social learning environments. It is explored how these learning environments contribute to the effect of social inequalities on attitudes related to political participation using the European subset of the International Civic and Citizenship Education Study 2009 ( $N = 75,747$  students in grade 8 from 24 countries). Two hypotheses are contrasted. (1) The effect of a persons' SES on attitudes related to participation is mediated by social learning environments. This refers to an *access hypothesis*: students with an unfavorable SES may

have access to these learning environments in a lesser extent. (2) The effect of a persons' SES on attitudes related to participation is moderated by social learning environments. This refers to a *compensatory hypothesis*: social learning environments may compensate for the effect of inequalities on attitudes related to participation. Data is analyzed using structural equation modelling with lavaan 0.5-23.1097 (Rosseel, 2012). The compensatory hypothesis is to be rejected due to a bad fit between the tested model and the observed data. The access hypothesis can be supported: the effect of the students' SES is fully mediated by reflected participative experience at school (CFI = .92, RMSEA = .06, SRMR = .04). To fulfil the schools' integrative function even better, disadvantaged students' should be actively included in social learning environments fostering political participation. Reflection of the students' experiences in these environments should be supported and encouraged.

### **Mafia's children: Intersections between Law and Education for learning citizenship and freedom**

**Keywords:** Citizenship education, Cognitive development, Interdisciplinary, Social interaction

**Presenting Author:** Rossella Marzullo, University of Rome Tor Vergata, Italy

In mafia families, children are educated in violence, revenge, and gender stereotypes. What can be done to guarantee these children the right to education, the right to become citizens, the right to be men without killing and women without obeying, and the right to know the value of democracy and legality? One possible answer lies in the recent judgment of the Juvenile Court of Reggio Calabria, which has mandated the revocation of parental responsibility in all cases in which serious injury to the child is proven. These limitations to parental rights have the principal purpose of allowing institutions to stop a system of behavior that is harmful to the proper development of the personality of the child and that transmits negative cultural values from father to son and from mother to daughter. By applying the educational theories of Piero Bertolini (1965) and Jack Mezirow (1991, 1995), I believe it is possible to deconstruct deviating training models through experience. Training models should be aimed at the rehabilitation of persons who, for whatever reason, have introjected internal dysfunctional models and are incapable of developing appropriate relationships with others or society in general. For this reason I think it is possible to apply this educational system for rehabilitation of mafia children. Clans are based on blood ties and on strongly hierarchical and patriarchal family models: Men have the power to make any decision concerning their wives and children, and women have the task of handing down this familiar pattern. Children who grow up in such contexts are entitled to be educated about the principles of legality, solidarity, human dignity, and alternative standpoints. Law recognizes children's right to education. Thus, the research question of this study is: How can we ensure the right to education of mafia children?

### **The Capabilities Approach to the Field of Education**

**Keywords:** Citizenship education, Interdisciplinary, Philosophy, Values education

**Presenting Author:** Iida Pyy, University of Helsinki, Finland

Working title: "Martha Nussbaum's Capability Approach: A Hermeneutical Literature Reading in Terms of Philosophy of Education and Possible Curriculum Design"

Education is seen as a powerful institution with opportunities towards social change. The well-being and capabilities of students can be improved through curriculum design and school cultures that encourage and foster overall human flourishing and equity. Philosopher Martha Nussbaum's life work, the multidisciplinary paradigm on well-being, known as the Capabilities Approach (CA) has been continuously studied and applied on diverse scientific fields. Now it is increasingly gaining interest in the field of education research. It is stated that the CA's potential significance for education (and vice versa) is remarkable and should be studied more. In this paper, a brief overview of the theoretical background of the CA is presented, and relevant concepts are defined. The study is a qualitative theoretical literature inquiry in which the hermeneutic research approach is utilized. This paper has two-dimensional literary data, and the researcher is summarizing and analysing: (A) Nussbaum's published research on the CA and education, and (B) the recent writings of 25 education scholars commenting on Nussbaum. The paper aims to (1) shed light on how Nussbaum, her CA and her standpoint has been studied and understood in the field of education recently. Interpretations of Nussbaum and of her writings are found versatile, yet an idea of critical-global-*Bildung* pedagogy is proposed as a result at this stage of the hermeneutical circle. Moreover, as Nussbaum's apparent educational position is articulated, an attempt is made to (2) provide the readers with ideas of how the CA could be implemented in education – and in what direction the research could be taken in the future. A curriculum built around the 10 central capabilities is suggested, as well as a model of learning *about, for and through* the human capabilities.

### **Session B 3**

27 August 2017 13:00 - 14:30

Pinni B 3116

Single Paper

Instructional Design, Teaching and Teacher Education

### **Teacher Education and Instructional Design**

**Keywords:** Bilingual education, Communities of practice, Competencies, Content analysis, Higher education, Instructional design, Learning approaches, Pre-service teacher education, Qualitative methods, Reasoning, Teacher Professional Development

**Interest group:** SIG 06 - Instructional Design, SIG 11 - Teaching and Teacher Education

**Chairperson:** Shupin Li, University of Turku, Finland

### **CLIL teachers' identity negotiation: The context of Finnish primary education**

**Keywords:** Bilingual education, Communities of practice, Qualitative methods, Teacher Professional Development

**Presenting Author:** Sotiria Pappa, University of Jyväskylä, Finland; **Co-Author:** Josephine Moate, University of Jyväskylä, Finland; **Co-Author:** Maria Ruohotie-Lyhty, University of Jyväskylä, Finland; **Co-Author:** Anneli Eteläpelto, University of Jyväskylä, Finland

The Finnish national curriculum of 2016 recognizes the importance of language innovation and integration in education and maintains that every teacher is a language teacher, intent on the provision of more rounded and language-interpreted learning. However, there is a lack of in-depth research about how Finnish primary school teachers of Content and Language Integrated Learning (CLIL) exercise professional agency in forming their identities at work. This paper aims at presenting a qualitative study on the negotiation of teachers' identity as pedagogues and colleagues, and how *identity agency* is used between these two sides of their professional identity. Teachers' professional identity is conceptualized as the dynamic shifting process of an ongoing conception of oneself, comprising biographical and professional trajectories alongside interpersonal and physical resources. *Identity agency* is understood as the form of professional agency teachers use in the bi-directional process of identity negotiation between personal resources and social discourses at work. At the level of the classroom, *identity agency* was using self-awareness and past experiences to interpret current situations and direct future actions at work. Meanwhile, language was used as a mediational means of professional and relational positioning. At the level of collegial relationships, participants negotiated their relational identity by being involved and active members in a shared collegiality. Finally, *identity agency* was exercised in the way teachers crossed boundaries between the pedagogical and relational sides to their professional identity. Rather than separate, however, these sides may interact according to how teachers position themselves therein. Teacher education should be a place where theory and practice come together, but also one that acknowledges personal experiences and pre-existing beliefs. With regard to in-service teachers, attention should be paid both to the synergy within contexts and the transaction between contexts for teacher identity formation and negotiation.

### **The role of training programs in the preparation for autonomy in reflection of CPD**

**Keywords:** Competencies, Content analysis, Pre-service teacher education, Teacher Professional Development

**Presenting Author:** Csilla Pesti, Eötvös Loránd University, Hungary; **Co-Author:** Krisztina Nagy, Eötvös Loránd University, Hungary; **Co-Author:** Nóra Rapos, ELTE University, Faculty of Education and Psychology, Hungary

Educational policy emphasises the process nature of Continuous Professional Development, therefore the professional development occurring during Initial Teacher Education can be considered as an integral part of it. In this sense, ITE has an essential role in laying the foundations for CPD. *Autonomy* and *collaboration* can be seen as prerequisites for CPD. In 2013 Hungarian institutions providing ITE were expected to develop new programmes. The study of these is of a key importance. Therefore, the aim of our research is to reveal the role of ITE programmes in the preparation for *autonomy* and *collaboration*. In order to do so, we aim to analyse the pedagogical-psychological modules of undivided programmes. The course description analysis from the aspect of *autonomy* showed that almost half of the courses refer to relevant competence elements. Since a major portion of these elements belong to the competence field called „Communication, professional cooperation and career identity”, the idea that *autonomy* and *collaboration* are not merely contrary concepts, but they both have a contributing effect on efficient pedagogical work seems justified. The conclusion that *collaboration* is interpreted as a tool for efficient classroom practice is strengthened by the following: *collaboration* is mostly understood as *collaboration* with students – *collaboration* between (student) teachers does not appear as a goal; the aspects of assessment and the involvement of other actors in it are not common; the deliverables do not reflect on *collaboration*; the methods that are truly based on *collaboration* are underrepresented. The significance of our research lies in its niching function: due to the (re)introduction of undivided ITE, review and reforming of training programmes became a requirement, and, at the same time, an opportunity to turn towards learning outcome-based programme development. The results may contribute to a comprehensive overview that could be significant to the actors of teacher education.

### **Fostering Students' Critical Thinking Skills: Effects of Self-explaining on Learning and Transfer**

**Keywords:** Higher education, Instructional design, Learning approaches, Reasoning

**Presenting Author:** Lara van Peppen, Erasmus University Rotterdam, Netherlands; **Co-Author:** Peter Verkoeijen, Erasmus University Rotterdam, Netherlands; **Co-Author:** Anita Heijltjes, Avans University of Applied Sciences, Netherlands; **Co-Author:** Eva Janssen, Utrecht University, Netherlands; **Co-Author:** Denise Koopmans, Universiteit Utrecht, Netherlands; **Co-Author:** Tamara Van Gog, Utrecht University, Netherlands

Critical thinking (CT) is considered to be an important competence for students and graduates of higher education. Yet, it is largely unclear which teaching methods are effective in supporting the acquisition of CT-skills and, in particular, the ability to apply these skills to new situations (i.e. transfer). The present study examined the effects of self-explaining on learning and transfer of one important aspect of critical thinking, that is, the ability to avoid biased reasoning. First-year students ( $N=79$ ) were instructed on two categories of 'heuristics and biases' tasks (base-rate and syllogistic reasoning or Wason and conjunction). They then practiced these tasks either with (self-explaining condition) or without (no self-explaining condition) self-explanation prompts that asked them to motivate their answers. Performance was measured on a pretest, immediate

posttest, and delayed (two weeks later) posttest on all four task categories, to measure effects on learning (performance on practiced tasks) and transfer (performance on non-practiced tasks). Results showed that participants' learning and transfer performance improved to a comparable degree from pretest to immediate posttest in both conditions, and this higher level of performance was retained on the delayed posttest. Surprisingly, the self-explanation prompts had a *negative* effect on posttest performance on practiced tasks when those were Wason and conjunction tasks, and self-explaining had no effect on transfer performance. These findings suggest that the benefits of explicit instruction combined with practice on learning and transfer of unbiased reasoning cannot be enhanced by self-explanation prompts during practice. We did find that learners who gave lower quality of self-explanations also performed worse on the practiced (i.e. learning) items on the test. Future research could investigate whether other types of generative activities would be more beneficial for establishing learning and transfer of unbiased reasoning. Keywords: Critical Thinking; Instructional Design; Reasoning; Self-explaining; Heuristics and biases.

#### **Session B 4**

27 August 2017 13:00 - 14:30

Pinni B 3117

Single Paper

Cognitive Science

#### **Neuroscience, Education and Cognitive Skills**

**Keywords:** Achievement, At-risk students, Cognitive development, Cognitive skills, Developmental processes, Learning and developmental difficulties, Mathematics, Primary education, Reasoning, Science education

**Interest group:** SIG 22 - Neuroscience and Education

**Chairperson:** Astrid Camilla Wiig, University College of Southeast Norway, Norway

#### **Effects of different types of physical activity on cognitive performance of low academic achievers**

**Keywords:** Achievement, Cognitive development, Learning and developmental difficulties, Primary education

**Presenting Author:** Anne de Bruijn, University of Groningen, Netherlands; **Co-Author:** Esther Hartman, University Medical Center Groningen / University of Groningen, Netherlands; **Co-Author:** Danny Kostons, University of Groningen, Netherlands; **Co-Author:** Chris Visscher, University Medical Center Groningen/University of Groningen, Netherlands; **Co-Author:** Roel J. Bosker, Rijksuniversiteit Groningen, Dept of Education and GION, Netherlands

Physical activity is shown to be positively related to cognition and academic achievement. Learning/developmental mechanisms explain the relation between physical activity and cognition by the fact that cognitively demanding physical activity activates the same brain regions as those that are used for higher-order cognitive processes. Physiological mechanisms provide another explanation, namely that physical activity results in changes in brain structure and function, which consequently aid cognitive performance. The exact mechanisms remain unclear. The most pronounced effects of physical activity are found on executive functioning. It is therefore suggested that executive functioning mediates in the relation between physical activity and academic achievement. This suggestion is particularly interesting for the vulnerable population of low academic achievers in regular education, as physical activity, by being closely related to cognitive development, is a strong candidate intervention for preventing impaired cognitive development in the long-term. Therefore, the present study examines whether two types of physical activity (moderate-to-vigorous versus complex-coordinative) lead to enhanced academic performance in low academic achievers, and whether this relation is mediated by enhanced executive functioning. One-thousand students of 22 primary schools took part in a cluster randomized controlled trial, of which the lowest 25% performers ( $N = 250$ ) in reading, spelling and mathematics were classified as low academic achiever. At each school, a third and a fourth grade class were randomly assigned to either the intervention (moderate-to-vigorous or complex-coordinative) or the control condition. Before and after the 14-week intervention, students were tested on physical fitness and motor skills, executive functioning (verbal and visuospatial working memory, motor inhibition, and inhibitory control) and academic achievement (reading, spelling and mathematics). Positive effects on academic achievement are expected for both interventions. The complex-coordinative intervention is expected to be more effective, because this intervention also targets the less well-developed executive functions of low academic achievers.

#### **An fMRI study of the role of inhibitory control in adolescent science and math reasoning**

**Keywords:** Cognitive skills, Mathematics, Reasoning, Science education

**Presenting Author:** Annie Brookman-Byrne, Birkbeck, University of London, United Kingdom; **Co-Author:** Andrew Tolmie, UCL Institute of Education, United Kingdom; **Co-Author:** Denis Mareschal, Birkbeck, University of London, United Kingdom; **Co-Author:** Iroise Dumontheil, Birkbeck, University of London, United Kingdom

According to traditional views of learning in science and math, naïve theories are replaced in the face of new evidence. However, recent behavioural and neuroimaging research suggests that old theories remain even when new ones are learnt and that inhibitory control may be used to suppress incorrect theories and favour the correct reasoning. In adults, areas of the brain associated with inhibitory control (the anterior cingulate cortex (ACC) and dorsolateral prefrontal cortex (DLPFC)) are more active when correctly solving counterintuitive problems. In adolescence, individual differences in inhibitory control are associated with counterintuitive science and math reasoning, but underlying neural mechanisms are largely unknown. Adolescence is a particularly important time for science and math reasoning as pupils are taught increasingly complex

concepts and work towards their compulsory exams in these subjects. In a functional magnetic resonance imaging (fMRI) study, 40 adolescents (11-15 years old) performed a science and math reasoning task, where 96 true or false statements were presented. Half of the statements related to misconceptions, where the intuitive response is incorrect, and half were control statements. A Go/No-Go task that measures response inhibition (where an action must be suppressed) and a Stroop task that measures semantic inhibition (where meaning must be suppressed) were also performed inside the scanner. It was hypothesised that brain areas active during semantic and response inhibition would be active during counterintuitive reasoning. The analyses indicated some shared neural activation in the DLPFC as anticipated, and in the inferior parietal lobule, but there was no increased activation in the ACC when reasoning about counterintuitive concepts. This suggests that the error processing aspect of inhibitory control is less utilised in counterintuitive reasoning for adolescents. Overall the results provide support for the role of inhibitory control in counterintuitive science and math reasoning in adolescence.

### **Media time in relation to executive functions, reading and academic as well as cognitive performance**

**Keywords:** At-risk students, Cognitive skills, Developmental processes, Mathematics

**Presenting Author:**Henrik Husberg, University of Helsinki / Niilo Mäki Institute, Finland; **Co-Author:**Liisa Klenberg, Niilo Mäki Institute, Finland; **Co-Author:**Susanna Slama, Niilo Mäki Institute, Finland

Previous research on the links between electronic media usage, attention and school achievement has been inconclusive. For example, some negative links have been shown between total hours viewing TV and school achievement and ADHD-related behaviors, while some positive links have been found between digital gaming and visual spatial skills. The aim of this study is to address some of the above mentioned issues in two studies by investigating the relationship between three measures of digital media time and executive functions, reading habits and school achievement in grades 1-5 as well as investigating the relationship between media use, arithmetic fluency and cognitive abilities in grades 1 and 3. Pupils were randomly selected for participation from 25 schools around Swedish speaking Finland (in this study included grades 1, 3 and 5; n = 371). From the first- and third-grade students a sample was randomly selected for more thorough screening (n = 160). Participants parents' completed a background survey comprised of questions regarding parents' educational level as well as children's reading habits and media usage. Teachers completed the Attention and Executive Function Rating Inventory (ATTEX) as well as a short questionnaire regarding pupils' performance at school, including grades (mathematics and Swedish). For study 2 a smaller sample of students in grades 1 and 3 were further tested with subtests of WISC IV as well as a computerized version of the Corsi block-tapping test and tests of processing speed. In study 1, multiple group path analyses were conducted to investigate the relationships between variables and to test different models of mediation. In study 2 structural equation modeling was conducted. Results indicate small negative direct effects of television time on school performance and small negative direct and indirect effects on arithmetic fluency, as well as a positive effect of video gaming on visuo-spatial WM. Internet use did not predict either outcome.

### **Session B 5**

27 August 2017 13:00 - 14:30

Pinni B 0039

Single Paper

Learning and Special Education, Motivational, Social and Affective Processes

### **Special Educational Needs**

**Keywords:** Attitudes and beliefs, Emotion and affect, Informal learning, Instructional design, Learning disabilities, Mathematics, Mixed-method research, Special education

**Interest group:** SIG 15 - Special Educational Needs

**Chairperson:** Alice Spada, Italy

### **How to design educational material for inclusive classes**

**Keywords:** Instructional design, Learning disabilities, Mathematics, Mixed-method research

**Presenting Author:**Anna Noll, University of Koblenz-Landau, Germany; **Co-Author:**Jürgen Roth, University of Koblenz-Landau, Germany; **Co-Author:**Markus Scholz, University of Education Ludwigsburg, Germany

Inclusion is based on international legitimate developments like the Salamanca statement, which emphasizes the right of education for all. Furthermore, several studies showed that coeducation can have a positive effect on the development of performance of pupils with and without special needs. But to include all students, the educational conditions need to be adopted at first. One step into this direction can be the facilitation of the readability of assignments in order to provide all pupils access to their content. This project investigates which design elements of learning materials positively influence the performance of students in inclusive classes. Within the framework of an empirical study, we will analyze whether the use of the easy-to-read language or enriching text with symbols facilitates pupils' (students with and without learning difficulties) comprehension. A qualitative preliminary study focuses on the benefits of using easy-to-read language as well as on the advantages of linking text and symbols by use of eye tracking, interviews and thinking-aloud-protocols. Research question like "Do the students use the symbols without a prior explanation?", "How do they use them?" and "Do they perceive them as helpful?" are focused on. Preliminary results are presented in the corresponding paper. For the main study, a posttest-only design comprises two experimental and one control group. Experimental group one works with a linguistically and

pictorially simplified version of the tasks as the easy-to-read guidelines are applied and symbols are added to the text. The tasks of the second experimental group are linguistically simplified only. The control group receives a not simplified version of the tasks. After the conduction of the exercises, the pupils' knowledge about fractions is determined by a test. Both studies focus on introducing fractions. These are taught in activity-oriented manner with hands-on material.

#### **Student's attitudes towards children with disability: Adaptation of the CATCH questionnaire**

**Keywords:** Attitudes and beliefs, Emotion and affect, Learning disabilities, Special education

**Presenting Author:**Anita Krausz, University of Szeged, Hungary

Several studies have shown that the integrated education has advantages in students social development and accepted attitude development (Meyer, Park, Grenot-Scheyer, Schwartz & Harry, 1998). The studies about the integrated education had been traced for several decades, our research is based on the CATCH (Chedoke-McMaster Attitudes Towards Children with Handicaps Scale) questionnaire (Rosenbaum, 1985) which instrument had been used in several international studies as well (Tiros, 1997; Vignes, 2008; Godeau 2010; Bosseart, 2011; Abiola, 2012; De Laat, 2013). Our major aim is to map the adolescent youth, their attitudes towards children with special treatment. The questionnaire was based on the three- component model of attitudes proposed by Triandis (1971). This 36-item, self-administered scale was primarily paper based, but our adaptation is placed to online forme. The participants of the study were 7th grade students (N=99). The overall reliability of the test was satisfactory (Cronbach-  $\alpha= 0,856$ ). In the content analysis we found two items which were significantly negative and four items which were not significant, those leaving the KMO= 0,809 (KMO>6), therefore suitable for factor analysis. Our results show that, however in our sample these three-component factor aren't so clear, the test is reliable. There are some subtests which call for revision, and we will need further researches to develop our assessment tool to make it more reliable and valid. We hope that in the future it can be useful for the integrated and for the inclusive education. To recapitulate briefly, this study demonstrates that the social contacts established between children make a difference in the attitudes of students in the elementary schools in Hungary towards their peers who have disabilities. Children's knowledge about disabilities will be a good opportunity to develop the attitudes. However, this difference between the developmental stages was marginal and non-significant among the different genders. This present pilot study can contribute to the development of knowledge about the educational system and can help to formulate inclusive education.

#### **Accessibility in MOOCs: The current state and next steps**

**Keywords:** Informal learning, Learning disabilities, Mixed-method research, Special education

**Presenting Author:**Francisco Iniesto, Open University, United Kingdom

An effective open eLearning environment should consider each learner's abilities, learning goals, where learning takes place, and which specific devices the learner uses. Technologies used in Massive Open Online Course (MOOC) platforms are not necessarily accessible, blocking the access to such educational environment to many users. This research will benefit the MOOC providers who would be able to use the project's outputs and disabled learners to improve their lifelong learning and re-skilling. Providing accessible MOOCs could offer flexibility of learning and benefits to all irrespective of their disability. In my research project, I am working towards developing a MOOC accessibility audit which will combine the use of both automatic tools and manual evaluation procedures. The evaluation criteria include usability and user experience characteristics alongside accessibility of the user interface design, and accessibility characteristics of the pedagogical design. I need to understand the multiple viewpoints of stakeholders in accessibility practice, such as those of educators who create materials and facilitate learning, and of technologists who develop and maintain platforms. It is therefore essential to identify how these stakeholders can be involved in achieving accessibility in MOOCs. As such, I am carrying out empirical investigations with design teams of MOOCs suggested to capture their practices and constraints of integrating accessibility. I will also investigate the experiences, constraints and requirements of the learners who have accessibility requirements. In this paper, I outline a brief rationale, the three research questions and two sub questions, the methodology including: interviews, online surveys and the MOOC accessibility audit, with preliminary results of the first studios regarding the three main methods included in this research project; I also include the risk management of the research programme, ethical considerations when researching with vulnerable learners and the present and future work.

#### **Session B 6**

27 August 2017 13:00 - 14:30

Pinni B 3110

Single Paper

Lifelong Learning, Teaching and Teacher Education

#### **Inquiry Learning**

**Keywords:** Computer-supported collaborative learning, Informal learning, Inquiry learning, Lifelong learning, Primary education, Professions and applied sciences, Science education, Secondary education, Self-regulation, Workplace learning

**Interest group:** SIG 20 - Inquiry Learning

**Chairperson:** Batdulam Sukhbaatar, University of Szeged, Hungary

#### **The Self-Organised Learning Environment (SOLE) and Granny Cloud: A Students' Perspective**

**Keywords:** Computer-supported collaborative learning, Inquiry learning, Self-regulation, Lifelong learning  
**Presenting Author:**Khadija Mohamud, Institute of Educational Technology / Open University, United Kingdom

The Self-Organised Learning Environment (SOLE) and Granny Cloud: A Students' Perspective ABSTRACT While much research has been conducted to demonstrate how students are benefitting from Self-Organised Learning Environments (SOLEs) from a researcher's perspective, no research has been conducted to investigate students' perspectives of SOLE and the Granny Cloud in India. This qualitative case-study starts to fill that gap and is the first research on this particular SOLE Lab, which is in a remote village in West Bengal. The study's key research question is: 'What do students believe they are learning from engaging with SOLE and Granny Cloud'. 32 students, 2 learning hub facilitators, 2 teachers and 4 parents participated in this study. Data were collected through observations, focus groups, interviews and field notes within a two-week time frame. Data were analysed through coding and thematic analysis. Credibility and trustworthiness were ensured through: cross-checking data consistency during data collection, systematically coding key ideas into themes, and triangulation of multiple data sources. Comprehensive ethical principles of informed consent and confidentiality were applied. The findings suggest that students generally believe they are learning from engaging with SOLE and the Granny Cloud. They gave clear examples of what they learnt as a result of utilising the facilities. Examples included; learning techniques that made real life impacts, learning English, developing ICT competence, increasing confidence, developing communication and teamwork skills. Nevertheless the study presented some interesting findings that stimulated students' interest in SOLE and Granny Cloud sessions. These included; preferences for easy and hard SOLE big questions and granny approach of conducting Granny Cloud sessions. However, some tensions were also evident from the data. This paper addresses the conference theme and questions by discussing how SOLE and Granny Cloud is facilitating self-directed learning and presenting challenges posed and way forward. Keywords: SOLE; Granny Cloud; learning hub

#### **Individual, team and organisational learning from incidents: What do we know and where are we going?**

**Keywords:** Informal learning, Professions and applied sciences, Workplace learning, Lifelong learning  
**Presenting Author:**Victoria Murphy, Open University, United Kingdom; **Co-Author:**Allison Littlejohn, Open University, United Kingdom; **Co-Author:**Bart Rienties, Open University, United Kingdom

Learning from incidents (LFI) is a sub-section of workplace learning that looks at how companies learn after accidents and near-misses in order to prevent similar occurrences. The literature on LFI has focused on learning from a variety of perspectives: the individual, the team, and the organisation. Studies have drawn on a multiplicity of theoretical perspectives related to learning, but there exists limited understanding of how LFI functions as a learning process from its beginning to its end. To conceptualise LFI as a form of adult learning and identify current gaps in understanding a systematic literature review was undertaken. 60 studies were identified that analysed aspects of LFI as a learning process. To outline current understandings of LFI as a learning process, the individual, team and organisational learning perspectives considered in the articles were drawn together and summarised. This allowed for identification of gaps of knowledge in the current conceptualisation of LFI. Studies on individual learning can be connected to two educational theories: experiential learning and agency. While agency, particularly barriers to engaging with LFI, has been explored in many studies, relatively few have looked at how learning activities can guide individual development through experiences. Learning activities that can guide development at the team level have been explored to an extent in the current body of literature, but there remains much scope for development in this area, including how different teams interact with each other. The organisational level of learning has been investigated from several perspectives including models of the procedures and methods of evaluation. The field could benefit from more studies that investigate how individual and team learning affect organisational learning, for example, the impact a particular type of learning activity has on the accident and near miss rates of an organisation.

#### **Supporting the development of inquiry skills: An analysis of Hungarian chemistry textbooks**

**Keywords:** Inquiry learning, Primary education, Science education, Secondary education  
**Presenting Author:**Gábor Z. Orosz, University of Szeged, Hungary; **Co-Author:**Veronika Németh, University of Szeged, Hungary; **Co-Author:**Erzsébet Korom, University of Szeged, MTA-SZTE Science Education Research Group, Hungary

The aim of our research is to analyze how one can use the new Hungarian chemistry textbook's exercises to develop inquiry skills. We analyzed the textbooks of 5., 7., 9. (Type A and B) and 10. grade (Type A and B). We used the model of *Wenning* to define inquiry skills and make categories. We calculated the percentage of the developing exercises to the total number of exercises. Our result shows observation is absent in the textbook of 5. and 8. grade, and it is present in the highest proportion in the Type B textbook of 10. grade (5.36%). The skill of identifying a problem and formulating a research question is present only in Grades 7 (1.48%) and 10 (Type A) (0.89%). The skill of formulating hypotheses and making predictions is present only in Grades 7 (0.49%) and 10 (Type A) (0.89%). Designing an experiment is practiced in every grade. It is least frequent in Grade 8 (0.56%) and most frequent in Grades 9 (Type A) (3.14%) and 5 (5.13%). The skill of conducting an experiment is entirely absent from 5th and 8th grade while it appears with the highest frequency in Grade 7 (19.50%). The skill of collecting and organizing data is also absent from 5th and 8th grade textbooks and it occurs with the highest frequency in Grade 7 (4.43%). The skill of analyzing and interpreting data appears with the lowest frequency in Grade 8 (0.56%) and with the highest frequency in Grade 9 (Type A) (22.64%). Drawing conclusions is absent from the textbooks of 5th, 8th and 10th (Type B) grades, and occurs with the highest frequency in Grade 9 (Type A) (7.55%). Exercises involving the communication of the results appear in Grades 7 (0.99%) and 9 (Type A) (1.89%) only. Our results reveal that exercises that enhance inquiry skills are included in every grade's textbook, but with a low frequency. The different inquiry skills are represented in varying proportions. Neither the number nor the complexity of skill

enhancing exercises increases from grade to grade.

## **Session B 7**

27 August 2017 13:00 - 14:30

Pinni B 1097

Single Paper

Instructional Design, Learning and Special Education

### **Best of JURE - Paper**

**Keywords:** Early childhood education, Educational Psychology, Instructional design, Learning disabilities, Metacognition, Peer interaction, Quantitative methods, Secondary education, Self-efficacy, Special education

**Interest group:** SIG 05 - Learning and Development in Early Childhood , SIG 06 - Instructional Design

**Chairperson:** Rebekka Stahnke, Germany

### **Connections between academic self-concept and perceived learning difficulties among adolescents**

**Keywords:** Learning disabilities, Quantitative methods, Secondary education, Special education

**Presenting Author:**Anna Widlund, Åbo Akademi University, Finland; **Co-Author:**Karin Linnanmäki, Åbo Akademi University in Vaasa, Finland

Previous research has shown that academic self-concept has a significant effect on students' academic performance, learning strategies, well-being and motivation. It is also known that academic demands and independence increases during adolescence which effects students' well-being. In this longitudinal study, we want to examine the relation between and the development of academic self-concept and perceived learning difficulties during the critical transitional period from ninth grade to upper secondary school. The effect of gender and choice of upper secondary education was also included in the study. Data was collected at two time points. At the first time point, the sample consisted of 1152 nine grade students (574 girls and 574 boys) in 14 lower secondary schools in the Swedish speaking areas of Finland. The follow-up took place two years later when the students were attending either an academic or a vocational upper secondary school. Trained research assistants conducted the measurements of academic self-concept and perceived learning difficulties in the students' own schools during ordinary lessons. Statistical analyses were performed to analyze the data. Consistent with previous findings, the results show that there are strong negative correlations between academic self-concept and perceived learning difficulties and that the development of academic self-concept and perceived learning difficulties differs between vocational and academic upper secondary students. Even though the development of academic self-concept decreases for students who choose an academic track and increases for students who choose a vocational track, students who choose an academic track consistently have higher academic self-concept and perceives less learning difficulties than students who choose a vocational track. The findings of this study support previous assumptions that academic self-concept and academic achievement affect each other both ways, and indicates that the transitional period from lower to upper secondary school affects student's academic self-concept.

### **Task specific aspects of retrieval practice**

**Keywords:** Instructional design, Metacognition, Quantitative methods, Self-efficacy

**Presenting Author:**Tino Endres, University of Freiburg, Germany; **Co-Author:**Lena Kranzdorf, Albert-Ludwigs-University Freiburg, Germany; **Co-Author:**Vivien Schneider, Albert-Ludwigs-University Freiburg, Germany; **Co-Author:**Alexander Renkl, University of Freiburg, Germany

Choosing a specific type of retrieval task format is one of the most obvious decisions to make when trying to implement retrieval practice in classroom teaching. Taking theoretical frameworks as a basis (especially the elaborative retrieval theory; Carpenter, 2009) there should be differences in direct learning effects as well as in remedial learning after retrieval. Never the less the available findings on meaningful learning, do not suggest big differences in learning outcomes between different tasks-formats on a meta-analytic level. In this study we analyzed potential theory based task-format differences when looking on educational outcomes on a more differentiated level. In a within-subject design, 54 university students studied identical learning materials (expository texts), followed by either a short-answer or a free-recall test-for-learning. Short-answer tasks lead to a better retention of the retrieved parts of the learning contents, while free-recall tasks lead to a better retention of various parts of the learning contents. In addition, short-answer tasks increased calibration. Free-recall tasks lead to a significant increase in self-efficacy and situational interest. The present findings confirm the assumption that implementing a retrieval practice arrangement with different task formats such as short-answer and free-recall makes has influence on learning relevant factors. In line with the elaborative retrieval theory, different tasks lead to distinct activation pattern of different content parts. This pattern of results highlights the role of spreading activation as a key mechanism for the testing effect. This findings have also some implications for practice. If some learning contents have few, very central aspects it might be recommendable to use short-answer-tasks directly addressing these aspects. If a content needs a broader activation of several aspects to gain understanding, free-recall tasks could ensure a wider activation pattern. Overall, the task formation should match the specific learning goals.

### **Language construction within Inclusive ECEC settings: contributions of an enactive approach**

**Keywords:** Early childhood education, Educational Psychology, Peer interaction, Special education

**Presenting Author:**Juliene Ferreira, University of Tampere, Finland

This study explores the construction and use of language within peer interactions in the everyday of children in Early Childhood Education (ECE) of two distinct inclusive school contexts - Brazil and Finland. The aim was to stress theoretical relations between the construction of language within peer's interaction in early years of children with intellectual disability within inclusive ECE, considering different cultural and social backgrounds. The participants of the study were children from age groups of 3-4-years-old from two ECE public schools from both countries. The research design was based on a comparative qualitative epistemology, using video-recordings from image databases collected in Brazil in 2014 and in Finland in 2015 as the main data, and micro-genetic methodological approach to analyze the type, quantity, resources, content and construction of language used by small children with intellectual disability within their peer interactions in their daily-day school routine. The results indicate that there is a prominent difference regarding the amount of physical and eye contact, of verbalized communication and gesture expression among Finnish and Brazilians, and that there are diverse types of appropriation of different materials to support the interactions and different patterns of play-construction between the two groups. The results open space for the discussion about the significance of embodied experiences and embodied resources during the process of communication between peers, allowing theoretical considerations of the Enactive Theory to understand the use of gestures, physical and contact to establish communication and construct meaning in joint activities. These differences within the investigated phenomenon, when understood as related to cultural elements constituted and constitutive of the school living space, allow theoretical deconstructions of the centrality in the role of language (as speech) to learning and meaning making processes, leading to the argue towards an embodied notion of human development.

### **Session B 8**

27 August 2017 13:00 - 14:30

Pinni B 4117

Single Paper

Higher Education

#### **Learning and Higher Education**

**Keywords:** Assessment methods and tools, Collaborative Learning, Competencies, E-learning / Online learning, Environmental education, Higher education, Inquiry learning, Teacher Effectiveness, Teaching approaches, Workplace learning

**Interest group:** SIG 04 - Higher Education

**Chairperson:** Yuyao Tong, The University of Hong Kong, China

#### **Evaluating the Learning Transfer of Nursing Professionals**

**Keywords:** Competencies, Environmental education, Higher education, Workplace learning

**Presenting Author:**Elena Roig Ester, Autonomous University of Barcelona, Spain

This paper aims to identify, throughout a literature review, the factors which influence the learning transfer of nursing professionals during their first year of professional experience. The nursing profession has a very important role in society whose aim is to look after people, family and/or the community. It is also necessary to take into account new challenges generated by changes taking place in society, which recently graduated nursing students will have to face. These changes lead us to think that nursing students experiment feelings of uncertainty and discouragement during their period of transition into the labour work.

Transition is defined as the process of moving from one state to another, usually associated with significant changes in goals, roles and responsibilities (Azimian, Negarandeh, & Fakhr-Movahedi, 2014)

Even though a specific model of such elements in the transition period into the labour world of recently graduated nurses does not exist, results show the existence of different factors that may be involved to a greater or lesser degree in learning transfer. Therefore, the identification of the aforementioned factors will be very useful in order to create a tool that helps to develop and test an empirical model of the factors that are involved in the transfer process. This paper develops a preliminary model of identification of the factors that, according to the available literature, interfere in the learning transfer process of the nursing professionals in their university degree studies. This model is not only useful at a scientific level due to its advances in the higher education field; but it is also useful at a practical level, in order to know which competences should be monitored in more detail in the first year of insertion of newly-graduated nurses by experienced professionals in healthcare centres, with the aim of helping them develop these competences correctly.

#### **IS BLENDED LEARNING WELL BLENDED?**

**Keywords:** Assessment methods and tools, E-learning / Online learning, Teacher Effectiveness, Teaching approaches

**Presenting Author:**James Kwan, Lancaster University, Singapore

Based on the awareness/exploration stage of the framework for institutional blended learning framework proposed by Graham, Woodfield and Harrison (2013), this exploratory study reports the benefits, limitations and challenges, and blend

mix of blended learning from the perspectives of students and lecturers for one of the part-time Australian MBAs currently conducted based on traditional classroom teaching at a private higher education institution in Singapore. The data were collected through semi-structured interviews with 10 existing MBA students and 10 lecturers teaching this MBA programme. In line with prior studies, while students recognise blended learning provides them with greater flexibility and improving their learning outcome and performance, they noted that discipline and commitment to online learning, reduced interaction, and resistance to changes were the three major weaknesses and challenges faced. Lecturers also felt that though blended learning increased flexibility through designing the course curriculum to suit students with diverse learning style and pace, they noted that the resistance in learning new technology and heavy work load remain as two key challenges in introducing blended learning. Majority of the students preferred online learning to be introduced gradually over time. The findings in this study provide useful insights to the university and institution in assessing the readiness of students and lecturers for blended learning, and taking appropriate measures for successful implementation of blended learning. For future research, higher education scholars may consider to obtain views of a larger pool of existing part-time students and teachers by employing both qualitative and quantitative methods, and they can also extend the study to seeking views from full-time students pursuing their MBA in Australia too. Further study on the other two stages of adoption (adoption/early implementation and mature implementation/growth) proposed in the framework by Graham et al. (2013) can be considered.

**Keywords:** Blended learning, MBA, private higher education institution (PHEI), benefits and challenges

### **The Benefits of Collaborative Curriculum Design: An Analysis of Co-Creation of the Curriculum**

**Keywords:** Collaborative Learning, Higher education, Inquiry learning, Teaching approaches

**Presenting Author:** Tanya Lubicz-Nawrocka, University of Edinburgh, United Kingdom

'Co-creation of the curriculum' is an innovative process of student engagement in which students and staff members become partners who each have a voice and a stake in curriculum development. This promotes an open dialogue about meaningful best practices in learning and teaching whilst redistributing power in the classroom so that students take a more active part in pedagogical decision-making. Students and academic members of staff can and should contribute different things to a partnership since their roles, expertise, and responsibilities are necessarily different. Although few individuals currently participate in it, this research analyses co-creation of the curriculum in the Scottish higher education sector. The researcher identified rare instances of co-creation in Scotland which could be categorised into three broad categories with increasing levels of risk, student engagement, and partnership work: 1) student choice and consultation, 2) peer teaching and development of educational resources, and 3) student-led projects as a course unfolds. The researcher interviewed staff and students who participated in these innovative projects to analyse their perspectives on the benefits of collaborative curriculum design. Initial findings from semi-structured interviews show that some staff and students participating in co-creation of the curriculum perceive it to benefit them by: sharing responsibility, developing a collaborative learning community, learning from each other, and demonstrating respect for and trust in students. Findings, based on participants' own perceptions, suggest that they find co-creation of the curriculum to be a rewarding form of collaborative teaching and learning. Using Barnett's conceptualisation of supercomplexity and Baxter Magolda's three-pronged view of self-authorship, the author suggests that co-creation of the curriculum can develop the self-authorship of both students and staff members: critical and democratic engagement in collaborative curriculum design advances their self-authorship including their cognitive, interpersonal, intrapersonal abilities which help them adapt to an ever-changing, supercomplex world.

### **Session C 1**

27 August 2017 14:45 - 16:15

Pinni B 4117

Single Paper

Motivational, Social and Affective Processes

### **Motivation, Emotion and At-Risk Students**

**Keywords:** At-risk students, Attitudes and beliefs, Emotion and affect, Goal orientation, Motivation, Motivation and emotion, Synergies between learning - teaching and research, Vocational education

**Interest group:** SIG 08 - Motivation and Emotion

**Chairperson:** Lotta Tikkanen, University of Helsinki, Finland

### **Causes or Consequences? Achievement Goals and University Scholars' Professional Stress**

**Keywords:** Goal orientation, Motivation, Synergies between learning - teaching and research, Motivation and emotion

**Presenting Author:** Martin Daumiller, University of Augsburg, Germany; **Co-Author:** Markus Dresel, University of Augsburg, Germany

Achievement goals of university scholars can be expected to be associated with their perceived stress and strain at work. Cross sectional analyses have already confirmed relations of researchers' achievement goals with professional stress (Daumiller & Dresel, 2017). However, motivation of university scholars can be considered as separate for teaching and research and both domains seem equally important for professional stress (Daumiller et al., submitted). Apart from that, goal theory research has mainly focused on unidirectional effects of goals on cognition and behavior, whilst reciprocal relationships have mostly been neglected but are highly plausible (King & McInerney, 2016). Thus the aim of this study was to examine the causal ordering of the effects of achievement goals with professional stress whilst considering the two domains, teaching and research, simultaneously in order to identify differential effects. Thrice, every six months, 465 university scholars (54.3% males; 64.1% with PhD, 21.3% full professors) were tested with regard to their achievement goals and their professional stress (encompassing emotional exhaustion, reduced personal attainment, and depersonalization; MBI-GS-D, Büssing & Glaser, 1998). The results revealed moderate to high stabilities of the individual goal classes ( $ICC=.46-.72$ ) and of professional stress levels ( $ICC=.67-.74$ ), allowing preliminary statements about the extent of the malleability of these variables. Parallel latent growth models indicated that reciprocal effects exist: Achievement goals for research influenced professional stress, which in turn was relevant for the adoption of achievement goals for teaching. Specifically, learning goals constituted a protective factor and work-avoidance goals were a risk factor for the development of professional stress, whereas high perceptions of stress lead to a decrease in performance goals. Taken together, the results emphasize the importance of achievement goals for professional stress of university scholars and indicate a complex picture of motivational dynamics over time and over the two domains teaching and research.

### **The Development of a Generic Resilience Model and its Application to Vocational Education**

**Keywords:** At-risk students, Motivation, Vocational education, Motivation and emotion

**Presenting Author:** Jennifer Schwarze, RWTH Aachen University, Germany; **Co-Author:** Marold Wosnitza, RWTH Aachen University, Germany

The importance of resilience in educational settings in relation to maintaining well-being and prevention from stress and burn-out has become evident over the last years. This led to a variety of conceptualisations of resilience and research focussing on various groups, e.g. teachers or college students. But less has been done on apprentice resilience, which is surprising, given that nearly 25% of German apprentices have problems to relax after work (Ausbildungsreport 2015) and an estimated 16 % of the apprentices drop out (Uhly, 2014). The question therefore is: what is apprentice resilience? To answer this questions, literature on resilience, especially focussing on resilience in the educational field, using ERIC and PsycINFO was reviewed, and it was found that albeit these varieties of conceptualisations, operationalisations and definitions, there are key elements that distinct resilience from other constructs and are generic to resilience processes. In this theoretical paper a process model of individual resilience is presented, that focuses on these key elements, which are: the existence of *antecedents* of resilience, an *appraisal process* that is influenced by internal and external resources, that are available, and an either resilient or non-resilient *outcome* which is relative to a *point of reference* before the occurrence of the antecedent, namely any as stressful appraised event or situation. This resilience model is embedded in a context model, which shapes the setting and therefore specifies the resilience process. This generic model is applied to apprentices and vocational education context to find the distinctive features of apprentice resilience and to build a starting point to answer the above raised question. Furthermore, this model can be used to structure the construct of (apprentice) resilience, can help to operationalise aspects of resilience and can provide starting points for learning units to create awareness for the importance of resilience and hence maintain well-being.

### **From School is Cool to We don't Need No Education: Predictors of School Alienation**

**Keywords:** At-risk students, Attitudes and beliefs, Emotion and affect, Motivation and emotion

**Presenting Author:** Kaja Marcin, University of Bern, Switzerland

This cross-sectional study explores differences in the prevalence of school alienation in different school settings, i.e. in primary and secondary schools in Switzerland. The relations between predictor variables at the student and classroom levels and two outcome variables, alienation from teachers and from learning, are investigated. The study aims to investigate the link between how well the educational settings of primary and secondary schools support students in fulfilling their developmental needs and how this relates to the development of school alienation. Based on the central premises of the Stage-Environment Fit theory, it is assumed that primary schools are more successful in supporting students to fulfill their basic needs, hence, the prevalence of school alienation is hypothesized to be higher in secondary than in primary schools. The sample included students from Swiss primary schools in grade 4 ( $N = 486$ ) and secondary schools in grade 7 ( $N = 550$ ). Data was collected using a standardized questionnaire. Statistical differences between grade 4 and grade 7 with regard to the outcome variables alienation from teachers and alienation from learning were assessed by one-way multivariate analysis of variance. Grade 7 students showed significantly higher levels of alienation in both domains measured. Students in both grade 4 and grade 7 displayed higher alienation scores in the learning than in the

teacher domain. Correlations between predictors and outcomes were calculated in order to receive preliminary information on the nature and strength of the relationship between the outcomes and predictors of main interest. The correlations between both outcomes and all main predictors were found to be significant, providing support to further include them in the main analysis. In a next step, separate multilevel models will be developed for the primary and the secondary school subsamples, in order to compare the predictive strength of individual- and classroom-level factors on alienation from teachers and learning at school in different educational settings. *Keywords:* school alienation, basic needs, attitudes, emotion, motivation

## **Session C 2**

27 August 2017 14:45 - 16:15

Pinni B 3107

Poster Presentation

Learning and Social Interaction

### **Social Interaction in Learning and Instruction**

**Keywords:** Computer-supported collaborative learning, Cooperative / collaborative learning, Design based research, Mixed-method research, Peer interaction, Primary education, Quantitative methods, Quasi-experimental research, Science education, Secondary education, Social interaction, Social sciences

**Interest group:** SIG 10 - Social Interaction in Learning and Instruction

**Chairperson:** Anita Lopez-Pedersen, University of Oslo, Norway

### **Educational reconstruction of general relativity through a collaborative online learning environment**

**Keywords:** Computer-supported collaborative learning, Design based research, Science education, Secondary education

**Presenting Author:**Magdalena Kersting, University of Oslo, Norway

Modern learning environments open for new possibilities to teach topics that are abstract and difficult to access. In this work, we present how a collaborative online learning environment can support teaching of the theory of relativity in upper secondary physics classrooms. We use two theoretical frameworks that complement each other: The Model of Educational Reconstruction (MER) (Duit, Gropengießer, Kattmann, Komorek, & Parchmann, 2012) combines educational research with the development of learning resources, and Design-Based Research (Anderson, Shattuck, & Brown, 2012) provides an iterative frame for developing those resources effectively. We identify common difficulties for students in general relativity through content analysis of relevant literature and conducting a pilot study. Based on this, we developed and evaluated an online learning resource that was introduced to final year students (18-19 years old) in six Norwegian upper secondary physics classrooms. In particular, we made use of a novel approach: Students were asked to discuss in pairs and record their conversations with mobile phones while working with the learning environment. The data corpus consisted of these audio recordings, video observations to contextualize the activities, and focus group interviews with students. Drawing on thematic coding with findings from the literature as starting point, we used qualitative analytic methods to map students' challenges and their understanding of key principles in general relativity. All these aspects were analyzed from the viewpoint of learning happening through social interaction and dialogue. Our results show that students embrace an increased focus on language, which can foster their understanding of general relativity. Moreover, being able to retrieve audio recordings taken by the students themselves supports research as it allows researchers to study how learners "talk physics" in a natural setting. We present design principles that can guide the development of learning resources and conclude by arguing that one can reconstruct general relativity at upper secondary school level successfully.

### **School social workers construction of professional identity in interprofessional collaboration**

**Keywords:** Mixed-method research, Primary education, Social interaction, Social sciences

**Presenting Author:**Monique Brunner, University of Bern, Switzerland

*Background:* Today new social challenges place new demands on the school system, the division of work, and the collaboration between different professional groups. Interprofessional collaboration between school and social work is complex. Therefore, it is of particular importance that each actor has a clear conception of his/her professional role and of the professional role of others in order to act autonomously. This is a key requirement for the achievement of professional goals and duties in the context of interprofessional collaboration in schools. Because school social work is a young profession, school social workers, in comparison for instance with teachers, often lack clarity regarding their professional roles and responsibilities in school. Knowledge on how professional identities are formed among professionals is still limited. *Purpose:* The study examines the impact of role clarity on interprofessional collaboration between school social workers, teachers, and principals and shows how professional identity is formed by school social workers. This study is part of a larger research project financed by the Swiss National Science Foundation ("School Social Work in the German-Speaking Part of Switzerland - Forms of Cooperation and Structures of Utilisation", SNSF grant #156642; <http://p3.snf.ch/project-156642>). *Method:* Quantitative and qualitative methods are used. To examine the impact of role clarity on interprofessional collaboration, a quantitative cross-sectional study among schools with school social workers in the German-speaking part of Switzerland is conducted. Data are analysed with descriptive analysis and linear regression analysis. In addition, focus group discussions with school social workers are conducted to examine how school social workers construct their professional identity. With the use of a standard qualitative approach, discussion data are analysed

iteratively for recurrent themes. *Further procedure*: The data collection ends in summer 2017. Therefore, the poster session presents preliminary results. A positive effect of role clarity on interprofessional collaboration is expected.

### **Leadership and trust in the interprofessional collaboration in public schools in Switzerland**

**Keywords**: Primary education, Quantitative methods, Social interaction, Social sciences

**Presenting Author**: Simone Ambord, University of Bern, Switzerland

*Background*: Nowadays the public school system faces new social challenges. Social situations and social problems starkly influence the learning behavior of students. To address these problems, many schools in Switzerland started hiring school social workers and further specialized professionals (special education). This places new demands on the division of work and on the forms of collaboration between different professionals. Leadership, especially by the principal, emerges as an important factor for educational success. *Objective*: This study examines the impact of transformational and participative leadership on interprofessional collaboration. In addition, the study explores the role of trust in the principal. This study is part of an overall research project, which is financed by the Swiss National Science Foundation ("School Social Work in the German-Speaking Part of Switzerland - Forms of Cooperation and Structures of Utilisation" (SNSF grant #156642; <http://p3.snf.ch/project-156642>). *Methods*: A quantitative cross-sectional study in all schools with school social work in the German-speaking part of Switzerland is conducted and an online or paper-and-pencil questionnaire is applied to school social workers, principals and teachers. First, all school social workers in German-speaking part of Switzerland are contacted (comprehensive survey). Second, for each social worker one of the relevant schools is chosen at random. Third, the corresponding principal and teaching staff are interviewed. Data are analysed with descriptive analysis, linear regression analysis as well as mediation analysis. *Preliminary results*: It is expected that transformational leadership and interprofessional collaboration are related, as well as participative leadership and interprofessional collaboration. Further a relationship between the trust in the principal and interprofessional collaboration is anticipated. Moreover, it is expected that the trust in the principal mediates the effect of leadership on interprofessional collaboration. *Further procedure*: Data collection ends in summer 2017, thus in the poster session first results of the study are presented.

### **The effect of cooperative learning on group work of pupils in Dutch primary education**

**Keywords**: Cooperative / collaborative learning, Peer interaction, Primary education, Quasi-experimental research

**Presenting Author**: Marij Veldman, University of Groningen, Netherlands; **Co-Author**: Simone Doolaard, University of Groningen, Netherlands; **Co-Author**: Tom Snijders, Rijksuniversiteit Groningen, Netherlands; **Co-Author**: Roel J. Bosker, Rijksuniversiteit Groningen, Dept of Education and GION, Netherlands

Although research on cooperative learning emphasizes the positive effects on student outcomes, there is limited use of cooperative learning in schools. Success for All - The Netherlands (SFA-NL) tries to increase (the quality of) group work in Dutch primary education. The SFA program involves 90 minute reading lessons given on a daily basis in which cooperative learning is frequently used. SFA introduces explicit rules for working together effectively: e.g. listen to each other actively and help each other. SFA lessons involve various cooperative learning methods, such as numbered heads and think-pair-share. Good teamwork is rewarded to motivate children to work together effectively. The main research question of the study is whether cooperative learning in the SFA lessons has an effect on group work of grade 1 pupils. A quasi-experimental design with a treatment and a control group is used. At the end of school year 2015-2016 grade 1 pupils (6- and 7-year-old children) executed a cooperative learning task in small groups of four pupils (in total 40 groups), which was recorded on video. When the cooperative learning task took place, the pupils of the treatment group had followed SFA lessons for a whole school year. The cooperative learning task involves talking about a joint solution for a social problem using a cooperative learning placemat. The process of group work during the cooperative task was videotaped and observed by using the instrument adopted from Blatchford, Baines, Rubie-Davies, Bassett and Chowne (2006). Every 20-second interval of group interaction was coded using the following categories: socioemotional ethos, group participation, discourse topic and type of pupil-pupil dialogue. Interactions are observed on the group level. Multilevel analysis is used to compare the process of group work between treatment and control group. Findings will be presented at the conference.

### **Session C 3**

27 August 2017 14:45 - 16:15

Pinni B 3111

Single Paper

Teaching and Teacher Education

### **Pre- and In-service Teacher Education**

**Keywords**: Communities of practice, Content analysis, Educational policy, In-service teacher education, Language (Foreign and second), Lifelong learning, Pre-service teacher education, Quantitative methods, Social aspects of learning and teaching, Teacher Professional Development

**Interest group**:

**Chairperson**: Mona Weinhuber, University of Freiburg, Germany

### **A small scale retrospective study on Chinese EFL teachers' experiences in the practicum**

**Keywords**: Language (Foreign and second), Pre-service teacher education, Quantitative methods, Teacher Professional

Development

**Presenting Author:**Yunjun Kong, University of Szeged, Hungary

The practicum is regarded as one of the essential facets of teacher education programs. However, its effectiveness in general receives relatively little attention either in the initial teacher training programs or the corresponding research in China. The goal of this small scale retrospective study was to examine the perceptions of Chinese EFL (English as a foreign language) teacher trainees of what they do and what they develop in the practicum. Research questions guiding this research are: (1) What general professional activities do Chinese EFL teacher trainees do in the practicum? (2) What are the frequencies of teacher trainees' teaching of EFL areas? and (3) What are the professional areas in which teacher trainees experience advancement during the practicum? A questionnaire targeting general activities and EFL areas was employed to collect data; items contained 5-point Likert scales and three open-ended questions. 48 respondents (4 male, 44 female) were included in the sample. More than half of the participants reported on their practicum one or two years after it, and the others longer before. The means for practicum activities show that participants highlighted observation and discussion, lesson planning, and assessing students, among their various activities. In the teaching of EFL areas, the results indicate that the participants experienced more emphasis on teaching vocabulary, grammar, reading and pronunciation than on listening, speaking, writing and culture. A statistically significant difference was found between these two groups. The findings make participants' perceived development in teacher knowledge and teaching behaviors tangible. Thus, this retrospective study identified the multifaceted components of the practicum and its perceived effects on trainees' complex experiences. However, a lot is still unknown about trainees' improvement in teaching domain-specific EFL areas. It seems the complexity of trainees' development in specific areas of EFL learning and instruction merits further attention.

### **The reflection of neoliberal educational reforms on teachers' learning experiences**

**Keywords:** Communities of practice, Educational policy, Social aspects of learning and teaching, Teacher Professional Development

**Presenting Author:**Kristi Mets, Tallinn University, Estonia

Changes in public education require teachers to anticipate new roles in order to keep up with the constant changes in society. Previous studies on neoliberal educational reforms and changes in educational decentralisation have mostly focused on the macro level in describing educational policy, and the views of teachers regarding the educational policy shift have not been sufficiently discussed. Many of the in-service teachers in Estonia began their teaching life under a different social system. The adaptation to educational changes requires both new knowledge acquisition and learning in a broader social context from teachers: learning is not a separate activity but learning itself is social participation (Wenger, 1998). The aim of the study is to analyse, describe and understand the learning experiences of various teachers with different qualifications starting from neoliberal educational reform in Estonia. The theoretical framework of the study is based on Etienne Wenger's (1998) social learning theory. A qualitative approach and data collection by semi-structured in-depth interviews were used in the study. The sample consists of 27 public schools teachers of the same generation who started their professional career between 1990 and 1995. The collected results already reveal that changes in society cause friction in education, but these are not reflected in the learning experiences of different Estonian teachers as strongly as expected. In general, teachers described their learning through practice and experiences. The role of professional identity building was marginal, but commitment to the profession was high. The social changes were apparent in the changes of teaching related routines. Teachers themselves described their learning experiences in the current study; therefore, it would be valuable to study how school management describes teacher learning. The focus areas for further studies could be • to explore how teachers' professional learning experiences affect the teachers' initial commitment to the profession and professional identity.

### **Teacher Educators' Professional Learning: A Review of the Literature**

**Keywords:** Content analysis, In-service teacher education, Teacher Professional Development, Lifelong learning

**Presenting Author:**Cui Ping, Eindhoven University of Technology, Netherlands; **Co-Author:**Douwe Beijaard, Eindhoven University of Technology, Netherlands; **Co-Author:**Gonny Schellings, Eindhoven University of Technology, Netherlands

Previous studies have shown that teacher educators learned their profession predominantly by themselves and based on workplace experiences. Teacher educators' individual learning strongly relies on personal efforts but is influenced by their working environment as well. There is hardly any systematic research available on how teacher educators learn their profession both formally and informally. In this study, a review of the literature on teacher educators' professional learning and development is provided. Seventy-six research papers were analyzed to get the main categories of teacher educators' professional learning domains. Seven main categories of the professional learning domains for teacher educators were found, namely the *pedagogy of teacher education*, *professional competency*, *professional identity*, *research*, *knowledge base*, the *profession of teacher education*, *curriculum development*. These main categories of the professional learning domains for teacher educators varied in frequency and the numbers of the subcategories. Among them, the main category, the *pedagogy of teacher education*, showed the highest proportion of teacher educators' professional learning domains. Within the main category of the *pedagogy of teacher education*, six subcategories were found, moreover, most studies revolved around the discussion of the relationships between learning and teaching. Compared to this one, other domains, such as the *profession of teacher education*, the *knowledge base*, and the *curriculum development* were relatively limited in

the proportion of teacher educators' professional learning. In conclusion, our research results showed that teacher educators' professional learning was very diverse and covered a broad range of the professional learning domains. In addition, the research results indicated that teacher educators' career phases, such as beginner teacher educators and experienced teacher educators, could decide their different professional learning needs, and furthermore, affecting their choices of the professional learning domains. Finally, the seven main categories of the professional learning domains for teacher educators were also scattered from each other.

#### **Session C 4**

27 August 2017 14:45 - 16:15

Pinni B 3118

Poster Presentation

Learning and Instructional Technology, Learning and Social Interaction, Lifelong Learning

#### **Learning Processes**

**Keywords:** Argumentation, Case studies, Cognitive skills, Collaborative Learning, Conversation / Discourse analysis, E-learning / Online learning, Higher education, Instructional design, Learning analytics, Metacognition, Motivation, Multimedia learning, Philosophy, Problem solving, Reading comprehension, Reasoning, Self-regulation, Social aspects of learning and teaching

**Interest group:** SIG 07 - Learning and Instruction with Computers, SIG 26 - Argumentation, Dialogue and Reasoning, SIG 27 - Online Measures of Learning Processes

**Chairperson:** Stefan Markus, University of Erlangen-Nuremberg, Germany

#### **Effects of cognitive and metacognitive hints on reading performance in a DLE**

**Keywords:** Cognitive skills, Metacognition, Reading comprehension, Self-regulation

**Presenting Author:** Leonie Brummer, University of Groningen, Netherlands; **Co-Author:** Marlies ter Beek, University of Groningen, Netherlands; **Co-Author:** Anouk Donker, GION - University of Groningen, Netherlands; **Co-Author:** Marie-Christine Opdenakker, University of Groningen, Netherlands

In secondary education, self-regulated learning and learning from texts (i.e., reading comprehension) play essential roles in academic achievement. For the subjects history and geography, learners often have to read texts and answer questions. However, many students lack the necessary self-regulated learning strategies in this regard. Hints, focused on cognitive and metacognitive strategies, can be effective to stimulate learners to use SRL strategies. Using SRL strategies requires a sense of autonomy (i.e., deciding when to consult and use hints). Digital systems offer such a platform for learners to control and regulate their learning. For the current study, a quasi-experimental design was used to study the effectiveness of hints by comparing two conditions with hints and with no hints. The two hints conditions differed with regard to the subjects that had access to the hints (i.e., one of the two subjects had access to hints). The cognitive hints, presented with the MC questions, focused on *what* information is necessary for the question or where certain information can be found. The metacognitive hints, presented with the open questions, focused on *how* learners should use the information in the hints. Reading performance was measured with ten multiple-choice (MC) questions. The data was analysed by using General Linear Model (GLM) with analysis of covariance. The initial reading score and the number of consulted hints were used as covariates. Results showed that the number of consulted hints decreased during the intervention for both subjects. GLM yielded significant differences in reading comprehension between the conditions in the lessons 3 for history and lesson 5 for geography; however, after controlling for the number of consulted hints, no significant differences were found. Possible explanations could be the lack of SRL strategies, as indicated by the low use of consulted hints.

#### **Supporting (Social) Online Learning Processes with Visual Analytics**

**Keywords:** E-learning / Online learning, Higher education, Learning analytics, Social aspects of learning and teaching

**Presenting Author:** Darya Hayit, University of Duisburg-Essen, Germany; **Co-Author:** Martin Rehm, University of Duisburg-Essen, Germany; **Co-Author:** Michael Kerres, University of Duisburg-Essen, Germany

Learning in the digital age nowadays brings a huge amount of data that has the potential to inform our understanding about online (social) learning processes. Learning Analytics (LA) seems to be a promising way to understand both, (social) online learning processes on the one hand and instructional components of a learning environment on the other hand (Ferguson/Buckingham/Shum, 2012). Thereby, LA has the potential to create a possibility of mirroring (hidden) learning activities in learning management systems (LMS) and constitutes a formative tool that stimulates learners' and teachers' self-reflection. Additionally, it creates increased awareness about learning experiences from both social and content-related interactions. (Duval, 2010; Leony/de la Fuente/Sanchez/Delgado, 2012) Previous research has found that a lack of meaningful interaction and a sense of (social) presence lead to unsatisfying learning experiences (Aragon, 2003; Garrison/Anderson/Archer, 2010; Hölterhof/Rehm, 2016). In order to enable a (rich) social online learning environment, organizers and instructors need to create awareness and reflection about ongoing (social) learning processes. By enhancing the transparency of (social) learning activities within LMS, organizers might be better able to stimulate course activity, which in turn can create an opportunity for all participants (e.g. learners and teachers) to self-reflect about their learning processes. Yet, many of such representations focus on the interaction between the learner and the technology (e.g. LMS). Consequently, we propose to extend this approach by also incorporating the social aspects and interactions

between learners (and teachers). Drawing on the 3C-model of online learning (Kerres/de Witt, 2003), digital learning contains of three different types of structural dimensions: content, construction and communication. Departing from this notion we designed a learning analytics dashboard, which visualizes the core variables of the three underlying dimensions. The dashboard is envisioned to act as a formative feedback instrument supporting participants' self-reflection.

### **Monitoring in collaborative learning and physiological synchrony – How they co-occur?**

**Keywords:** Case studies, Collaborative Learning, Metacognition, Self-regulation

**Presenting Author:**Eetu Haataja, University of Oulu, Finland; **Co-Author:**Jonna Malmberg, University of Oulu, Finland;

**Co-Author:**Sanna Järvelä, University of Oulu, Finland

In order to succeed in solo and collaborative learning tasks, students need to develop skills and strategies for regulating learning on their own, with peers, and in groups. During regulation process, students monitor effectiveness of their learning and adapt according to their goals. The problem is, that monitoring is often and not always shared with the group in practice of collaboration and, moreover, being mental metacognitive process, it is also hard to study. This study utilizes novel multimodal approach with observational video data and physiological data to explore monitoring in regulation process. Some of the shared mental processes have been found to correlate with physiological synchrony. Therefore aim of this exploratory case study is to investigate how observed monitoring of cognition, behavior, emotion and motivation co-occur with physiological synchrony during collaborative learning session. Three groups with most complete physiological data were chosen for in depth analysis. The subjects of this study were high school students performing collaborative learning related to nutrition. Students worked in groups of three. The session was videotaped in research laboratory and physiological data was gathered with Empatica E3 sensors. Video was coded in terms of monitoring and its target. Electrodermal activity signal and physiological concordance index were used to determine the physiological synchrony between the students. Results of this study indicate that most of the monitoring was targeted towards cognition and behavior. Eight out of nine pairs inside the groups showed significant values of physiological synchrony. Temporal inspection of multimodal data revealed that observed monitoring periods did co-occur with high physiological synchrony. Still, not all the periods with observed monitoring occurred with high values of physiological synchrony. This case study suggests that physiological synchrony holds potential to reveal temporal shared mechanisms related to regulation of collaborative learning.

### **EXAMPLE STUDY AND PRACTICE PROBLEM SOLVING: EFFECTS OF SEQUENCE LENGTH ON MOTIVATION AND LEARNING**

**Keywords:** Instructional design, Motivation, Problem solving, Multimedia learning

**Presenting Author:**Milou van Harsel, Avans University of Applied Sciences / Utrecht University, Netherlands

It is well established that, for novice learners, studying examples is a more effective and efficient instructional strategy compared to practice problem solving. Video modeling examples are increasingly being used in online learning environments. There are, however, still open questions on how and when these examples should ideally be introduced to optimize students' motivation and learning outcomes, for example, how example study and practice problems should be sequenced to be most effective, efficient and most motivating for learning. Prior research on worked examples has compared 1) examples only (EEEE), 2) example-problem pairs (EPEP), 3) problem-example pairs (PEPE), and 4) problems only (PPPP), in short learning phases with four tasks, and found [EEEE = EPEP] > [PEPE = PPPP]. These findings could be explained by motivational factors. For example, students could experience less confidence in own ability in the PE condition due to initial failure [EPEP > PEPE]. Regarding EE = EP, it could be argued that with longer learning phases, it might be more motivating for learners to actively attempt to solve practice problems than engage in more passive example study. Because both explanations have not been tested before, we addressed them in two experiments. Experiment 1 (N = 159) aimed to replicate earlier findings, but with video modeling examples and adding measures of motivational aspects of learning (i.e., self-efficacy and perceived competence). In Experiment 2 (N = 120), we used the same design with a longer learning phase with more tasks. We expect that in longer learning phases, motivational aspects of learning will start to affect learning more strongly, which might lead to different results than in short learning phases; for instance, alternating example study ("passive") and problem solving ("active") might become more effective than example-study only. The results of both experiments are currently being analyzed and will be available before the conference.

### **Argumentation and Philosophy for/with Children: A research study of interpretative categories**

**Keywords:** Argumentation, Conversation / Discourse analysis, Philosophy, Reasoning

**Presenting Author:**Lucia Scipione, University of Modena and Reggio Emilia, Italy

The need to improve argumentative skills in children is stated in different field of Education (Mirza, Perret-Clermont, 2009; Shwartz, 2017). The main goal of this study is to find out categories to describe argumentation from children talk through the investigation of different approaches to Philosophy with children. Starting from a literature review and from observation of collected empirical data I have stated that in the context of "philosophy" children are invited to give alternative solutions to a stated problem, to give explanations and opinions. The nature of discussion stimulate them to give reasons and to argue. Without taking strong positions as is expected in a dispute, children are stimulated through clarifying questions to give arguments and to justify them. In this poster I present the first case study of the research that examines argumentation skills in children analyzing their oral production in a 5th grade class during sessions of Philosophy for Children (P4C

protocol). At first, the study attempt to describe arguments by defining categories, and I use philosophical argument studies (Perelman, 1958; Toulmin, 1958; van Eemeren & Grootendorst, 2004), modeling categories based on children's speech. Then I apply these categories to the transcriptions of video recordings of all 11 class sessions. More specifically, I define minimal elements of arguments, by struggles and competence, focusing on the use of hypotheses, arguments and reasons. At last, I measure their recurrent verbal forms frequency expressing agreement or disagreement. I find that children argumentation is a complex skill modeled on personal features and environmental influence. Further directions in the research will focus on the role of the topic of discussion and on the role of the teacher's questions. According to Santi (2006), argumentation is supported by cognitive and linguistic development, socio-cultural back-ground, teaching methods, contents of knowledge and life experiences.

## Session C 5

27 August 2017 14:45 - 16:15

Pinni B 1100

Single Paper

Higher Education

### Higher Education and Reflection

**Keywords:** Achievement, Doctoral education, Higher education, Metacognition, Motivation, Reasoning, Reflection, Researcher education, Social interaction, Teacher Professional Development

**Interest group:** SIG 04 - Higher Education

**Chairperson:** Annika Breternitz, Germany

### Cognitive and non-cognitive predictors of early academic achievement in higher education

**Keywords:** Achievement, Higher education, Metacognition, Motivation

**Presenting Author:** Jonas Willems, University of Antwerp, Belgium; **Co-Author:** Vincent Donche, University of Antwerp, Belgium; **Co-Author:** Liesje Coertjens, Université catholique de Louvain (UCL), Belgium

As in other European countries in which there is no entrance test to university, study success rates in Flanders' (Dutch speaking part of Belgium) first year of higher education (FYHE) are low. This has considerable psychological and financial costs for the individual student, the family and the society. Decades of research have been carried out to better understand why some students are more successful than others in FYHE. Despite this overwhelming amount of literature on determinants of academic achievement, the combination of cognitive and non-cognitive factors is less often studied. Therefore, the main aim of this research is to explore the extent to which the combination of cognitive (*prior knowledge*) and non-cognitive (*processing strategies, regulation strategies, academic motivation, self-concept, self-efficacy*) variables predict academic achievement of students in FYHE, after controlling for pre-entry characteristics (*age, gender, prior education*) and adopting an integrative research perspective. More concretely, structural equation modelling was used to investigate the extent to which the aforementioned variables together predict grade point average and academic success (percentage of study points obtained) after the first semester of FYHE. Thus, students' academic achievement in FYHE is conceptualised by the seldom used measure of *early* academic achievement. Data of 335 first-year students within two faculties of science of a Belgian university college were gathered at the beginning of academic year 2015-2016. Results show that cognitive variables and pre-entry characteristics are important predictors of early academic achievement. However, evidence for the hypothesis that non-cognitive variables are determinants of early academic achievement, is limited. More specifically, controlled motivation shows a positive association with both student's GPA and study success, while self-efficacy is a positive predictor of student's GPA only. Results are discussed with regard to current and future research. *Key words:* academic achievement, higher education, cognition, meta-cognition, motivation

### Higher Education Teachers' Critical Thinking (CT), Dispositions, and Attitudes towards CT Teaching

**Keywords:** Higher education, Reasoning, Reflection, Teacher Professional Development

**Presenting Author:** Eva Janssen, Utrecht University, Netherlands; **Co-Author:** Wietse Meulendijks, Utrecht University, Netherlands; **Co-Author:** Tim Mainhard, Utrecht University, Netherlands; **Co-Author:** Anita Heijltjes, Avans University of Applied Sciences, Netherlands; **Co-Author:** Lara van Peppen, Erasmus University Rotterdam, Netherlands; **Co-Author:** Peter Verkoeijen, Erasmus University Rotterdam, Netherlands; **Co-Author:** Tamara Van Gog, Utrecht University, Netherlands

One of the major ambitions of higher education is to foster students' critical thinking (CT) skills. Consequently, teachers play a central role in realizing this ambition. The aim of this study was to gain more insight in what factors promote higher education teachers' CT-skills and positive attitudes towards teaching it. We focused on unbiased reasoning as a key aspect of CT. We investigated (1) what teacher characteristics predicted teachers' performance on a CT-task addressing a major cause of biased reasoning; and (2) how teachers' CT-skills and dispositions were related to their attitudes towards teaching CT, distinguishing between perceived relevance and perceived competence of teaching CT. Teachers from a Dutch university of applied sciences (N = 228) filled out an online survey that measured their performance on the Cognitive Reflection Test (CRT; a short CT-task), CT-teaching attitudes and CT-dispositions. With regard to the CRT, results showed that teachers with an academic degree performed better than teachers with a non-academic degree; teachers in the

technology-domain performed best (the CRT requires arithmetic skills as well), followed by teachers in the economics and society-domain, respectively; the stronger disposition to think deliberately the better the CRT-performance; and males outperformed females. With regard to CT-teaching attitudes, the more teachers were disposed to think deliberately and open-minded, the more relevant they perceived teaching CT. Additionally, the better teachers performed on CRT and the more relevant they perceived CT-teaching, the more competent they perceived themselves in teaching CT. The results of this study suggest that teaching domains might differ in their learning needs with regard to CT-skills. Moreover, as both teachers' CT-dispositions and CT-skills positively relate to their CT-teaching attitudes, it seems of particular importance to pay more explicit attention to promoting teachers' CT-skills, instead of merely focussing on how to improve students' CT-skills.

#### **Doctoral Support Networks: Characteristics and relationships with research conditions.**

**Keywords:** Doctoral education, Higher education, Researcher education, Social interaction

**Presenting Author:**Nuria Sune-Soler, Ramon Llull University, Spain; **Co-Author:**Carles Monereo, Universitat Autònoma de Barcelona, Spain; **Co-Author:**Montserrat Castelló, Ramon Llull University, Spain

PhD students rely on diverse individuals to cope with the challenges of their doctoral journey. In this paper we define *Doctoral Support Networks* (DSNs) as the group of individuals (alters) with whom the PhD student (ego) intentionally collaborates in order to deal with the difficulties of the doctoral journey. We aim to explore the characteristics of this type of networks and their relationships with the research conditions. We used an on-line questionnaire to collect data from 149 PhD students in a Catalan university. Results from a cluster analysis identified two groups of students based on the characteristics of their DSNs. The first group, PhD students with *Fragmented and Passive DSNs* (41%), reported fewer interactions, especially with alters from the academic community, and received lower levels of support. The second group, students with *Distributed and Active DSNs* (59%), reported more frequent interactions with a wider range of individuals from both academic and extra-academic contexts, and received higher levels of emotional support and direct advice. Further analysis showed that several research conditions were significantly related to the type of DSNs. Those PhD students who develop *Distributed and Active DSNs* were more likely to participate in a research team, have frequent and satisfactory meetings with their supervisor and report higher levels of identification with the researcher identity. Doctoral programs should implement mechanisms to facilitate PhD students build and enhance their networks. Research education coordinators should provide supervisors and faculty with the fundamental resources and opportunities to collaboratively support the trajectories of their doctoral students. Promoting more *Distributed and Active Doctoral Support Networks* within the academic community not only will benefit the progress of the PhD students but also enhance the knowledge and scientific advancement of the other members.

Key words: doctoral support networks, doctoral education, type of support, research conditions

#### **Session C 6**

27 August 2017 14:45 - 16:15

Pinni B 3109

Single Paper

Developmental Aspects of Instruction

#### **Student Learning**

**Keywords:** Assessment methods and tools, Attitudes and beliefs, Conceptual change, Misconceptions, Phenomenography, Secondary data analysis, Self-efficacy, Self-regulation, Student learning, Teaching / instruction

**Interest group:** SIG 09 - Phenomenography and Variation Theory, SIG 18 - Educational Effectiveness

**Chairperson:** Maria Hvid Stenalt, Aarhus University, Denmark

#### **Dealing with mistakes in class – (Interactive) effects on students' achievement and motivation**

**Keywords:** Misconceptions, Secondary data analysis, Student learning, Teaching / instruction

**Presenting Author:**Julia Käfer, German Institute for International Educational Research, Germany; **Co-Author:**Susanne Kuger, The German Institute for International Educational Research (DIPF), Germany; **Co-Author:**Eckhard Klieme, German Institute for International Educational Research (DIPF), Germany; **Co-Author:**Mareike Kunter, Goethe-Universität Frankfurt, Germany

Making mistakes is a regular phenomenon in students' everyday classroom experiences. According to social-constructivist learning theories, a supportive and constructive way of dealing with mistakes has multiple favorable effects on student learning by providing information about misconceptions and giving students the opportunity to learn from their mistakes. In addition, dealing with student mistakes can be seen as a component of teaching quality. However, not much is known about dealing with mistakes as a classroom characteristic and its consequences for students' cognitive and motivational development. The present study focuses on three aspects of dealing with mistakes (i.e., a teacher's mistake-friendliness, his/her constructive feedback on mistakes, and students' perceived usefulness of mistakes as learning opportunities) and analyzes how these aspects affect the two most relevant outcomes of education: student learning and motivation. In addition, the present work explore whether the heterogeneity of the student body regarding prior knowledge moderates the

effects of the three aspects on students' outcomes. The study uses data from the representative German DESI study (DESI-Konsortium, 2008), which assessed student development in English as a foreign language with 4,688 ninth-grade students in 426 classrooms in German secondary schools. The results of our doubly latent multilevel structural equation modeling (ML-SEM) reveal that on the classroom level, all three analyzed aspects of dealing with mistakes are predictive for student motivation in English class. Though, for student achievement, only students' perceived usefulness of mistakes turns out to be predictive. Moreover, our results show no interaction effects between the classroom's heterogeneity in prior knowledge and the three aspects of dealing with mistakes. This applied for both outcome variables. The results of the present work are particularly important in light of instructional effectiveness research and provide further empirical evidence on dealing with mistakes as a classroom-level construct.

### **Predicting Academic Success from Resource-Management Strategy Knowledge and Strategy Deficits**

**Keywords:** Assessment methods and tools, Self-efficacy, Self-regulation, Student learning

**Presenting Author:** Julia Waldeyer, University of Duisburg-Essen, Germany; **Co-Author:** Jens Fleischer, University of Duisburg-Essen, Germany; **Co-Author:** Joachim Wirth, Ruhr-University Bochum, Germany; **Co-Author:** Detlev Leutner, University of Duisburg-Essen, Germany

In science and technology study programs, many students quit their studies prematurely. The reasons for this drop-out, however, are still unclear. Academic learning in general places high challenges on self-regulation and the strategic orientation of learning processes. For example, learning at university is significantly less pre-structured. Students have to organize their learning activities by themselves. Moreover, they usually do not receive detailed feedback on their learning progress, and besides repeating a test, there is no chance to compensate failure by means of other performances. With regard to the requirements mentioned above for academic learning, in our paper we focus on specific learning strategies – in particular resource management strategies as important predictors for academic study success. Previous research had only focused on the self-reported quantitative aspects of using learning strategies but not on the quality of strategy use. Against this background, we aimed to develop and validate a new instrument for the assessment of strategy knowledge and, moreover, for the assessment of deficits in strategy use. This new instrument was evaluated in a pilot study with an sample of  $N = 198$ . This sample consists of  $n = 59$  educational science students and  $n = 149$  civil engineering students as two study programs with different challenges. The study focused on the factorial structure as well as the correlation with external variables concerning indications of the convergent and discriminant validity of the instrument. First results show good reliability and give indications for the construct and predictive validity of the new instrument. Indications for construct validity were shown by a clear factorial structure and a set of convergent as well as discriminant correlations. Moreover, we found that resource management, measured with our instrument, accounts for variance of university grades over and above cognitive abilities and high school grades.

### **Developing Students' Awareness of Seeing and Using Money in Personal Financial Decision-Making**

**Keywords:** Attitudes and beliefs, Conceptual change, Phenomenography, Student learning

**Presenting Author:** Hua Loon Ling, The University of Hong Kong, Hong Kong

Behavioural finance research has reported that people often act irrationally when making financial decisions due to underlying dispositions of the ways they think about money. This study sought to explore and develop the financial literacy of a group of lower secondary students in Hong Kong through an intervention programme to help them see and use money in more powerful ways. 99 students (24 intervention; 75 control) took part in the one-year mixed-methods longitudinal study. All students answered a pre-survey. In-depth interviews were carried out with the intervention group and phenomenographic analysis identified critical aspects for improvement, namely goal setting and budgeting behaviours. The lessons used variation theory and vignette methodology, which adapted real-life examples from the interviews, to write short reflection scenarios. The students were taught the behavioural finance principle of mental accounting to set goals for money through the process of labelling. At the end, the intervention group was interviewed again, and both groups answered a post-survey. Both groups showed significant increase in awareness of the budgeting conception at the end of the study compared to the baseline, but the increase in the experiment group was significantly greater than in the control. The intervention students also described more examples of successful budgeting and mentioned specific uses of the labelling strategy to help them improve their behaviours. There was a significant decrease in the control group's conscientiousness towards using their families' money. This was not observed in the experiment group, even though they reported a changed pattern of more spending. While findings are preliminary, it could be suggested that the lessons were effective to improve the students' saving and spending behaviours, and that financial education might act as a prevention against worsening of students' conscientiousness in using money due to increased consumption in the adolescent years.

### **Session C 7**

27 August 2017 14:45 - 16:15

Pinni B 4115

Poster Presentation

Culture, Morality, Religion and Education, Instructional Design, Learning and Social Interaction, Teaching and Teacher Education

### **Writing and Literacy**

**Keywords:** Comparative studies, Content analysis, Developmental processes, Instructional design, Language (L1/Standard Language), Literacy, Primary education, Qualitative methods, Religious studies, Secondary education, Student learning, Survey Research, Teaching / instruction, Writing / Literacy

**Interest group:** SIG 12 - Writing, SIG 19 - Religious and Spiritual Education

**Chairperson:** Alina Florentina Boutiuc-Kaiser, University of Education Freiburg , Germany

### **Analysis of the strategy-focused instruction for improving writing competence**

**Keywords:** Instructional design, Primary education, Teaching / instruction, Writing / Literacy

**Presenting Author:**Rut Sanchez, University of León, Spain; **Co-Author:**Paula Lopez, University of León, Spain; **Co-Author:**Alba Gonzalez, University of León, Spain; **Co-Author:**Raquel Fidalgo, University of León, Spain, Spain

Several meta-analysis have pointed the strategy-focused instruction as one of the most effective approach for improving students' writing skills. Nevertheless, this kind of instruction has been specially implemented in upper grades of Primary Education. Moreover, different studies have shown that collaborative practice has a positive impact on this kind of instruction on the written quality. Therefore, the current study explores the effectiveness of the strategy-focused instruction in 72 students of 3<sup>rd</sup> grade of primary education, comparing the specific contribution of the type of practice implemented (individual or collaborative). The sample was divided into 3 classrooms within the same school. Two classrooms, randomly chosen, formed the experimental condition where it was implemented a strategy-focused program for the improvement of the writing competence focused on planning and drafting processes. Complementary, one of the experimental groups worked individually whereas the other experimental group worked in pairs, with the roles of writer and helper. Instructional programs were developed by the instructor during 6 sessions. The control condition group received an instruction based on the promotion of motivation and creativity for the improvement of the writing competence. The study followed a quasi-experimental design with three evaluation times: pretest-posttest-follow up (2 months after the intervention). Textual productivity, organization (framework and episode) and, quality holistic measures (structure, coherence and quality) were taken. Results at posttest showed similar improvement in both intervention conditions, relatively to control, in all holistic measures. However, these effects only were maintained at long-term follow-up for the individual condition for all these measures, while in the collaborative condition only was maintained for structure. Moreover, no statistically significant effects were observed between both experimental conditions at any time. These findings suggest that both interventions, with individual or pairs practice, are equally effective to improve writing skills in upper primary students following a short intervention.

### **A Comparison on Chinese Curriculum in Primary Schools Between Hong Kong and Shenzhen**

**Keywords:** Comparative studies, Content analysis, Primary education, Qualitative methods

**Presenting Author:**Qing Zhang, The University of Hong Kong, Hong Kong

Chinese language is the mother language of Chinese people. The teaching and learning of Chinese curriculum are different from many aspects between Hong Kong and the mainland of China due to the different language environment and various culture background. Shenzhen, along with Beijing, Shanghai and Guangzhou, has been regarded as one of the most important cities in mainland of China. It is the closest city to Hong Kong in China and has developed into a metropolitan city from a small village in recent decades.

Education in elementary schools plays a fundamental role in one's life. Chinese curriculum is one of the major subjects in Chinese schools. In this case, this study focus on using the primary Chinese curriculum in Shenzhen as an example to make a contrast between the primary Chinese curriculum in mainland China and Hong Kong in terms of teaching and learning. Interviews and content analysis were conducted to explore these differences in the two regions.

The results revealed that the primary Chinese curricula in Hong Kong and Shenzhen are different from many aspects of teaching and learning. Generally speaking, Chinese curriculum plays an important role in the education system of the two areas. Chinese teachers in Hong Kong primary schools have more teaching work than teachers in Shenzhen. In addition, the arrangement of courses is more intensive in Hong Kong. For the content of learning, Chinese course in Shenzhen pays more attention to reading and writing while Hong Kong treats listening, speaking, reading and writing relatively equal in examination.

The research of comparing the differences of Chinese curriculum in Hong Kong and Shenzhen in this study may help educators of the two areas learn from each other, provide insights for the future development of Chinese curriculum in China and contribute to the curriculum reform in the long run.

### **National survey on writing instruction in public secondary schools in Chile**

**Keywords:** Secondary education, Survey Research, Teaching / instruction, Writing / Literacy

**Presenting Author:**Magdalena Flores, University of Amsterdam, Netherlands; **Co-Author:**Gert Rijlaarsdam, University of Amsterdam, Netherlands; **Co-Author:**Daphne van Weijen, University of Amsterdam, Netherlands

National survey on writing instruction in Chilean public secondary schools There is international concern about how many young people do not reach the required writing skills to successfully participate in the contemporary society. Thus, public policy makers and researchers should put attention on how is writing being taught at schools. Quality education encompasses the implementation of a variety of teaching practices, which have a crucial effect on student learning. In addition, there is evidence of the impact that teachers' beliefs have in their practice. In Chile, public policies of writing

instruction at secondary level are still incipient. There is still not official measures of students' writing outcomes, however, it seems that they have deficiencies in their written texts, mainly those who attend public schools. Regarding teachers, little is known about their practices on writing instruction. In this study, we will distribute a national online survey that will target Spanish teachers of public secondary schools in every region of Chile in May 2017. Our main objective is to collect information about Spanish teachers' practices and their beliefs related to writing instruction. Data will be used as a basis to design an online course for training Spanish teachers to teach writing. We developed the questionnaire based on the requirements of the Chilean curriculum of First Language Acquisition (L1), previous survey experiences addressed to L1 teachers, and a meta-analysis on writing instruction to adolescents. We hypothesize that teachers report that they don't feel prepared to teach writing and that the communicative and cognitive views of language that are prescribed in the curriculum had not yet impacted their practices. We expect that this study will have a twofold relevance. First, it will contribute to writing instruction in Chile. Second, it will provide a valuable guidance to the international community of researchers of L1.

### **The relationship between children's metalinguistic awareness and their progress in learning to write**

**Keywords:** Developmental processes, Language (L1/Standard Language), Literacy, Writing / Literacy

**Presenting Author:** Moira Newton, Auckland University, New Zealand

Good writing is essential to academic success at school and university. Children's ability to think and talk about language, their metalinguistic awareness (MLA), may affect their progress in learning to write. MLA may be linguistic, using metalanguage, or it may be psycholinguistic, deploying the cognitive skills of attention, analysis and control (Bialystok, 2001). MLA may be evident in the children's ability to verbalise the choices they are making. The present study examines the MLA of 84 children at years three to six, in a central Auckland, New Zealand primary school. It has a mixed methods, explanatory, sequential methodology. In the initial quantitative phase of the study, writing and metalinguistic tests are correlated showing a .367 statistically significant, moderate correlation, indicating that there is a relationship between MLA and writing. The qualitative data are taken from a subset of 32 children from the main sample. Eight children at each year level are grouped into four groups based on their initial test scores: high writing, high metalinguistic (HWHM); high writing, low metalinguistic (HWLM); low writing, high metalinguistic (LWLM) and low writing low metalinguistic (LWLM). The data are writing samples, think alouds and interviews, which explore the complex relationship between writing achievement and MLA. Data are analysed into seven types of MLA. Metalexical, metasemantic, metapragmatic (Gombert, 1992) and metaemotive results are reported in this poster. Preliminary results suggest an increase in metapragmatic awareness in HWHM children and they are more likely to consider the emotive force of their texts on the reader. High writers and high metalinguistic children show more types of metasemantic awareness and metalexical awareness. The present study originated because of a problem with writing success in a low socio economic, multi-cultural school in Auckland, New Zealand. Studying what good writers know about language and making choices in their writing may help us to prompt higher achievement from struggling writers.

### **Do Bible stories have relevance**

**Keywords:** Primary education, Religious studies, Student learning, Teaching / instruction

**Presenting Author:** Raili Keränen-Pantsu, University of Eastern Finland, Unknown

Do Bible stories have relevance? A stimulated recall study of students reflections after an RE lesson.

The aim of this study is to investigate different forms of relevance pupils find when teacher is using narratives learning situations. The study was conducted in Finland in the context of Religious Education lessons, where certain narratives seems to be part of traditional learning content. The study is part of a broader research that focuses on students' and teachers' intentions, teachers' pedagogical thinking and students' reflection in lessons applying in narrative pedagogy. The research questions was:

What makes the narrative relevant at student's point of view?

The theoretical background relies on a holistic learning (Forbes, 2003). In this study I propose that there can be identified different kinds of relevance from individual's point of the view of the in classroom instruction. In the holistic framework these domains can be termed cognitive (mental), cultural, affective, social, psychological, moral along with spiritual. (Ubani, 2013; Hull, 2002). Taking context into account, in order to be more elaborate within the spiritual domain, I distinguish between existential, spiritual and religious significance. In this study, the main focus is to highlight the different aspects of human experience.

Data and analysis

The data was collected in Finland, where pupils study separately according to the religion their parents are part of, in this case, Evangelical Lutheran religion. This study is part of wider PhD-research and data consist 2 observed and videotaped lessons, stimulated-recall interviews of 9 pupils (age of ten, 4 girls + 5 boys). Analysis was done by deductive content analysis using Ubani's model of different forms of relevance on teaching introduced before.

Findings

Most common forms of relevance among the students' reflections were moral, affective, religious and existential relevance. It seems clear that pupils make a difference to narratives used in Religious education to other kind of narratives, mostly because of their moral content.

## **Session C 8**

27 August 2017 14:45 - 16:15

Pinni B 3117

Poster Presentation

Higher Education, Learning and Social Interaction, Teaching and Teacher Education

### **Social and Cultural Aspects of Learning and Teaching**

**Keywords:** Assessment methods and tools, Bilingual education, Cognitive development, Computer-assisted learning, Culture, Early childhood education, Higher education, Literacy, Peer interaction, Phenomenography, Primary education, Quantitative methods, Social aspects of learning and teaching, Social interaction

**Interest group:** SIG 05 - Learning and Development in Early Childhood

**Chairperson:** Maren Gube, McGill University, Canada

### **How classroom quality relates to mono and multilingual children's literacy and executive functioning**

**Keywords:** Bilingual education, Cognitive development, Literacy, Social interaction

**Presenting Author:** Annegien Langeloo, University of Groningen, Netherlands; **Co-Author:** Mayra Mascareño, University of Groningen, Netherlands; **Co-Author:** Marjolein Deunk, University of Groningen, Netherlands; **Co-Author:** Maaïke van Rooijen, University of Groningen / GION, Netherlands; **Co-Author:** Jan-Willem Strijbos, University of Groningen, Netherlands

From a bioecological perspective, the interaction between teacher and child is the main proximal process for delivering learning opportunities to a child in educational settings, and therefore the main determinant of classroom quality. High classroom quality is associated with positive outcomes in the child on the pre-academic, the cognitive and the social-emotional level. Multilingual children often come to school with lower language levels in the majority language, but they seem to outperform their monolingual peers on executive functioning after controlling for socioeconomic status. As multilingual children are found to have different early literacy and executive functioning levels in kindergarten than their monolingual peers, it is important to investigate whether the relation between classroom quality and these skills is the same for multilingual and monolingual children. High classroom quality might have a compensatory effect for the language development of multilingual children. The relation between classroom quality and executive functioning for multilingual and monolingual children is still unclear. This study will investigate how classroom quality relates to early literacy and executive functioning in monolingual and multilingual children. Data is currently being collected in 20 Dutch kindergarten classes at three time points. In each classroom, four children (aged 5-6 years) are selected of which two are multilingual. The two monolingual children in each class are matched to their multilingual classmates on gender and socioeconomic status. At each time point video recordings are made to measure general classroom quality. For this, emotional support, classroom organization and instructional support will be observed and coded. Furthermore, the four focal children in each classroom are assessed on their early literacy and executive functioning skills. Data for time point 1 and 2 have already been collected in October 2016 and January 2017. In April 2017 data for time point 3 will be collected. The poster presentation at JURE will present findings of the first time point.

### **Play deprivation & rebound: engagement, physical activity & social interaction in the classroom**

**Keywords:** Primary education, Quantitative methods, Social aspects of learning and teaching, Social interaction

**Presenting Author:** Christina Heemskerk, University of Oxford, United Kingdom; **Co-Author:** Lars-Erik Malmberg, Oxford University, United Kingdom

Going beyond current studies on the associations between physical fitness and academic performance of school aged children (e.g., long-term effects of chronic exercise), we posed a process model based on play deprivation theory, which emphasises the importance of physical activity (PA) and social interaction in learning. We investigated the relationship between acute PA and subsequent on-task behaviour and engagement in the classroom. We hypothesized that behavioural engagement would be greater in lessons after PA, and during tasks involving social interaction. 18 students (9 boys and 9 girls in years 4 and 5; mean age 9:1 years) in 3 schools were observed every 30 seconds in 40 minute lessons before and after break times and Physical Education lessons for one week. They completed electronic questionnaires on Personal Digital Assistants (PDAs) up to 3 times per lesson. The data was analysed with multilevel models to establish the prevalence and stability of on-task behaviour over time in lessons, before and after PA, and in relation to social interaction taking place during lesson tasks. There was more variance between individuals than between lessons in observed and self-reported engagement. Observed on-task behaviour was found to decrease over the course of lessons, and was not related to self-reported behavioural engagement, which increased. Participants were more likely to display behavioural engagement after PA than before. Compared to independent tasks, participants spent more time on-task when working in pairs, or one-to-one with an adult, and less when working in groups or during teacher-led whole class instruction. This situation-specific approach to investigating the association between PA, social interaction, and student engagement has opened an important window to learning processes in schools. An essential next stage of research are intervention studies

regarding the content and structure of PA, with a view to provide teachers with tools to implement engagement-enhancing activities in schools.

### **The friendship network stability of preschool children during one pedagogical season**

**Keywords:** Assessment methods and tools, Computer-assisted learning, Early childhood education, Peer interaction

**Presenting Author:** Yili Wang, University of Turku, Finland

This one-year short longitudinal study examines how five- and six-year-old children's peer relationships are formed and fostered over one preschool year. All 16 kindergarteners in a southwestern Finnish preschool participated in the study (at dyad level N=240; i.e., 16 x 15 relationships among the children). The children were divided into groups in two different ways: (1) four daily groups which were allocated on the same gender and same age according to their kindergarten teachers and (2) four intervention groups which were arranged by the research to seat the children who seldom associates with each other. The daily groupings and intervention groupings occurred in turns for every second Friday. During all the game sessions, one iPad was given to each group of four children during 45 minutes to play and share in order to stimulate interaction among peers. The data consist of altogether 80 child interviews in which the 3-Likert scale technique was applied and children were requested to defy with whom they play all the time, sometimes or never. Altogether 5 sociometric nomination were collected. To investigate the nature and change of the peer relationships, social network analysis methods were used. The results indicate that the children's preference for gender segregation was strong in comparison with age preference and intervention influence. Boys were more inclusive in associating with cross-gender peers as girls were more exclusive. The intervention had a slightly negative or hardly any influence on the children's peer relationships after one year. Children's relationship changed in the beginning of intervention but returned to the baseline of the network towards the end of the study. The children's nominations narrowed down, crystalizing the group structure. Instead of extending their peer networks, the children sought stable and mutual relationships with their peers in their middle childhood years.

### **Chinese International Students' Transitional Experiences in British Academia**

**Keywords:** Culture, Higher education, Phenomenography, Social interaction

**Presenting Author:** Jie Zhang, University of Glasgow, United Kingdom

In the UK, International Chinese Master's students are the dominant group of international students, with one fifth of the total number of international students. International Chinese Master's students may face more difficulties than their undergraduate and PhD counterparts due to the intensive nature of short-term Master's programmes. Yet, there are fewer studies focusing on this student cohort. This research aims to explore International Chinese Master's students' transitional experiences and the role of social networks during their study in British academia. It also aims to gain a better understanding of the transition process by identifying challenges and understanding of how to improve support systems for international students to facilitate their transition. The nature and type of interactions surrounding the social networks that Chinese students form are likely to reveal some interesting insights that can help understand their transitional experiences. A qualitative research method utilising photo-elicitation interviews was employed as part of a longitudinal study. In Phase 1, forty participants participated and selected their photographs of their transition experiences and social connections during their study sojourn, which served as stimuli for subsequent in-depth interviews. Interpretative Phenomenological Approach (IPA) was employed as an inductive data analysis approach with the use of NVivo software and possibly drawing upon Community of Practice in interpreting the findings. Phase 1 findings from this study indicate emergent important factors for International Chinese Master's students in the transition process including: a) students' proficiency in English language and level of confidence, b) lack of critical thinking, c) heavy reliance on peer-based networks and family groups, and d) breadth rather than depth of social networks. It is expected that findings from Phase 2 will indicate changes during the transition process and provide both theoretical and practical implications for students' overall adaptation in the transition process.

### **Session D 1**

27 August 2017 16:45 - 18:15

Pinni B 4113

Invited Workshop

### **Social Network Analysis in Educational Research**

**Keywords:** Quantitative methods, Social aspects of learning and teaching, Social interaction, Social sciences

**Interest group:**

In this workshop, we will cover the foundations of social network analysis. You will get an overview over the current methods that are used in this field and what kind of questions you could explore. For instance, often it is not just the attributes that matter for learning in school or work contexts, but also the relationships between the learners. Also, the workshop shows you the necessary tools and ideas that allow you to conceptualize and execute a social network study on your own. Specifically, we will help you in finding answers to the following questions: Why use social network analysis? What social network-research question to ask? How to get social network data? What are the options for analyzing social network data? Please bring your own laptops (any Operating System), as we will also take a brief look into Gephi--an open source software for social network analysis and visualization. Please download it before the workshop (<http://gephi.org/>). Also, we will send some introductory resources up front, which can be studied before the workshop begins.

## **Social Network Analysis in Educational Research**

**Presenting Author:**Jasperina Brouwer, University of Groningen, Netherlands; **Co-Author:**Dominik E. Froehlich, University of Vienna, Austria

In this workshop, we will cover the foundations of social network analysis. You will get an overview over the current methods that are used in this field and what kind of questions you could explore. For instance, often it is not just the attributes that matter for learning in school or work contexts, but also the relationships between the learners. Also, the workshop shows you the necessary tools and ideas that allow you to conceptualize and execute a social network study on your own. Specifically, we will help you in finding answers to the following questions: Why use social network analysis? What social network-research question to ask? How to get social network data? What are the options for analyzing social network data? Please bring your own laptops (any Operating System), as we will also take a brief look into Gephi--an open source software for social network analysis and visualization. Please download it before the workshop (<http://gephi.org/>). Also, we will send some introductory resources up front, which can be studied before the workshop begins.

### **Session D 2**

27 August 2017 16:45 - 18:15

Pinni B 1100

Invited Workshop

#### **Mixed methods in educational research**

**Keywords:** Doctoral education, Mixed-method research, Qualitative methods, Quantitative methods

**Interest group:** SIG 17 - Methods in Learning Research

In the workshop, participants learn how to build their own mixed methods designs for educational research. A mixed methods design is a design for a study that involves the integration of data from several sources. Examples include the integration of data obtained through different methods, or the integration of answers to separate, but related research questions. We will start by examining some real-life examples from the participants' research practice, and next discuss characteristics, opportunities and pitfalls of mixed methods research in education. Participants will apply a strategy for the design of mixed methods research, developed by the workshop leader, to examples from their own research practice. This strategy involves various specific purposes of mixing, each related to a specific stage in the research process, and classified into three overall purposes of mixing; a distinction between a point of extension and a point of integration; and a method of visualizing cases of mixing.

Different from mainstream mixed methods theorizing, this workshop emphasizes the following points:- Mixing is not a characteristic of a study, but something that occurs within a study. Researchers therefore should not describe "the" design "of" their mixed methods study, but should rather describe cases of mixing within their study. It is not the study as a whole which has a specific purpose of mixing, but an individual case of mixing (e.g. cognitive interviews are held (case of mixing within a study) to improve a questionnaire-under-development (specific purpose of this case of mixing)). - Integration is not separate from the purpose of mixing, but is rather determined by the purpose of mixing (if the aim of the interviews is to explain the unexpected results of the survey, integration entails that the conclusion of the former is an explanation of the latter).

#### **Mixed methods in educational research**

**Presenting Author:**Judith Schoonenboom, University of Vienna, Austria

In the workshop, participants learn how to build their own mixed methods designs for educational research. A mixed methods design is a design for a study that involves the integration of data from several sources. Examples include the integration of data obtained through different methods, or the integration of answers to separate, but related research questions. We will start by examining some real-life examples from the participants' research practice, and next discuss characteristics, opportunities and pitfalls of mixed methods research in education. Participants will apply a strategy for the design of mixed methods research, developed by the workshop leader, to examples from their own research practice. This strategy involves various specific purposes of mixing, each related to a specific stage in the research process, and classified into three overall purposes of mixing; a distinction between a point of extension and a point of integration; and a method of visualizing cases of mixing.

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### Session D 3

27 August 2017 16:45 - 18:15

Pinni B 1097

Invited Workshop

#### **Life after PhD -How to ensure a smooth transition from PhD studies to academic/professional career?**

**Keywords:** Doctoral education, Higher education, Peer interaction, Student learning

#### **Interest group:**

The aim of the workshop is that the participants identify the importance of developing various working life competences (such as communication, networking, collaboration and critical thinking skills) during their doctoral studies to ensure a smooth transition to either academic or professional career. The workshop will focus on addressing how doctoral students can enhance the development of their working life competences during their doctoral studies and on identifying core resources and challenges in the transition from doctoral studies to working life (addressing both academic and professional careers). The workshop proceeds as follows:1) 1) Theoretical insights into the development of working life competences and into the transition phase from doctoral studies to working life;2) 2) Sharing experiences and concerns of the development of working life competences;3) 3) Small group discussion of resources and challenges in the transition from a PhD student to academic/professional careers;4) 4) Identification of key areas, which are of importance to the participants considering their further development and careers, as well as identifying key resources which can be utilised to ensure a smooth transition.

The workshop is suitable for all doctoral students, from early to final phases of doctoral studies, as well as for those who have recently earned their doctoral degree.

#### **Life after PhD -How to ensure a smooth transition from PhD studies to academic/professional career?**

**Presenting Author:**Liisa Postareff, University of Helsinki, Finland

The aim of the workshop is that the participants identify the importance of developing various working life competences (such as communication, networking, collaboration and critical thinking skills) during their doctoral studies to ensure a smooth transition to either academic or professional career. The workshop will focus on addressing how doctoral students can enhance the development of their working life competences during their doctoral studies and on identifying core resources and challenges in the transition from doctoral studies to working life (addressing both academic and professional careers). The workshop proceeds as follows:1) 1) Theoretical insights into the development of working life competences and into the transition phase from doctoral studies to working life;2) 2) Sharing experiences and concerns of the development of working life competences;3) 3) Small group discussion of resources and challenges in the transition from a PhD student to academic/professional careers;4) 4) Identification of key areas, which are of importance to the participants considering their further development and careers, as well as identifying key resources which can be utilised to ensure a smooth transition.

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### Session D 4

27 August 2017 16:45 - 18:15

Pinni B 3107

Invited Workshop

#### **Meta-Analysis in Learning Research**

**Keywords:** Doctoral education, Meta-analysis, Quantitative methods, Researcher education

**Interest group:** SIG 17 - Methods in Learning Research

This workshop offers insights into what meta-analysis is, how meta-analysis can be used as an analytic tool in learning research, and particularly how data for meta-analysis can be collected, analyzed, and reported. The workshop has three parts. We will first discuss different ways how data for meta-analyses can be selected and coded. We will then compare techniques to meta-analyze correlational and experimental data, and demonstrate how these effect sizes can be corrected for study design artifacts. Finally, we will illustrate the reporting standards of meta-analytic findings with a focus on numerical and visual displays. This workshop also describes what journal reviewers typically look for when evaluating your meta-analytic manuscript. The workshop will use a variety of methods, including short lectures, demonstrations, and hands-on activities to scaffold transfer of the course content to the participants' own research projects. Basic knowledge in descriptive statistics is expected.

#### **Meta-Analysis in Learning Research**

**Presenting Author:**Andreas Gegenfurtner, Technische Hochschule Deggendorf, Germany

This workshop offers insights into what meta-analysis is, how meta-analysis can be used as an analytic tool in learning research, and particularly how data for meta-analysis can be collected, analyzed, and reported. The workshop has three parts. We will first discuss different ways how data for meta-analyses can be selected and coded. We will then compare

techniques to meta-analyze correlational and experimental data, and demonstrate how these effect sizes can be corrected for study design artifacts. Finally, we will illustrate the reporting standards of meta-analytic findings with a focus on numerical and visual displays. This workshop also describes what journal reviewers typically look for when evaluating your meta-analytic manuscript. The workshop will use a variety of methods, including short lectures, demonstrations, and hands-on activities to scaffold transfer of the course content to the participants' own research projects. Basic knowledge in descriptive statistics is expected.

#### **Session D 5**

27 August 2017 16:45 - 18:15

Pinni B 3116

Invited Workshop

Assessment and Evaluation

#### **Approaches to the Study of Formative Assessment in Professional Development and Classroom Practice**

**Keywords:** Assessment methods and tools, Conversation / Discourse analysis, Mixed-method research, Teacher Professional Development

**Interest group:** SIG 01 - Assessment and Evaluation

Formative assessment, the process of teachers eliciting and attending to student ideas during the course of instruction, is the subject of many international educational policy initiatives. Studies have been conducted across the disciplines and at many grade levels to better support teachers in enacting formative assessment in their classrooms. The complexity of formative assessment, however, lends itself to many different research designs, sources of data, and analytic approaches. While the effectiveness of formative assessment has been established in experimental and quasi-experimental studies, in-depth qualitative studies have provided important insights into the ways that teachers use formative assessment in their classrooms. This interactive session will provide participants with opportunities to view video of teachers planning formative assessments and teachers using formative assessments in their classrooms, as well as examples of student responses to formative assessment. Participants will learn about and work with existing frameworks for analyzing formative assessment in each of these contexts, with an eye to the challenges involved with each source of data. The intent is to stimulate discussion about what formative assessment is, how researchers can establish that it is happening, and how to track variations in quality of formative assessment across time and different teachers' classrooms. Participants can expect to leave the session with a refined understanding about how different researchers have defined formative assessment, qualitative, quantitative, and mixed-methods designs for studying formative assessment, and up-close experiences analyzing data from studies of formative assessment. They will be given access to observation protocols and codebooks used in previous studies, and be able to discuss benefits and constraints of these different systems in studying formative assessment.

#### **Approaches to the Study of Formative Assessment in Professional Development and Classroom Practice**

**Presenting Author:** Erin Marie Furtak, University of Colorado at Boulder, United States

Formative assessment, the process of teachers eliciting and attending to student ideas during the course of instruction, is the subject of many international educational policy initiatives. Studies have been conducted across the disciplines and at many grade levels to better support teachers in enacting formative assessment in their classrooms. The complexity of formative assessment, however, lends itself to many different research designs, sources of data, and analytic approaches. While the effectiveness of formative assessment has been established in experimental and quasi-experimental studies, in-depth qualitative studies have provided important insights into the ways that teachers use formative assessment in their classrooms. This interactive session will provide participants with opportunities to view video of teachers planning formative assessments and teachers using formative assessments in their classrooms, as well as examples of student responses to formative assessment. Participants will learn about and work with existing frameworks for analyzing formative assessment in each of these contexts, with an eye to the challenges involved with each source of data. The intent is to stimulate discussion about what formative assessment is, how researchers can establish that it is happening, and how to track variations in quality of formative assessment across time and different teachers' classrooms. Participants can expect to leave the session with a refined understanding about how different researchers have defined formative assessment, qualitative, quantitative, and mixed-methods designs for studying formative assessment, and up-close experiences analyzing data from studies of formative assessment. They will be given access to observation protocols and codebooks used in previous studies, and be able to discuss benefits and constraints of these different systems in studying formative assessment.

#### **Session D 6**

27 August 2017 16:45 - 18:15

Pinni B 3109

Invited Workshop

#### **Building a research profile on your way to the top**

**Keywords:** Educational Psychology, Professions and applied sciences, Researcher education, Social sciences

**Interest group:**

Dr. Bjorn de Koning is an assistant professor at the Department of Psychology, Education, and Child Studies at Erasmus University Rotterdam, The Netherlands. His main research interest focuses on investigating how children and adults construct mental representations during learning and in what ways they can best be supported or stimulated during this process. Within his work, he addresses the perceptual, cognitive, and motoric/multisensory aspects involved in the learning process, which he studies in various domains: learning from static and dynamic visualizations (e.g. animation, video), reading comprehension, mathematical word problem solving, (cultural differences in) time representation, (visual) problem solving. Moreover, he is involved in research on collaborative learning in higher education and identifying factors predicting academic success. His research is characterized by a multidisciplinary approach mainly integrating cognitive (neuro)science, educational psychology, social science and gesturing research, and covers both fundamental (e.g., unraveling learning processes) and applied (e.g., interventions for improving comprehension) work. Currently, Bjorn de Koning is the coordinator of SIG 6 (Instructional Design) of EARLI.

**Building a research profile on your way to the top**

**Presenting Author:** Björn de Koning, Erasmus University Rotterdam, Netherlands

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**Session E 1**

28 August 2017 08:45 - 10:15

Pinni B 3118

Single Paper

Cognitive Science, Teaching and Teacher Education

**Metacognition**

**Keywords:** Learning approaches, Literacy, Metacognition, Misconceptions, Mixed-method research, Primary education, Reading comprehension, Self-regulation, Teacher Effectiveness, Teaching / instruction

**Interest group:** SIG 16 - Metacognition

**Chairperson:** Daniel Deimel, University of Duisburg-Essen, Germany

**Refutation Texts Support Comprehension and Metacomprehension Accuracy in the Domain of Statistics**

**Keywords:** Metacognition, Misconceptions, Reading comprehension, Self-regulation

**Presenting Author:** Anja Prinz, University of Freiburg, Germany; **Co-Author:** Stefanie Golke, University of Freiburg, Germany; **Co-Author:** Joerg Wittwer, University of Freiburg, Germany

In the domain of statistics, learners often have misconceptions about fundamental concepts such as covariance. Such misconceptions can have detrimental effects on students' text comprehension and metacomprehension accuracy, that is, the accuracy with which they monitor and assess their own text comprehension. Yet, prior research in various science domains has shown that refutation texts are beneficial for removing misconceptions and supporting comprehension. Whether the beneficial effects of refutation texts also hold true in the domain of statistics, which typically involves the acquisition of both concepts and procedures, is, however, an open question. Furthermore, little attention has been given to the role of refutation texts for metacomprehension accuracy. Yet, metacomprehension accuracy usually affects whether learners engage in appropriate learning activities. Therefore, we conducted an experiment in which  $N = 53$  students with varying levels of statistical misconceptions read either a standard statistics text or a refutational statistics text, predicted their conceptual and procedural text comprehension, and completed conceptual and procedural comprehension questions. In doing so, we focused on the topic of covariance. The results showed that when students read the standard statistics text, misconceptions impaired conceptual and procedural comprehension and led to inaccurate metacomprehension as indicated by overconfident predictions of conceptual comprehension. In contrast, when students read the refutational statistics text, misconceptions were not related to comprehension or metacomprehension accuracy. Thus, when learning from standard statistics texts, students' misconceptions are not only detrimental to their comprehension but also prevent them from accurately self-assessing their comprehension. As a result, students might fail to engage in further learning activities in order to enhance their understanding. Thus, methods such as refutation texts that help students to pay attention to

inaccuracies in their knowledge are crucial to promote self-regulated learning from text. Therefore, refutation texts should increasingly find their way into statistics textbooks and instruction.

### **Transfer of metacognitive strategies in self-regulated learning**

**Keywords:** Metacognition, Self-regulation, Teacher Effectiveness, Teaching / instruction

**Presenting Author:**Corinna Schuster, Ruhr University Bochum, Germany; **Co-Author:**Ferdinand Stebner, Ruhr University Bochum, Germany; **Co-Author:**Joachim Wirth, Ruhr-University Bochum, Germany; **Co-Author:**Detlev Leutner, University of Duisburg-Essen, Germany

One way to enable students to control their own learning process is to teach them in self-regulated learning. By using cognitive, metacognitive and motivational learning strategies students monitor, control and regulate their cognitive activities and behavior (Pintrich, 2000). Several meta-analyses have highlighted the importance of metacognitive strategies in learning (e.g., Dignath, Büttner, & Langfeldt, 2008). Students who apply metacognitive strategies to cognitive strategies learn better and more sustainable (e.g., Schreiber, 1998). However, only very little is known about whether and how learners transfer metacognitive strategies to new cognitive strategies (Boekaerts & Cascallar, 2006). To clarify this research question, 57 students from German high schools learned in a 2x2+1-design to apply metacognitive strategies to certain cognitive strategies, either in conducting experiments (Group 1) or reading science texts (Group 2). Another 49 students only learned the cognitive strategies of conducting experiments (Group 3) or reading science texts (Group 4), and another 56 students learned neither metacognitive nor cognitive strategies (CG). After 15 weeks of training, all students were introduced to a second set of (new) cognitive strategies for further 15 weeks. This time, all groups learned without teachers' activation of metacognitive strategies to examine the students' transfer processes. Results show that both groups (Group 1 and 2) who learned to apply metacognitive strategies to certain cognitive strategies in the first 15 weeks transferred metacognitive strategies to the new cognitive strategies (reading science texts:  $F(4,162)=6.09, p=.000, \eta_p^2=.13$ ; experiments:  $F(4,161)=3.71, p=.010, \eta_p^2=.36$ ). However, the level of recalled metacognitive strategies was only small. Therefore, there is needed a holistic view on self-regulated learning in schools in order to support the students' transfer processes. **Keywords:** self-regulated learning, metacognition, strategy transfer, school learning

### **Tales with Tails**

**Keywords:** Learning approaches, Literacy, Mixed-method research, Primary education

**Presenting Author:**Helen Lewis, University of Wales Trinity Saint David, United Kingdom

This paper reports on a study exploring the impact of dogs in classrooms, especially with regard to children's reading ability and perception of themselves as effective learners. This took place in Wales (UK), where, as in other countries, educational standards including those relating to literacy remain a concern (eg PISA, 2013). Evidence suggests that, across the globe, reading for pleasure enhances educational outcomes for learners (eg Clark and De Zoysa, 2011). However, research also suggests that a growing number of children do not see reading as an enjoyable activity, and attitudes towards reading have declined since 2000 (eg Twist *et al*, 2007). The study that this paper reports on involved bringing trained dogs into primary school classrooms, to read with children on a regular basis over an academic year. The dogs and handlers worked with learners aged five to ten years old, identified as lacking confidence, motivation or the expected skills in reading. Findings in this paper report at the interim point of the study, and indicate that handlers and teachers perceive the presence of a dog to be a positive one, particularly in relation to children's enjoyment of reading, their oracy skills and their confidence in reading. The children involved also report more enjoyment in reading as a result of having the opportunity to read to the dog, and read more frequently. This is important given the existing literature around reading for pleasure. The children who read with dogs also showed positive changes in attitudes towards reading, and their views of themselves as learners show small positive improvements. Handlers report a sense of purpose, collegiality and wellbeing as a result of involvement. This paper makes an important contribution to knowledge since in the last 83 years there have been limited examples of systematic studies into the possible benefits of animal assisted interventions (eg Hall *et al*, 2016).

### **Session E 2**

28 August 2017 08:45 - 10:15

Pinni B 3117

Single Paper

Motivational, Social and Affective Processes, Teaching and Teacher Education

### **Motivation, Emotion and Self-regulation**

**Keywords:** Educational Psychology, Emotion and affect, Mixed-method research, Motivation, Motivation and emotion, Quantitative methods, Self-regulation, Vocational education

**Interest group:** SIG 08 - Motivation and Emotion

**Chairperson:** Iida Pyy, University of Helsinki, Finland

### **Factors Influencing Teaching as a Career Choice Perceived by Pre-service Teachers**

**Keywords:** Educational Psychology, Mixed-method research, Vocational education, Motivation and emotion

**Presenting Author:**Wenting Wang, University of Glasgow, UK, China

Teachers and teaching are the key to education. The quality of teaching is likely to impact profoundly on student learning

and achievement. Teacher recruitment and retention might be one of the important ways to ensure good quality of teaching. However, educators, schools and policy makers have been faced with the challenging issues of attracting and retaining highly qualified teacher over recent decades. This study aimed to examine motivational factors that influenced students on teacher education programme to choose teaching as their career. This study also intended to gain comparative insight into pre-service teachers' motivations by exploring similarities and differences between those who chose teaching as their first career choice and those who entered the teaching profession after previously pursuing another career. An explanatory sequential mixed methods approach was implemented in this research. Data collected from responses to an online questionnaire were based upon a standardised questionnaire from Watt and Richardson (2007)'s Factors Influencing Teaching Choice (FIT- Choice) Framework completed by 91 and 11 students respectively who were in first year MEd (Master's in Education) and PGDE (Postgraduate Diploma in Education) programmes at the University of Glasgow in the United Kingdom. This was followed-up with face-to-face semi-structured interviews with a subset of this sample. The findings suggest that pre-service teachers' motivation for pursuing a teaching career was complex, and might be closely related to intrinsic factors, altruistic factors, extrinsic factors, perceived teaching ability, school experience, family members and previous teaching experience. Student teachers, whether they chose teaching as their first career choice or they switched their career to teaching, tend to combine different types of motivational factors in their decision to enter teaching and these myriads of factors tend to interact with their perceptions, expectations and attitude towards a teaching profession. Keywords: pre-service teacher; teacher motivations; teacher perceptions; teaching profession

### **Motivational Dispositions and Self-Management Skills of students in secondary school**

**Keywords:** Educational Psychology, Motivation, Self-regulation, Motivation and emotion

**Presenting Author:** Julia Maria Keller, University of Salzburg, Austria

The personality of a student greatly affects the way he or she learns. For a long time, it has been the aim of researchers, teachers and care givers to find the 'right' teaching-technique in order to foster students in school according to their learning preferences and observable aspects of their personality. The aim of my research is to extend teachers' possibilities of personalized teaching by creating profiles of students' motivational disposition and self-management skills. These profiles not only contain information about the conscious aspects of personality but also about unconscious elements. While data about the conscious facets of someone's motivation (explicit motives) and self-management skills can be collected through standardized questionnaires, information about the unconscious facets of motivation (implicit motives) need to be ascertained by using picture-based instruments, operant measures. Data for the present research has been collected in different schools in Austria. 320 students in secondary school have participated in the survey. The theoretical foundation of this research is Personality-System-Interaction Theory by Julius Kuhl and instruments based on this theory (motive enactment test; self-management inventory and operant motive test) have been used to collect the data. First results indicate that students have a high implicit need for power (~32% in the OMT) while their implicit need for achievement is relatively low (~17%-24%). On an explicit level, however, students report their need for affiliation as much stronger than for power. Since motive incongruence can have negative effects on a person's wellbeing and can cause elevated stress levels it is important to take a more detailed look at these results in order to create new ideas for didactical settings and self-management trainings. The results in this study imply that the students with high motive congruence indeed show better self-management skills and a lower stress-level compared to students with lower motive congruence.

### **Subdimensions of students' perceived autonomy support and their relationship to achievement emotions**

**Keywords:** Educational Psychology, Emotion and affect, Quantitative methods, Self-regulation

**Presenting Author:** Stefan Markus, University of Erlangen-Nuremberg, Germany; **Co-Author:** Barbara Jacob, Friedrich-Alexander Universität Nuremberg, Germany; **Co-Author:** Thomas Eberle, Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU), Germany

Autonomy as a basic human need is widespread acknowledged as an important factor in learning situations. Social-cognitive theories specify autonomy support as social environmental antecedent of learners' control and value appraisals and therefore of achievement emotions. However, little is known about the structure of autonomy support and its connection to students' achievement emotions. Basis for an operationalization of autonomy support derived from self-determination theory could be Peschel's five-dimensional stage-model of open learning. The aim of this study is to identify an emotionally beneficial dimension of autonomy support for learners. Therefore, we implement an operationalization of autonomy support and investigate the relation of its subcategories to achievement emotions. In our cross-sectional study  $N = 858$  students from German secondary schools were asked by questionnaire about their perceived level of autonomy support, appraisals and achievement emotions in mathematics. Confirmatory Factor Analyses suggested a five-plus-two-dimensional structure of autonomy support. The two higher-order factors represent a basic level of autonomy support that allows learners a self-determination of instructional frame conditions (COSA: content-related, organizational & social autonomy) and a factor of self-determination in students' problem-solving strategies and their personal relationship to the teacher (PMA: personal & methodical autonomy). Correlation analyses confirmed significantly positive relations between autonomy support and positive emotions on a low to moderate level ( $.19^{**} \leq r \leq .41^{**}$ ), while the findings for negative emotions were largely low ( $-.10^{**} \leq r \leq -.32^{**}$ ). In sum, PMA consistently showed higher correlations to achievement emotions than COSA. In line with Pekrun's control-value-theory, perceived autonomy support seems to be an antecedent of achievement emotions. Autonomous learning situations respecting learners' views, requests and solution approaches may contribute to emotionally beneficial education. Furthermore, autonomy support may promote positive emotions more than decrease negative

emotions. In terms of positive psychology, this seems to be an indication to enhance learners' autonomy in educational designs. Limitations are being discussed.

### **Session E 3**

28 August 2017 08:45 - 10:15

Pinni B Aulabuffet

Poster Presentation

Educational Policy and Systems, Lifelong Learning, Motivational, Social and Affective Processes

#### **Learning, Educational Evaluation and Professional Development**

**Keywords:** At-risk students, Competencies, E-learning / Online learning, Economics of education, Educational policy, Educational Technology, Higher education, Learning analytics, Lifelong learning, Mixed-method research, Motivation and emotion, Primary education, Qualitative methods, Quantitative methods, School effectiveness

**Interest group:** SIG 14 - Learning and Professional Development, SIG 23 - Educational Evaluation, Accountability and School Improvement

**Chairperson:** Susanne Schnepel, Institut für Erziehungswissenschaft, Switzerland

#### **A model of learning analytics, digital badges & academic competencies to enhance student retention**

**Keywords:** At-risk students, Competencies, Educational Technology, Learning analytics

**Presenting Author:** Dana-Kristin Mah, University of Potsdam, Germany

Withdrawals from higher education prior to degree completion remain at about 30 % in the member countries of the Organisation for Economic Cooperation and Development (OECD). Academic unpreparedness, which can be linked to the concept of generic skills, is one important factor for discontinuing higher education. In recent years, educational technology for teaching and learning has become more established in everyday academic practices. Learning analytics and digital badges are emerging research fields in educational science with the potential of supporting students who are at risk from dropping out of higher education. Learning analytics uses dynamic information about learners and learning environments to assess, elicit, and analyze them for modeling, prediction, and optimization of learning processes. Digital badges are symbols for certifying knowledge, skills, competencies, and interests across educational contexts. This paper provides an overview of the theoretical literature concerning learning analytics and digital badges in higher education with regard to their potential to enhance student retention. Taking their main objectives, opportunities and challenges, as well as current research and practices in higher education as a basis, we developed a model that synthesizes learning analytics, digital badges, and generic skills in order to enhance student retention in higher education. The main idea of the model is that generic skills can be represented as digital badges, which can be used in algorithms to predict student success in courses and to provide students with personalized feedback about their strengths and weaknesses as well as guidance regarding support services. This model may serve as a platform for discussion and further research on learning analytics and digital badges to increase student retention in higher education. It will be necessary to conduct research to provide empirical evidence for the model to analyze whether it has a significant impact on student progress and retention during their studies.

#### **Academic staff expectations on first-year students' academic competencies**

**Keywords:** At-risk students, Competencies, Higher education, Qualitative methods

**Presenting Author:** Dana-Kristin Mah, University of Potsdam, Germany; **Co-Author:** Dirk Ifenthaler, University of Mannheim, Germany

The purpose of this qualitative study was to examine academic staff expectations on first-year students' academic competencies, which has been the topic of less research so far. Understanding the perspective of academic staff members is crucial for improving the quality of institutions due to their knowledge and necessary participation in designing first-year courses, adequate support services, and constructive dialogues to enhance student retention. Besides, understanding academic staff expectations and their transparent communication is essential for first-year students, who are often unsure of what is expected of them in academic terms. The inability to cope with academic requirements is one important factor for withdrawals prior to degree completion. Withdrawals remain at about 30 % in the member states of the OECD, and the first year of higher education is seen as a crucial period. In order to gain insight into university teachers' perspectives on academic requirements, we conducted ten semi-structured interviews with academic staff referring to a model of academic competencies (time management, learning skills, technology proficiency, self-monitoring, and research skills). The interviews revealed that time management and learning skills are the two competencies academic staff expect first-year students to be most competent in. Technology proficiency and self-monitoring are slightly less expected and research skills are the least expected. Our findings are significant for higher education institutions and may enable them to provide academic support services. These support services should be personalized to meet students' individual needs. Besides, our findings may enable to communicate transparent academic requirements that help students to better meet and adjust to the demands of higher education. If academic requirements are transparent, first-year students will know what is expected of them and thus develop the academic competencies needed for higher education right from the beginning, and this may contribute to student retention.

## **The use of ePortfolio in support of lifelong learning and employability**

**Keywords:** Competencies, E-learning / Online learning, Mixed-method research, Lifelong learning

**Presenting Author:** Alice Baldazzi, University of Bologna, Italy

Over the past two decades e-portfolio has caught practitioners and researchers' attention for the multiple benefits that it seems to offer to learners and citizens living in a knowledge-based society.

In general, an ePortfolio can be described as a purposeful and organized collection of artifacts selected by the author to provide evidence of their learning and acquired skills. The main advantages of the electronic version of the instrument are not only the increased ease of access, consultation and transport but it also amplifies the possibility of sharing and feedback exchange, while allowing the inclusion of multimedia artifacts. Many authors have also pointed out its advantages in promoting reflexivity, a deeper learning, the acquisition of employability skills and a better process of recognition and certification of competencies and qualifications. The purpose of this study is to investigate whether e-portfolios can actually foster the personal and professional development of individuals, on the one hand promoting awareness in job seekers' own resources, on the other hand allowing the transparency of these towards employers. In accordance to the objectives of the study, the chosen methodology is the exploratory study. This study is part of a larger research project called "Educational Achievement, Social Inclusion and Cohesion", which involves several Italian universities. The research design contemplates a systematic review of the subject (Gough et al., 2012) and the validation of the model of e-portfolio for employability developed by Giovannini (2017). Early results seem to support the assumption that ePortfolio can be a valuable tool in support of lifelong learning and employability, promoting as it does awareness in job seekers' own resources and on the other hand allowing the transparency of these towards employers. According with the purpose of the study, we expect to validate the assumed model of employability ePortfolio and to make a substantial proposal about the possible introduction of ePortfolios within the Italian system.

## **School closures and the curriculum**

**Keywords:** Economics of education, Educational policy, School effectiveness, Motivation and emotion

**Presenting Author:** Kristiina Samppala, University of Tampere, Finland

School closure and amalgamation and curriculum (Samppala, K. 2016) From the 1960s on, many Finnish rural schools were closed as industrialization drew people to cities for work. Today, larger schools are also being closed to form bigger units in the hope of economic savings. Even some Finnish university units have ended up being closed and relocated. New university legislation (2010) adversely affected funding, with universities making savings by closing their affiliated units. Combining schools or universities is an area only slightly researched so far. The research done often only focuses on economic effects whereas the experiences of the actors in the situation have been almost totally omitted from research. My research explores how these situations are experienced by pupils and teachers and the consequences of these decisions especially in respect of the current Finnish curriculum. In my research, I combine the data from my previous studies regarding the amalgamation of both primary schools (Samppala 2014) and university units (Räihä, Samppala & Juvonen 2016). This study is basically a theoretical survey of the paradoxical relationship between the new Finnish curriculum and the contemporary school policy. The research done often focuses only on economic effects whereas the experiences of the actors in the situation have been almost totally omitted from research. I argue that these closures and amalgamations are big organizational changes, in which the usually negative experiences of both the personnel and pupils get overlooked. This again is working at cross-purposes with the new curriculum, which emphasizes the meaning of experience in the learning process. I also argue that these amalgamations have a negative impact on school satisfaction, at least in the first school year after the change. The personnel try to do only the most necessary work-related tasks and pupils tussle over physical and social space.

## **School-level factors which determine academic resilience**

**Keywords:** At-risk students, Primary education, Quantitative methods, Motivation and emotion

**Presenting Author:** Dóra Fanni Szabó, University of Szeged, Hungary

This paper presents first results from the development of a resilience model, which comprises factors of the students' school environment. The objectives of the study were (1) to analyse the psychometric characteristics of the models, (2) to investigate the connection between the involved factors and outcome variables, as well as (3) explore the possibilities of further analyses. We assume that the students' perception of teachers' and peers' support, and their opinion about their teachers' support of autonomy are related to school performance. A total of 997 Hungarian fourth and sixth grade students participated in this study, 183 of them were socioeconomically disadvantaged ( $N_{4th}=74$ ;  $N_{6th}=109$ ). Online data collection was carried out by the Electronic Diagnostic Assessment (eDia) platform. The applied scales measuring three factors of the students' school environment (perceived support of teachers', perceived peer's support, autonomy) and school achievement. Learning outcomes were measured by grades of reading, mathematics and science, therefore we tested three different model based on these outcome variables. Based on multi-group analysis, we tested measurement invariance of the models among both grade and resilient and non-resilient subgroups. Grade differences weren't found: the fit indices ( $CFI=.913-.918$ ;  $SRMR=.060-.061$ ) show acceptable fit in every cases. The models with all parameters freely estimated in the resilient and non-resilient groups, also fit the data well ( $CFI=.903-.912$ ,  $SRMR=.060-.064$ ), although the overall chi-square was significant. Therefore, we conclude that the latent structure is similar across the groups, but based on factorloadings we found differences. The results revealed that in the case of resilient student's teachers' support

correlate much better with performance in all cases except science. The results of this study contribute to a more thorough understanding the role of resilience factors among at-risk students. Theoretical implications and possible practical applications of the findings are also discussed.

#### **Session E 4**

28 August 2017 08:45 - 10:15

Pinni B 3107

Single Paper

Learning and Instructional Technology

#### **Learning and Instruction with Computers**

**Keywords:** Case studies, E-learning / Online learning, Educational Technology, Higher education, Instructional design, Learning analytics, Learning Technologies, Mixed-method research, Primary education

**Interest group:** SIG 07 - Learning and Instruction with Computers

**Chairperson:** Natalie Ehrhardt, University of Koblenz-Landau, Germany

#### **Computational Thinking through Graphical Programming in Primary School**

**Keywords:** Case studies, Educational Technology, Mixed-method research, Primary education

**Presenting Author:** Janne Fagerlund, University of Jyväskylä, Finland

Programming arrived in the Finnish national primary school core curriculum in 2016. One key educational expectation is the development in computational thinking (CT), which comprises understanding of and ability to use computational concepts such as loops and conditional structures in programming. Studies in primary education are scarce while the support that teachers may require has increased. The purpose of this study is to investigate the learning of CT through programming in primary school classrooms. The research questions are: (1) What are students' opinions and experiences in learning programming? (2) How does their understanding of CT develop? (3) What are their learning results in CT? The study is carried out during programming courses in Finnish primary schools. Mixed methods data comprises class-wide pre- and post-tests and questionnaires, weekly self-reflection forms, programming projects, interviews, and video and audio recordings of students engaging in individual and pair programming. Preliminary analysis has been carried out on 4th grade students' ( $N=58$ ) pre-tests, first projects with 'Scratch' programming language, and self-reflection form data. Although most students were total novices in programming once the course started, some of their average initial algorithmic competences were surprisingly high. In terms of CT concepts, understanding was initially low as anticipated, although those with some previous experiences performed slightly better. Most were undecided in their opinions towards starting to learn programming once the course started. Students have since encountered some CT concepts in, for example, creativity-driven self-made projects, but concept implementations have varied. Experiences in learning programming have so far been very positive throughout the course. Creating projects with self-written stories seems like a promising method for learning CT concepts. Upcoming phases in analysis are examining more programming projects and processes of concept implementation during creative pair programming in addition to measuring learning results in the post-test.

#### **Implementation of Flipped classroom in an intensive TRIZ course**

**Keywords:** E-learning / Online learning, Educational Technology, Instructional design, Learning Technologies

**Presenting Author:** Juiia Shnai, Lappeenranta University of Technology, Finland

Higher Education is transformed by innovative technologies and concepts and turns to fusion of personalized, collaborative, open, interactive, visualized learning. Recently emerged flipped video-based classroom concept comprises all of them. This approach substitutes pure lecture with preparation video and leaves face-to-face communication and solid collaboration for the class. Evolution model of flipped classroom is not new; rather an innovative approach to delivering and combining already used methods. This paper aims to study the effect of flipped classroom integration to an intensive course with respect to attitude and workload of a professor and students. Selected case study places an emphasis on assessment and initial comparison of results of the two consecutive implementation of the flipped classroom within the one course. This one-week intensive course, mainly focused on Theory of Inventive Problem Solving (TRIZ). The Theory of Inventive Problem is a toolkit of methods to support systematic creativity. In Lappeenranta University of Technology this course, became a part of program in the department of Industrial Engineering and Management. Professor of the TRIZ course and students in summer and winter course are the main respondents. The data is gathered by four main ways: semi-structured surveys, informal interviews, observations and platform statistics. Lack of the results of surveys from the winter school course limits the comparison analysis between two courses. The preliminary results show that flipped classroom arrangement requires a lot of time from the professor and increases the burden on students, however overall perception remains positive from both sides. In addition, the details of flipped video-based learning are distinguished from their perception, emphasizing video configuration and frequency. The number of inevitable challenges is uncovered within this study. On this basis, particularly important recommendations for flipped classroom design are elaborated. **Keywords:** blended learning, Flipped classroom, intensive course, Theory of Inventive Problem Solving (TRIZ)

#### **Linking patterns of 55 learning designs with student engagement, satisfaction, and pass rates**

**Keywords:** E-learning / Online learning, Higher education, Instructional design, Learning analytics

**Presenting Author:**Quan Nguyen, Open University, United Kingdom; **Co-Author:**Bart Rienties, Open University, United Kingdom

Recent technological developments have allowed us to capture the digital traces of learning activities in Virtual Learning Environments (VLEs). This rich and fine-grained data about actual learner behaviours offer educators potentially valuable insights into how students react to different LDs. There has been a growing interest in aligning learning analytics with learning design as the former could provide explicit feedback based on actual learner behaviour while the latter offer a pedagogical context for direct interventions. This study examines what are the common patterns of learning activities among 55 learning designs over 30 weeks, and how student engagement, satisfaction, and pass rates based on data of 45,042 students vary across six different patterns of learning designs. The innovative aspect of this study is the use of social network analysis combined with cluster analysis on longitudinal data. Findings revealed six clusters of learning designs with a large difference in the number of modules in each cluster. This indicates that regardless of the nature of disciplines or study level, there was a dominant pattern of learning activities (cluster 1 – 26 modules) with high emphasis on assimilative, assessment, and productive while less time were allocated for communication, interactive, experiential, and finding information activities. This confirmed previous finding that most modules at the Open University UK followed a traditional model of learning (lots of readings, watching videos). There were other patterns of learning activities which had more balanced learning design such as cluster 5 and cluster 6. However, due to the small number of modules and their low correlation (in cluster 6), little interpretation can be drawn. Furthermore, there was no clear distinction in terms of student engagement, pass rates, and satisfaction across the six clusters. In conclusion, a larger sample size is needed in order for meaningful results of clustering analysis. Further qualitative analysis of teachers in each cluster can provide rich insights into the LD of each cluster.

### **Session E 5**

28 August 2017 08:45 - 10:15

Pinni B 4117

Poster Presentation

Assessment and Evaluation

#### **Assessment and Evaluation**

**Keywords:** Arts, Assessment methods and tools, Attitudes and beliefs, Collaborative Learning, Competencies, Design based research, History, Qualitative methods, Quantitative methods, Second language acquisition, Secondary education, Self-regulation, Teaching approaches, Technology, Writing / Literacy

**Interest group:** SIG 01 - Assessment and Evaluation

**Chairperson:** Martijn Leenknecht, Netherlands

#### **Student self-assessment practices with formative purposes in higher education: A qualitative study**

**Keywords:** Assessment methods and tools, Qualitative methods, Self-regulation, Teaching approaches

**Presenting Author:**Juan Fraile, Universidad Francisco de Vitoria, Spain; **Co-Author:**Ernesto Panadero, Universidad Autónoma de Madrid, Spain; **Co-Author:**Rodrigo Pardo, Universidad Politecnica de Madrid, Spain; **Co-Author:**José Manuel Sánchez Galán, Universidad Francisco de Vitoria, Spain

Student self-assessment (SSA) is an essential feature of formative assessment. Positive effects on learning and academic achievement have been identified, particularly in such cases where SSA was optimised based on self-regulated learning (SRL) processes (Panadero, Jonsson, & Strijbos, 2016). Through qualitative research, we can answer some key questions related to student self-assessment such as those presented by Brown & Harris (2014), who pointed out the need of identifying successful practices that also could develop SSA as a curricular competence and as a way of promoting self-regulation. 51 higher education teachers from 25 Spanish universities were interviewed. The interviews were semi-structured and open-ended and length ranged from 20 to 70 minutes. After transcribing the interviews, NVivo software 11.4 for Mac was used considering deductive and inductive approaches. Results showed that teachers, through their SSA practices, could be grouped into four categories regarding the use of criteria and implication of students in their own process. (1) testing, without criteria. (2) Valuing, criteria at the end. (3) Self-regulation, standards since the beginning. (4) Empowerment, providing criteria since the beginning, discussing them with students, implementing metacognitive activities and dialogic assessment at the end. Maximum benefits could be achieved when SSA is implemented as empowerment, which is the ultimate expression SRL. These 'empowerment teachers' also let students set their own criteria which are twofold: not only about the final result but focused on the process. Results about the origin of the use of SSA and progress, perceived benefits, keys and difficulties for implementing are presented. These teachers are really aware of the value of student self-assessment, implement shared and dialogic assessment systems –and grading consequently–, focus more on the process than the final outcomes and aim personal development. In conclusion, these teachers do all this considering that the main key is to involve students in their own learning.

#### **Using peer assessment of writing to promote dynamic learning-oriented assessment**

**Keywords:** Assessment methods and tools, Attitudes and beliefs, Collaborative Learning, Second language acquisition

**Presenting Author:**Eleni Meletiadou, University of Cyprus, Greece

Using peer assessment of writing to promote dynamic learning-oriented assessment

In the last two decades, teachers, researchers and educational authorities express their concern for EFL students' poor writing performance and failure in tests (Lee, 2009). Research has indicated that peer assessment (PA) can be successfully employed as a tool for improving writing skills (Falchikov et al., 2000).

The present study, which employed a pre- post-test quasi-experimental design, investigates the use of PA as a dynamic learning tool which can enhance EFL students' writing skills in secondary education. It aimed to develop a PA implementation model for secondary school classes. Participants of the study were: (a) twenty groups of ten Cypriot intermediate adolescent EFL students, and (b) 20 qualified EFL teachers. All participants received adequate training in PA methods. Results were analysed using a variety of qualitative and quantitative methods.

These results may contribute to linguistic theory by suggesting that language learning grows and skills may be adequately developed in the appropriate learning environment in which PA is used a dynamic learning tool. The study outcomes indicated that PA and TA can have a moderately positive impact on students' writing performance affecting all aspects of writing (mechanics, organization, content, vocabulary, genre and language use) and a similarly significant impact on EFL students' writing quality (lexical complexity, fluency, accuracy, grammatical complexity).

PA is anticipated to make a significant contribution to the context field of education if: (a) sufficient training and support is provided to all participants, (b) carefully designed tools are employed, (c) PA is introduced gradually and used regularly as early as possible that is even in primary education, and (d) the emphasis is on the formative use of PA as a dynamic learning-oriented tool employed by teachers to enhance students' skills. Directions for further research are also discussed.

*Keywords:* peer assessment, writing quality, dynamic assessment, secondary education

#### **Computer-based assessment of a visual literacy construct of 6-7-year-old pupils**

**Keywords:** Arts, Assessment methods and tools, Quantitative methods, Technology

**Presenting Author:** Alisa Tóth, University of Szeged, Hungary

Our contemporary environment is dominated by digital visualisations and multimedia. For a correct interpretation of visual signs that have become major orientation codes in many everyday situations, their perception and interpretation has to be acquired.

The purpose of the research project described in this paper is to report on the reliability and feasibility of an online assessment tool developed for measuring children's colour perception and interpretation constructs in 1st and 2nd grades (age range: 6 -6.5 and 7-7.8 years). This instrument provides immediate and personalized feedback for art teachers about results of their educational efforts in this area much more precisely than the observation of art works of pupils. A pilot study was conducted with the participation of 84 students (1st graders: N = 43; girls: 51%; 2nd graders N = 41; girls: 53%). Our analysis focuses on the following issues: (1) reliability of the test and sub-tests (2) will the empirical data fit to a four-dimensional theoretical model (including colour sensitivity, colour and shape recognition, colour memory, and colour and meaning), (3) how the difficulty level of the tasks fit on the person-item map. The resulting data were analysed both with classical test theory, item response theory and with techniques for building structural equation as well. The reliability was tested with Cronbach- $\alpha$  (0,92). The correlation between the four components are detected. We found, that the test and sub-tests are reliable (2) the four-dimensional theoretical model of colour perception and interpretation fit on the empirical data which are the following: colour perception, colour and shape recognition, colour memory, and colour and meaning, (3) from the aspect of test development phase there should be more difficult items (4). The item bank is suitable for conducting assessment in school context. Our research may contribute to a new model of child art development through a more accurate interpretation of developmental stages of colour perception and interpretation.

#### **Assessing historical causal reasoning: developing assessment tasks for historical causal reasoning**

**Keywords:** Assessment methods and tools, Design based research, History, Secondary education

**Presenting Author:** Uddhava Rozendal, University of Amsterdam, Netherlands; **Co-Author:** Carla Van Boxtel, University of Amsterdam, Netherlands

In the last few decades the emphasis of history education in secondary schools has shifted from learning factual knowledge to mastering historical thinking abilities (van Drie & van Boxtel, 2008). Historical causal reasoning is one of these abilities and is considered by both historians (Hewitson, 2015) and educational researchers (Voss & Wiley, 2006) a key skill within the discipline. Historical causal reasoning is the ability to construct or evaluate a causal explanation by relating historical actors, conditions and context to a phenomenon, event or development that needs to be explained. Formative assessment tasks that measure historical thinking abilities, such as causal reasoning, in the secondary school classroom are still scarce. The aim of this study is to develop such tasks. The design of these tasks was based on an earlier developed model of cognition of historical causal reasoning. In total, five different formative assessment tasks were designed and subsequently tested in the history classroom. Participants included eight teachers and their respective students in secondary education in the Netherlands. We endeavored to include the tasks as much as possible in the regular curriculum. Several types of data were collected. First, all student responses that were produced while administering the tasks. Second, videotaped think-aloud-sessions with up to two random students from each class. Third, a

short student questionnaire on their interest and ability and history and how they experienced the task. Finally, fourth, a teacher's log, in which they reflected on the implementation of the task. Data analysis will take place in winter 2016/2017. This study contributes to the improvement of assessment practices in history education in secondary schools by designing and testing instruments that teachers can use in the classroom. Simultaneously, this study sheds further light on the progression of historical causal reasoning of high school students.

### **The average performance level of 4th grader students in writing opinion essays was discovered!**

**Keywords:** Assessment methods and tools, Attitudes and beliefs, Competencies, Writing / Literacy

**Presenting Author:** Catarina Araújo, Institute of Education - University of Minho, Portugal

Previous investigations have analyzed the performance and influence of students' perceptions on their knowledge, attitudes and self-efficacy in writing (e.g. Brunnine et al, 2013; Graham, Berninger, & Abbott, 2012; Bandura 1986). However, in Portugal it is not known this information. This study were to evaluate the average performance of 4<sup>th</sup> grade students attending school in the city of Braga in the area of writing opinion essays, as well as their perceptions in relation to their knowledge of writing, motivation and self-efficacy. In this sense, a random selected sample was carried out which involved the participation of four school clusters, with the participation of 25 classes and 338 students. As a result: It is clear that although the average quality is satisfactory, it is necessary to develop specific interventions in writing parameters such as the theme and typology, consistency and adequacy of information and structure and cohesion, since the average performance level is negative. Given the strong correlation between performance in writing and the perception of knowledge, attitudes and self-efficacy in writing, it is important to develop activities that promote the success of students in writing tasks, through direct teaching and modelling with activities in which they explore students' knowledge about writing; Stimulation of self-regulation of students in writing is another key factor that will allow students to achieve success in writing tasks and maintain or gradually improve their performance. It is also clear that there exist factors which can lower performance such as age, gender, socioeconomic status or taste in writing text that should be taken into account and can also contribute to teachers' desire to stimulate enthusiasm and success in these particular students. It highlights the importance of finding reference values related to students' performance and perceptions of writing. Other practical contributions will be discussed.

### **Session E 6**

28 August 2017 08:45 - 10:15

Pinni B 3111

Poster Presentation

Educational Policy and Systems, Lifelong Learning, Teaching and Teacher Education

### **Education and Policy**

**Keywords:** Competencies, Conceptual change, Conversation / Discourse analysis, Educational policy, Ethnography, Inquiry learning, Parental involvement in learning, Primary education, Qualitative methods, Reflection, Secondary education, Social sciences, Synergies between learning - teaching and research, Teacher Professional Development, Vocational education

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Anna Noll, University of Koblenz-Landau, Germany

### **Times of transformation: a story of leading educational change implementation in the Italian context**

**Keywords:** Conceptual change, Educational policy, Synergies between learning - teaching and research, Teacher Professional Development

**Presenting Author:** Concetta Ianniello, Aalborg University, Denmark

The Lisbon 2000 strategy started an enhancement process of the educational system in the European Community zone. It focuses on redefining education social meaning and its learning goals to promote a more adequate support to European society future development. Yet, specialized literature on educational change suggests that, especially if induced by political reforms with a top-down approach, this process can be a slow and difficult one and it has to overcome resistances and barriers at different levels with several stakeholders to be implemented. Within this particular framework, a mixed method research project was designed in order to describe the reaction of some stakeholders, the school actors, to a European-based reform-induced curriculum innovation in the Italian context, introduced in 2012. The examined change involves the Early childhood and First cycle of education and, for the case study, a Comprehensive School situated in the Frosinone area in Lazio region was chosen, as this school organizational model is currently the most diffused in Italy. Mixing qualitative and quantitative tools, the main aim of the study is to explore teaching staff's and school educational leader's opinions and response to this curriculum innovation and how they perceive their role according to the interrelations they mutually interplay within the current political and cultural environment. This contribution only describes some preliminary results of the study. They focus on the headmaster's role and process perception, collected by an interview, and its comparison with the current Italian educational policy trend and cultural environment. This first investigation step has aimed to highlight headmaster's perceived obstacles and barriers as well as supports and aids to the implementation, according to the political framework analysis perspective, and it suggests the researchers' importance when exploring new

change situations in order to assume a meta-connection role in the on-going process.

### **Employer expectations on VET graduate competences**

**Keywords:** Competencies, Qualitative methods, Secondary education, Vocational education

**Presenting Author:** Sami Löfgren, University of Helsinki, Finland; **Co-Author:** Liisa Ilomäki, University of Helsinki, Finland;

**Co-Author:** Auli Toom, University of Helsinki, Finland

University of Helsinki Faculty of Educational Sciences

Employer expectations on VET graduate competences M.A.Ed. Sami Löfgren, Ed.D. Liisa Ilomäki, PhD Auli Toom

In the modern world-of-work the know-how demands of different vocational fields are constantly evolving. Besides having domain-specific expertise an individual should be adaptive and possess highly transferable sets of knowledge, skills and attitudes commonly referred as competences. In the case of upper vocational education (VET) students, the right competences and especially attitudes are highlighted as the students cannot have a lot of domain-specific expertise yet due to their young age and lack of job experience. Employers' perceptions about desirable VET students' competences are of great importance. The more the students' competences coincide with the employers' expectations, the greater is the probability for students to get employed after graduation.

This study is a cross-sectional qualitative study investigating industry expectations about desirable vocational graduate competences. It is conducted in cooperation with a large-size Finnish vocational education provider. The study focuses on the vocational fields of metalwork and machinery, building maintenance technology, vehicle technology as well as electrical engineering and automation technology. Research subjects represent local stakeholder employers whose perceptions on desirable graduate competences are studied with semi-structured qualitative interviews.

The preliminary research findings indicate that employers appreciate novice workers with right attitudes, i.e. motivation to work, willingness to learn, work moral and social skills. When seeking for a job, relevant job experience is of great importance besides the above mentioned competences. Only graduates possessing these fundamental competences get employed. However, some young workers lack self-esteem and work moral, and the majority of them do not yet master their job tasks individually. The promotion of personal attributes, such as attitudes, is suggested in the upper secondary VET.

### **Cooperation between youth services and school**

**Keywords:** Ethnography, Qualitative methods, Reflection, Social sciences

**Presenting Author:** Paula Bock, PH Freiburg, Germany

With the goal of expanding social work in schools in the hope of increasing equal opportunities in inclusive educational settings, this research investigates how teachers and social workers develop cooperations between youth services and schools and how they cope with challenges that may arise. Using socially-constructive research methods such as ethnography, problem-oriented interviews and grounded theory, the learning and educational processes characterized by diverse and unequal educational settings are observed and reconstructed in the context of a further training seminar.

The cooperation between youth services and schools relies on the effective collaboration of two distinct systems with different organizational structures and central concepts. Therefore the professionals involved in these cooperative partnerships are continually confronted with reevaluating their self-image.

I will use the analyzes of the ethnographic observations and interviews to show how professional co-workers are inspired by their cooperation, how frustration and stimulated learning processes come about, or cooperative learning and learning processes fail. It should also be shown how the structural framework conditions favor or complicate cooperation, as well as affect learning processes. By entering into cooperative partnerships, the professional, institutional and social limits of social workers and teaching professionals are revealed. In this study, the focus lies especially on the ambiguities that emerge during this process.

For me it is of interest under which circumstances professional-, institutional- and social boundary-forming processes become visible and which learning and educating processes of social workers within the cooperation will be examined and will become possible to be reconstructed.

I think it is of interest to what extent and under which circumstances changes within discourse and action patterns of social workers will be achieved and which resistance, severances and limits of transformational processes will be noticed. Moreover, I find it interesting how teachers and social workers deal with discrimination within their cooperative partnerships and in educational seminars.

Research contributes to professional and professional research. The results are located at the interface between youth welfare and school.

### **Discursive study on classroom harmony in Finnish schools**

**Keywords:** Conversation / Discourse analysis, Parental involvement in learning, Primary education, Qualitative methods

**Presenting Author:** Suvi Lehtomäki, University of Turku, Finland; **Co-Author:** Mirjamaija Mikkilä-Erdmann, University of Turku, Finland

This research examines the increasing discussion about classroom harmony in the Finnish elementary school institution based on newspaper data. In this article the classroom harmony is considered as a complicated and multicausal phenomenon and the source behind the disruptions can be pupils, teachers, teaching arrangements, homes or society (Holopainen & al. 2009, 21). Therefore this research approaches the phenomenon from Bronfenbrenner's (1979) ecological systems theory's point of view. The relation between text and society is dialectic, because language is determined by society, but on the other hand language has an effect on society (Fairclough 1997, 75-76; 2001, 18-19). The time period for the research is between years 2004-2014, as this is the period when the Finnish schools have been following the guidelines of the same national curriculum. The data is based on archived opinions written by newspaper readers in Helsingin Sanomat. The opinions were chosen with the Finnish equivalents of the words: classroom harmony, classroom harmony problem, classroom harmony disruption, authority and discipline. The research methods used were applied thematic and discourse analysis. Based on qualitative analysis, the following four discourses about classroom harmony were found: solution centered, blaming, hopelessness and concern. The solution centered discourse focused on improving the Finnish school system while the blaming discourse was centered upon the actions of the parents. The other discourses included hopelessness caused by the decreasing authority of the teacher, and concern about inclusive education. The results point out four main dimensions about classroom harmony, which should be considered when making decisions in education policy in the future. Cooperation between teachers and parents seems to be an important part in improving the classroom harmony. Also, pedagogical conclusions, for example the role of the teacher training program and teachers' in-service training, has to be discussed in the future.

### **Teachers' Experience of Inquiry Learning as a Way of Practicing Responsible Research and Innovation**

**Keywords:** Educational policy, Ethnography, Inquiry learning, Qualitative methods

**Presenting Author:** Mirjam Burget, University of Tartu, Estonia; **Co-Author:** Emanuele Bardone, University of Tartu, Estonia; **Co-Author:** Katrin Saage, University of Tartu, Estonia

Responsible Research and Innovation (RRI) in science education started to emerge a couple of years ago concerning the "Science with and for Society" programme of the European Commission, where science education is listed as one of the six keys of RRI. RRI can be characterized by six conceptual dimensions or elements, namely inclusion, anticipation, responsiveness, reflexivity, sustainability and care. RRI in science education is defined as the attitude and ability to reflect on, communicate and discuss processes and outcomes of inquiry in terms of its relevance, consequences and ethics for oneself, others and society. Although inquiry learning is a well-established pedagogical framework informing how to teach science via inquiry, the current models do not address specifically any of the RRI elements. In the current study the 5-phase inquiry cycle model is used as a way to integrate RRI into science education. The aim of the study is to explore how science teachers bring out RRI related elements as they arise in conducting inquiry activities. In the study interviews were conducted with eight science teachers in the Estonian general education system to make explicit the kind of understanding that teachers have of inquiry learning and RRI. After the interviews 24 class observations in inquiry learning lessons are carried out and finally the post-interviews are conducted with science teachers. The data is analysed by thematic analysis by the inductive and deductive hybrid approach. The preliminary results show that RRI related elements that appeared in conducting inquiry learning were (1) inclusion and (2) responsibility. Concerning inclusion RRI emerged in collaboration between pupils during the inquiry learning process. Responsibility can be characterized as taking ownership of the activity and appeared in inquiry learning stages diversely. Both inclusion and responsibility can be considered as valuable parts of RRI in school practice, providing an opportunity to develop pupils as citizens for the future society.

### **Session E 7**

28 August 2017 08:45 - 10:15

Pinni B 4115

Single Paper

Higher Education, Teaching and Teacher Education

### **Social Aspects of Learning and Teaching**

**Keywords:** Case studies, Cooperative / collaborative learning, Higher education, Pre-service teacher education, Social aspects of learning and teaching, Social interaction, Special education, Student learning, Teaching / instruction

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Marlies ter Beek, University of Groningen, Netherlands

### **SOC 2.0 – The Sense of Coherence as theoretical framework for course development and evaluation**

**Keywords:** Higher education, Social aspects of learning and teaching, Student learning, Teaching / instruction

**Presenting Author:** Tobias Alexander Joos, University of Education Freiburg, Germany; **Co-Author:** Anne K. Liefländer, University of Freiburg - Faculty of Biology, Germany; **Co-Author:** Ulrike Spörhase, University of Education Freiburg - Department of Biology and Biology Education, Germany

Originally used in salutogenic contexts, the perceived "sense of coherence" as described by Antonovsky represents the belief to be able to cope with obstacles and difficulties in life. Antonovsky's focus lies on aspects, which contribute to health and the maintenance of it. Transferred to courses in academic settings, the sense of coherence can be seen as a

theoretical framework and sign of quality for course development and evaluation. As it is based on specific personal resources, it illustrates attitudes and opinions which promote the ability to positively deal with particular challenges. Comprehensibility, manageability and meaningfulness form and influence the perception of coherence. Bringing the individual learner into focus, we have to deal with an individual body of knowledge, individual values and different incentives to study a certain domain. In addition, personal attitudes influence learners' readiness to learn: The perceived sense of coherence then is an essential driver, as efforts are highly dependent on the perceived meaning. In this contribution, we investigate students' sense of coherence using diagnostic competence as exemplary topic, which is a key skill in teacher professionalism. We question which opinions and attitudes student teachers[1] hold with respect to diagnostics and if their statements match the concept of coherence. We conducted five group interviews (n=12 participants) with student teachers and used qualitative content analysis to summarize the information. Major findings reflect the fact, that student teachers remark the importance of diagnostic competence in later work routine, but only have slight experiences or even express a problem-centered view with respect to diagnostics. In a second step, identified categories could be assigned to the components of coherence. Recommendations for course development (e.g. possibilities to foster comprehensibility) and evaluation will be illustrated and discussed on the basis of selected results. Key words: *sense of coherence – course development – course evaluation*

[1] prospective biology teachers in their first academic stage

### **Social support in inclusive co-teaching**

**Keywords:** Case studies, Cooperative / collaborative learning, Social aspects of learning and teaching, Special education

**Presenting Author:**Juhani Lehtonen, University of Turku, Finland; **Co-Author:**Auli Toom, University of Helsinki, Finland;

**Co-Author:**Jukka Husu, University of Turku, Finland

Teachers report that they need collaborative support to teach in inclusive contexts. Co-teaching with special educator is suggested to promote inclusion. This study aims to examine teachers' perceptions of inclusive co-teaching context enabling social support and its experienced influences on teachers and students. The data were gathered by joint video-stimulated interviews from three pairs of co-teachers. The joint video-stimulated interviews were used both to examine teachers' perceptions of social support functions during interactive co-teaching and as a catalyst for co-teachers' general perceptions of social support in other instructional stages of co-teaching. The data were subjected to content analysis by applying abductive strategy. The tentative findings show that teachers perceived co-planning, co-teaching and co-assessment enabling social support for teachers and students in inclusive settings. Tentative findings show that social support was offered and received in formal and informal communication between teachers. Informational support and emotional support were most frequently stated. Tentative findings show that informational support entailed for instance knowledge of students, knowledge of differentiation strategies and knowledge of subject specific instructional strategies. Emotional support entailed for instance trust, care, affiliation between teachers and sense of reduced workload. Teachers perceived receiving informational support and emotional support from both each other's and students. Related to implications for teaching and teacher education, the study gives encouraging and valuable practical examples regarding support between subject teachers and special education teachers within inclusive and shared instructional process, and the ways social support in inclusive co-teaching can be further researched. Related to methods, this study overcomes limitations reported in previous studies by offering a more detailed investigation of interactions between teachers and students and between teachers through video-stimulated joint interview. We hope that our findings encourage and inform teachers and policy-makers to strongly consider the value of co-teaching in inclusive classrooms.

Keywords: co-teaching; social support; teacher learning; inclusive education

### **Characteristics of social support experienced by differently engaged student teachers**

**Keywords:** Higher education, Pre-service teacher education, Social aspects of learning and teaching, Social interaction

**Presenting Author:**Kaisa Marjamaa, University of Oulu, Finland; **Co-Author:**Kirsi Pyhältö, University of Oulu / University of Helsinki, Finland; **Co-Author:**Hanna Jarvenoja, University of Oulu, Finland

Study engagement is suggested to be a hallmark of optimal study experience, an antipode to burnout and seen to respond to changes in learning environment. This study explores individual variation in student teachers' experienced study engagement and study related burnout and its interrelation with perceptions of learning environment, focusing on social support during teaching practice. Following research questions were addressed 1) *What kind of study engagement–burnout–profiles can be found to classify student teachers?* 2) *How do these profiles differ in terms of perceived learning environment?* 3) *How do student teachers experience social support from peer students and supervising teachers during teaching practice?* and 4) *Is social support associated with study engagement profiles?* Survey data were collected from first year student teachers (n = 142). Interview data from a subsample (n = 18) was collected during a second year teaching practice. The results indicated that the student teachers on average experienced high levels of study engagement and low levels of burnout and that their perceptions of learning environment were positive. Two study engagement–burnout–profiles were detected. Perceptions of learning environment were significantly more positive in *engaged in studies with low risk of burnout* –profile than in *reduced study engagement with increased risk of burnout* –profile. Further investigation showed that student teachers experienced both informational and emotional social support in

both peer student and teaching practice supervisor interaction. Most of the experienced support was informational support and occurred in supervisor interaction. Both similarities and differences in experienced social support were found between the study engagement-burnout-profiles. Students in *reduced study engagement with increased risk of burnout* –profile reported more support in supervisor interaction than students in *engaged in studies with low risk of burnout* –profile. The study's limitations, directions for future research as well implications to practice are discussed.

## Session F 1

28 August 2017 10:30 - 12:00

Pinni B 4115

Single Paper

Learning and Special Education, Teaching and Teacher Education

### Teaching and Curriculum Development

**Keywords:** Attitudes and beliefs, Collaborative Learning, Culture, Higher education, Language (Foreign and second), Qualitative methods, Special education, Teacher Professional Development, Teaching / instruction, Teaching approaches

**Interest group:** SIG 15 - Special Educational Needs

**Chairperson:** Janna Meyer-Beining, Gothenburg University, Sweden

### Perceptions of Universal Design for Learning (UDL) among higher education students with disabilities

**Keywords:** Higher education, Qualitative methods, Special education, Teaching approaches

**Presenting Author:** Júlia Griful Freixenet, Vrije Universiteit Brussel (VUB), Belgium; **Co-Author:** Katrien Struyven, Vrije Universiteit Brussel, Belgium; **Co-Author:** Caroline Andries, Vrije Universiteit Brussel (VUB), Belgium

Due to an overreliance on self-advocacy, the ongoing traditional model of 'identify, label, tutor and accommodate' to the general 'one-size-fits-all' curriculum in higher education has proven to be ineffective when addressing the needs of students with disabilities. The Universal Design for Learning (UDL) pedagogical framework offers a promising alternative, as UDL aims to support access, participation, and progress for 'all' learners, resulting in an accessible and more beneficiary learning environment for students with disabilities. It encourages teachers to anticipate a broad range of learning needs when planning the lesson instead of modifying curricula as an afterthought. Several studies found that applying UDL on higher education courses had a positive impact on students' academic performance (Scott, McGuire, & Foley, 2003), and supported better access, participation and progress (Rose & Meyer, 2002). Although literature regarding the need of UDL in education is extensive, barriers, tensions and challenges to students' learning when applying UDL, to a lesser extent, have not been explored. The main objective of this qualitative study is to explore whether the UDL framework addresses the students with disabilities' perceptions of learning within the traditional model. Findings suggested that students' perceptions align well with the UDL principles, especially with the third principle (i.e., multiple means of engagement). In addition, we found barriers when implementing UDL, as meeting the learning needs for some students can create barriers for others. For instance, this study found that receiving all the materials online ahead of class brought more student passivity and less attendance in classroom instruction. In order to overcome these weaknesses, UDL needs to address the individual learning needs in a direct way, and not only through environment and curricula changes. Therefore, this study argues strongly for a flexible implementation of UDL, while carefully monitoring students' progress.

### Language Awareness from a teachers' perspective: Tensions between difficulties and possibilities

**Keywords:** Attitudes and beliefs, Language (Foreign and second), Qualitative methods, Teaching / instruction

**Presenting Author:** Ellen van den Broek, Radboud University Nijmegen, Netherlands

Abstract This study presents the results of an exploratory, multiple case study focusing on teachers' knowledge and beliefs about a language awareness (LA) approach to foreign language education. This approach could stimulate the development of higher order thinking skills within the language subjects by using knowledge about language to reflect on the language skills. LA can be defined as 'the explicit knowledge about language, and conscious perception and sensitivity in language learning, language teaching, and language use' (Association for Language Awareness, 2012). As research on the topic of LA is still scarce in the Netherlands, ten secondary school teachers were interviewed and asked about their views on LA, whether they recognise examples of LA in their own teaching practices, and which possibilities and difficulties they foresee when it comes to implementing such an approach. Classroom observation served as the basis for the semi-structured interviews. The aim of this paper is to induce new understandings of LA in the context of Dutch upper secondary foreign language education, gain insight into teacher's cognition about LA, and identify similarities and differences between teacher's cognitions. Findings reveal interesting variability across teachers, in their views on LA, as well as the possibilities and difficulties they foresee when implementing such an approach to foreign language education. However, this variability can be used in order to facilitate the practical implementations of this approach. For example by relating LA to existing topics in the curriculum, to students' own interest or to teachers' previous teaching experiences. Tensions were observed between teachers' perception of 1) subject matter, 2) curriculum, 3) student learning, 4) instructional technique, and 5) educational context. Some teachers experienced these aspects as possibilities for LA, whereas others perceived these aspects as difficulties when it comes to the implementation of such an approach.

### District level curriculum development and schools' operating culture

**Keywords:** Collaborative Learning, Culture, Qualitative methods, Teacher Professional Development

**Presenting Author:** Annika Palomäki, University of Tampere, Finland

Reforming curriculum is considered a central tool for school development. Yet, reforms often fail and desired outcomes are not transferred directly to the schools. It has been suggested that shared sense-making in terms of the goals of the reform is a key for promoting sustainable change. This is especially the case in complex large-scale reforms, such as curriculum reform in Finland, where educational system relies on high autonomy of municipalities, schools and teachers. Finnish core curriculum is a normative document affecting both the content and ways of teaching and is translated into local curricula by the municipal level actors, who also set aims for their own development work. This study will investigate 1) what is considered as the main aim for the reform, 2) what kind of development goals does it get among the steering groups, and 3) what kind of actions are seen as crucial to reach the aim.

The data consists of group interviews conducted for the 12 steering groups in local contexts after the approval of the latest core curriculum. 54 municipalities in total are represented (17 % of Finnish municipalities in 2015). Participants represent local school administration, principals, teachers and youth workers.

Changing the operating culture to increase collaboration is considered as main aim. Change was expected to affect broadly the school and be more important than any other contents of the reform. More specifically, it was seen to bring pupils in the centre and affect strongly teachers' work. District level steering groups saw that schools need to discuss together about the change, meaning sense-making among the teachers. Districts could still facilitate school level development by providing structures and already paying attention to them. It will be crucial for the reform that teachers understand the value of collaboration and find the benefits for their work.

## **Session F 2**

28 August 2017 10:30 - 12:00

Pinni B 3118

Roundtable

Teaching and Teacher Education

### **Teacher Professional Development and Multicultural Education**

**Keywords:** Attitudes and beliefs, Competencies, Cultural diversity in school, Educational attainment, Multicultural education, Out-of-school learning, Phenomenography, Secondary education, Teacher Professional Development

**Interest group:** SIG 09 - Phenomenography and Variation Theory, SIG 11 - Teaching and Teacher Education, SIG 21 - Learning and Teaching in Culturally Diverse Settings

**Chairperson:** Kitty Leuverink, Tilburg University, Netherlands

### **Context variation in describing socio-relational competences: a phenomenography on teachers**

**Keywords:** Competencies, Phenomenography, Teacher Professional Development, Multicultural education

**Presenting Author:** Alice Spada, Università Milano Bicocca - Milan, Italy

Rooted in the complex process of transition to the competence-based education supported by the EU, this research identifies different descriptions Italian secondary school teachers provide of socio-relational competences considering context factors. The research focuses on two out of the eight key competences the listed by European Union: *Social and civic competences* and *Cultural awareness and expression*, together named in this research under the label of socio-relational competences. Conducted through the method of phenomenography, the research identifies the different categories of descriptions teachers provide, focusing on two aspects of socio-relational competences: transmission and evaluation. Earlier literature shows a complex picture of socio-relational competences in Italian middle school. On one hand teachers have not completely assimilated competence-based education in their didactics yet, on the other hand they seem to lack of practical instruments to make the shift from one didactic approach (knowledge-based) to the other (competence-based). This is the case also for socio-relational competences whose complexity and transversality make the scenario hard to compose. The objective of this research is to illustrate if and how teachers' conceptions of socio-relational competences are: a) uniform or uneven between them; b) uniform or uneven between contexts; c) brought into effect in the educational contexts (considering transmission and evaluation as main parameters). Secondary school teachers in the city area of Milan is the social group considered by this research. As for the analysis, teachers are divided in two groups based on the context socio-economic characteristics of the school they work in (using district disadvantage index - DDI), to test differences in descriptions. Maximum variation in the group is the criteria implemented for choosing individuals who participate in the study. Results are intended to orient teachers and institutions for future progress over the theme of socio-relational competences.

### **Another brick in the... bridge. Training analysis on beliefs to influence the practices.**

**Keywords:** Attitudes and beliefs, Cultural diversity in school, Teacher Professional Development, Multicultural education

**Presenting Author:** Lisa Bugno, University of Padova, Italy

Starting from a problematic frame that highlights how it is important and necessary to work with teachers in order to promote

inclusion and well-being and widespread school effectiveness and achievement, this qualitative study focuses on determining what are teachers' beliefs on diversity and how teachers' beliefs about diversity influence their planning and their practices. Due to this complexity, we proceeded through a triangulation. We conducted semi-structured interviews with 45 in-service primary teachers in order to examine their "direct explicit" beliefs. Using Atlas.ti, we defined interview codes to illustrate their peculiar contents in order to single out considerations on coherence between what teachers say and what they do: a significant gap between objectives declared by teachers, corresponding in most cases to the intercultural education theoretical achievements, and their practices can be seen from the data. These aspects relate to the transition from theory to practice, which has always been considered one of the crucial points in all educational events. Coherently, the analysis of the interviews was useful to define guidelines for participant observation, working toward investigating the teachers' "implicit" beliefs, whereas we examined their "indirect explicit" beliefs thanks to the analysis of intercultural education school projects. Data show a weak consistency between intentions and practices, evident in teachers' statements: most of them are not able to identify activities specifically correlated with the declared aims. Moreover, there is agreement among teachers that it is important to take advantage of cultural differences, but, in practice, most of them trivialize differences through folkloristic activities. Finally, we are implementing focus groups. They should allow the reconceptualization of teachers' beliefs about diversity: by considering research results related with theory, their own beliefs and practices, we expect that the developed program will make significant and formative the teachers' reflection.

#### **Additional value brought to Estonian secondary school by teachers with additional profession**

**Keywords:** Educational attainment, Out-of-school learning, Secondary education, Teacher Professional Development

**Presenting Author:**Lianne Teder, Tallinn University, Estonia; **Co-Author:**Rain Mikser, Tallinn University, Institute of Educational Sciences, Estonia

Additional value brought to Estonian secondary school by teachers with additional professionLianne Teder, Rain Mikser PhD, Tallinn University, EstoniaCurrently, ever more attention is being paid to the relevance of general education for different stakeholders and for the society at large. Therefore, there is an increasing demand for engaging out-of-school interest groups into the enrichment of school's learning and education activities (Hargreaves, 2000). Even though previous studies from different countries have concerned teachers' understandings about their potential to enrich the school's learning and educational activities, there is a lack of studies which would specifically compare the understandings of those teachers who have a full-time working load at school and those who work part-time out of the school system. The aim is to find out the specific potential and input of teachers with more than one profession to enrich the school's environments and educational activities. As the kind of teachers work part-time outside of the general education sphere as professionals, it is expected that there might be differences in their knowledge and understandings, compared to full-time teachers, as there would emerge a unified and integrated experience of in- and out-of-school spheres. What are the previous studies and findings about the similar topic?In the planned study a narrative research design is in use, teachers' professional life stories' interviews (Goodson, 2013) will be conducted with 20 teachers as connectors between school and out-of-school society. If and how the planned narrative research design capacitates or restrains the study?Main references:Hargreaves, A. 2000. Four Ages of Professionalism and Professional Learning. Teachers and Teaching: History and Practice. Vol 6, No 2, 151–182.Goodson, I. F. 2013. Developing Narrative Theory. Life histories and personal representation. New York. Routledge. This handout was funded by the European Union via the European Regional Development Fund.

#### **Session F 3**

28 August 2017 10:30 - 12:00

Pinni B 3117

Roundtable

Motivational, Social and Affective Processes

#### **Best of JURE - Roundtable**

**Keywords:** Achievement, Citizenship education, Computer-supported collaborative learning, Higher education, History, Instructional design, Interdisciplinary, Knowledge creation, Motivation and emotion, Primary education, Science education, Secondary education

**Interest group:** SIG 04 - Higher Education, SIG 07 - Learning and Instruction with Computers, SIG 17 - Methods in Learning Research

**Chairperson:** Karel Ševčík, Masaryk University, Czech Republic

#### **Gendered stereotype threat in STEM programs: the emotional fallout**

**Keywords:** Achievement, Higher education, Science education, Motivation and emotion

**Presenting Author:**Maren Gube, McGill University, Canada

Although there have been positive developments in gender equity over the last half century, women continue to make up considerably less than half of the students and workers in science, technology, engineering, and mathematics (STEM) fields. Exacerbating this problem, women frequently change career or education plans midstream and form a so-called "leaky pipeline" of attrition at all levels in STEM fields. This is particularly troublesome given the complex problems facing humanity today: they require broad-based input and weighing potential implications of any decisions from multiple perspectives in a gender-balanced manner. It has been repeatedly shown that the reasons for women's attrition are not

ability-related, and research has suggested that attrition may have emotional rather than academic causes. However, gender differences in the mechanisms surrounding academic emotions and achievement goals in STEM programs have not been exhaustively identified. This study attempts to shed light on this area by exploring gender differences in academic emotions and achievement goals in first year STEM students at a large urban university. Students completed the Achievement Emotions Questionnaire and the Achievement Goal Orientation Questionnaire, and MANOVAs and path analyses were conducted to explore gender differences in these areas, as well as the relationships between emotions and achievement goal adoption. Results revealed significant differences between genders in both academic emotions and achievement goals, suggesting that although outcomes (grades) are similar, the student experiences for female STEM students are significantly different from male student experiences. Females experience higher levels of anxiety, shame, anger and hopelessness, as well as lower levels of hope, and are more likely to adopt performance-avoidant goals, fully mediated by shame. In light of these findings, some possible avenues for increasing participation and decreasing attrition rates among female students in STEM fields are discussed.

### **Interdisciplinary Teaching - Focusing on History and Citizenship in Finnish Primary Schools**

**Keywords:** Citizenship education, History, Interdisciplinary, Primary education

**Presenting Author:**Nina Enkvist, Åbo Akademi University, Finland

**INTERDISCIPLINARY TEACHING**Focusing On History and Citizenship in Finnish Primary Schools In 2016, a new national core curriculum was passed for Finnish basic education. It is stated in the curriculum, that all schools are obliged to work with at least one interdisciplinary project every school year. This means studying a specific theme in several school subjects at the same time, and from different points of view. The need for interdisciplinary teaching is motivated by fact that the method provides students with skills and competences, which are necessary for living in the future knowledge society. In spite of the demand for interdisciplinary teaching, the Finnish school system is still divided into different school subjects. The purpose of this study is to investigate how the interdisciplinary projects are put into practice in Finnish Primary schools. A special focus will be put on how history and citizenship are included in such projects. Both history and citizenship are school subjects in a process of change in Finland: history because of the shifting from fact-based knowledge to skill-based knowledge, and citizenship because it is a totally new subject to be taught in Primary school. The study will be conducted in a qualitative way, by using three kinds of methods: content-analysis of national and local curricula, observations of the work with interdisciplinary projects in schools and interviews with class teachers who teach history and citizenship. The research is based on the theory of ethnography, and data will be collected from Swedish-speaking schools in Finland. The results of the study are intended to contribute to the development of Finnish education system, by giving a structured view of the practical implementing of interdisciplinary teaching in schools. The role of history and citizenship in this interdisciplinary context will also be discussed and analyzed. **Keywords:** interdisciplinary teaching, history education, citizenship education

### **Examining Collective Inquiry and Knowledge Advancement in a Knowledge Building Environment**

**Keywords:** Computer-supported collaborative learning, Instructional design, Secondary education, Knowledge creation

**Presenting Author:**Yuyao Tong, The University of Hong Kong, China; **Co-Author:**Carol Chan, The University of Hong Kong, Hong Kong

**Abstract:** This paper examined the role of a designed computer-supported knowledge building environment on domain knowledge, nature of Knowledge Forum® (KF) contribution, and explanatory and collective inquiry in KF. Participants were forty Grade 9 students studied in a Chinese language and literature course in a Hong Kong public secondary school. Students worked in a computer-supported knowledge building environment used Knowledge Forum® (KF), an online discussion platform, to engaged in the collaborative inquiry and pursued of idea improvement. There are two main constitutes in KF, one is the note (students can contribute, build-on, revise and references notes in KF), and the other is the view (a place that includes all the generated notes). Metacognitive scaffolds, embedded in KF, are served as the prompts to scaffold students to generate and organize their questions and ideas, for instance, "I need to understand", "My theory", "New Information", "Putting our knowledge together". Furthermore, the teacher can also design different sets of KF scaffolds to apply to their course teaching with different topics and requirements. Two questionnaires includes the Views on Collaboration Questionnaire and Learning Process Questionnaire were used in this study. Analyses indicated that there is a significantly pre-post improvement in domain knowledge; as well, students also viewed their experience in knowledge building classroom more positively in terms of collaboration and learning approaches. Correlation analysis suggested that KF participation, KF engagement, students' explanatory inquiry, views of collaboration and learning approaches were correlated. Furthermore, regression analysis showed that students' KF participation, rise-above efforts, and KB explanatory inquiry predicted students' domain understanding. Implications of this study explored the role of KB in scaffolding students' collective inquiry and views on collaboration and learning, it also provided the opportunity for teachers to help students engaged in a knowledge creation community.

### **Session F 4**

28 August 2017 10:30 - 12:00

Pinni B 4117

Roundtable

Assessment and Evaluation, Lifelong Learning

## Learning, Writing and Instructional Design

**Keywords:** Assessment methods and tools, Computer-assisted learning, Content analysis, E-learning / Online learning, In-service teacher education, Instructional design, Self-regulation, Teacher Professional Development, Writing / Literacy

**Interest group:** SIG 07 - Learning and Instruction with Computers, SIG 12 - Writing

**Chairperson:** Carla Bohndick, University of Koblenz-Landau, Germany

### Analyzing teachers' interaction records in an online teacher training program

**Keywords:** Content analysis, E-learning / Online learning, In-service teacher education, Teacher Professional Development

**Presenting Author:** Nan Li, Eindhoven School of Education, Netherlands; **Co-Author:** Ruurd Taconis, Eindhoven School of Education, Netherlands; **Co-Author:** Perry den Brok, Eindhoven University of Technology, Unknown

Using text-based interaction messages and questionnaire survey data of 251 teachers in an online in-service teacher training program in China, this study aims at investigating the characteristics of teachers' interaction, the influence of teachers' background information on interaction, and the association between teachers' interaction records and their perceptions of the training program's outcomes. A multi-dimension analysis scheme was used to investigate teachers' online interaction behavior with the objective measures of participation (number of messages, length of each message, and time distribution of messages), interaction patterns, the logical subject (whether the message content concerns teacher himself/herself or not), the nature of the content. Regarding the dimension of nature of the content, four categories (task-related, regulative, social, and no code) were identified. For each task-related message, a code (repeating, interpreting, adding opinion, inviting, or sharing) was given to indicate the level of thinking reflected in the message content. In the end, 4356 messages were archived from the platform and coded. Results showed that most teachers posted messages just to meet the minimum requirement of the program. Around 95% of messages were posted in discussions on videos and newsletters, which were required in the trainee evaluation plan. On the whole, regulative messages accounted for the largest proportion in terms of the nature of the content. Among all task-related messages, messages that reflected a low level of thinking accounted for a large proportion. Teachers from different gender, school, and subject groups showed significant differences in their online interaction characteristics. For instance, teachers teaching non-examination subjects (music, physical education, painting, and ICT) posted significantly more messages and shorter messages and had a lower proportion of task-related messages than examination subjects (science, language, etc.). Only weak correlations were found between teachers' online interaction characteristics and their perceptions data.

### How to provide feedback on students' writing processes?

**Keywords:** Assessment methods and tools, Computer-assisted learning, Instructional design, Writing / Literacy

**Presenting Author:** Nina Vandermeulen, University of Antwerp, Belgium; **Presenting Author:** Brenda van den Broek, University of Antwerp, Belgium; **Co-Author:** Jochem Aben, Radboud University Nijmegen, Netherlands

AbstractFeedback has the potential to improve the writing skills of students (Duijnhouwer, Prins & Stokking, 2012). Currently, feedback on writing usually focuses on the writing product, i.e., the produced text. However, previous research has shown a relation between the organization of the writing process and the quality of the produced text (Van den Bergh et al., 2009). It can therefore be expected that feedback on the writing process may also enhance students' writing skills. We therefore plan to test the effects of feedback on the writing process on students' writing in an intervention study. In this intervention study, we will make use of personal feedback reports based on information on students' writing processes obtained via keystroke logging software Inputlog (Leijten & Van Waes, 2013). The set-up of this report is based on four principles grounded in the literature, defining that the report should be formative, reflective, comparative and specific. During our round table session, we will discuss a prototype of the feedback report focusing on the writing process. Participants will be asked to discuss the content and usability of the report. We would like to verify if the four principles on which our report is based are implemented in an effective way. ReferencesDuijnhouwer, H., Prins, F.J., & Stokking, K.M. (2012). Feedback providing improvement strategies and reflection on feedback use: Effects on students' writing motivation, process, and performance. *Learning and Instruction*, 22, 171-184. Leijten, M., & Van Waes, L. (2013). Keystroke Logging in Writing Research: Using Inputlog to Analyze and Visualize Writing Processes. *Written Communication*, 30(3), 358-392 | DOI: 10.1177/0741088313491692. Van den Bergh, H., Rijlaarsdam, G., Janssen, T., Braaksma, M., Van Weijen, D., & Tillema, M. (2009). Process execution of writing and reading: Considering text quality, learner and task characteristics. In M.C. Shelley II, L. D. Yore & B. Hand (Eds.), *Quality research in literacy and science education* (pp. 399-426). Springer.

### Assessing Self-Regulated Learning In Academic Writing With Learning Diaries – A Longitudinal Study

**Keywords:** Assessment methods and tools, Content analysis, Self-regulation, Writing / Literacy

**Presenting Author:** Francesca Suter, University of Zurich, Switzerland; **Co-Author:** Yves Karlen, University of Zurich, Switzerland; **Co-Author:** Carmen Hirt, University of Zurich, Switzerland; **Co-Author:** Katharina Maag Merki, University of Zurich, Switzerland

Academic writing is a highly complex and iterative process. In order to successfully master challenging writing tasks, cognitive, metacognitive, motivational, and behavioral self-regulated learning (SRL) skills are needed. Previous research has found that writers with high SRL competences display a higher writing performance than writers with low SRL competences. However, to date there is little known about how students self-regulate their writing process over a longer

period of time. Assessing self-regulated writing processes requires measures that are sensitive to time, task and context. Against this background, learning diaries have shown to be a promising method to capture learners' on task SRL activities (e.g., use of different strategies). The aim of our study is to address the limited exploration of the SRL process by examining student approaches of completing their first academic writing assignment during the period of one year. We are investigating the following research questions: *How do approaches of writing the first academic paper differ between students? Which approaches lead to a high academic writing performance?* To answer these questions, we analyse a mandatory academic writing assignment that every student must write towards the end of Swiss upper secondary school to successfully graduate. N = 1229 students (58% female, M = 17.5 years old, SD = 0.84) from 14 upper secondary schools in the German-speaking part of Switzerland participated in the main study. For this subsidiary study at hand we focus on a subsample of n = 68 students from one particular upper secondary school who were asked to keep a learning diary. The learning diaries will be coded and analysed by means of the qualitative content analysis recommended by Kuckartz (2012). Since data collection will be completed in spring 2017, we will be able to present and discuss first results and upcoming problems in assessing learning strategies with unstructured diaries.

## Session F 5

28 August 2017 10:30 - 12:00

Pinni B 3111

Single Paper

Culture, Morality, Religion and Education

### Learning and Culture

**Keywords:** Cognitive skills, Culture, Learning and developmental difficulties, Morality, Quantitative methods, Reading comprehension, Religious studies, Secondary education

#### Interest group:

**Chairperson:** Manuel Laengler, University of Regensburg, Germany

### Stability of Reading Difficulties from Grade 2 to Grade 6

**Keywords:** Cognitive skills, Learning and developmental difficulties, Quantitative methods, Reading comprehension

**Presenting Author:** Maria Psyridou, University of Jyväskylä, Finland; **Co-Author:** Minna Torppa, University of Jyväskylä, Finland; **Co-Author:** Asko Tolvanen, University of Jyväskylä, Finland; **Co-Author:** Anna-Maija Poikkeus, University of Jyväskylä, Finland; **Co-Author:** Marja-Kristiina Lerkkanen, University of Jyväskylä, Finland; **Co-Author:** Jari-Erik Nurmi, University of Jyväskylä, Finland

In the present study, we examine the stability of the development of reading fluency and reading comprehension from grade 2 to 6 and whether reading difficulties are stable over time. In addition, we try to investigate whether kindergarten skills predict reading fluency and reading comprehension development. The study is part of a large Finnish longitudinal study from Kindergarten to grade 9. In grade 6, 1824 children participated in the study, of which 1458 were assessed in grade 2 and 1240 in kindergarten. Reading fluency was assessed with three group-administered tasks and reading comprehension was assessed using a group-administered subtest of a nationally normed reading test battery. The kindergarten factors were assessed individually and included: initial phoneme identification, naming letters, Peabody picture vocabulary, rapid serial naming of objects, number sequences, and listening comprehension. First, we estimated cross-lagged factor path models to examine the correlative associations between reading fluency and reading comprehension across grades 2 to 6. Next, we focused on reading difficulties (lowest 10% in reading fluency and/or reading comprehension) and their stability across time. Using the cross-lagged factor model as a basis, we simulated 200.000 cases, which provided a way to omit measurement error from the stability analysis. Finally, we modeled the relative contributions of the kindergarten factors to reading fluency and reading comprehension in grades 2 and 6 in SEM framework by using Cholesky decomposition. Our results indicated that reading fluency is more stable than reading comprehension. In addition, our results suggest that reading difficulties are not stable across time since 6.9% of the children had late-emerging reading difficulties (2.2% in reading fluency, 4.4% in reading comprehension) and 6.5% had resolving reading difficulties (2.5% in reading fluency, 3.5% in reading comprehension). Reading fluency better linked with letter naming and rapid naming while reading comprehension with letter naming, phoneme identification and vocabulary. Our results suggest that children's reading skills should be followed beyond the early grades.

### Gender-specific religious moral dilemmas in Iranian schools

**Keywords:** Culture, Morality, Religious studies, Secondary education

**Presenting Author:** Nasibeh Hedayati, University of Helsinki, Finland; **Co-Author:** Elina Kuusisto, University of Helsinki, Finland; **Co-Author:** Khalil Gholami, University of Kurdistan, Iran; **Co-Author:** Kirsi Tirri, University of Helsinki, Finland

Gender-specific moral dilemmas related to religion in Iranian schools  
Abstract This article examines moral dilemmas related to the religion of Islam as identified by Iranian female students. The Islamic Revolution of 1978-79 was a turning point for the Iranian educational system and for Iranian teacher education; in its wake the role of religion and the desire for the Islamization of all aspects of society became paramount. Literature about the Iranian educational system after the Islamic Revolution has largely focused on the Islamization of the system and on how religion affected education, which was used as a tool to convey ideology and build a purified society (Hedayati, Kuusisto, Gholami & Tirri, 2016; Shavarini, 2003);

meanwhile, little attention was paid to moral dilemmas in the school context, which were the consequences of this Islamization process. The purpose of this study is to examine what kind of religious moral dilemmas Iranian students identify in a country whose educational system is based on Islamic principles. Data was gathered from Iranian lower secondary school students (female n = 175, male n = 165) who wrote about unfair situations they had experienced at school. Students' moral dilemmas were analyzed with deductive content analysis. Moral dilemmas related to religion were identified only in the essays of 15 female students (4%) and analyzed further inductively. Three subcategories were constructed based on themes of religious moral dilemmas and called dress rules, boundaries of intimacy, and doctrinal issues. The paper discusses how and why moral dilemmas related to religion are interconnected with gender in Iranian schools. **Key words:** Moral dilemma, Religion, gender, women, Islam, Iran. Hedayati, N., Gholami, K., Kuusisto, E., & Tirri, K. (2016). Values and worldviews in Iranian teacher education. (Manuscript in preparation) Shavarini, M. (2003). Misconceptions about Islam and women's education: lessons from Islamic Republic of Iran. *International Education*, 33(1), 40-50.

## Session F 6

28 August 2017 10:30 - 12:00

Pinni B 3110

Roundtable

Higher Education, Instructional Design

### Higher Education

**Keywords:** Citizenship education, Competencies, Higher education, Instructional design, Interdisciplinary, Qualitative methods, Quantitative methods, Social interaction, Survey Research, Synergies between learning - teaching and research

**Interest group:** SIG 04 - Higher Education

**Chairperson:** Caterina Fiorilli, Italy

### Community-based research as a teaching approach for the issue "forced displacement and migration"

**Keywords:** Citizenship education, Higher education, Qualitative methods, Synergies between learning - teaching and research

**Presenting Author:** Anna Heudorfer, Hamburg Centre for University Teaching and Learning, Germany

The issue of *forced displacement and migration* is not just of current public interest, but also found its way into higher education. It provokes the question how such a sensitive and multilayered topic can be taught in higher education courses, esp. in "unfamiliar" fields (in contrast to e.g. migration studies). The concept of community-based research offers the potential to tackle it in form of collaborative research projects between researchers, students and the (local) community. Community-based research can be considered as a certain form of research-based learning that sets its focus on research *with* the community instead of research *on* the community with the aim to effect social change. Students are enabled to become active citizens by doing research on urgent matters for the community. In my study, I am going to raise questions on a theoretical, an empirical, and a conceptual level. I am conducting a multiple-case study in the German higher education system starting with autoethnographic research in my own course. Autoethnography entails self-conscious introspection in order to better understand one's own role in a certain social setting. In this case, the aim is to find first hypothesis on the interaction of students, community-members and me as a lecturer. Non-participant observations and interviews with lecturers and students in four community-based research courses will afterwards provide further insights into the concept. Based on the results from my empirical study, I will design a concept that includes reflections and recommendations on community-based research courses on *forced displacement and migration*. This concept can also inspire course design on topics with similar characteristics. In the round table session I want to focus on the following two open questions: What are chances and limits of the autoethnography method? How is it possible to gain trust from teachers and students in order to enable observations and create an open atmosphere for interviews?

### Feel Connected: Alumni Loyalty Behavior in Higher Education

**Keywords:** Higher education, Quantitative methods, Social interaction, Survey Research

**Presenting Author:** Ingrid Snijders, HZ University of Applied Sciences, Netherlands; **Co-Author:** Lisette Wijnia, Erasmus University Rotterdam & University College Roosevelt, Netherlands; **Co-Author:** Remigius (Remy) Rikers, UCR / Utrecht University, Netherlands; **Co-Author:** Sofie Loyens, University College Roosevelt, Netherlands

Alumni Loyalty Behavior in Higher Education

Ingrid Snijders<sup>1,2</sup>, Lisette Wijnia<sup>2,3</sup>, Remy M.J.P. Rikers<sup>2,3</sup>, and Sofie M.M. Loyens<sup>2,3</sup> <sup>1</sup>HZ University of Applied Sciences, Roosevelt Center for Excellence in Education, the Netherlands <sup>2</sup>Roosevelt Center for Excellence in Education, University College Roosevelt, Utrecht University, the Netherlands <sup>3</sup>Erasmus University Rotterdam, the Netherlands Alumni form an interesting and important group for higher education institutions because of the time and money they (could) spend to their former university. However, today alumni are still an "underused resource". Alumni giving is now essential to the funding of higher education institutions in most countries because of decreasing governmental support. To establish future enduring relationships with alumni and their former university, alumni involvement i.e. non-monetary membership seems to

be of more importance, resulting in positive word of mouth by former students and alumni's reflection on future students' job opportunities. The purpose of this study was therefore to explore the relationship between student loyalty as a predictor of alumni loyalty. Using a regression analysis, findings indicate that 60% of the variance in alumni loyalty is explained by student loyalty, hence suggesting that student loyalty, i.e. loyalty behavior by students during their education, positively influences students' loyalty behavior after graduation. This study contributes to the existing literature on student- and alumni loyalty behavior in higher education, which to date is predominantly focused on research on monetary behavior. The findings of this study shed new light on other possible positive drivers of long-lasting relationships with former students in terms of non-monetary alumni behavior, and therefore provide in necessary and useful insights for the relationship between higher education institutions and alumni. This study indicates the importance of establishing student loyalty and calls for future research to further examine the positive association between student loyalty and other drivers of alumni loyalty.

*Keywords:* Alumni Behavior, Alumni Loyalty, Student Loyalty, Higher Education

### **Faculty Roles and Challenges in Competency-Based Environment: First Year Experiences**

**Keywords:** Competencies, Higher education, Instructional design, Interdisciplinary

**Presenting Author:**Secil Caskurlu, Purdue University, United States; **Co-Author:**Iryna Ashby, Purdue University, United States; **Co-Author:**Marisa Exter, Purdue University, United States

Secil Caskurlu, Iryna Ashby, & Marisa Exter

Purdue University This phenomenological study aimed to explore the faculty perceptions about their roles in competency-based education (CBE) and challenges they faced in these roles. Participants included a purposeful sample of faculty involved in either teaching or co-teaching in a competency-based transdisciplinary undergraduate program in a large US R1 university. Data were collected through semi-structured interviews focusing on faculty's first year experiences with the program in general and teaching in a CBE environment. Data collection occurred during the middle of the first semester (n=7), and the end of the first (n=5) and second semesters (n=5). The results showed the distribution of faculty roles across two main themes, including the program level and instructional experiences on the course level. Faculty roles on the program level included curriculum design, mentoring/advising, onboarding other faculty and students, program evaluation, participating in faculty-wide meetings, balancing workload, and establishing connections with other programs/departments. Course level roles included facilitation for learning, assessment, cognitive mentoring, feedback, mediation with students, motivating students for competency acquisition, scaffolding for active learning, and scaffolding for self-regulated learning. However, faculty face challenges in embracing CBE because of the program, individual faculty, and student-related factors. Program level factors included design challenges, assessment design and usability of assessment tools, mentoring, differences between faculty backgrounds, faculty workload, lack of mentorship, undefined student profiles, and lack of resources. Faculty members were also challenged because of faculty beliefs about CBE, lack of confidence with teaching in CBE environment, and lack of communication between and within faculty. Student related challenges consisted of discrepancy among level of students because of background and readiness, lack of student engagement and motivation, and lack of self-regulated learning. The results of this study offer implications on how CBE programs could support their faculty to effectively function in a CBE environment.

### **Session F 7**

28 August 2017 10:30 - 12:00

Pinni B 3116

Roundtable

Assessment and Evaluation, Teaching and Teacher Education

### **Teaching Approaches**

**Keywords:** Argumentation, Biology, Conceptual change, In-service teacher education, Inquiry learning, Pre-service teacher education, Reasoning, Science education, Teacher Professional Development, Teaching approaches

**Interest group:** SIG 26 - Argumentation, Dialogue and Reasoning

**Chairperson:** Davaajav Purevjav, University of Szeged, Hungary

### **Modeling and Measuring Science Teachers' Professional Knowledge in Elementary Particle Physics**

**Keywords:** In-service teacher education, Pre-service teacher education, Science education, Teacher Professional Development

**Presenting Author:**Michaela Oettle, University of Education, Freiburg, Germany

The project is motivated by the discrepancy between the planned incorporation of particle physics in scholar curricula and the lacking effort in exploring the corresponding domain-specific competences of science teachers. Accordingly, the project aim is to design an instrument for assessing the professional knowledge of science teachers regarding elementary particle physics. Knowledge about teachers' concepts in particle physics is required to identify the content of teacher training programs necessary when the topic becomes firmly established in school classes. Due to missing (inter-) national research findings related to teachers' knowledge in the field of particle physics, the project attempts to develop a new model for conceptualizing the content knowledge component of the professional knowledge. Besides naming the relevant knowledge categories, we intend to define knowledge levels accordingly. The research design is based on the Delphi method: In a first round of the survey, experts from research, teaching and outreach are asked about their key ideas in particle physics in an

online survey including open and closed answer formats. The results of this mixed-method inquiry are analyzed in terms of a qualitative orientated content analysis (definition of the categories) and in terms of a quantitative analysis of variance (definition of knowledge levels from the experts' ratings).

In the session, the results of this first round of surveys and the constructed model are presented and discussed. Furthermore, I give first insights into the design of the second round of surveys in which the constructed model should be validated by the experts. The final results will provide the basis for a testing instrument for teachers who have addressed particle physics within their school classes. By portraying the level and nature of the teachers' knowledge, the project targets to establish the status quo as well as an in-depth look into the preconceptions of teachers.

### **Is Genetic Engineering Threatening my Life? – Fostering Decision-Making Processes in Risk Perception**

**Keywords:** Argumentation, Biology, Science education, Teaching approaches

**Presenting Author:** Martina Heist, University Koblenz-Landau, Germany; **Co-Author:** Sandra Nitz, University of Koblenz-Landau, Germany; **Co-Author:** Jochen Scheid, University of Koblenz-Landau, Germany; **Co-Author:** Alexander Kauertz, University of Koblenz-Landau, Germany

*Our present age is one of complex environments in which new technologies keep emerging, promising to simplify everyday life. Even though these technologies comprise plenty of benefits some of them seem to prompt negative feelings among the population, even though experts consider them to be harmless. Risk estimations can partially be attributed to factual knowledge and explain some of the differing perceptions of lay people and experts. How risky we perceive a new technology is not only influenced by our knowledge about these technical developments. In fact, quite a number of factors determine the individually perceived risk. How we arrive at individual (risk) perceptions is part of a decision-making-process. Within this process, arguments are considered to have a significant role in determining the personal conclusion whether a certain technology represents a possible threat for us. The present study aims to investigate (1) how personal opinions and values, personal characteristics like anxiety and using varying sources of information influence students' perception of risk in the field of Genetic Engineering (GE) and its application in the food industry. Furthermore, we will examine (2) if and how individual risk perception of GE in students can be altered by a teaching unit that consists of an argumentation-training on the issue of GE in food production. The intervention study includes a Pre-Posttest-Control-Group-Design using established instruments for measuring relevant variables. Our findings will contribute to our understanding of students' decision-making processes in complex problems by taking the interplay of risk perception and argumentation processes into account. Data will provide insights into the underlying mechanisms how argumentation can be linked to risk perception and how intervention measures intervene into this system.*

*At the beginning of 2017, a pilot study is conducted, whose results will be presented at the JURE 2017 conference.*

### **Secondary Students' Evaluation of Evidence from an Investigation of Force and Motion**

**Keywords:** Conceptual change, Inquiry learning, Reasoning, Science education

**Presenting Author:** Guanzhong Ma, The University of Hong Kong, China; **Co-Author:** Jan van Aalst, The University of Hong Kong, Hong Kong; **Co-Author:** Carol Chan, The University of Hong Kong, Hong Kong

The research was focused on the practice of evaluating evidence in science, an overlooked practice of claim evaluation involving evidence is evaluating the evidence itself in the scientific reasoning literature. Specifically, the research characterized how secondary students evaluate evidence in face of their misconceptions in science by understanding the reasons of students for believing or not believing the sufficiency of the evidence to evaluate the scientific prediction. In addition, the research validated the factors conjectured to account for students' evaluation of evidence as suggested in the literature by evaluating the effectiveness of the intervention to promote this evaluation. This intervention embodied three factors conjectured to promote reasoning about evidence, including epistemological understanding, scientific explanation, and knowledge about variability in data. Seventh graders ( $N = 36$ ) were asked to evaluate evidence that contradicted their prior misconceptions about Newtonian mechanics. They were engaged to evaluate three naïve responses to this question against three information materials. These materials conveyed the ideas about the aforementioned factors. Results showed that prior to the intervention students had difficulties setting aside their misconceptions from the reasoning, which may have led them to ignore the data, discount the method of obtaining the data and make it difficult to interpret the data variability. We found an overall positive effect that the intervention facilitated students to attend to the evidence, accept the method, and interpret the data variability. We also found that students were more likely to disagree with each of the naïve responses of this reasoning. However, individual differences in the effect were found. The study extends current research on claim evaluation by identifying students' difficulties in reasoning about anomalous evidence, and showing the aforementioned factors and the engagement in evaluating naïve responses facilitate this reasoning. Future research involves describing the processes by which the change in this reasoning occurs, and explaining how these processes lead to the change.

### **Session F 8**

28 August 2017 10:30 - 12:00

Pinni B 0039

Single Paper

Developmental Aspects of Instruction, Instructional Design

## **Cognitive Development**

**Keywords:** Cognitive development, Developmental processes, Early childhood education, Higher education, Motivation, Physical Sciences, Science education, Second language acquisition, Teaching / instruction, Writing / Literacy

**Interest group:** SIG 05 - Learning and Development in Early Childhood , SIG 06 - Instructional Design

**Chairperson:** Nadja Maria Köffler, University of Innsbruck, Austria

### **The Impact of Equivalent Peer Feedback and Teacher Feedback on the Writing Skills of EFL Students**

**Keywords:** Higher education, Second language acquisition, Teaching / instruction, Writing / Literacy

**Presenting Author:**Abdullah Atmacasoy, Kocaeli University, Turkey

Turkish higher education system has been dealing with low proficient English language learners for decades due to top-down education policies and inefficiencies in the curriculum implementation in primary and secondary schools. Being discouraged through their school years, the students lack self-confidence and certain competences regarding their English proficiency when they study at English foundation programmes. To overcome these deficiencies, practitioners in higher education institutions must find new ways to encourage students and improve the quality of teaching and learning. In this respect, feedback is an invaluable technique to contribute to students' achievement and it is widely used in writing courses. However, the effectiveness of feedback type still poses a question. This study compares the effectiveness of equivalent proficient peer feedback to teacher feedback on writing skills of adult EFL learners' at a public university in Turkey. The study involves two groups ( $n = 50$  students, 25 for each group) that were assigned into 2 sections by using stratified random sampling. The quasi-experimental research study is designed as counterbalanced design in order to ensure each group is exposed to three peer feedback and three teacher feedback alternately in six different writing tasks. When the students study in peer groups, they are matched with equivalent proficient peers. For each writing task, students hand in a first draft to be graded, and then expected revise it into a final draft after feedback is received. The effectiveness of peer feedback and the teacher feedback is evaluated by comparing the mean differences between first drafts and the final drafts of the students. We want to understand how equivalent proficient peer feedback and teacher feedback differ in improving English writing competencies and if one can be preferred over the other depending on the achievement levels of the students.

**Keywords:** equivalent proficient peer feedback, teacher feedback, writing skills

### **Balancing Blocks: Young Children's Understanding of Statics**

**Keywords:** Cognitive development, Early childhood education, Motivation, Science education

**Presenting Author:**Anke Maria Weber, University of Koblenz-Landau, Germany; **Co-Author:**Miriam Leuchter, University of Koblenz - Landau, Germany

Young children have an intuitive understanding of basic physical concepts such as balance, and are familiar with this concept through block play. Nevertheless, children have difficulties balancing asymmetrical, but not symmetrical objects. With increasing experience, they start to form theories of how and why objects can be balanced. Namely, they take either the geometrical center or the center of mass into account. The latter is a more sophisticated theoretical approach, which is crucial especially for the estimation of the stability of asymmetrical objects. When children have acquired a center of mass theory, they are able to balance asymmetrical as well as symmetrical objects. This process of acquiring starts in preschool for most children and continues into primary school and even beyond. However, there is little research on statics understanding in preschool children, and existing research has mainly used interviews, and test instruments with little practical relevance. We conducted a study with 103 preschool children between age five to six. We developed a new instrument for group testing using pictures of block construction, which are familiar to the children. We compared our instrument to others used in former studies. Furthermore, we validated our test using instruments for mental rotation, and other instruments measuring statics knowledge, taking relevant individual data into account. Namely, these individual data were self-concept in the statics domain, interest in block play, and motivation. None of them correlated with statics knowledge. Correlations of our instrument with others measuring statics knowledge, however, were moderate to high. Results showed preschooler children's difficulties in rating the stability of asymmetrical, but not symmetrical objects. Furthermore, preschool children tended to use a geometrical center theory, while they ignored the mass of an object. Further results will be presented at the conference, because the data acquisition has not been completed, yet.

### **Motor and cognitive skills of Mexican young children: Measurement invariance and relations**

**Keywords:** Cognitive development, Developmental processes, Early childhood education, Physical Sciences

**Presenting Author:**Fabiola Figueroa Esquivel, University of Groningen, Netherlands; **Co-Author:**Mayra Mascareño, University of Groningen, Netherlands; **Co-Author:**Esther Hartman, University Medical Center Groningen / University of Groningen, Netherlands; **Co-Author:**Jan-Willem Strijbos, University of Groningen, Netherlands

The early childhood education (ECE) years are characterized by a rapid brain and physical development, therefore they represent an important period in the acquisition of motor and cognitive skills like pre-academic skills and executive functions, however the way in which these domains relates on this early stage needs further exploration. This study examined the validity and degree of invariance of these constructs throughout the Early Childhood Education period (ages 3 to 6) in a Mexican sample of typically developing young children, and explored their relations across the complete Early Childhood Education years. Structural equation models suggested that only configural invariance holds for the measures of

executive functions (inhibitory control and working memory) and pre-academic skills (emergent numeracy and emergent literacy) across the three Early Childhood Education grades. For motor skills an additional exploratory factor analysis revealed a different structure than the commonly reported by the M-ABC-2 test. After modeling the new structure based on a broader distinction between gross and fine motor skills, configural invariance was achieved. Results showed positive but weak relations between fine motor skills and executive functions, and between gross motor skills and pre-academic skills. Specific analyses per grade revealed a stable relation between fine and gross motor skills and between gross motor skills and pre-academic skills throughout the Early Childhood Education period. Moreover, the magnitude of the positive relations between executive functions and pre-academic skills showed a significant increase across grades. Additionally, we observed that the relations between motor and cognitive domains can change (in magnitude and significance) according to the age range of the participants; hence the importance of a careful analysis when addressing young children in which growth is fast and uneven. Implications for development researchers and early childhood scholars will be presented and discussed further.

## Session F 9

28 August 2017 10:30 - 12:00

Pinni B 4116

Roundtable

Cognitive Science, Learning and Social Interaction

### Learning and Instruction

**Keywords:** Argumentation, Cognitive skills, Conversation / Discourse analysis, Cooperative / collaborative learning, E-learning / Online learning, Educational Psychology, Misconceptions, Peer interaction, Problem solving, Qualitative methods, Quantitative methods

**Interest group:** SIG 03 - Conceptual Change, SIG 10 - Social Interaction in Learning and Instruction

**Chairperson:** Hana Navrátilová, Tomas Bata University, Czech Republic

### Investigating Dialogic Learning and Teaching in MOOCs: An Applied Linguistics Approach

**Keywords:** Argumentation, Conversation / Discourse analysis, E-learning / Online learning, Peer interaction

**Presenting Author:** Shi Min Chua, Institute of Educational Technology/The Open University, United Kingdom

Dialogic learning and teaching has been promoted in recent years as an effective instruction method in both classrooms and online discussion (Mercer, 2013; Coffin, 2013). FutureLearn, a massive open online course (MOOC) platform is designed based on a similar pedagogical framework, the Conversational Framework (Laurillard, 2012) that operationalizes learning as conversation with oneself and others when interacting with learning objects or in practice environments. Discussion is thus embedded within each learning step, instead of a centralized forum used in other MOOC platforms. This discussion design warrant further research to understand its effect on discussion generated. On the other hand, most research on MOOC discussions (Wise et al., 2016; Kellogg et al., 2014) has used content analysis or topic modelling to analyze discussion postings, and focused mainly on learners' interaction only. This research has provided a categorical view on individual discussion postings, despite the fact that dialogues (or discussions) transverse multiple postings. These categorizations do not illuminate the quintessential element, i.e., language, which sits at the interface of dialogic learning and teaching (Lander, 2015; Coffin 2013). To address these two issues, the current study will make use of corpus analysis to analyze linguistics devices and scaffolding techniques used in verbal materials (video transcripts and articles) in discussion steps as compared to non-discussion steps, and compare the linguistics characteristics of discussion postings in both types of learning steps. The discussion postings of both learners and educators will be analyzed by using systemic functional linguistic (SFL) approach and conversation analysis that will take into account content, interpersonal relationship and textual structures simultaneously. Specifically, the Negotiation and Appraisal systems of SFL will be utilized and conversation analysis will compare educators' comments that invite learners' further replies to those that do not. These three applied linguistic approaches are in-depth analysis that will illuminate how educators and learners use different linguistic devices and adopt elements of argumentation genre to achieve dialogic learning.

### How to create a progressive curriculum adapted to children conceptual development?

**Keywords:** Cognitive skills, Educational Psychology, Misconceptions, Problem solving

**Presenting Author:** Calliste Scheibling, Paris 8 University, France; **Co-Author:** Katarina Gvozdic, Unknown; **Co-Author:** Emmanuel Sander, Université Paris 8, France

Children's conceptual development was studied, with the aim to implementing progressive curriculum in mathematics. First, we noticed that children have preconceptions on mathematics concepts (Fishbein, 1989), triggering a wrong categorization of the situation (Chi, 2008). Identifying preconceptions is key to studying conceptual difficulties that children meet when developing abstract conceptions in mathematics (Bassok et al., 1998). Thus two types of mathematics problem can be distinguished: problems whose depicted situation is congruent with preconception on the arithmetical notion and those that are incongruent. In order to get over preconceptions and develop more relevant conceptions, we hypothesized that pupils need to build different representations of the same situation through a process of semantic recoding (Sander & Richard, 2005; Hofstadter & Sander, 2013) allowing to reinterpret the situation and to promote cognitive flexibility. Past studies for

training cognitive flexibility in mathematics mainly studied number calculations: multi-digit addition/subtraction (Carpenter et al., 1998), decomposition (Klein, Beishuizen, & Treffers, 1998) and linear equations (Rittle-Johnson & Star, 2007, Star & Johnson, 2008). But evidences are more sparse when using word problems. Therefore we developed a teaching method based on recategorization mechanism and using word problems, tested in two experiments in high priority education schools. Experiment 1 demonstrated that teaching subtraction through the concept of difference allows children (2nd Grade, N=283) to build a global concept of subtraction and multiplication. In Experiment 2, the experimental group (4-5th Grades, N=66) improved their representational flexibility after a teaching method based on semantic analysis and choice in point of view. In the post-test, they achieved to significantly propose dual-strategies to new distributive problems, reflecting their increase in degree of abstraction and transfer. Starting from the children preconceptions on mathematics notions offers a progressive curriculum using the strength of naïve conceptions without enhancing their limitations thanks to a method based on a reflexive attitude.

### **Quality of interaction in peer learning**

**Keywords:** Cooperative / collaborative learning, Peer interaction, Qualitative methods, Quantitative methods

**Presenting Author:**Valentina Reitenbach, German Institute for International Educational Research, Germany

The thesis aims at gaining a better understanding of peer interaction quality in the context of peer learning in primary school education. Focussing on children's content-related talk during peer learning, I would like to examine the relationship between the triad of individual and group characteristics, peer interaction and learning-related outcomes. Based on theoretical and empirical findings, an operationalisation of peer interaction quality will be developed. The objective is to cover different facets of peer interaction and to examine their effects on primary school students' learning-related outcomes (1). Subsequently, the role of individual and group related characteristics for the relation between peer interaction quality and learning-related outcomes in PL will be analysed (2). A research on theoretical and empirical literature on peer interaction and its effects on learning-related outcomes will provide groundwork for the deductive development of the first categories for the operationalisation of peer interaction quality. These categories will be complemented inductively using examples of extreme groups. Data of primary school students (grades 3 and 4) who participated in tandems in a quasi-experimental peer learning intervention will be used for the inductive work on the measurement of peer interaction quality as well as the multivariate analyses. Approximately 170 students participated in tandems in a structured training (12 sessions of 45 min each) for either reading or arithmetic strategies. While the first six sessions were instructed by a trainer, during the last six sessions the children practiced independently with the help of structuring materials. Audio data of three sessions (6, 9, and 12) is available to measure the peer interaction quality. Additionally, a variety of tests and questionnaires has been implemented at several measurement points. During the round table discussion, I will point out reflections considering the development of an operationalisation of peer interaction quality as well as methodological issues concerning the selection of data.

### **Session G 1**

28 August 2017 13:00 - 14:30

Pinni B 3107

Poster Presentation

Assessment and Evaluation, Higher Education

### **Learning, Emotion and Higher Education**

**Keywords:** Achievement, At-risk students, Case studies, Computer-supported collaborative learning, Educational Psychology, Emotion and affect, Higher education, Inquiry learning, Learning approaches, Motivation and emotion, Physical Sciences, Qualitative methods, Quantitative methods, Teacher Professional Development, Workplace learning

**Interest group:** SIG 04 - Higher Education, SIG 20 - Inquiry Learning, SIG 23 - Educational Evaluation, Accountability and School Improvement

**Chairperson:** Jenni Sullanmaa, University of Helsinki, Finland

### **Playing the Part or a Natural Fit?: University Department Chairs' Emotional Labour**

**Keywords:** Case studies, Emotion and affect, Higher education, Qualitative methods

**Presenting Author:**Summer Cowley, The University of Alberta, Canada

North American universities are facing a scarcity of senior faculty able or willing to take on leadership positions, including Department Chairships. While professors often feel motivated (or obligated) to act as Chair, many find the position to be stressful or unpleasant, and only stay in the role for a short period due to job dissatisfaction. Although stressors affecting Chairs have been studied, we lack information regarding Chairs' self-management of emotional responses to these stressors, a process herein referred to as emotional labour. This case study asks: "In what ways do Department Chairs perform emotional labour at work?" As Chairs' roles change focus from private and individualistic concerns to public and group concerns, the feeling rules (which outline which emotions are appropriate for them to express at work) change. This presentation focuses on the ways that university Department Chairs express and suppress emotion to fit an idealized normative standard of affect. The qualitative case study that this presentation is based on took place at a large research-intensive university in Canada. Data were collected from 10 participants in this study using semi-structured interviews, email correspondence, and participant journal entries to explore the ways in which Chairs perform emotional labour to

adhere to institutional feeling rules. By considering the emotional labour of Department Chairs as a matter of effective socialization into a university department, this project allows us to consider professional development as more than a simple nurturing of skills. Findings from this study may enable postsecondary Senior Administrators to improve Chair training and professional development by providing further knowledge about the nature of emotional labour in Chairship. This knowledge may enable institutions and administrators to give Chairs the support they need to quickly and effectively transition into (and be satisfied with) their roles.

#### **Learning styles and academic achievement: A survey on medical internship students in Mashhad (Iran)**

**Keywords:** Achievement, Higher education, Learning approaches, Quantitative methods

**Presenting Author:**Ali Emad zadeh, Mashhad University of Medical Sciences (MUMS), Iran; **Co-Author:**Seyed Masoud Hosseini, Mashhad University of Medical Sciences (MUMS), Iran; **Co-Author:**Ehsan Sahebi, Mashhad University of Medical Sciences (MUMS), Iran

**Introduction**In recent decades, there have been many studies about learning styles based on Kolb experiential learning theory and its relationship with students' educational achievement, career interests, etc. In medicine, clinical education is complex and the learners are involved in various scenarios that need comprehensive thinking and applying several learning modes by them to make the best decision and solve the problem. Few studies have been done on medical internship students' learning styles in relation to their performance on clinical situations in Iran. This study has been carried out on medical internship students' educational achievement in relation to their learning styles based on Kolb theory in Mashhad University of Medical Sciences (Iran) through 2015.**Methods:**Using stratified random sampling, seventy students who had passed the preclinical comprehensive national exam, were selected and participated the study. The Kolb learning style inventory (LSI 3.1) as well as a questionnaire were administered to get the data. Educational achievement data were analyzed in relation to students' dominant learning styles, using descriptive and analytical statistics including one-way ANOVA tests.**Results:**The dominant learning styles of students were as Converging (37%), Assimilating (31.5%), Diverging (18.5%) and Accommodating (13%). There was no significant relationship between educational achievement and dominant learning style ( $P>0.05$ ). However, the students with Diverging learning style had a better performance on their educational achievement.**Conclusion:**Findings in our study support that the dominant learning style is not necessarily an essential factor to predict educational achievement for the studied group. However, the Diverging students had better performance and it may be due to their ability to view concrete situations from different points of view and perform better in situations such as a clinical problem solving. Teachers should be consider students preferences in designing learning opportunities. **Keywords:** Clinical Education, Educational Achievement, Kolb Learning Style

#### **The impact of school inspection on emotions and professional self-understanding of teachers**

**Keywords:** Educational Psychology, Emotion and affect, Teacher Professional Development, Motivation and emotion

**Presenting Author:**Amy Quintelier, University of Antwerp, Belgium; **Co-Author:**Jan Vanhoof, University of Antwerp, Belgium; **Co-Author:**Maarten Penninckx, University of Antwerp, Belgium; **Co-Author:**Nathalie Heyninck, University of Antwerp, Belgium

Research shows that school inspection visits often have a significant impact on teacher emotions and can cause professional insecurity, anxiety and stress among teachers. Also changes in teachers' professional self-understanding are reported. Up till now, it is unclear whether there are differences between teachers in different schools with regard to the impact of inspections on their emotions and their professional self-understanding. This qualitative study adds to our understanding of the impact of school inspections on the emotions and the professional self-understanding of secondary school teachers and links this impact to the policymaking capacity of schools and the inspection judgement. Research data were collected through 16 semi-structured in-depth interviews in 8 Flemish schools. The emotional burden of the school inspection was confirmed and various influences to teachers' professional self-understanding have been clarified with the introduction of four typologies of reactions: 'confident', 'action-oriented', 'shocked' and 'defeated' teachers. At school level, the results show that schools with a high policymaking capacity fostered a positive perception of the audit. Schools with low policymaking capacities struggled to moderate in the heavy emotional burden during the school inspection. These findings suggest that policymaking capacities of schools are a key factor in creating a context that fosters a positive and safe learning climate during school inspections. The judgement of the Inspectorate also has a decisive impact on teachers' emotional responses and professional self-understanding: whereas a positive inspection judgement has a clear positive and affirmative influence on teachers' professional self-understanding, negative feedback puts their professional self-understanding to the test. This study enlarges the knowledge base on the relationship between teachers' emotions and professional self-understanding in the inspection visit context and illustrates the different emotional reactions of teachers. This study highlights the importance of better communication between inspectors and teachers to exceed the summative aspect of a school inspection.

#### **Understanding inquiry-based learning processes in technology-enhanced physics learning**

**Keywords:** Computer-supported collaborative learning, Higher education, Inquiry learning, Physical Sciences

**Presenting Author:**Joni Lämsä, University of Jyväskylä, Finland; **Co-Author:**Raija Hamalainen, University of Jyväskylä, Finland; **Co-Author:**Pekka Koskinen, University of Jyväskylä, Finland; **Co-Author:**Jouni Viiri, University of Jyväskylä, Finland

A growing number of studies have suggested that in STEM-subjects (science, technology, engineering, mathematics)

lecture-based instruction and teaching should be developed towards active learning methods in higher education (Freeman et al., 2014). In autumn 2016, primetime-learning model was implemented to an introductory course of physics at University of Jyväskylä ( $N = 70$ ). In primetime-learning, the learning process can be described with four different phases, which are repeated every week: self-studying key concepts, applying the concepts in small groups, full-length problem solving independently or in small groups and a primetime between a teacher and a small group. This poster focuses on the second phase, where the groups solved problems face-to-face with their laptop in a technology-enhanced learning (TEL) environment without a teacher. Data was collected by screen capturing and audio recording the group workings sessions of four different groups ( $N = 20$ ). The inquiry-based learning (IBL) processes of the groups are analysed founded on theory-based content analysis methods (Krippendorff, 2004) adapted to the phases of IBL (Pedaste et al., 2015). The aim is to figure out how do collaborative IBL processes differ between the small groups, and how do students take advantage of the TEL-environment in different phases of the inquiry cycle. Based on findings, the dynamic of a collaborative IBL process differs significantly between two small groups under study. While the other group solved the problem in a systematic and structured way, another group did not succeed to get the correct answer of the problem. This can be explained at least partially when considering the way the groups took advantage of technological resources given. The results of the study increase the understanding of how undergraduate students collaborate in technology-enhanced inquiry learning settings. This, in turn, is crucial when fostering students' scientific inquiry further by computer-based scaffolding, for instance.

### **Academic, Social and Work-related Integration in Higher Education IT Students' Retention**

**Keywords:** At-risk students, Higher education, Quantitative methods, Workplace learning

**Presenting Author:** Külli Kori, University of Tartu, Estonia

Information Technology (IT) specialists are needed across the world. However, graduation rates in higher education IT studies are low, and therefore, the needs of the labor market will not be met. The current study adapts Tinto's retention model and applies it in higher education IT curricula. The aim is to investigate the reasons why students start higher education IT studies, continue the studies and what is the role of academic, social and work-related integration in predicting IT students' retention. Data was collected for the first study from 301 and for the second and third study 509 first-year IT students in Estonia. The students responded to questionnaires at the beginning of the first and second semester. Exploratory Factor Analysis (EFA), Structural Equation Modelling (SEM) and Latent Profile Analysis (LPA) were used to analyze the data about integration of first-year IT students. As a result of EFA three factors were differentiated both while starting IT studies and while continuing the studies, and these showed work-related integration. Academic integration factor was differentiated only while starting the studies and social integration became important during studies. The results of SEM and LPA show that academic experience and work-related experience has effect on students' graduation-related self-efficacy, but the role of work-related integration is significantly more important than the role of academic integration. Social integration independently was left out from the created models. However, work-related integration includes social aspects when students are communicating with other IT workers; also, it includes academic aspect when students develop themselves academically at work. In addition, four IT students' academic, social and work-related integration profiles were distinguished with LPA. Based on the profiles universities can develop more personal support system for supporting IT students integration in order to get more higher education graduates.

### **Session G 2**

28 August 2017 13:00 - 14:30

Pinni B 1097

Single Paper

Instructional Design, Learning and Instructional Technology

### **Instructional Design and Experimental Studies**

**Keywords:** Collaborative Learning, Conceptual change, Experimental studies, Instructional design, Primary education, Problem solving, Problem-based learning, Teaching / instruction

**Interest group:** SIG 06 - Instructional Design

**Chairperson:** Martin Daumiller, University of Augsburg, Germany

### **Collaborative Problem-Finding to Prepare 5th Graders to Learn Complex Science Concepts**

**Keywords:** Collaborative Learning, Experimental studies, Instructional design, Problem-based learning

**Presenting Author:** Mun Siong Kom, National Institute of Education / Nanyang Technological University Singapore, Singapore

Research on Productive Failure (e.g., Kapur & Bielazyc, 2012; Kapur, 2013) has yielded considerable evidence on the preparatory effects of problem-solving to prepare students for formal instruction on target concepts. The experimental study reported here extends the research by examining problem-finding as a preparatory activity for learning complex science concepts. Specifically, this study investigated the effects of generating provisional answers on problem-finding to prepare students for subsequent formal instruction on physical factors affecting the rate of water evaporation. Sixty-four fifth-grade student participants from three mixed ability classes were randomly assigned to complete two problem-finding tasks collaboratively that differed only in the task instruction: Task 1. Find problems only; Task 2. Find problems and corresponding provisional answers. After

completing the preparatory activity, students received target concept instruction taught by the researcher. All learning activities took place during students' regular science lessons in school. ANOVA results revealed non-significant differences between the manipulated factor as well as within-subjects from pre- to post-intervention test scores. Content analysis of students' questions and provisional answers revealed that students in both experimental conditions generated more questions and answers on the subject matter related to target concept than those on the target concept. One explanation to explain the statistically nonsignificant concept learning outcome of students in both conditions, derived from the analysis of students' problems and provisional answers, was that the problem-finding task failed to adequately direct students' attention to critical features of the target concept, thus mitigating the preparatory effects of problem-finding. This led to insights on refining the problem-finding task for subsequent follow-up studies. Another possible explanation stemmed from lesson observations which pointed to an apparent unequal contribution from individuals during collaborative problem-finding. The second explanation suggested the possibility of testing student problem-finding under a different participation mode in a follow-up study.

### **Specifics of problem learning situations in primary Science instruction**

**Keywords:** Primary education, Problem solving, Teaching / instruction, Problem-based learning

**Presenting Author:** Tereza Češková, Masaryk University, Czech Republic

Our research focuses on the problem-oriented instruction. Primary Science lessons focus mostly on pupil's close surroundings, they are especially suitable for including problem-oriented tasks (POT; based on Problem-Based Learning). When considering the tasks, we take into account the broader context – whole problem learning situation. The ideal process of problem learning situations can be described in eight phases. The phases can be divided into two groups: (a) Phases focused on solving POT as such; and (b) Phases that develop and support the process of solving a problem-oriented task. We suppose that those lessons in which solving POT (esp. Phases 2 – Analysing of the POT, 3 – Searching for information and 4 - Summarizing) is given more prominence, develop the problem-solving competence better. The paper aims to: (1) briefly introduce how the PLSs in the research sample are organised; (2) describe what the actual realization of solving phases (2 - Analysing, 3 - Searching for information, and 4 - Summarizing) in potentially qualitatively better problem learning situations looks like (from a conversation analysis point of view). The research sample consists of 10 videorecordings of primary Science lessons. A structured observation was used for identification of the phases. To report the overall results we use descriptive statistics. To better understand the process of solving POT, we focus on their organisation using conversation analysis. In our research sample we have identified 41 POT which were organised in 31 problem learning situations. In 6 out of 10 lessons the time allocated to problem-learning situations is more than a quarter of the lesson duration. 12 problem learning situations were selected for further analysis. The conversation analysis suggest that the problem-solving process is prevalently framed by IRFRF, participants' turn-taking differs from the traditional frontal instruction due to pupil-to-pupil interactions and the teacher gives pupils more time to solve the task independently, and guide them specifically.

### **Learning an Economic Threshold Concept Through a Classroom Experiment**

**Keywords:** Conceptual change, Experimental studies, Instructional design, Problem solving

**Presenting Author:** Isabel Cademartori, University of Mannheim, Germany

In past years, several studies have looked at measuring economic competence levels and economic knowledge. Most of these studies indicate that economic knowledge among students and adults tends to be limited (Brückner, Förster, Zlatkin-Troitschanskaia, & Walstad, 2015; Holtsch & Eberle, 2016; Walstad & Rebeck, 2001). The question of how instruction can enable students to overcome naïve economic notions and start “thinking like economists” (Bartlett & King 1989) still demands further research. An instructional method that is experiential and scientific, such as the classroom experiment, could be an effective instructional intervention to facilitate conceptual change (Liening, 2015). There is evidence that the use of classroom experiments results in higher student achievement in economic courses (Dickie 2006; Emerson & Taylor 2004). The aim of this study is to find out (1) whether classroom experiments can support the conceptual change process for selected economic threshold concepts and (2) how students learn and experience a classroom experiment in economics. As a first step to explore this questions, a classroom experiment exemplifying the concepts of free trade and comparative cost advantage was conducted with four groups of economic and business education students (N=75). In this first exploratory study, data on the effects of the experiment on student behavior and knowledge was collected with multi-method approach. Findings indicate that students had difficulty grasping the threshold concept of comparative advantage of the experiment. Experiment performance correlated with post-test score in knowledge tasks while interview data indicates that students were following risk-hedging instead value maximizing strategies. Lessons drawn from the study design and implications for the main study will be reported. Overall, research on conceptual change through classroom experiments is a worthwhile topic that calls for further investigation. Unless we understand how students can learn key economic concepts it is to be expected that literacy and competency research, however sophisticated, will only be able to inform us that economic knowledge is still lacking.

### **Session G 3**

28 August 2017 13:00 - 14:30

Pinni B 3117

### **Pre-service teacher education**

**Keywords:** Assessment methods and tools, Mathematics, Pre-service teacher education, Psychometrics, Secondary education, Social aspects of learning and teaching, Teaching / instruction, Values education, Video analysis

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Jennifer Schwarze, RWTH Aachen University, Germany

### **Context Affects Pre-service Teachers' Principle-orientation of Instructional Math Explanations**

**Keywords:** Mathematics, Pre-service teacher education, Secondary education, Teaching / instruction

**Presenting Author:** Mona Weinhuber, University of Freiburg, Germany; **Co-Author:** Andreas Lachner, University of Tübingen, Germany; **Co-Author:** Timo Leuders, University of Education Freiburg, Germany; **Co-Author:** Matthias Nückles, University of Freiburg, Germany

Principle-based explanations in math not only contain the solution steps, but also include conceptual information about why mathematical solution steps have to be taken. Principle-based explanations have been shown to effectively support students' understanding. However, Lachner and Nückles (2016) found that math teachers – unlike math professors – tended to omit conceptual information when writing explanations for students. The authors attributed this procedural orientation to the lower subject matter knowledge of math teachers when compared to math professors. Alternatively, math teachers' procedural orientation could also have been triggered by the specific school context (math as toolbox) they had in mind while explaining. To test whether the instructional context affects pre-service teachers' provision of principle-based explanations, we provided advanced pre-service teachers with either a comic which framed mathematics as argumentation (students vividly discussed a mathematical problem in a school math club), or with a comic which framed mathematics as a toolbox (students rehearsing algorithms at school). A control group read a neutral comic with no math-related content (planning of a school trip). Afterwards, the pre-service teachers wrote an explanation about an extremum problem for 11<sup>th</sup> grade students. Pre-service teachers framed with math as argumentation generated more principle-oriented explanations than pre-service teachers framed with math as a toolbox, with pre-service teachers in the control condition lying in-between. Evidently, pre-service teachers' inclination to include or omit conceptual information in their explanations depended on the situationally contingent perspective on mathematics that was cued by the context. It is possible that math teachers' procedural orientation is due to a particular culture in schools that cues them to mainly view math as a toolbox and less as argumentation. These results could stimulate math (pre-service) teachers to critically reflect on the mathematical culture in schools, given that principle-oriented explanations are more effective than procedure-oriented explanations in helping students gain transferable knowledge.

### **Learning to diagnose – Aiming to support students in their learning process**

**Keywords:** Assessment methods and tools, Mathematics, Pre-service teacher education, Video analysis

**Presenting Author:** Rita Hofmann, University of Koblenz-Landau, Germany; **Co-Author:** Jürgen Roth, University of Koblenz - Landau, Germany

*The learning process of students is a complex aspect of lessons. To support this process it is important that the requirements of the tasks conform to the knowledge and skills of the students. Moreover, at this state, there is special need for the teacher who must have special skills to support the learners as good as possible. One essential skill is to see what the students' current level of learning is, which concepts and misconceptions they have, whether further instructions and help are needed – and if so, in what way. Therefore diagnostic competences, are essential for teacher actions. However pre-service teachers mostly do not have the opportunity to train these skills at university. Thus, there is a need to find out how to promote diagnostic competences in teacher training. There are different methods which can be used to train these skills, like the analysis of tasks and the analysis of videos. The focus of task analysis lies on skills which are needed in the planning of lessons. In contrast, the analysis of videos focuses on diagnostic skills used in concrete situations in lesson. In recent years, several projects have started to use videos to train diagnostic skills, but there is still the question if pre-service teachers really acquire diagnostic skills better by analysing videos than by analysing tasks. This study aims to contribute to this growing area of research by exploring if these two methods promotes diagnostic skills and if they have an influence on different aspects of diagnostic competence. Video analysis and task analysis are compared as training methods in an intervention study with a pretest- posttest design. Fostering preservice teachers' diagnostic skills with focus on students' abilities, problems and misconceptions with graphs of functions, is the specific objective of our study.*

### **Justice Sensitivity in pre-service teachers**

**Keywords:** Pre-service teacher education, Psychometrics, Social aspects of learning and teaching, Values education

**Presenting Author:** Natalie Ehrhardt, University of Koblenz-Landau, Germany; **Co-Author:** Carla Bohndick, University of Koblenz-Landau, Germany; **Co-Author:** Susanne Weis, Universität Koblenz-Landau, Campus Landau, Germany; **Co-Author:** Tanja Lischetzke, Universität Koblenz-Landau, Campus Landau, Germany; **Co-Author:** Manfred Schmitt, Universität Koblenz-Landau, Campus Landau, Germany

Educational justice research shows that justice in school is important and that justice leads to positive effects in the students, i.e. a sense of trust and belongingness to school. One necessary prerequisite for justice in school is, that the

teacher -as the most powerful person in the classroom- can perceive an injustice and is motivated to restore justice. People differ systematically in their perception and their cognitive, behavioral, and emotional reactions to injustice. Albeit, teachers' justice sensitivity has not been studied yet. This is surprising, since pre-service teachers' justice sensitivity might be a relevant measure in teacher training.

In our study we measured  $N=2133$  pre-service teachers' Justice Sensitivity from four perspectives (victim, observer, beneficiary, perpetrator) using the short scales USS-8 from Beierlein et al. (2012). We compared the results of pre-service teachers' justice sensitivity with the population representative results of justice sensitivity by Baumert et al. (2012). We analyzed if pre-service teachers' observer, beneficiary and perpetrator sensitivity were higher than in other people of the same age. To study if justice sensitivity is shaped through learning opportunities, we tested if the magnitude of justice sensitivity was predicted by prior experiences of injustice or by the level of progress in their teacher training. The results showed that pre-service teachers indeed are more observer, beneficiary and perpetrator sensitive than other people of the same age. This is a favorable finding since observer, perpetrator and beneficiary sensitivity are prosocial justice perspectives that reflect a person's genuine concern for justice. Fortunately, though these prosocial perspectives of justice sensitivity were higher, victim sensitivity was not higher compared to the normal population. It was also found that justice sensitivity was neither related to the duration of the teacher training nor to the prior experiences of discrimination. One practical implication of these findings could be to use justice sensitivity as way of regulating admission to teacher training.

#### **Session G 4**

28 August 2017 13:00 - 14:30

Pinni B 4117

Single Paper

Teaching and Teacher Education

#### **Teacher Education, Attitudes and Beliefs**

**Keywords:** Achievement, Attitudes and beliefs, Comparative studies, Educational Psychology, Higher education, Motivation and emotion, Parental involvement in learning, Pre-service teacher education, Primary education

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Júlia Grifol Freixenet, Vrije Universiteit Brussel (VUB), Belgium

#### **Preservice Teachers' Views on Working with Diverse Families in Mongolia**

**Keywords:** Achievement, Parental involvement in learning, Pre-service teacher education, Primary education

**Presenting Author:** Batdulam Sukhbaatar, University of Szeged, Hungary

The demands on 21<sup>st</sup> century teachers are increasing: Teachers are now required to have not only good professional skills, but also extraordinary personal skills. Teacher education must provide programs that equip prospective teachers with a deep understanding about learning and teaching, and with the social and cultural contexts needed to serve classrooms with increasingly diverse students including learning styles, family backgrounds, and community settings (Darling-Hammond, 2006). However, teacher education programs too often focus on subject matter learning that is abstract and general and then there is still a gap in preparing prospective teachers for specific tools useful in the classroom, such as successfully working with families (Darling-Hammond, 2006; Pedro, Miller & Bray, 2012). This study used semi-structured interviews to examine 18 primary education preservice teachers' views on working with Mongolian parents across diverse family patterns concerning about preservice teachers' understanding of parental involvement; parental involvement practices learned by preservice teachers; preservice teachers' awareness of diverse family patterns; and preservice teachers' feelings about their preparedness for working with parents from diverse family patterns. The findings suggest that the preservice teachers learned about parental involvement during their student teaching practice by observing classroom teachers carrying out parent-teacher meetings and by conducting their own activities. However, the preservice teachers realized that the importance given to parental involvement by classroom teachers and schools were differed considerably. The parent-teacher meeting is the most common engagement with parents. All prospective teachers reported difficulty in having the attendance of every parent at parent-teacher meetings and they recognized parental involvement in herder families and migrant worker-parents to be a big challenge. Current preservice teacher training practices appear to ill-equip prospective teachers for working with parents from diverse family patterns. Prospective teachers can be change agents if they are adequately prepared to work with diverse families.

#### **Pre-service teachers thinking about inclusion**

**Keywords:** Attitudes and beliefs, Educational Psychology, Higher education, Pre-service teacher education

**Presenting Author:** Carla Bohndick, University of Koblenz-Landau, Germany; **Co-Author:** Natalie Ehrhardt, University of Koblenz-Landau, Germany; **Co-Author:** Susanne Weis, University of Koblenz-Landau, Germany; **Co-Author:** Tanja Lischetzke, University of Koblenz-Landau, Germany; **Co-Author:** Manfred Schmitt, University of Koblenz-Landau, Germany

Title: Pre-service teachers thinking about inclusion – relationships with learning opportunities and personal characteristics

Teacher training seeks to prepare students for inclusion. One aspect of this preparation is the attempt to shape pre-service teachers attitudes towards inclusion, as those attitudes are one possible barrier of the transition to an inclusive education system (De Boer, 2012; Stoiber, Gettinger, & Goetz, 1998). The development of professional competence and therefore the development of attitudes towards inclusion depends on several influences (Kunter et al., 2013): First, there have to be learning opportunities. Since learning processes are not passive, students also have to make use of those learning opportunities. The uptake of the learning opportunities is dependent on personal characteristics that additionally influence the attitudes directly. Therefore, this study set out to shed light into the development of attitudes towards inclusion, posing research questions regarding the (1) relationship between attitudes and learning opportunities, (2) relationship between attitudes and personal characteristics, and (3) moderating effects of personal characteristics on the relationship between attitudes and learning opportunities. Paper-pencil questionnaires measuring attitudes towards inclusion (MTAI; Stoiber et al. 1998), learning opportunities, relevant prior experience (Schröttle et al., 2014), cognitive ability (mini-q; Baudson & Preckel, 2016), and personality factors (BFI; Lang, Lüdtke, & Asendorpf, 2001) were distributed to  $N = 2504$  teacher training students in two universities. Students' mean age was  $M = 21.56$  years ( $SD = 2.93$ ), they were in their  $M = 3.25^{\text{th}}$  semester ( $SD = 2.96$ ), 75% were female, 4% had disabilities or another health impairment, 17% had a migration background. Data was analyzed using multiple linear regression analyses. Results indicate (1) that learning opportunities are related to attitudes towards inclusion but not as strongly as expected, (2) particularly agreeableness is related with attitudes towards inclusion, and (3) there are interactions between learning opportunities and personal characteristics. Practical implications concerning the enhancement of attitudes towards inclusion during teacher training and implications for future research are discussed.

### **Mistakes are often best teachers.-study of attitudes to mistake among German and Finnish teachers**

**Keywords:** Achievement, Attitudes and beliefs, Comparative studies, Motivation and emotion

**Presenting Author:** Annika Breternitz, Institut für Erziehungswissenschaft University of Paderborn, Germany

In my PhD thesis focusses on the teachers' attitudes towards mistakes; my sample allows a comparative perspective between German and Finnish teachers. Are mistakes seen as a sign of failure or a sign of a learning situation? Beside the importance that teachers are able to handle pupils' mistakes in a constructive way and have the knowledge of possible error types, a constructive view of errors is regarded as important (Seifried & Wuttke (2010)). But during the learning process in the classroom there are also achievement-oriented situations connected and the results of this achievement should be a part of the final grades in Germany. So, there are two opposite views of mistakes: mistake as a learning opportunity and mistake as a sign of failure. But is it possible to combine these two views? Interesting is the comparison between German teachers and teachers from a country where the measurement of the achievement during the lessons is less important for the grades as it is in Finland. Haider (2005) assume the functionality of performance assessment and handling with learning problems mirror in school system. There are significant differences between the German and Finnish school systems, for example the selective school system in Germany and the comprehensive school with upper school in Finland. But there can exist more factors which influence the attitude to mistakes. Up to now it is an unanswered question, whether teachers' approach is influenced by their own biography (Hierdies 2006) or by the teacher training (Czerwenka 2004). This is an interesting question, regarding that it is a part of professional error competence. The international and comparative research points out that there is a connection between mistake-handling strategies and cultural beliefs and practices (Santaga (2005)). The central research questions pursue which kind of mistake attitudes can be detected and what factors influence the mistake attitudes of German and Finnish teachers.

### **Session G 5**

28 August 2017 13:00 - 14:30

Pinni B 1100

Poster Presentation

Learning and Social Interaction, Motivational, Social and Affective Processes, Teaching and Teacher Education

### **Motivation and Social Aspects of Learning and Teaching**

**Keywords:** At-risk students, Computer-assisted learning, Educational Psychology, Emotion and affect, Higher education, Learning approaches, Mathematics, Motivation, Motivation and emotion, Primary education, Qualitative methods, Quasi-experimental research, Secondary education, Social aspects of learning and teaching, Social development, Social sciences, Student learning, Teaching / instruction

**Interest group:** SIG 08 - Motivation and Emotion

**Chairperson:** Lisa Bugno, University of Padova, Italy

### **Students' emotion regulation and its effect on learning outcome**

**Keywords:** Computer-assisted learning, Emotion and affect, Higher education, Student learning

**Presenting Author:** Petra Ebenschwanger, Technical University of Munich, Germany; **Co-Author:** Maria Bannert, Technical University of Munich (TUM), Germany

Emotions are a relevant factor in understanding learning. Empirical findings indicate negative correlations of high emotional arousal and negative emotions with learning outcome. Negative emotions seem to be unpreventable in computerized

learning settings, for example because they are less flexible than human teachers are. Moreover, learners often report to miss emotion regulation skills. So far, there is a lack of empirical studies dealing with a) how students handle emotions during learning and b) the impact of emotion regulation on academic achievement in computer-based learning environments. The aim of this explorative study is to find out how students spontaneously regulate emotions during learning in a computer-based learning environment and how emotion regulation strategies affect the learning outcome. To answer these questions, around 30 second semester undergraduate students at a German university will rate their emotional states at four points during learning about statistics (probability theory). After the learning phase (lasting about forty-five minutes) and the completion of a learning performance test, students will state their applied emotion regulation strategies via online survey. A partial sample will be interviewed about their emotions during learning and how they dealt with their emotions by means of video-cued recall. Because the regulation of emotions is not part of the academic education in Germany, we expect students to not significantly regulate their emotions spontaneously and we expect this to negatively affect the learning outcome. Approaches addressing the promotion of learners' inherent emotion regulation ability in computer-based learning environments are missing. Our study aims to allow a promising look into possible interventions helping students to improve their emotion regulation skills and thereby their learning outcome in computer-based learning environments in the long term. As the data will be collected in May 2017, first results may be available by the time of the conference.

### **Promoting at-risk students' self-determined motivation and self-concept in maths.**

**Keywords:** At-risk students, Mathematics, Motivation, Quasi-experimental research

**Presenting Author:** Claudia Cristina Brandenberger, University of Bern, Switzerland

An alarming trend, especially for students in lower achievement levels, is for academic self-determined motivation to significantly decline across childhood through adolescence, and more so in maths than in any other school subject. In particular, the transition from primary to secondary school has a significant impact on students' self-determined motivation and self-beliefs. Consequently, the seventh grade in Switzerland is considered a critical year, since it represents the transitional phase from primary to secondary school for most students. The aim of the present study was to evaluate whether seventh-grade students' self-determined motivation and self-concept (as a motivational self-belief) in maths could be maintained or even fostered through a classroom-based, multi-component intervention study based on the main ideas of the Self-Determination Theory of Motivation. The study applied a quasi-experimental design using two treatment groups (combined student/teacher group: teachers and students participate in intervention; students-only treatment group: only students participate in intervention) and a control group. The sample for this study included 348 7th grade basic demand students (student/teacher group: 134 students; students-only group: 122 students; control group: 92 students). The intervention was evaluated longitudinally (pre- and post-test) through a student questionnaire. Paired sample t-tests and Cohen's d showed that the most positive effects were found for students in the combined group with a significant increase in intrinsic motivation and self-concept. Multivariate analyses of covariance (MANCOVA) controlling for the pre-test variables (self-concept and motivation, as well as maths achievement and the perception of basic need support from maths teachers) revealed a significant intervention interaction effect for intrinsic and identified motivation, indicating significant differences between the groups in favour of students in the combined group. The results of the present study highlight that the decline of autonomous motivation across adolescence is strongly influenced by teachers who shape the learning environment and by the students who develop learning competencies and reflect on their attitudes towards learning.

### **Monologization of teacher's communication as a manifestation of his/her dominance in the classroom**

**Keywords:** Learning approaches, Qualitative methods, Secondary education, Teaching / instruction

**Presenting Author:** Hana Navrátilová, Tomas Bata University, Czech Republic

This study is focused on the teachers' communication with students in standard lower secondary schools and it concentrates on teacher's discourse in term of its monologization. The studies about instructional communication in last decades, often focused on teacher's questioning, constantly repeat the strong tendency of teachers to dominate. Our aim is to supplement the knowledge with the view of monologic discourse in teachers' communication. The aim is to identify and describe how teacher's monologic speech in specific genres enters and affects the instructional communication. Following research questions respond to our aim: (1) What are the characteristics of teacher's monologic speech? (2) How does a teacher work with genres of monologic speech? (3) How does the teacher's talk become monologized? The research sample consists of 6 teachers from 3 standard low secondary schools in Czech Republic. The methods of data collection are based on unstructured observation and interviews with the teachers and the data material includes the field notes and video recordings of 24 whole-class lessons. The choice of lessons comprises both humanities and natural sciences in all grades of low secondary schools. The observation was made in longer time span with the aim to record diverse learning stages in each class. The research is based on qualitative analysis using the methods of open coding, constant comparison, memos and categorisation. Research findings bring the view of genres and kinds of teacher's monologic speech from which identified embedded monologic speech enters into the structure of instructional communication from a new perspective. This phenomenon is also influenced by teacher's efforts of managing the communication in particular speeches or the control over the class as a whole. These teachers' strategies were also the basis for identifying a typology of their communication styles leading to monologization of their speeches.

Monologization of teacher's communication as a manifestation of his/her dominance in the classroom

### **Teachers' beliefs about children's emotion regulation in the context of elementary schools**

**Keywords:** Educational Psychology, Primary education, Social development, Motivation and emotion

**Presenting Author:**Juliane Schlesier, University of Oldenburg, Germany

Numerous empirical studies have been able to outline emotion regulation of children with special focus on the private social environment. At the same time, the influence of school as an institution has been disregarded, although school-aged children spend two thirds of their daytime at school. Since children – especially in the institution of school - are confronted with cultural rules of conduct and new requirements, it seems important to investigate the beliefs of primary school teachers to their conception of children's development of emotion regulation in the context of their school environment. For this purpose, focused, guideline-based, structured interviews with 30 primary school teachers have been analysed in three steps on the basis of content analysis by Mayring (2015): paraphrasing, generalisation and reduction with categorization. First results show three main categories concerning the development of emotion regulation of learners in the context of school: (1) Developmental steps of emotion regulation at primary school, (2) Emotion regulation strategies, and (3) Disorders/disturbances of emotion regulation. Within category (1), it becomes obvious that the primary school teachers distinguish four special sections regarding emotion regulation in primary school. In the course of this, emotion regulation seems to develop from Grade 1 to 4 according to a pattern scheme: In Grade 1, children's negative emotions determine their behavior and thereby lessons; in Grade 4, children have gained the ability to regulate negative emotions so that these do not prevent teaching in the classroom. Teaching lessons (norm and time), friends and social groups (peers), teachers, and social workers are important influencing school factors for this progression. All in all, the primary school teachers believe that school as an institution is an important factor in regard to the development of emotion regulation. It would be useful to investigate in prospective qualitative research and to verify in quantitative surveys how exactly teachers can influence the development of emotion regulation in a positive way.

### **Social Climate at University**

**Keywords:** Educational Psychology, Higher education, Social aspects of learning and teaching, Social sciences

**Presenting Author:**Lisa Pindeus, University of St.Gallen, Switzerland

The aim of this thesis is to show that social climate also exists at university, more precisely within disciplines. Another goal is to demonstrate any influences of personality orientations of students on the social climate at university. In the theoretical part, the terminologies interests, occupational values and study choice motives are described as an expression of personality. Because of the literature it can be seen that attempts have already been made to show influences of personality on the social climate or interactions of the two constructs. (see for example Eder, 1990, 1992, 1996; Payne & Pugh, 1976, p. 1127) In science and research there exists lots of knowledge (not necessarily a uniform one) about social climate. In school as well as in work-related contexts, this knowledge is a broadly researched field. Interestingly, however, the university sector is disregarded. In addition, referring to various attempts of educational and also work and organizational psychological climate research to define and operationalize social climate, a framework model of social climate at university was created. To answer the research question, a quantitative data collection was employed using a paper-pencil questionnaire, which contains demographic questions, the AIST-R (Bergmann & Eder, 2005), parts of the method for measuring occupational values (BWH, Seifert & Bergmann, 1983), a created tool for gathering the study choice motives based on items of teacher consultation tests (Eder & Hörl, 2011), and on items measuring study and career choice motives (Mayr, 2012; Mayr & Rothland, 2013). Additionally, the questionnaire was composed of different items measuring the social climate; some of them were in accordance with different instruments adapted while others were expanded. The sample consists of 326 students of pedagogy/educational science, law and economics, and applied computer science. The results reveal differences in the orientations of interests and study choice motives of students from various fields of study, but also similarities in terms of the most importantly held occupational values.

### **Session G 6**

28 August 2017 13:00 - 14:30

Pinni B 4115

Poster Presentation

Assessment and Evaluation, Higher Education, Learning and Instructional Technology, Teaching and Teacher Education

### **Professional Development**

**Keywords:** Assessment methods and tools, Communities of practice, Competencies, Doctoral education, Higher education, Knowledge creation, Pre-service teacher education, Reflection, Researcher education, Self-efficacy, Teacher Professional Development, Teaching / instruction, Video analysis

**Interest group:** SIG 24 - Researcher Education and Careers

**Chairperson:** Anja Prinz, University of Freiburg, Germany

### **The influence of internships on the acquisition of pedagogical knowledge of student teachers**

**Keywords:** Competencies, Higher education, Pre-service teacher education, Reflection

**Presenting Author:** Sinja Müser, University of Duisburg-Essen, Germany; **Co-Author:** Jens Fleischer, University of Duisburg-Essen, Germany; **Co-Author:** Detlev Leutner, University of Duisburg-Essen, Germany

#### updated abstract

Student teachers' professional knowledge is of particular importance in academic teacher education. Therefore, questions regarding the assessment, development and fostering of professional knowledge of student teachers arise. Since internships, combining theory and practice in academic teacher education programs, can influence student teachers' competencies in general they also seem to be a promising mean to foster student teachers' professional knowledge in particular.

The present research project aims at identifying supportive and detrimental factors of a special internship, called student teaching semester, as part of an academic teacher education program at a German university. The student teaching semester is a 5-month internship as part of academic teacher education in Germany aiming at a stronger connection of theory and practice. It is divided into a theoretical (preparation and support) and practical part in school. A new instrument for the assessment of pedagogical knowledge as an aspect of professional knowledge, based on the national standards for teacher training in Germany, is developed currently. Later the instrument will be used in a pre-post design to investigate the impact of the internship on the acquisition of pedagogical knowledge. To identify supportive and detrimental factors of the internship, the student teachers will be assigned to two different groups with divergent conditions. One group, in contrast to the other, will be asked to fill out weekly extra reflection sheets about their experience in school life. The two groups will be compared regarding differences in their development of pedagogical knowledge. Additionally, student characteristics in terms of personality, motivation, and metacognitive knowledge will be assessed as controlling variables and potential moderators. The theoretical framework of the new test instrument, the conception of the planned longitudinal study as well as first results on the validity of the test instrument will be presented on the congress.

### **Measuring Pre-Service Primary School Teachers' Professional Vision concerning Formative Assessment**

**Keywords:** Assessment methods and tools, Pre-service teacher education, Teacher Professional Development, Video analysis

**Presenting Author:** Verena Zucker, University of Koblenz-Landau, Germany; **Co-Author:** Miriam Leuchter, University of Koblenz - Landau, Germany

Formative assessment is a prerequisite for fostering students' achievement (e.g. Decristan et al., 2015; Ruiz-Primo & Furtak, 2006). However, research has shown that teachers have difficulties implementing formative assessment, particularly diagnosing individual paths of learning and providing feedback (e.g. Gotwals et al., 2015; Morrison & Lederman, 2003). Moreover, professional vision is essential for teachers' practice. Thus, teachers with higher competencies in noticing and reasoning may be more competent when implementing formative assessment (cf. professional vision: Goodwin, 1994). Therefore, we ask if we can identify pre-service primary school science teachers' levels of professional vision concerning formative assessment throughout different stages of teacher education. 1. Does a model operationalizing professional vision of formative assessment into two dimensions (*diagnosing* and *providing feedback*) fit the data better than a one-dimensional model? 2. To what extent do pre-service primary school science teachers notice diagnosing and providing feedback? Participants were  $N=210$  pre-service primary school science teachers from three universities at different stages of their teacher education (age:  $M=23,91$ ,  $SD=4.01$ ; 90% female; Master and Bachelor). Student teachers' professional vision was assessed by seven items integrated in a case based online-tool using texts and videos. A confirmatory factor analysis revealed that a two-dimensional model fit the data best ( $X^2= 16.549$ ; CFI= .96; RMSEA= .041, SRMR: .051). Thus, our study shows that professional vision of formative assessment encompasses the two dimensions *diagnosing* and *providing feedback*. Pair-Sample t-tests revealed that noticing *diagnosing* seems to be more difficult than noticing *providing feedback* (Cohen's  $d$  between .54 and .79). Master students achieved higher scores in noticing than bachelor students in their first semester (*diagnosing*:  $F(3,206)=3.628$ ,  $p=.014$ ,  $\eta^2=.05$ ; *providing feedback*:  $F(3,210)=3.500$ ,  $p=.016$ ,  $\eta^2=.048$ ). Thus, noticing the two dimensions of formative assessment seem to improve throughout teacher education. Next, we will enlarge the sample, control for differential effects of students' individual traits and analyse students' reasoning skills concerning formative assessment.

### **The impact of staged video vignettes on student teachers' nonverbal classroom management knowledge**

**Keywords:** Pre-service teacher education, Teacher Professional Development, Video analysis, Knowledge creation

**Presenting Author:** Julia Bönnte, University of Duisburg-Essen, Germany; **Presenting Author:** Rijana Nissing, University of Duisburg-Essen, Germany; **Co-Author:** Gerlinde Lenske, Universität Koblenz-Landau, Germany; **Co-Author:** Theresa Dicke, Australian Catholic University, Australia; **Co-Author:** Detlev Leutner, University of Duisburg-Essen, Germany

Due to a mounting teacher shortage and rising burnout rates, the importance of teacher training is increasingly recognized (Dicke, Elling, Schmeck, & Leutner, 2015). To improve teacher training, it is necessary to include pedagogical-psychological professional knowledge in regard to classroom management (CM). So far, nonverbal CM has been investigated as a major

factor influencing the effective performance of CM in only few studies (e. g. Barmaki, 2014; Kosinár, 2012). Further empiric data is required. One promising way to support the development of CM skills is the usage of staged video material based on authentic classroom situations. This is applied in our research project *Video-based educational material/classroom management*. Particularly inexperienced teachers do not feel sufficiently prepared with regard to CM skills (Evertson & Weinstein, 2006). Hence, innovative educational material will already be applied during the course of studies to enable a more practice-related acquisition of CM knowledge. The effectiveness of the video material is going to be tested in comparative studies. After this, the developed vignettes will be provided on a video platform for the usage in university education as well as further and continuing education. Barmaki, R. (2014). Nonverbal Communication and Teaching Performance. In J. Stamper, Z. Pardos, M. Mavrikis, & B. M. McLaren (Eds.), *Proceedings of the 7th International Conference on Educational Data Mining (EDM 2014)*. Retrieved from [http://educationaldatamining.org/EDM2014/uploads/procs2014/YRT/441\\_EDM-2014-Full-Proceedings.pdf](http://educationaldatamining.org/EDM2014/uploads/procs2014/YRT/441_EDM-2014-Full-Proceedings.pdf) Dicke, T., Elling, J., Schmeck, A., & Leutner, D. (2015). Reducing reality shock: The effects of classroom management skills training on beginning teachers. *Teaching and Teacher Education*, 48, 1–12. Evertson, C. M. & Weinstein, C. S. (2006). Classroom management as a field of inquiry. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management. research, practice, and contemporary issues* (pp. 3-15). New York: Routledge. Kosinár, J. (2012). Immer noch unterschätzt? Nonverbale Kommunikation im Lehrerberuf [Still underestimated? Nonverbal communication in teaching profession]. *Schulverwaltung. Nordrhein-Westfalen*, 23 (7-8), 213-215.

### **Doctoral Students' Perceptions Concerning Development of Researcher Identity**

**Keywords:** Communities of practice, Doctoral education, Higher education, Researcher education

**Presenting Author:** Giedre Tamoliune, Vytautas Magnus University, Lithuania

While many researchers on doctoral education focuses on the aspects of supervision, study completion, reasons for dropouts, career trajectories, quality improvement and assurance and etc., literature survey reveals that the development of researcher identity through the doctoral study process is still missing theoretical and empirical researches. The idea of researcher identity development is crucial in understanding how doctoral students learn and develop this identity through the doctoral journey. Hence, it is important to analyse what conceptions of researcher identity doctoral students have and how they perceive it. The purpose of this pilot study was to analyse doctoral students' experiences concerning: 1) motivations for taking a PhD; 2) the development of researcher identity during their study process. Research is based on the experiences and stories of 5 doctoral students and PhDs from the fields of social sciences and humanities. Narrative research inquiry was applied for the collection of data and thematic analysis was used for data analysis. Results of the pilot study revealed that doctoral students choose to study PhD in order to develop their scholarly skills, become part of scientific community and develop their career (outside or inside Academia). When talking about their researcher identity, it was noted that some of research participants were not aware of their researcher identity. They revealed that their role in University is mainly oriented towards implementation of other, non-academic activities rather than implementing scientific activities, planning and conducting research. One of the main indicators that was distinguished is collaboration with supervisor and communities of practice. Here the paradox appears that doctoral students express the need and wish to become members of community of practice but at the same time they don't feel ready or experienced to join other teams and offer their expert knowledge. That is why quite often they feel 'outsiders' of the Faculty or Department community.

### **THE CONNECTION OF CAREER MOTIVATION AND MASTERY MOTIVATION AMONG STUDENTS IN TEACHER TRAINING**

**Keywords:** Pre-service teacher education, Self-efficacy, Teacher Professional Development, Teaching / instruction

**Presenting Author:** Eniko Bus, University of Szeged, Hungary

It is very important to take student teachers' career motivation into consideration during the shaping of their academic education, because its failure risks losing student teachers' motivation and interest, thus enabling attrition (Watt et al., 2012). Mastery motivation seems to have great impact on many aspects of the life (Shiner et al., 2003); and is especially linked to the educational achievement (Burlison et al., 2009; Spence and Helmreich, 1983). Teacher candidates' main career motivations can have an influence on their professional future, whether to remain or to leave the educational profession. Therefore, the connection of mastery motivation and career motivation should be measured. This study aims to prove that the level of mastery motivation combined with career choice factors can predict the attrition. We assume, that (1) mastery motivation is closely related to the career choice's level of satisfaction and (2) the higher self-perception students have, the better mastery motivation is shown. The study sample was drawn from first-grade university students entering teacher training (N=500). All students took a mandatory online mastery motivation (24 item) and a career choice questionnaire (28 item). Students had to respond on a 5-point scale. Students who are satisfied with their career choice have shown higher level of task persistence ( $t=-2.264$ ,  $p=0.024$ ;  $r=0.242$ ,  $p<0.05$ ). The better self-perception students have, the higher level of mastery motivation is shown ( $r=0.327$ ,  $p<0.05$ ). Those students feel less task related pleasure, who think of teaching as a fallback career (20% of the sample;  $t=-54.945$ ,  $p<0.05$ ;  $r=-0.145$ ,  $p=0.002$ ). According to the results, we can suppose that one in five students may leave the teaching studies or profession at some point. In case of an early intervention (e.g. enhancing their professional self perception through excluding research studies and active learning forms in the teacher training curricula), we can reduce the number of attrition.

### **Session G 7**

28 August 2017 13:00 - 14:30

Pinni B 3111

Single Paper

Higher Education, Instructional Design

### **Instructional Design and Quasi-Experimental Research**

**Keywords:** Cognitive skills, Communities of learners, Communities of practice, E-learning / Online learning, Higher education, Instructional design, Language (L1/Standard Language), Quasi-experimental research, Secondary education

**Interest group:** SIG 14 - Learning and Professional Development

**Chairperson:** Julia Maria Keller, University of Salzburg, Austria

### **Gaining Personal and Social Insights in the Literature Classroom: Effects of Dialogic Learning**

**Keywords:** Instructional design, Language (L1/Standard Language), Quasi-experimental research, Secondary education

**Presenting Author:** Marloes Schrijvers, University of Amsterdam, Netherlands; **Co-Author:** Tanja Janssen, Universiteit van Amsterdam, Netherlands; **Co-Author:** Olivia Fialho, Utrecht University, Netherlands; **Co-Author:** Gert Rijlaarsdam, University of Amsterdam, Netherlands

One of the many merits of literary fiction reading is its transformative impact on readers' sense of self and their social perceptions, e.g., fostering empathy, decreasing prejudice and making readers consider their future selves. Some studies suggest that adolescents may gain such insights from reading in the literature classroom, in particular when forms of dialogic learning are implemented. However, there is little empirical evidence for the claim that a combined focus on transformative reading and dialogic learning in the literature classroom may facilitate adolescents' personal and social insights. Our aim was to assess the effects of a dialogic learning intervention in the literature classroom on Dutch upper secondary school students' personal and social insights. The intervention, designed collaboratively with teachers, consisted of four lessons that centered around short literary stories. Each lesson involved four phases, representing various dialogue levels: first, a *pre-reading phase*: activating previous knowledge or experiences with a story theme (input for dialogues); second, a *reading and reflecting phase*: focusing individually on the responses a story evokes (internal reader-text dialogue); third, a *small-group phase*: sharing reading experiences with peers (external small-group dialogue); and fourth, a *whole-class phase*: exchanging dialogue outcomes in class (external dialogue with peers and teacher). In a switching replications design, 23 classes (grade 10,  $N = 633$  students) of thirteen teachers, working in six different schools, participated in the study. We assessed intervention effects using three versions of a Transformative Reading Experiences Questionnaire and a story response task, applying mixed-models analysis due to hierarchical data structures. Implementation fidelity measures included time on task observations, teachers' logs and workbook checks. In addition, we assessed appreciation and sense of safety using student evaluation forms. As data collection and first analyses are currently in progress, results and implications will be presented at the conference.

### **Can problem-finding be improved by adding critical thinking instruction to a curriculum?**

**Keywords:** Cognitive skills, Higher education, Instructional design, Quasi-experimental research

**Presenting Author:** Yvonne Koert, Avans University of Applied Sciences, Netherlands; **Co-Author:** Jo Boon, Open University of the Netherlands, Netherlands; **Co-Author:** Els Boshuizen, Open University of the Netherlands, Netherlands

*Title:* Can problem-finding be improved by adding critical thinking to a curriculum that focuses on creative thinking? *Abstract:* Aim Students we are educating today must operate in a knowledge economy, where innovation on multiple frontiers is essential. The Advanced Business Creation educational program under scrutiny in this paper was developed to address this challenge by focusing on learning of innovation skills in authentic settings from day 1. After having run for eight consecutive years a curriculum change was implemented adding critical thinking as an explicit course during three consecutive periods in the first year, with the aim of improving the quality of the students' problem finding in research and innovation task. *Methodology:* In the current quasi-experimental study, a pretest–posttest non-equivalent control group design was implemented to investigate the effects of the independent variable (three different implementations of critical thinking instruction) on the dependent variables Quality of problem finding, Quality of Innovation results and Critical thinking scores. Groups (classes) were randomly assigned to the levels of the independent variable to realize a quasi-true experiment. Furthermore, an historical comparison was included, comparing students before (no critical thinking training) and after the curriculum change. Comparisons are made between and across four study phases of 10 weeks each. *Theoretical and educational Significance:* The relevance of this study first regards the validation of the curriculum change. Second, it will provide deeper insights into the learnability of problem finding and methods that optimize it in first year students. *Results:* Adding CT to a curriculum for innovation skills, combined with transfer guided exercises, show improved problem-finding skills in a separate PBL research course over time. Improved problem-finding skills did not lead to improved performance on authentic innovation tasks, for which no guided transfer exercises were in place within the CT instruction. Creative thinking skills, seem to be decrease over time in experimental groups with CT instruction.

### **The Predictive Relationship between Cognitive Load and Teaching, Cognitive and Social Presence**

**Keywords:** Communities of learners, Communities of practice, E-learning / Online learning, Instructional design

**Presenting Author:** kadir kozan, Bahcesehir University, Turkey

The current study investigated the incremental predictive validity of teaching, cognitive and social presence based on

intrinsic and extraneous cognitive loads in a fully online learning experience. To this end, 103 graduate students of learning, design and technology completed a presence survey and a cognitive load survey in addition to a demographics survey at the end of an online learning experience that took eight weeks. The participants were all off-campus full-time professionals having positions related to learning design and evaluation. At the time of data collection, there were five fully online graduate courses focusing on both basic and applied competencies, and the participants were taking few of them based on their personal graduation schedules. In cases of taking more than one course, the participants were asked to fill out the research surveys for one course only in which they thought they would be learning most. Following hierarchical multiple regression analyses helped to determine the incremental predictive relationship between presence and cognitive load types while controlling for perceived learning satisfaction, which was identified as a strong variable in earlier presence research. The results indicated that the presences, as a group, could statistically significantly predict intrinsic and extraneous loads with a small effect size. Individually, cognitive presence was the best predictor of intrinsic load while teaching presence was the best predictor of extraneous load. Even though social presence contributed to the prediction of intrinsic and extraneous loads by the presences as a group, it did not turn out to be a best predictor on its own. Overall, the present findings indicated the importance of perceived learning satisfaction to be employed as a variable by similar future research, and a small-size incremental prediction of intrinsic and extraneous loads by teaching, cognitive and social presence.

### **Session G 8**

28 August 2017 13:00 - 14:30

Pinni B 3108

Single Paper

Culture, Morality, Religion and Education, Teaching and Teacher Education

#### **Cultural Diversity and Multicultural Education**

**Keywords:** Assessment methods and tools, At-risk students, Bilingual education, Comparative studies, Cultural diversity in school, Early childhood education, Language (Foreign and second), Multicultural education, Second language acquisition, Social aspects of learning and teaching, Teacher Professional Development

**Interest group:** SIG 21 - Learning and Teaching in Culturally Diverse Settings

**Chairperson:** Benjamin Jaecklin, Otto-Friedrich-University of Bamberg, Germany

#### **Challenges in acquiring Chinese as a second language in young ethnic minority children in Hong Kong**

**Keywords:** Assessment methods and tools, Cultural diversity in school, Early childhood education, Language (Foreign and second)

**Presenting Author:** Stephanie Wing Yan Chan, The University of Hong Kong, Hong Kong

With globalization, classrooms are becoming increasingly multicultural. This calls for the need to understand the second language (L2) learning process of ethnic minority (EM) children. These L2 children face challenges in acquiring the language especially in Hong Kong, where the dominant Chinese language is very different from their alphabetic home languages. The study explored the language abilities in terms of Chinese character acquisition in ethnically diverse children in Hong Kong kindergartens aged from three to five. This is explored in 79 L2 children using a six-subset measure developed for L2 children following theories of Chinese character acquisition. Unlike alphabetic languages, Chinese are represented by Chinese characters; each character is a morpheme and carries a syllable. The ability of Chinese character acquisition involves the associations among written forms, meaning, and sound, which are the three constituents of Chinese characters. The findings showed that most L2 children entered kindergartens at three years old without much knowledge of Chinese. Significant differences in the performances across kindergarten grades in three- to five-year-olds were also detected implying that children make progress during kindergarten stages. Investigating L2 children's performance on different subtests provided insights on the Chinese character learning process. In particular, spoken language was found to develop before written forms of the language in these children. In this study, the uniqueness of the Chinese orthographic, morphologic and phonologic properties allows us to explore the processes of L2 learning in terms of the different associations among aspects of Chinese characters. On one hand, this study allowed us to explore the language-specific issues in L2 acquisition; on the other, the study extended our understanding in the possible differences in the various processes in acquiring language units for EM children across languages. This informs design of pedagogies and culturally accommodating assessments for L2 learners.

#### **Revealing Tabooed Teacher-Student-Relationships. A Comparative Study on Taboos in Austria and Israel**

**Keywords:** Comparative studies, Cultural diversity in school, Social aspects of learning and teaching, Teacher Professional Development

**Presenting Author:** Evi Agostini, University of Innsbruck, Austria; **Presenting Author:** Nadja Maria Köffler, University of Innsbruck, Austria

Due to growing intercultural diversity in Europe, building up as well as keeping positive relationships has become more and more challenging. Nevertheless, conflicting relationships are often tabooed, especially in the school context. However, as teachers are key figures concerning the handling and arrangement of intercultural teacher-student-relationships, they need to position themselves towards those conflicts. Therefore, the purpose of the study is to explore the phenomenon of

intercultural teacher-student-relationships as well as its challenges and success factors in formal educational contexts. The starting point of the project were results of a pilot study, carried out at the University of Innsbruck, Department of Teacher Education and School Research from April to June 2016. The main result of the pilot study was that academic teacher education does not prepare student teachers properly for the handling of delicate school-based relationships. Having taken current sociocultural developments into account (e.g. migration crisis), the findings of the pilot study have initiated a follow-up project in Israel: Concerning that some areas of society are particularly replete with taboos, we presume that the formal educational system in Israel is one such area. Particularly, in higher education in Israel where Jewish and Arab students learn together, in both their languages and with an aspiration toward equal representation of both their cultures, the confrontation with educational taboos in teacher-student-relationships is advisable. To unmask taboos in teacher-student-relationships, focus group discussions with student teachers (n=40) will be held at the Beit Berl College in Israel. In addition, teacher educators (n=15) will be interviewed as experts on their experiences in regard to the implementation of intercultural education in Israel. Finally, the study will be concluded by merging taboos in teacher-student-relationships in Austria and Israel as well as by deducing implications for intercultural education in Austria.

### **Multilingual teenagers in Finnish basic education – how to scaffold them?**

**Keywords:** At-risk students, Bilingual education, Second language acquisition, Multicultural education

**Presenting Author:** Raisa Harju-Autti, University of Tampere, Finland

Multilingual teenagers in Finnish basic education – how to scaffold them? Abstract The Finnish education system has been a well-known success story worldwide. Due to increasing cultural and linguistic variation in the society the school system in Finland is facing new challenges. The PISA results (2012) indicate that Finland can no longer rely on previous results in learning. On average, immigrant pupils perform less well in problem solving compared to native pupils in Finland than in other countries (Harju-Luukkainen et al. 2014). This study focuses on the linguistic support offered to multilingual pupils who arrive in Finland after the age of 12. Finnish basic education offers one-year preparatory studies, Finnish as a second language teaching (FSL), as well as mother tongue instruction, but none of these forms of teaching are statutory, and therefore vary by municipality. As Finland no longer is such a monoculture as it used to be, the education system should have methods that correspond to the needs of our heterogeneous classrooms. In addition to special education, separate linguistic support should be provided especially to pupils in their early teens. The data (N = 40) for this qualitative content analysis was collected by a web based questionnaire that was sent to eight upper comprehensive schools in Finland during the school year 2016/2017. Four of the schools have a specific resource for supporting pupils after preparatory education. The aim of this study is to find out the pedagogical challenges in multiethnic schools today, and approaches that teachers in multiethnic schools recommend for meeting the needs of multilingual pupils. Keywords: multilingualism, plurilingualism, linguistic support, scaffolding, basic education

Reference: Harju-Luukkainen, H., Nissinen, K., Sulkunen, S., Suni, M., & Vettenranta, J. (2014). Avaimet osaamiseen ja tulevaisuuteen. Selvitys maahanmuuttajataustaisten nuorten osaamisesta ja siihen liittyvistä taustatekijöistä PISA 2012-tutkimuksessa. Jyväskylän yliopisto, Koulutuksen tutkimuslaitos.

## **Session H 1**

28 August 2017 14:45 - 16:15

Pinni B 3108

Single Paper

### **Learning and Curriculum**

**Keywords:** Case studies, Collaborative Learning, Educational policy, Knowledge creation, Out-of-school learning, Primary education, Quantitative methods, Survey Research

**Interest group:**

**Chairperson:** Summer Cowley, The University of Alberta, Canada

### **Curriculum coherence as perceived by district-level stakeholders in national curriculum reform**

**Keywords:** Educational policy, Primary education, Quantitative methods, Survey Research

**Presenting Author:** Jenni Sullanmaa, University of Helsinki, Finland; **Co-Author:** Kirsi Pyhältö, University of Oulu / University of Helsinki, Finland; **Co-Author:** Janne Pietarinen, University of Eastern Finland, Finland; **Co-Author:** Tiina Soini-Ikonen, University of Tampere, Finland

Curriculum coherence, consisting of the alignment and continuity among the objectives, content, instruction and assessment, as well as coherence in terms of a shared vision of the curriculum reform and its goals, is suggested to be crucial in successful educational reform. However, empirical research on the topic is still scarce. This study explores how the stakeholders involved in curriculum development at the district level perceived curriculum coherence as well as its components in the context of a large-scale national curriculum reform. The participants (n = 550) consisted of school district level stakeholders that were involved in the local curriculum development working groups, which are responsible for constructing the local curricula in the framework of the reformed national core curriculum in Finland. Survey data and structural equation modelling were employed in the analysis. A confirmatory factor analysis showed that curriculum coherence consisted of three complementary elements: the consistency of the intended direction; an integrative approach

to teaching and learning; and the alignment between objectives, content and assessments. The district-level stakeholders perceived the core curriculum to be rather coherent in terms of all three components. Moreover, the results showed that curriculum coherence contributed to the perceived school impact of the reform. Ensuring the coherence of the normative core curriculum at the state level would seem to facilitate the educational stakeholders' sense-making in terms of the intended curriculum work at the district level, and further, increase the potential of the curriculum reform to trigger real change in the schools' everyday practices. The study adds to the research on curriculum reform by showing that curriculum coherence is a central determinant of the reform taking root at the school level, and by introducing a scale for measuring curriculum coherence within the context of large-scale national curriculum reform.

### **Lessons learnt from a large-scale curriculum reform: means to enhance sustainable school development**

**Keywords:** Collaborative Learning, Educational policy, Quantitative methods, Knowledge creation

**Presenting Author:**Lotta Tikkanen, University of Helsinki, Finland; **Co-Author:**Kirsi Pyhältö, University of Oulu / University of Helsinki, Finland; **Co-Author:**Janne Pietarinen, University of Eastern Finland, Finland; **Co-Author:**Tiina Soini-Ikonen, University of Tampere, Finland

Sustainable school development is suggested to result in both meaningful learning and enhanced well-being for those involved in the reform work. Reforming the curriculum can enable such development. Yet, curriculum reforms do not automatically result in sustainable changes in the everyday practices of schools. In fact, school reforms are often shown to increase workload and demand new competences, causing stress. The aim of the study was to gain a better understanding of the relations between the means of carrying out reform, the learning itself and well-being in the context of national curriculum reform in Finland. Altogether 550 municipal-level stakeholders responsible for curriculum reform at the district level responded to the survey (Curriculum Reform Inventory). Most of the respondents were educational practitioners, such as teachers and principals. Factorial structure for each scale was tested using confirmatory factor analyses (CFA). Structural equation modelling (SEM) was utilised to explore the interrelations between the reform implementation strategy, collective proactive strategies of well-being, as well as work stress and perceived school impact of the reform. The results showed that the top-down–bottom-up implementation strategy, referring to such reform implementation strategy that calls for leadership for change management and the enhancement of collective sense-making in curriculum reform, was related to impact at the school level and to the well-being of those involved, including the use of collective proactive strategies and reduced levels of stress. Collective proactive strategies also contributed to lower stress levels and enhanced school impact. The results imply that learning and well-being are intertwined in the implementation of a large-scale school reform. Moreover, the results indicate that the top-down–bottom-up implementation strategy provides an effective way to promote sustainable school reform in terms of enhancing the learning and well-being of those involved in the reform.

### **Experts and 21st century skills in a multidisciplinary primary school learning project**

**Keywords:** Case studies, Collaborative Learning, Out-of-school learning, Quantitative methods

**Presenting Author:**Erja Kilpeläinen, University of Eastern Finland, Finland; **Co-Author:**Henriikka Vartiainen, University of Eastern Finland, Finland; **Co-Author:**Petteri Vanninen, University of Eastern Finland, Finland; **Co-Author:**Saara Nissinen, University of Eastern Finland, Finland; **Co-Author:**Sinikka Pöllänen, University of Eastern Finland, Finland

**Abstract**This study aims to answer whether the cooperation with experts can be utilized to teach the 21st century skills in primary school. This study describes the types of 21st century skills that when the primary school students plan and implement a multidisciplinary project learning based on the curriculum, and when one of the learning tasks is building expert knowledge through cooperation. Experts have been used for years to help in school activities, for example as museum or tour guides. Previous studies have shown that the involvement of experts in learning projects may not have been as beneficial as expected, and the problem has been, for example, that the needs of the students and the presentations of experts have not met. In this qualitative case study, the participants are a group of 3-4 graders (N = 21) from a village school in Finland. The project was mainly implemented in small groups as a part of regular schoolwork. The researcher participated the project in the teacher's role but was not actively guiding the direction of the learning project. The research data consists of video records, mind maps, essays, self-evaluations, and presentations. In this substudy, an abductive content analysis is performed on the part of the data that are connected to the expert interviews. The preliminary results show that when students are allowed to strongly influence the choice of the expert and the content of the interview, they create a personal relationship to the task. Also, the pupils find the cooperation with the expert meaningful and relevant. Preliminary results indicate that student-centered collaboration with experts could be one of the methods to practice many of the 21st century skills. The results encourage to utilize experts as a part of teaching the 21st century skills in primary school.

### **Session H 2**

28 August 2017 14:45 - 16:15

Pinni B 3110

Single Paper

Higher Education, Learning and Social Interaction

### **Social Aspects of Learning and Instruction**

**Keywords:** Assessment methods and tools, Communities of learners, Ethnography, Higher education, Out-of-school

learning, Secondary education, Social aspects of learning and teaching, Social development, Social interaction, Survey Research, Writing / Literacy

**Interest group:** SIG 10 - Social Interaction in Learning and Instruction

**Chairperson:** Amy Quintelier, University of Antwerp, Belgium

### **The grading conference as an arena for oral assessment of student writing in Swedish HE**

**Keywords:** Assessment methods and tools, Higher education, Social aspects of learning and teaching, Writing / Literacy

**Presenting Author:**Janna Meyer-Beining, Gothenburg University, Sweden; **Co-Author:**Asa Makitalo, University of Gothenburg, Sweden; **Co-Author:**Sylvi Vigmo, University of Gothenburg, Sweden

Current literature on teacher assessment of student writing in higher education tends to concentrate on written assessment feedback, neglecting other modes of assessment delivery. This study provides insights into an oral type of assessment feedback, the Swedish grading conference, a scheduled post-supervision event involving individual student and supervisor pairs. Using data from nine video and one audio recorded grading conference concluding a Swedish MA module on Environmental Engineering, this study focuses on the interactional work that may be involved in delivering grades orally. Approaching our data from a sociocultural and dialogical angle, we conceptualize the grading conference as an institutional communicative activity type (Erickson, 2004; Linell 1998; Mäkitalo & Säljö 2002; Grossen, 2010), collaboratively achieved *in situ* by its participants. Consistent with a dialogical approach to institutional communication (Linell, 2010), we aim to gain insight into the particularities of situated institutional activity while still recovering some generic features and patterns of how this institutional activity type gets done interactionally. To that end, our analysis focuses on participants' observable, collaboratively achieved communicative action, and in particular on the successive communicative projects (Linell, 1998) that each supervision pair engaged in. Initially mapping communicative projects case-by-case, we then compared results across all ten cases. We found that despite the fact that each grading conference dealt with different issues, participants overall engaged in a limited number of projects that recurred within cases and across the material. This suggests that the activity type involves a small number of necessary interactional tasks, which can be accomplished in different ways according to local communicative needs. Analysing a selected number of projects in detail, we found that the activity provides participants with clear asymmetrical participant roles and responsibilities, providing a forum for delivery of grade as well as for disciplinary guidance, evaluation of previous supervision and course work and for challenging institutional assessment.

### **Adolescents' school engagement: Selection and influence effects of friendship and digital networks**

**Keywords:** Communities of learners, Social development, Social interaction, Survey Research

**Presenting Author:**Shupin Li, University of Turku, Finland; **Co-Author:**Tuire Palonen, University of Turku, Finland; **Co-Author:**Noona Kiuru, University of Jyväskylä, Finland; **Co-Author:**Katariina Salmela-Aro, Helsinki Collegium for Advanced Studies, Finland; **Co-Author:**Kai Hakkarainen, University of Helsinki, Finland

Selection effect and influence effect are two key features in developmental relationship of individual attributes (e.g. school engagement, gender) and social network formation. Selection effect refers to choosing peers as network partners based on similarity of personal attributes whereas influence effect represents how much network connection influences individual attributes to be similar. The purpose of present study is to investigate peer selection and peer influence effects between adolescents' emotional (i.e., flow in schoolwork), behavioral (i.e., truancy) and cognitive (i.e., persistence) engagement and their peer friendship as well as digital networks over time. Sample was from a high school in urban area of Southern Finland. Social network analysis was used in the study. Students of the same grade (N=145, mean age=16) were asked to describe their own school engagement and nominate all their peers of the same grade to generate peer friendship network (i.e. with whom they spent time) and digital network (i.e. with whom they do interesting things together on Internet). Both school engagement data and social network data were collected at two time points (one year interval). Effects of selection and influence associated with emotional, behavioral and cognitive engagement were included in RSiena models of friendship networks and digital network overtime respectively. Results revealed that the degree to which peer selection and influence effects occurred varied by dimension of school engagement. Adolescents had a tendency to choose peers in friendship network based on earlier similarly in emotional engagement, but choose peers based on dissimilarity in cognitive engagement. Over time, adolescents became more similar to their grade peers in terms of behavioral engagement in digital network, but not emotional or cognitive engagement. Educators would utilize findings of present study to assist to enhance adolescents' school engagement when formulating study groups in online and offline learning environments.

### **Connected learning in classroom interactions.**

**Keywords:** Ethnography, Out-of-school learning, Secondary education, Social aspects of learning and teaching

**Presenting Author:**Astrid Camilla Wiig, University College of Southeast Norway, Norway

This article addresses how everyday and scientific (or school-based) knowledge and experiences are brought into play and connected in schools as educational practices. In particular, I am interested in exploring how these resources from outside of school is appropriated, negotiated and used as mediating resources for productive learning, and how *connections* between everyday and scientific knowledge emerged in teacher – student interactions. It takes its point of departure in a sociocultural and dialogical notion of the dynamic relationship of everyday and scientific conceptual understanding, and addresses the fundamental challenges for schooling to recognize, open up to and appropriate out-of-school knowledge that are constitutive for productive learning and meaning making. This paper will add to relevant research by reporting on an

ethnographic study in a lower secondary school in Norway, following 4 teachers and 50 students (aged 14 – 15) during one school year. 80 hours of video-recorded teacher – student interactions in natural science, social science, mathematics, Norwegian (L1), religion and ethics, are conducted to interaction analysis. The theoretical perspective is used when discussing three cases so as to display the use of the core concepts and the dynamics of connected learning which may be illuminated by the analytical approach. In the conclusion, specific aspects of the challenges to bring into play the dialectic relationships between everyday knowledge and scientific conceptual understanding, and the challenges of established professional practice, are made salient. Preliminary findings show that the teachers seldom elaborate or explicate how students can use their knowledge and experience from outside of school as resources for making sense of concepts or phenomena within the 80 hours of video-recorded lessons. The patterned ways the teachers ask questions, elaborate and refer to scientific concepts without either building on students existing knowledge or explicating the connections between formal and informal settings of learning, create challenges for the students to reason about real-world problems and engage in deeper knowledge constructions.

### **Session H 3**

28 August 2017 14:45 - 16:15

Pinni B 3116

Poster Presentation

Assessment and Evaluation, Instructional Design, Learning and Special Education, Teaching and Teacher Education

#### **Instructional Design and Special Educational Needs**

**Keywords:** Assessment methods and tools, At-risk students, Cognitive skills, Comparative studies, Content analysis, Developmental processes, History, Instructional design, Literacy, Mathematics, Numeracy, Primary education, Qualitative methods, Secondary education, Special education, Teacher Professional Development

**Interest group:** SIG 06 - Instructional Design, SIG 15 - Special Educational Needs

**Chairperson:** Hanne Jensen, The LEGO Foundation, Denmark

#### **Comparative analysis of national standards for financial literacy**

**Keywords:** Comparative studies, Content analysis, Literacy, Primary education

**Presenting Author:** Karel Ševčík, Masaryk University, Czech Republic

Due to the increasing development of the world economy, the importance of financial literacy among people rises. As many researches have proven, insufficient financial literacy of people might lead to wrong decisions in the area of finance which might escalate into serious personal or national consequences (Smyczek, 2015, s. 19). As a result, implementation of financial literacy into education is now globally acknowledged as an important element of economic and financial stability of a state (comp. Taylor & Vagland, 2011, s. 101–102). Therefore an increasing attention is devoted to the development of financial literacy and its implementation to the planned curriculum in states around the world. The presented poster focuses on the issue of curriculum for financial literacy in the Czech Republic and chosen foreign countries (Australia, Japan and United Kingdom). The main aim is to compare existing financial literacy standards which are the foundation stone for implementing financial issues into primary and secondary education. Methodology of the study was based on the qualitative content analysis and the categorical system used in FLin€VET program which also compared different conceptions of financial literacy among European states. Documents were analysed from three different perspectives: content, processes, contexts. The results showed that standards differ in the distribution of categories which were derived from above mentioned perspectives. Within the Czech standards the issues such as pupils' orientation in financial relations and financial knowledge, which are less demanding cognitive activities) are emphasized. On the other hand the tasks concerning the analysis and evaluation of financial knowledge were rather suppressed. Categories in the perspective of content were more balanced in the Czech Republic than in other countries. Even though there is a pressing need for financial education in schools, the concept of financial literacy is not often implemented as a stand-alone subject but rather as a cross-curricular topic.

#### **How children with intellectual disabilities improve mathematical skills in inclusive classrooms**

**Keywords:** Developmental processes, Mathematics, Numeracy, Special education

**Presenting Author:** Susanne Schnepel, Institut für Erziehungswissenschaft, Switzerland

Research shows that pupils with intellectual disabilities (ID) have difficulties with the acquisition of the quantity-number concept (linking number words to the corresponding magnitudes) and the understanding of number relationship. These skills are important predictors of mathematical achievement. However, little is known about the development of mathematical achievement of pupils with ID, how they progress, and how this development is influenced by their cognitive abilities. The project investigates the development of number sense with all its constituent subskills (e.g., counting, reading numbers, quantity-number concept, number relationship) among pupils with ID. Furthermore, the project addresses the question if and how the IQ influences the development profiles of these pupils.

This study investigates the development among 44 students with ID from 35 inclusive classrooms in grade 2 and 3. I collected data on mathematical achievement at the beginning and at the end of the school year. On the basis of the results,

I carried out a cluster analysis in order to clarify the relationship between the cognitive profile and the development of subskills over the school year. The results revealed four homogeneous groups which significantly differ with respect to mathematical progress. Pupils in the same cluster improve the same subskills. Prior knowledge is a significant predictor for advances in mathematical competencies and is more important than the IQ. Pupils who do not yet dispose of a fully developed number concept show very little progress, whereas pupils who have already acquired the quantity-number concept make more progress and improve in more advanced subskills e.g. understanding number relationship, the base ten system. These results implicate that tailored instruction is needed for children with different prior skills and cognitive profiles. Furthermore the quantity-number concept seems to be of pivotal importance for the mathematical development of pupils with ID.

### **Identifying children at risk for mathematical learning difficulties**

**Keywords:** Assessment methods and tools, At-risk students, Mathematics, Special education

**Presenting Author:**Anita Lopez-Pedersen, University of Oslo, Norway; **Co-Author:**Pirjo Aunio, University of Oslo / University of Helsinki, Finland; **Co-Author:**Riikka Mononen, University of Oslo, Norway; **Co-Author:**Johan Korhonen, Åbo Akademi University, Finland

Identifying children at risk for mathematical learning difficulties – validation of Norwegian ThinkMath screener for first graders

Abstract

Developmental delays in mathematics should be identified early so they can be addressed quickly, in an effort to offset future and more persistent mathematical difficulties (Seethaler & Fuchs, 2011). The need to improve the precision of screening is critical in the area of mathematics learning (Seethaler & Fuchs, 2011); in order to identify children at risk for learning difficulties in mathematics research-based and validated mathematical assessment tools are needed. Many countries have good tools for identifying low-performing children (e.g., Van Luit, Van de Rijt, & Aunio, 2006; Wright, Martland, & Stafford, 2006), but there is a lack of such tools in Norway. This study has three objectives; to establish the ThinkMath 1 Norwegian norms, to estimate reliability and the dimensionality of the measure and to assess the validity of the scores, with test-re-test design. The ThinkMath screener consists for 56 items, measuring core numerical skills such as understanding mathematical relational skills, counting skills and basic skills in arithmetic (Aunio & Räsänen, 2015). There were 365 first graders participating the first test point in October 2016 (56, 2% boys, M age 6 years 3 months). The preliminary analysis showed that the scale reliability coefficient (Cronbach's alpha) was .94. In addition, two of the items measuring relational skills were too easy; correlations between latent factors were high (counting skills by relational skills .734, basic arithmetic skills by relational skills and counting skills .766). There was no floor or ceiling effects. The re-test takes place in May 2017. As a norm reference each child's score is compared to each child's result in the national assessment taking place the spring of 2017. Information concerning parental educational level, home language and numerical activities at home is collected through a survey. This study accommodates the need of accurate screening tools that can be used both in research as well as in schools.

### **Working together to create inclusive learning environments: an international literature review**

**Keywords:** Primary education, Qualitative methods, Secondary education, Teacher Professional Development

**Presenting Author:**Nick Ferbuyt, University of Antwerp, Belgium; **Co-Author:**Elke Struyf, University of Antwerp, Belgium; **Co-Author:**Elisabeth De Schauwer, ugent, Belgium

There is an international tendency towards making schools more inclusive, as evidenced by different (policy) documents stating the importance of this inclusive approach in education. Collaboration is an important factor when it comes to creating inclusive learning environments. Given the long tradition in Flemish schools, and proven by research, teachers are fond of their solitude and need to "get of their islands". Primary and secondary teachers seldom invest in the deprivatization of their classroom practices

There is no clear overview about the plethora of existing forms of collaboration and how effective they are in order to create inclusive learning environments. In this study, an international systematic literature review is used to identify which forms of collaboration matters for creating inclusive learning environments in primary and first grade of secondary education. In order to meet the goal described above, this research delineates the following research questions : RQ1 *What forms of collaboration to create inclusive learning environments exist/can be distinguished?* RQ2 *What forms of collaboration to create inclusive learning environments seem to be (un)successful and why?* Data was collected in the period October-December 2016. Databases including 'Web of Science' and 'ERIC' were used to find relevant studies in the period from 2005-2016. The search terms 'collaboration', cooperation and 'team' were combined with 'inclusive education'. Additionally, journals with explicit interest in inclusive education (i.e. International Journal of Inclusive Education, International Journal of Special Education, European Journal of Special Needs Education, Exceptional children, Disability & Society, Journal of Research in Special Educational Needs, International Journal of Disability, Development and Education) were hand-searched to discover potential articles which are possibly not selected by the databases. The findings of this research will

be of great value to the field of education, because it brings a better understanding of collaborative practices that truly contribute to making education accessible for all.

#### **Development of cognitive skills in history education**

**Keywords:** Cognitive skills, Content analysis, History, Instructional design

**Presenting Author:** Maja Kósa, University of Szeged, Hungary

Recently, there has been a growing interest in historical thinking in Hungarian history didactics. Scholars and curriculum developers promote historical thinking as the application of the examination procedures of the science of history in the classroom practice. However, there is no consensus in the current Hungarian literature on the nature and the concepts used in this thinking. In the international literature scholars and reformers emphasize that history is more than meaningless recitations of names and dates; therefore, historical inquiry should play a central role in the classroom context (Wineburg, 2001; Van Drie & Van Boxtel, 2004, 2008; Voet & De Wewer, 2016). The last ten years witnessed an increasingly interest in cognitive skills development in the Hungarian history education as well. The development of historical thinking has been incorporated into the curricula, although, recent studies have shown that the realization of discovery and discipline-specific investigation in the classroom practice is still a neglected area (Gyertyánfy, 2014; Érsek, 2016; Kaposi, 2016). Using comparative analysis of documents, this research focuses on the Hungarian National Core Curriculum (2012), the Framework Curricula (2012), the syllabus (2015) and the experimental history textbook for 11<sup>th</sup> grade (2015) of the Hungarian Institute for Educational Research and Development. This study is motivated by two research questions: (1) how integrated is the use of the concept of historical thinking based curricula and textbooks? (2) To what extent are these documents consistent with each other with regard to historical thinking? The results indicate that, although these documents promote using disciplined inquiry into teaching history, the conceptions and instructions of curricula and textbooks are not always consistent. On the basis of these findings, it can be concluded that the effectiveness of synergy should be promoted between the examined curricula and textbooks to support teachers to improve students' historical thinking skill in the classroom practice. Due to the content limitations further studies will need to be undertaken.

#### **Session H 4**

28 August 2017 14:45 - 16:15

Pinni B 3111

Single Paper

Teaching and Teacher Education

#### **Teacher Professional Development and Teacher Education**

**Keywords:** Educational Psychology, Emotion and affect, In-service teacher education, Lifelong learning, Quantitative methods, Self-regulation, Teacher Effectiveness, Teacher Professional Development, Teaching approaches, Video analysis

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Csilla Pesti, Eötvös Lorand University, Hungary

#### **Teachers' emotional appraisal process and their burnout levels**

**Keywords:** Educational Psychology, Emotion and affect, Self-regulation, Teacher Professional Development

**Presenting Author:** Caterina Fiorilli, University of LUMSA, Italy; **Co-Author:** Alessandro Pepe, University of Milano-Bicocca, Italy; **Co-Author:** Ilaria Buonomo, University of Rome Sapienza, Italy; **Co-Author:** Ottavia Albanese, università milano Bicocca, Italy

Students' disruptive behaviors is one of the most stressful event to manage for teachers (Aloe et al., 2014; Brackett et al., 2010) which is associated with teachers' negative emotions intensity and their burnout levels. People affected by emotional difficulties may negative reflect in their emotional appraisal processes (Goldin et al., 2008). This, in turn, could worsen burnout symptoms. This process may have some major consequences, in terms of reducing teachers' well-being and worsening the quality of teacher-student relationship. We expected that burnout's sub-scales (i.e., emotional exhaustion, cynicism, and ineffectiveness) predicted teachers' appraisal process referred to students' negative emotion intensity and consequently affects their own negative emotions intensity. Participants were 316 primary teachers (female=92%; M=45.5; SD=3.22). Teachers' appraisal process of both students' negative emotions intensity (SAE) and their own negative emotions intensity (TAE) was evaluated by the Emotional Competence Questionnaire (Doudin & Curchod-Ruedi, 2010). Teachers' burnout levels was evaluated by the Maslach Burnout Inventory (Maslach & Jackson, 1986). The main hypothesis was tested by a full model assessed by SEM. Both direct and indirect effects revealed a moderate positive direct effect of emotional exhaustion ( $\beta=.20$ , p

#### **DIFFERENCES IN TEACHERS' THINKING ON IN-SERVICE TEACHER TRAINING**

**Keywords:** In-service teacher education, Quantitative methods, Teacher Professional Development, Lifelong learning

**Presenting Author:** Davaajav Purevjav, University of Szeged, Hungary; **Co-Author:** Yunjun Kong, University of Szeged, Hungary

There are good models and standards of teacher knowledge, however, we have little information on how teachers assess their own knowledge levels and professional development needs. Also, teacher knowledge and reflexivity may differ as a function of several cultural and personal factors, which also affect teacher behaviour in general, and attitudes to in-service

training (IST) in particular. Therefore, this study examined possible differences in perceived professional knowledge levels and development needs in a representative sample of Mongolian teachers by gender, work experience and school level taught. The research questions guiding this study are: (1) What are the possible differences by gender regarding in-service teachers' perceptions of professional development needs? (2) What are the possible differences by their work experience? (3) What are the possible differences by primary and secondary school teachers? A total number of 520 full-time teachers were recruited as participants on a volunteer basis; among whom local and national trainers were included. They were administered a paper-and pencil questionnaire, and they rated 18 components of teacher knowledge (five-point Likert scale items) from five aspects (present levels of teacher knowledge, importance in ever day teaching, necessity to improve, inclusion in IST, and changes perceived after IST). Preferences of learning activities and demographic information were also solicited. Results show there is a statistically significant difference between men and women on teacher knowledge levels and the perception of the importance of knowledge components in daily teaching tasks. Novice teachers preferred more traditional training methods and perceived less development after IST. Primary school teachers benefited more from IST. The findings reveal that the differences among teachers may call for diverse motivational strategies and learning activities in IST programs. Flexible curricula and various forms of assessment could also be offered. The findings might be of interest to educational policy makers as well.

### **Student Teachers' Teaching Approaches, Teacher Intentions, and Self-Perceived Instructional Impact**

**Keywords:** Teacher Effectiveness, Teacher Professional Development, Teaching approaches, Video analysis

**Presenting Author:** Mikko Tiilikainen, University of Turku, Finland; **Co-Author:** Auli Toom, University of Helsinki, Finland;

**Co-Author:** Janne Lepola, Univ. of Turku, Finland; **Co-Author:** Jukka Husu, University of Turku, Finland

During teacher education student teachers should learn various competencies – knowledge base and skills – that are required in practical teaching work in schools. This study clarifies student teachers' learning to teach by relating three theoretical constructs in empirical investigation: *teaching approaches*, *teacher intentions*, and self-perceived *instructional impact*. The study reports preliminary results of the first phase of analysis where an overall image of teaching approaches, teacher intentions and perceived impacts was created based on student teachers' practicum experiences. The qualitative data consist of student teachers' ( $N = 45$ ) critical teaching events ( $N = 90$ ) and related stimulated recall interviews that were collected during teaching practicum. Abductive content analysis was applied to both data types, with the aim to identify and align student teachers' teaching approaches (one-way and two-way direct teaching, one-way and two-way constructivist teaching), teacher intentions (portraying curriculum, enlisting student participation, containing student behavior, accommodating personal needs) and perceived instructional impact (effective, ineffective). The preliminary results suggest that the student teachers mainly used direct teaching, especially in its two-way variant. Constructivist teaching was not used to the same extent. Portraying curriculum and containing student behavior were the most concerned teacher intentions. Portraying curriculum often related to direct teaching, and here self-perceived instructional impacts were mostly effective. Containing student behavior often related both to one-way direct teaching and one-way constructivist teaching, and in both these cases instructional impact was often perceived as ineffective. Enlisting student participation often related to two-way direct teaching, and both effective and ineffective instructional impacts were perceived by the student teachers. Our tentative findings offer valuable information that contributes to supporting student teachers' learning to enact aligned teaching. Through explicated teacher intentions, teacher educators can guide student teachers' use of different teaching approaches and so help student teachers to improve their instructional impact. **Keywords:** teacher effectiveness, teaching approaches, video analysis, teacher professional development

### **Session H 5**

28 August 2017 14:45 - 16:15

Pinni B 4116

Poster Presentation

Teaching and Teacher Education

### **Teacher Professional Development**

**Keywords:** Cognitive skills, Culture, Higher education, History, In-service teacher education, Mixed-method research, Pre-service teacher education, Reflective society, Secondary education, Teacher Effectiveness, Teacher Professional Development, Teaching / instruction

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Henrik Husberg, Finland

### **Expert and novice teachers' perception and interpretation of classroom management in video clips**

**Keywords:** Cognitive skills, In-service teacher education, Mixed-method research, Pre-service teacher education

**Presenting Author:** Rebekka Stahnke, Humboldt University of Berlin, Germany; **Co-Author:** Sigrid Blömeke, Centre for Educational Measurement, Oslo, Norway

Teachers' classroom management behavior is a robust predictor of student achievement (e.g. Hattie 2012). Although teachers' professional knowledge of classroom management as measured by paper-pencil-tests predicts instructional quality, teachers' situational knowledge as measured by video-based assessments is an even stronger predictor (König & Kramer 2016). A critical aspect of teaching expertise that encompasses teachers' perception and interpretation is

professional vision (König, Blömeke, Klein, Suhl, Busse & Kaiser 2014, Stahnke, Schueler & Roesken-Winter 2016), that is how “teachers selectively attend to events (...) and then draw on their existing knowledge to interpret these noticed events“ (Sherin, Russ & Colestock 2011, p.80). First studies show that experts’ and novices’ professional vision of problematic student behavior in video clips differs: While experts distribute their visual attention more evenly and focus on (possibilities to influence) students’ learning, novices are more concerned with maintaining discipline in the classroom (van den Bogert, van Bruggen, Kostons & Jochems 2014, Wolff, van den Bogert, Jarodzka & Boshuizen 2015, Wolff, Jarodzka, van den Bogert & Boshuizen 2016, Yamamoto & Imai-Matsumura 2013). Further research needs to address multiple aspects of classroom management besides classroom disruptions and explore the role of teaching subjects. This study wants to take into account a possible subject specificity of professional vision and different aspects of classroom management with these research questions: How do expert and novice teachers differ in their noticing and knowledge-based reasoning of classroom management? Does expert and novice teachers’ professional vision differ depending on the subject displayed in classroom situations? Twenty experts and twenty novices participate in the study. Teachers’ eye movements and think-aloud data is recorded while they watch video clips of biology and mathematics instruction twice. Teachers’ noticing is measured by teachers’ visual attention to and verbal identification of classroom management events. Knowledge-based reasoning is measured by the stance, focus and temporality of verbal data concerning noticed events (Wolff et al. 2015). First results of this ongoing study will be presented and discussed.

### **The Reflective Pattern: Historical data and its use in Teacher Training**

**Keywords:** Higher education, History, Reflective society, Teaching / instruction

**Presenting Author:** Jason Holmes, The University of Alberta, Canada

The Reflective Pattern: Historical data and its use in Teacher Training Jason Holmes University of Alberta This study builds on literature in history of education and teacher education that addresses methods, practice, and theory. It seeks to contribute to the discussion of the usefulness of the history of education in teacher education. By analysis of Project Yesteryear questionnaires completed by veteran teachers who worked in Western Canada in the 20th century, this project seeks to determine: (a) the usefulness of this body of data is for teacher candidates, and (b) the most effective way to engage students with historical data. Data for this study came from the private archive of the late Professor and former Dean of the University of Alberta’s Faculty of Education, Dr. Robert S. Patterson. By utilizing Charmaz’s grounded theory techniques, coding of the questionnaire data resulted in numerous selective codes. The questionnaire became a way to show their knowledge and expertise on matters of educational practice. One sees an ability to reflect on the part of the respondents. In this pattern of reflection, discussions of regret, frustration, hope, and suggestions for effective teacher training practices arose. This reflective pattern shows that the veteran teachers wanted to have an impact on the next generation of teachers and used the questionnaire space as a tool in which to accomplish this. If teacher candidates can appreciate the process of reflection, they can begin to understand how history can induct them into the profession. The stories the respondents share are a chance for students to learn of past events and their impact on current controversies in education. By identifying the issues that the retired teachers noted as their concerns for the state of education, contemporary student teachers can learn which of these issues are still prevalent today.

### **Taboos in Teaching Profession!? Student Teachers’ Views on Implicit Agreements in Teacher Education**

**Keywords:** Culture, Higher education, Teacher Effectiveness, Teacher Professional Development

**Presenting Author:** Nadja Maria Köffler, University of Innsbruck, Austria; **Co-Author:** Evi Agostini, University of Innsbruck, Austria

In formal educational contexts, taboos as well as their related implicit norms play a significant role in shaping educational processes and promote the preservation and reorganization of educational systems. Particularly in teacher education, the confrontation with educational taboos is advisable as teachers are key figures in passing on cultural, ethic and educational values. As little research has been carried out on taboos in educational contexts so far, this study aims at shedding light on discreet topics in teaching profession by focusing on student teachers’ views and attitudes on unspoken rules and agreements in initial teacher education. To unmask taboos which are discussed in trustworthy contexts, five group discussions in form of nightly pub meetings have been held with student teachers (n=40) of the University of Innsbruck. The usage of this method elicits social codices and supports the identification of collective consents and beliefs on tabooed behaviour in teaching profession. Taboos which elude from verbal reference will be identified with the support of visualization. Especially visual representations have the capacity to advance to deeper layers of latent and less-reflected issues. Student teachers (n=20) will therefore be invited to film situations in which educational taboos seem to appear. The visual material as well as the findings of the focus groups will then be analysed (multidimensional approach) and in a final step applied to stimulate a discussion on taboos in teacher education. The expected results will be relevant for the improvement of teacher education and teachers’ professional development, as the confrontation with taboos and taboo transgressions helps to justify one’s own behavioural orientations, to reflect self-evident value judgments and supports the rethinking of personal expectations. It is supposed to promote achieving clarity on one’s profession-specific beliefs, values and attitudes, which ought be acknowledged as an important field of academic education.

### **Teachers’ professional vision of own classroom management: An expertise study**

**Keywords:** Mixed-method research, Secondary education, Teacher Professional Development, Teaching / instruction

**Presenting Author:** Sharisse van Driel, Open University, Netherlands; **Co-Author:** Halszka Maria Jarodzka, Open

University of the Netherlands, Netherlands; **Co-Author:** Frank Crasborn, Fontys University of Applied Sciences, Netherlands; **Co-Author:** Saskia Brand-Gruwel, Open University of the Netherlands, Netherlands

Classroom management is a challenge for many beginning teachers, yet crucial for pupils' learning. Important for effective classroom management is that teachers notice relevant events during teaching and interpret them correctly, referred to as professional vision. Previous studies, that investigated how teachers perceive *other* teachers' lessons, showed that preservice and experienced teachers differ largely in their professional vision with respect to classroom management. However, little is known about teachers' professional vision with respect to their *own* classroom management and how this relates to their level of teaching expertise. The present mixed-method study investigates how preservice teachers (n=20) differ in their interpretations of classroom management events noticed during teaching compared to beginning (n=20) and experienced teachers (n=20). Participants wear eye tracking glasses while teaching their class. They are instructed to provide a non-verbal signal when they experience an event relevant for classroom management during teaching. Afterwards, they report on frontal-view videos of these events during retrospective interviews. The verbal data will be analysed based on a validated coding scheme (Wolff et al., 2015) to define qualitative differences in interpretations between expertise levels. Quantitative analysis will be conducted to define statistical effects. It is expected that the interpretations of experienced teachers are sophisticated, focused on student learning, and include references to student characteristics and achievement level. Beginning teachers are expected to provide more sophisticated interpretations compared to preservice teachers, mainly centred on student discipline, and incidentally referring to student characteristics. Preservice teachers are expected to provide superficial interpretations centred on student discipline with limited references to student characteristics. Findings from this study will contribute to better understanding the development of teachers' classroom management skills and the role of professional vision herein. The data analysis is in progress and results will be presented at the conference.

### **Assessing teachers' general pedagogical knowledge – literature review**

**Keywords:** In-service teacher education, Pre-service teacher education, Teacher Effectiveness, Teacher Professional Development

**Presenting Author:** Liina Malva, University of Tartu, Estonia; **Co-Author:** Äli Leijen, University of Tartu, Estonia

Teacher's knowledge has been an important research focus for several decades. Although several empirical studies have been done about content knowledge and pedagogical content knowledge, less attention has been paid to teachers' general pedagogical knowledge (GPK). The focus of this study is on exploring teachers' GPK: the knowledge of teaching and learning across subjects. In order to understand more the dimensions of teachers' GPK and their relationship to pupil learning, a literature review was conducted. After several rounds the literature search based on a term "pedagogical knowledge" resulted in 27 articles. The results show that most of the studies focusing on defining the dimensions of GPK were carried out earlier in comparison of the recent studies. The dimensions were found and described based on empirical findings (e.g. video recall, document analysis) or on previous literature. The emerging dimensions of GPK that were covered in most of the articles included in the review are the following: lesson planning and structure, instructional strategies, student learning, classroom management, assessment, motivation, students diversity, and interpersonal relations. When measuring teachers' GPK, the studies conducted before 2011 are mostly based on teachers' or school principals' perceptions of the knowledge level. In these cases the data was collected using surveys and interviews. However, during the last five years there has also been studies measuring teachers' GPK with a knowledge test, primarily with TEDS-M test (König et al., 2011). Despite the evident growth of the interest in this research area, the evidence of teachers' GPK supporting pupils' learning is rather rare. Until now, only one study carried out by König and Pflanzl (2016) has been identified focusing on this issue. Nevertheless, the instructional quality was measured by the perceptions of the students. Therefore, an evident gap appears when examining the GPK and its relatedness to pupils' learning outcomes.

### **Session H 6**

28 August 2017 14:45 - 16:15

Pinni B 4113

Poster Presentation

Educational Policy and Systems, Higher Education, Learning and Instructional Technology, Learning and Social Interaction, Motivational, Social and Affective Processes

### **Best of JURE - Poster**

**Keywords:** Achievement, Competencies, Computer-assisted learning, Conversation / Discourse analysis, Educational policy, Educational Psychology, Emotion and affect, Higher education, Language (Foreign and second), Lifelong learning, Meta-analysis, Motivation, Peer interaction, Primary education, Problem solving, Quantitative methods, Reading comprehension, Self-regulation, Social interaction, Student learning, Teacher Professional Development

**Interest group:** SIG 07 - Learning and Instruction with Computers, SIG 08 - Motivation and Emotion, SIG 10 - Social Interaction in Learning and Instruction, SIG 14 - Learning and Professional Development, SIG 16 - Metacognition

**Chairperson:** Mun Siong Kom, National Institute of Education / Nanyang Technological University Singapore, Singapore

### **Supportive hints in a digital learning environment: Effects on students' motivation**

**Keywords:** Computer-assisted learning, Motivation, Reading comprehension, Self-regulation

**Presenting Author:**Marlies ter Beek, University of Groningen, Netherlands; **Co-Author:**Leonie Brummer, University of Groningen, Netherlands; **Co-Author:**Anouk Donker, Rijksuniversiteit Groningen, Dept of Education and GION, Netherlands; **Co-Author:**Marie-Christine Opendakker, University of Groningen, Netherlands

Reading skills are developed across the lifespan. However, little is known about the development of reading comprehension skills and materials in secondary education, where students do not learn to read, but read to learn. When students read informational textbooks, domain knowledge (e.g., about reading strategies) and topic knowledge become increasingly interconnected. Students' motivation is also of influence on reading achievement. Students need to recognize the task value or decrease the perceived difficulty of a task in order to be motivated to read a text (Guthrie, Klauda & Ho, 2013). Reading motivation is a problem many content area teachers face. Research has shown that incorporating cognitive, metacognitive and motivational support during instruction increases students' motivation towards learning from text (Souvignier & Mokhlesgerami, 2006). This semester's research uses a digital learning environment (DLE) with two types of support for informational text reading: cognitive and metacognitive hints. In a quasi-experimental design, a total of 228 first grade students from 3 secondary schools were able to use cognitive and metacognitive hints during history lessons (school A:  $N=80$ ), during geography lessons (school B:  $N=92$ ) or were unable to use hints during these lessons (school C:  $N=56$ ). Students' task value and self-efficacy was measured for all groups using the Motivated Strategies for Learning Questionnaire (MSLQ). The effectiveness of available hints on students' motivation was analyzed using ANOVA, GLM and paired samples  $t$ -tests. Results showed a significant increase in the pretest and posttest scores for self-efficacy in geography in the control group. There was also a significant decrease in pretest and posttest scores for task value in history in the experimental group. These findings are not in line with previous research on the effects of reading strategy instruction on students' motivation: The addition of motivational hints in the next semester might elicit more positive and significant effects.

### **Communication Strategies of Good Language Learners - Results of the Qualitative Research Part**

**Keywords:** Achievement, Conversation / Discourse analysis, Language (Foreign and second), Student learning

**Presenting Author:**Katerina Sykorova, Masaryk University, Czech Republic

This poster introduces results of the second phase of doctoral thesis research dealing with communication strategies in speaking English as a foreign language on a sample of good language learners. The objective is to discover whether there is a relation between achievement and use of communication strategies. Additionally, good language learners' speaking as a language skill is researched, particularly their beliefs and approaches to learning and practising it in order to find ways how to support their development more effectively. The research consists of two parts, the first of which aimed to identify good language learners from the sample of 464 learners at the end of lower secondary education in the Czech Republic and discover both their reported and observed communication strategies. Also conversation analysis of their speaking tasks was conducted in order to find out more about their specific speaking behaviour. This second phase (qualitative) is focused more deeply on a sample of 9 good language learners. These learners participated in additional speaking tasks and were video-recorded so that their communication strategies could be observed. Similarly, conversation analysis was conducted in order to discover whether there are any common features of good language learners' speech. Results show that good language learners prefer to use fluency-oriented strategies, they focus on the conversational flow and they also use nonverbal strategies but mostly in the meaning of accompanying their utterances. Moreover, these good language learners also participated in in-depth interviews so that more information could be gained about their beliefs and approaches to speaking English as a foreign language and practical implications for language classrooms could be stated. Some of these recommendations include working on paraphrase or on nonverbal strategies as well as use of both heterogeneous and homogeneous group work in language classrooms.

### **Meta-Analyses of Self-Regulated Learning Interventions on Self-Regulated Learning and Achievement**

**Keywords:** Achievement, Higher education, Meta-analysis, Self-regulation

**Presenting Author:**Renee Jansen, Utrecht University, Netherlands; **Co-Author:**Anouschka van Leeuwen, Utrecht University, Netherlands; **Co-Author:**Jeroen Janssen, Utrecht University, Netherlands; **Co-Author:**Liesbeth Kester, Utrecht University, Netherlands

Self-regulated learners are actively involved in their learning process, not only during learning, but also before and after a learning task. Self-regulated learning (SRL) includes metacognitive (e.g., goal setting, reflection) and resource management (e.g., time management, help seeking) activities. SRL is known to be positively related to learning outcomes, especially in higher levels of education as students are then given more autonomy. It is however unknown which specific components of SRL activities are most important for better learning outcomes, and which types of interventions aimed at improving SRL are most effective for supporting SRL activities. Therefore, three meta-analyses are conducted simultaneously exploring the relation between 1) SRL interventions and learning outcomes, 2) SRL interventions and SRL activities, and 3) SRL activities and learning outcomes in the context of higher and online education. As variables are operationalized in the same manner for all three relations, and studies for all three relations are included, meta-analyses can be conducted for the three relations simultaneously and therefore conclusions can be drawn about the combined effects. A literature search was conducted, and after filtering, respectively 67, 42, and 78 studies were retained per relationship. Each study is coded on six aspects: general study information, educational context, sample characteristics, SRL intervention (e.g., length, type of SRL supported), SRL measurement (e.g., type of SRL measured), and achievement. Coding is currently in progress, but will be finished before the JURE conference and preliminary results will be presented

during the conference. The results will show the strength of the tested relationships and the influence of the coded moderators. Results will not only provide theoretical guidance for future research by indicating the aspects of SRL most effective for improving learning outcomes, but will also provide practical guidance for implementing interventions aimed at enhancing students' SRL.

#### **Help-seeking types in different stages of writing a Matura-thesis**

**Keywords:** Problem solving, Quantitative methods, Social interaction, Lifelong learning

**Presenting Author:** Carmen Hirt, University of Zurich, Switzerland; **Co-Author:** Francesca Suter, University of Zurich, Switzerland; **Co-Author:** Yves Karlen, University of Zurich, Switzerland; **Co-Author:** Katharina Maag Merki, University of Zurich, Switzerland

Help-seeking types in different stages of writing a *Matura*-thesis The process of writing a graduation-thesis (also called *Matura*-thesis) on upper secondary school level can contribute to the acquirement of self-regulation-competences, such as being able to use help-seeking strategies effectively (Huber et al., 2008), which can fund in-depth learning (Karabenick & Newman, 2006). The *Matura*-thesis consists of three stages: development of concept (preparation stage), realisation of the thesis (realisation stage), and completion of the work (final stage). As the *Matura*-thesis is the first autonomously written academic paper beyond the instruction-context in Swiss grammar school, help-seeking strategies might play a major role in the writing process. Help-seeking is an external resource strategy which contains a social transaction with teachers, parents and peers (Karabenick & Newman, 2010). Referring to this, studies in the context of classroom have shown that the older the students are, the less they ask for help (Ryan & Midgley, 1998), and to a lesser extent ask peers for help (Sparks, 2015). Further, girls are more likely to search help than boys (Nadler, 1998). Also, a lower self-efficacy can lead to less searching for help, because the need for help is experienced as threatening (Ryan & Pintrich, 1997). Currently, innovative research, which links help-seeking types to specific stages of the learning process is sparse. To get an adequate picture of help-seeking processes it is important to analyse these processes differing between learning stages. The following question occur: *Which types of help-seekers can be identified in different stages of writing a Matura-thesis?* Students (N = 1229) from 14 grammar schools in German-speaking part of Switzerland completed four questionnaires during the course of one year. The longitudinal dataset (N = 634) provides information from three questionnaires to generate stage-specific help-seeking types (LCA) and to analyse possible stage-specific differences in help-seeking behaviour for a better understanding and possible improvement of support-processes.

#### **Conditions to enhance competence-oriented staff policy: a hybrid Delphi study**

**Keywords:** Competencies, Educational policy, Primary education, Teacher Professional Development

**Presenting Author:** Aster Van Mieghem, University of Antwerp, Belgium; **Co-Author:** Elke Struyf, University of Antwerp, Belgium; **Co-Author:** Mathea Simons, Universiteit Antwerpen, Belgium; **Co-Author:** Ellen Vandervieren, University of Antwerp, Belgium; **Co-Author:** Jordi Casteleyn, University of Antwerp, Belgium; **Co-Author:** Tom Smits, University of Antwerp, Belgium

School teams experience varying needs. These depend on (1) new rules and laws that are imposed, (2) changing views on education, and (3) advantages linked with adopting good practices (Verbiest, 2011). School organizations must therefore possess a high capacity for innovation to be able to continue to respond adequate to these needs. A competence-oriented staff policy may help to develop this capacity. This study identifies conditions related to the implementation of practices associated with competence-oriented staff policy by means of a hybrid Delphi design (Landeta, Barrutia, & Lertxundi, 2011) with four expert groups: teachers (n=5), school leaders (n=7), pedagogical counselors (n=14) and educational consultants (e.g. school inspectors, teacher educators, educational researchers) (n=12) in Flanders (Belgium). The results show similar conditions over all expert groups, to be clustered in five categories: (1) clear vision, mission and plan of action, (2) focus on the learner, (3) positive school climate fostering collaboration, (4) knowledge about team competences and the organization of the practice and (5) infrastructure that supports the practice. However, the expert groups also look at these conditions from a different perspective. Teachers adopt a rather practical perspective (How do we have to organize this new practice?), school leaders a more managerial perspective (How can I successfully guide my team towards this practice?), pedagogical counselors a perspective of support (What are the needs of the school team and how can I support this team?) and educational consultants a more theoretical viewpoint (What is known already about this practice?). Understanding these different perspectives, will facilitate the implementation of innovative practices.

Landeta, J., Barrutia, J., & Lertxundi, A. (2011). Hybrid Delphi: A methodology to facilitate contribution from experts in professional contexts. *Technological Forecasting & Social Change*, 78, 1629-1641. doi:10.1016/j.techfore.2011.03.009  
Verbiest, E. (2011). *Leren innoveren. Een inleiding in de onderwijsinnovatie. (Learning to innovate. An introduction to educational innovation.)* Antwerpen / Apeldoorn: Garant.

#### **The Social Environment as an Antecedent of Achievement Emotions**

**Keywords:** Educational Psychology, Emotion and affect, Peer interaction, Social interaction

**Presenting Author:** Philipp Forster, Ludwig-Maximilians-Universität (LMU), Germany; **Co-Author:** Kaiqi Shao, Ludwig-Maximilians-University Munich, Germany; **Co-Author:** Reinhard Pekrun, Ludwig-Maximilians-Universität (LMU), Germany

According to the social appraisal theory (Parkinson & Simons, 2009), emotions of others may serve as an important source of information when appraising situations, which in turn may influence students' achievement emotions. However, research on the role of student's perceptions of other students' emotions for their own experienced emotions is largely lacking. Therefore, the aim of this study was to explore the role of perceived classmates' emotions students' own emotions and to investigate whether this relationship might be mediated by control and value appraisals. The sample consisted of  $N = 104$  Chinese middle school students (51.9% female;  $M_{age} = 12.02$ ,  $SD = .38$ ) from three English classes. The students completed a Chinese version of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011) reporting their enjoyment, anxiety, and boredom in the English classroom. To measure perceptions of the other students' emotions, we adapted the items of the AEQ by including the phrase "the students in this class...". In addition, students' control-value appraisals were measured using a Chinese version of the Self-Description Questionnaire (Leung, Marsh, Craven, & Abduljabbar, 2016) and the Task Value Questionnaire (Pekrun & Meier, 2011). Results from correlational analyses showed that students' enjoyment, anxiety, and boredom are positively related to the perceptions of the corresponding emotions. Furthermore, the perception of others' enjoyment and anxiety was significantly related to control appraisals, and the perceptions of others' enjoyment and boredom was significantly related to value appraisals. Control and value appraisals were positively related to enjoyment, but negatively related to anxiety and boredom. Mediation analyses revealed that students' perceived and experienced enjoyment is mediated by control and value appraisals. The findings for anxiety and boredom did not support the hypothesized mediational model. Taken together, the present study provides a novel contribution to research on students' achievement emotions through considering the social environment as an antecedent of these emotions. Future research may also incorporate the perceptions of teachers' emotions into this research.

## Session H 7

28 August 2017 14:45 - 16:15

Pinni B 3117

Poster Presentation

Teaching and Teacher Education

### Teaching and Teacher Education

**Keywords:** Collaborative Learning, Competencies, Early childhood education, Lifelong learning, Peer interaction, Pre-service teacher education, Primary education, Quasi-experimental research, Science education, Social interaction, Teacher Professional Development, Vocational education, Workplace learning

**Interest group:** SIG 11 - Teaching and Teacher Education

**Chairperson:** Rita Hofmann, University of Koblenz-Landau, Germany

### Development and Validation of a Video-Based Instrument for the Assessment of Feedback Competence

**Keywords:** Collaborative Learning, Competencies, Peer interaction, Teacher Professional Development

**Presenting Author:** Christopher Neil Prilop, Leuphana University Lueneburg, Germany

Professional knowledge is a prerequisite for effective teaching (Shulman, 1987). In general, experts are characterized by lifelong "deliberate practice" (Ericsson et al., 1993, p. 367). Deliberate practice is a structured activity that increases the performance by constant observation and feedback. Without adequate feedback, however, the performance increases are minimal (ibid., p. 367). The ability to give and receive feedback (peer feedback competence) is therefore a precondition for the enhancement of teachers' professional knowledge. Though feedback is a popular topic (e.g. Bangert-Drowns et al., 1991; Hattie & Timperley, 2008), teachers' peer feedback competence has not been analyzed extensively.

Our study pursues this research gap by developing and empirically verifying an instrument for the video-based measurement of feedback competence. Consequently, it will try and answer the question of how teachers' peer feedback competence can be assessed.

The instrument is developed and validated in four steps. In the first step, a feedback model is generated from research literature (e.g. Narciss, 2006; Shute, 2008) and expert interviews. Feedback categories and feedback factors are outlined. The feedback factors are used to determine the quality of a feedback. In the second step, two feedback scenarios with variations of personal and situational conditions are constructed using classroom video sequences. For each scenario, feedbacks of varying quality and categories are composed. In the third step, the feedbacks are rated by experts and scenarios evaluated with regard to their content validity. The consistency of the individual feedback items with the scenarios is examined, and the effectiveness of the feedback is quantified by a master rating. In the fourth step, the instrument is checked for prognostic validity, testing the variation of expertise in different groups.

It is expected that the instrument will measure teachers' peer feedback competence in a valid, reliable, and objective fashion and can be used as a pre-post-test in interventions.

### Teacher interpersonal behavior: comparing Dutch academic and nonacademic primary school teachers

**Keywords:** Pre-service teacher education, Primary education, Social interaction, Teacher Professional Development

**Presenting Author:** Sanne Dijkema, University of Groningen, Netherlands; **Co-Author:** Simone Doolaard, University of Groningen, Netherlands; **Co-Author:** Roel J. Bosker, Rijksuniversiteit Groningen, Dept of Education and GION, Netherlands

*The importance of interpersonal teacher behavior in primary education is widely acknowledged. The interpersonal perspective identifies interpersonal behavior in two universal dimensions, agency and communion. Agency involves the control a teacher displays in the classroom, and communion can be described as the proximity of the teacher to students. Research generally indicates that teachers showing high levels of agency and communion have the highest impact students' cognitive and affective outcomes. In order to enter the profession of primary school teacher appropriate education is necessary. Only a few studies in early childhood education investigated the impact of teachers educational degree on interpersonal behavior. Results in primary education remain unclear. In the Netherlands an academic Bachelor's degree program was developed, in 2008, preparing for the profession of primary school teacher. This Bachelor's degree program integrates the traditional higher vocational education program and the academic program of educational sciences and pedagogy. Teachers graduating from this academic trajectory hold a double Bachelor's degree in both higher vocational education and university. Establishing this new degree resulted in primary school teachers with different educational backgrounds working in the field. This study compared teacher interpersonal behavior, in terms of agency and communion, of beginning academic and nonacademic Dutch primary school teachers. Teacher interpersonal behavior was measured using the Questionnaire on Teacher Interaction for Primary Education (QTI-PE). All items were scored on a five-point Likert scale, ranging from 1 (never) to 5 (always). Both student and teacher perceptions were collected. Students from grades 3 to 6 completed the questionnaire about their teacher. Besides, the teachers of both kindergarten and grades 1 to 6 completed the questionnaire based on their perception of their own behavior in the classroom. Data was collected in spring 2015, 2016 and 2017. The results provide a first exploration of the development of teacher interpersonal behavior in primary education for teachers with different educational backgrounds.*

### **CONTINUING EDUCATION SYSTEM for ESTONIAN HEALTH CARE PROFESSIONALS, Interdisciplinary approach**

**Keywords:** Teacher Professional Development, Vocational education, Workplace learning, Lifelong learning

**Presenting Author:**Kristel Kotkas, Tallinn University, Estonia; **Co-Author:**Irma Nool, Tallinn Healthcare College, Estonia

The Estonian care quality and patient-contentedness studies (2002-2016) reveal lack of patient-centeredness in healthcare professionals (HCP) work. There is still no clear interdisciplinary model of methodological approach for professional development of HCP to put into practice. The Problem: In the EU 50% of HCP-learning takes place at practical training bases as internships, supervised by mentors as clinical teachers. In Estonia implementation of educational science principles and teaching skills are supported via updated curricula from year 2002, as a patient/person-centered element. Majority of mentors have graduated before 2002. Research question: How to support patient-centeredness in professional development by including methodological educational science components into curriculum? Theoretical background: Modern healthcare is influenced by two paradigms: evidence-based and patient-based training. It may cause conflicts between HCP with different training backgrounds and affect the quality of healthcare. Methodology: Ongoing research presents a comprehensive sample of mentors from Estonian health-care institutions (n = 178), and their last year undergraduate nurse-students from Tallinn (n = 92) and Tartu Health-Care College (n = 86). Data is collected by structured questionnaire (Likert-scale) and analysed by SPSS. Results: The study reveals correlations between patient-centeredness and curricula. Mentors highly evaluated their continuing education system availabilities as a way of professional development. There is no significant conflict between nurse students and their clinical teachers evidence-based and patient-centered approach. Current international curricula are using similar educational sciences and communication techniques. Conclusions: Supplementary, up-to-date training for healthcare professionals has an increasing role as they function as teachers for patients and educators of colleagues. Evidence-based and patient-centered healthcare can be wholly complementary, using computer tools to fully the vast body of collective knowledge available, to define patient-uniqueness and to identify the options to guide patients. An interdisciplinary, social-constructive approach and knowledge of social- and communication skills provides better solutions.

### **Dealing with relevant concepts – a video-based learning arrangement for preservice teachers**

**Keywords:** Competencies, Pre-service teacher education, Quasi-experimental research, Teacher Professional Development

**Presenting Author:**Julia Becker, Free University of Berlin, Germany; **Presenting Author:**Annemarie Jordan, Free University of Berlin, Germany

This study is situated in the project 'K2teach - Know how to teach: Developing professional competencies for adaptive teaching in preservice teacher education', which uses video vignettes to combine theory and practice in teacher education to evolve preservice teachers' professional development in the context of challenges facing society and schools (e.g., dealing with heterogeneous groups). Schools in Germany and generally throughout Europe are shaped by increasing socio-economic and cultural diversity, so that teachers need to be equipped with competencies for professional planning and for reacting both spontaneously and professionally in classroom settings. This is an important element of teacher expertise. Using classroom videos can increase preservice teachers' professional competencies by training professional vision. However, the videos are not effective by themselves, they must be embedded in an effective learning arrangement with instructional contexts. Based on a model of professional vision, we developed learning arrangements for preservice teachers to notice and reason about events of inclusive teaching and judging politically in civic education via video vignettes. Therefore, relevant theoretical concepts are illustrated by our authentic classroom videos and are embedded in instructions and background information. On the one hand, our aim is to investigate which events preservice teachers notice and how they reason about those. On the other hand, we want to investigate the benefit of video-based learning

arrangements focusing the self-efficacy in context of professional vision and dealing with heterogeneous groups. We are certain that theory and practice can be better combined in video-based learning arrangements. These learning arrangements are implemented in university teacher trainings in master courses and are evaluated in a pre-post-intervention-study with video-based questionnaires as well as with an instrument to measure self-efficacy. The poster presentation will discuss the theoretical background, the study-design as well as preliminary results of the pilot-study.

### **Development of the Control of Variables Strategy in primary schools**

**Keywords:** Early childhood education, Primary education, Science education, Teacher Professional Development  
**Presenting Author:**Heidi Haslbeck, Technical University of Munich (TUM), Germany; **Co-Author:**Eva-Maria Lankes, Technical University of Munich (TUM), Germany

The autonomous checking of questions and assumptions by systematic varying of variables (Control of Variables Strategy) in the experiment is a central aspect of the scientific thinking and a target of science (Härtig, 2016; Klahr & Nigam, 2004). The systematic varying of one factor and the ability to distinguish between confounded and not confounded experiments is thereby a fundamental skill (Chen & Klahr, 1999). Recent psychological studies could exhibit that children at the preschool and primary school age already have first skills of scientific thinking and can distinguish between confounded and not confounded experiments (Sodian & Mayer, 2013; Schwichow et al., 2016). It is well substantiated how the Control of Variables Strategy in classes can be supported through different actions for pupils. What is less known is what skills a teacher needs to impart the Control of Variables Strategy in class (Schwichow et al., 2016; Ross, 1988). German primary school teachers are usually not well educated in teaching natural sciences (Möller, Kleickmann & Jonen, 2004; Schröder-Lausen & Nerdel, 2008). Because of this they mostly use instruction manuals for experimenting, which are processed step by step. Such manuals only rarely help the learners to form experiments or vary freely (Martin, Mullis & Foy, 2008). This study outlines how primary school teachers can be supported imparting the children the Control of Variables Strategy. To achieve this, we use the professional competence model of Baumert and Kunter (2006). We interviewed 14 German primary school teachers about the use of experiments in their classrooms, and whether and how they apply the Control of Variables Strategy. Additionally their scientific self-concept, interest, their attitude towards the sciences and scientific learning as well as their pedagogical content knowledge and syntactic knowledge concerning the Control of Variables Strategy, will be assessed through a questionnaire. This study is mainly concerned with investigating what teachers know about the Control of Variables Strategy and how they use it in classes.

### **Session I 1**

28 August 2017 16:45 - 18:15

Pinni B 1100

Invited Workshop

Learning and Instructional Technology

### **Three different perspectives on why you need Learning Analytics and Educational Data-Mining**

**Keywords:** At-risk students, Computer-assisted learning, Computer-supported collaborative learning, Learning analytics  
**Interest group:** SIG 27 - Online Measures of Learning Processes

Many schools and educational institutions are increasingly collecting Big Data about students and their learning behaviour, such as their class attendance, online activities, or assessment scores. As a result, the emerging fields of Learning Analytics (LA) and Educational Data Mining (EDM) are simultaneously exploring how this data can be used to empower teachers and institutions to effectively support learners. These fields demonstrate that Big Data can be used as a treasure trove to test, validate and build new pedagogical insights on how students and professionals are actually learning. LA can be defined in this context as the measurement, collection, analysis and reporting of data about learners and their contexts, for the purposes of understanding and optimising learning and the environments in which it occurs. EDM refers to the application of automated data mining techniques (i.e. decision tree, rule induction, artificial neural networks, Bayesian learning, etc.) to educational data with the aim of resolving research issues. In this EARLI JURE workshop, based upon 5 years of experience with LA data and large-scale implementations amongst 45000+ students at the Open University UK, we will use an interactive format to discuss and debate three major questions in LA and EDM research: 1) To what extent does predictive learning analytics help teachers to support students-at-risk?; 2) How can learning design be optimised using the principles of learning analytics?; 3) Does learning analytics promote 'personalisation' or 'generalisation' for diverse populations of students? After a brief introduction of LA and EDM, participants can choose one of these three topics to gain more in-depth understanding. Working in small groups, each participant can play with real data, visualisations and lived experiences of students and teachers. We look forward to measuring and optimising your learning experience at this workshop!

### **Three different perspectives on why you need Learning Analytics and Educational Data-Mining**

**Presenting Author:**Bart Rienties, Open University, United Kingdom; **Co-Author:**Jenna Mittelmeier, Open University, United Kingdom; **Co-Author:**Quan Nguyen, Open University, United Kingdom

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## Session I 2

28 August 2017 16:45 - 18:15

Pinni B 4113

Invited Workshop

### **Progress in research on regulated learning: self-, co-, and socially shared regulation of learning**

**Keywords:** Computer-supported collaborative learning, Metacognition, Motivation and emotion, Self-regulation

**Interest group:** SIG 16 - Metacognition

Learning in and for the 21<sup>st</sup> century requires motivational competence and effective learning strategies in individual and collaborative learning settings. E.g. for collaborative learning to be effective, students must explicate their thoughts, actively participate, discuss and negotiate their views with the other students in their team, coordinate and metacognitively regulate their actions between them. In our research group, we have been especially interested in how groups, and individuals in groups, can be supported to engage in, sustain, and productively regulate individual and collaborative learning processes. In this interactive workshop we will:

- 1) Introduce the theoretical progress of research on regulated learning, in terms of self-, co-, and socially shared regulation of learning (SSRL).
- 2) We will discuss the empirical challenges investigating regulated learning. Having our own experience in struggling to evidence the phenomena of SSRL, we will review our progress in methodological development and demonstrate our recent methods.
- 3) As empirical evidence show, many learners lack regulatory skills and struggle to develop them when they work on complex learning tasks. To support them, we have developed a set of technological tools to prompt individuals and groups in the regulatory processes. We will review these tools and show the practical value of the theoretical concepts.

### **Progress in research on regulated learning: self-, co-, and socially shared regulation of learning**

**Presenting Author:**Sanna Järvelä, University of Oulu, Finland; **Co-Author:**Hanna Jarvenoja, University of Oulu, Finland

Learning in and for the 21<sup>st</sup> century requires motivational competence and effective learning strategies in individual and collaborative learning settings. E.g. for collaborative learning to be effective, students must explicate their thoughts, actively participate, discuss and negotiate their views with the other students in their team, coordinate and metacognitively regulate their actions between them. In our research group, we have been especially interested in how groups, and individuals in groups, can be supported to engage in, sustain, and productively regulate individual and collaborative learning processes. In this interactive workshop we will:

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## Session I 3

28 August 2017 16:45 - 18:15

Pinni B 1097

Invited Workshop

### **WRITING FOR INTERNATIONAL SCHOLARLY JOURNALS**

**Keywords:** Educational policy, Educational Technology, Interdisciplinary, Researcher education

**Interest group:**

The Editor in Chief and Publisher of *Learning and Instruction* will jointly present on writing and publishing in academic journals. The session will cover both personal and professional perspectives on preparing, writing and submitting articles, journal selection and reviewing and reviewer feedback. Best practice and tips will be discussed, with an opportunity to ask questions on any aspect of the journal or wider publishing environment.

### **WRITING FOR INTERNATIONAL SCHOLARLY JOURNALS**

**Presenting Author:**Jan Vermunt, University of Cambridge, United Kingdom; **Presenting Author:**Emma Williams, Elsevier, United Kingdom

The Editor in Chief and Publisher of *Learning and Instruction* will jointly present on writing and publishing in academic journals. The session will cover both personal and professional perspectives on preparing, writing and submitting articles, journal selection and reviewing and reviewer feedback. Best practice and tips will be discussed, with an opportunity to ask questions on any aspect of the journal or wider publishing environment.

### **Session I 4**

28 August 2017 16:45 - 18:15

Pinni B 3116

Invited Workshop

Higher Education

### **Becoming an Academic Writer: Writing like an Expert**

**Keywords:** Argumentation, Cognitive skills, Higher education, Writing / Literacy

**Interest group:** SIG 12 - Writing

This session will look at two key aspects of writing: the academic text itself and you as a writer. Becoming a confident and proficient academic writer requires thinking about you write as well as thinking about what you write. We will look at the conventions of academic writing, particularly the doctoral thesis. It will consider the importance of the global structure of the thesis and chapters within the thesis, particularly the importance of the 'golden thread' running through your thesis. The role of signposting and markers in the development of a coherent argument will be examined, with an emphasis on thinking about clarity of communication to your reader. It will also address the more local expectations at paragraph and sentence level, and appropriate ways to communicate ideas using an academic style. We will also explore 'writing behind the scenes', the ways that you can use writing as a tool to explore your ideas, to clarify your conceptual understanding, and to discover what you want to say. Some of this writing will generate texts, such as diagrams or tables, which might form part of your thesis. The session will invite you to reflect on and think about the kind of writer you are, and this will be linked to our understanding of the different ways writers approach the writing process, and how you might ensure that you are self-regulating how you manage your doctoral writing. The session will be a practical workshop, so come prepared to talk with workshop peers, and it will include opportunities to analyse your own writing so please bring with you some of your own academic writing. If you have not yet begun to write your doctoral thesis, do bring your Masters thesis or an academic assignment.

### **Becoming an Academic Writer: Writing like an Expert**

**Presenting Author:**Debra Myhill, University of Exeter, United Kingdom

This session will look at two key aspects of writing: the academic text itself and you as a writer. Becoming a confident and

proficient academic writer requires thinking about you write as well as thinking about what you write. We will look at the conventions of academic writing, particularly the doctoral thesis. It will consider the importance of the global structure of the thesis and chapters within the thesis, particularly the importance of the 'golden thread' running through your thesis. The role of signposting and markers in the development of a coherent argument will be examined, with an emphasis on thinking about clarity of communication to your reader. It will also address the more local expectations at paragraph and sentence level, and appropriate ways to communicate ideas using an academic style. We will also explore 'writing behind the scenes', the ways that you can use writing as a tool to explore your ideas, to clarify your conceptual understanding, and to discover what you want to say. Some of this writing will generate texts, such as diagrams or tables, which might form part of your thesis. The session will invite you to reflect on and think about the kind of writer you are, and this will be linked to our understanding of the different ways writers approach the writing process, and how you might ensure that you are self-regulating how you manage your doctoral writing. The session will be a practical workshop, so come prepared to talk with workshop peers, and it will include opportunities to analyse your own writing so please bring with you some of your own academic writing. If you have not yet begun to write your doctoral thesis, do bring your Masters thesis or an academic assignment.

## **Session I 5**

28 August 2017 16:45 - 18:15

Pinni B 3107

Invited Workshop

### **Perspectives on designing and analyzing (computer-supported) collaborative learning**

**Keywords:** Collaborative Learning, Computer-supported collaborative learning, Educational Technology, Instructional design

#### **Interest group:**

The future knowledge society challenges educational organization to develop their practices, particularly regarding the role of new technology in supporting teaching and learning. This workshop will focus on perspectives on designing and analyzing (computer-supported) collaborative learning that can enhance the development of educational practices. In particular, the workshop offers insights into research on how technology can be harnessed to enhance the learning of various new skills and competences needed in the knowledge society. Given the experience of the workshop leaders, the focus will be on intervention studies (in the broad educational sense of the word, i.e. studying instructional interventions with learners) in the field of computer-supported collaborative learning (CSCL). The workshop has four parts. First, we will discuss how to connect your study to prior research in the field and why it is important to provide insight into a theoretical issue in designing collaborative learning. Second, we will focus on elements to consider when designing your research (and the collaborative activities within your research). This will include different appropriate methods on exploring CSCL (i.e. which data to capture and how, and how to apply the methods rigorously). Third, related to this, the focus will be on how to select and report on qualitative and quantitative methods (i.e. what are good practices, how does the data support the conclusions of your study). Fourth, we will discuss how to disseminate your results and write an article that tells a good story and what journal reviewers typically seek for when evaluating your manuscript. The workshop will use a variety of methods, including, for example, short lectures with empirical examples. All students interested in carrying out intervention studies (or already in the process of carrying them out) are welcome. We welcome bringing in your own experience and examples.

### **Perspectives on designing and analyzing (computer-supported) collaborative learning**

**Presenting Author:**Raija Hamalainen, University of Jyväskylä, Finland; **Presenting Author:**Bram De Wever, Ghent University, Belgium

The future knowledge society challenges educational organization to develop their practices, particularly regarding the role of new technology in supporting teaching and learning. This workshop will focus on perspectives on designing and analyzing (computer-supported) collaborative learning that can enhance the development of educational practices. In particular, the workshop offers insights into research on how technology can be harnessed to enhance the learning of various new skills and competences needed in the knowledge society. Given the experience of the workshop leaders, the focus will be on intervention studies (in the broad educational sense of the word, i.e. studying instructional interventions with learners) in the field of computer-supported collaborative learning (CSCL). The workshop has four parts. First, we will discuss how to connect your study to prior research in the field and why it is important to provide insight into a theoretical issue in designing collaborative learning. Second, we will focus on elements to consider when designing your research (and the collaborative activities within your research). This will include different appropriate methods on exploring CSCL (i.e. which data to capture and how, and how to apply the methods rigorously). Third, related to this, the focus will be on how to select and report on qualitative and quantitative methods (i.e. what are good practices, how does the data support the conclusions of your study). Fourth, we will discuss how to disseminate your results and write an article that tells a good story and what journal reviewers typically seek for when evaluating your manuscript. The workshop will use a variety of methods, including, for example, short lectures with empirical examples. All students interested in carrying out intervention

studies (or already in the process of carrying them out) are welcome. We welcome bringing in your own experience and examples.

## **Session I 6**

28 August 2017 16:45 - 18:15

Pinni B 3109

Invited Workshop

### **Writing grant proposals**

**Keywords:** Competencies, Doctoral education, Student learning, Writing / Literacy

#### **Interest group:**

Workshop Writing grant proposals Dr. Mari-Paoliina Vainikainen, University of Helsinki Mari-Paoliina Vainikainen (PhD, Docent) works as a research coordinator at the Centre for Educational Assessment at the University of Helsinki. She has led more than 30 educational assessment projects, having the main responsibility for obtaining external funding for a team of 10-15 people for the past 10 years. Her own research interest lie in the development of learning to learn competences and the factors influencing it during primary and secondary education. She is the editor-in-chief of *Psykologia*, the only peer-reviewed journal of psychology in Finland. Starting from the main conference in Tampere, she will be the coordinator of SIG1 (Assessment & Evaluation) of EARLI. Workshop Having an excellent idea is not alone sufficient for getting funding for your research. Proposal writing is a structured process, in which you have to provide all the information required by the funder in a predefined order, showing that your idea fits to the aims of the call. You also have to prepare a budget that adheres to the rules of the funder and your own institution. In the research plan, you have to explain your research idea and your working plan in a concise and understandable way for busy readers who are not necessarily experts on your own research area. Most importantly, you have to convince the evaluators that the plan is theoretically and methodologically sound and realistic and that you have the expertise and competence to implement it. In this workshop, we will use a few different types of calls for grant proposals as examples and do hands-on exercises on proposal writing technique and budget planning. Please bring an own initial research idea to work on in the workshop. Be also prepared to present the outcomes of the exercises for a small group of participants.

### **Writing grant proposals**

**Presenting Author:** Mari-Paoliina Vainikainen, University of Helsinki, Finland

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