From Mustivation to Wantivation to Learn: The Critical Role of a Need-Supportive Teaching Style

**Keywords:** Motivation, Motivation and emotion, Teaching approaches, Teaching/instruction

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

**Chairperson:** Kristin Vanlommel, University of Antwerp, Belgium

Several motivational frameworks (e.g., expectancy-valence accounts) consider motivation from a quantitative viewpoint, suggesting that being more strongly motivated will yield more positive outcomes. From the perspective of Self-Determination Theory (SDT; Ryan & Deci, 2017; Vansteenkiste, Niemiec, & Soenens, 2010), however, quality of motivation matters as well. Within SDT, two broader types of motivation are distinguished, that is, autonomous motivation (i.e., “wantivation”) which refers to a willing and psychologically free engagement in a learning activity and controlled motivation (“mustivation”) which refers to a pressured and conflicted engagement in a learning activity. Furthermore, recent research indicates that several reasons can underlie learners' lack of motivation as well, with some learners displaying amotivation, which involves a sense of helplessness and discouragement, and others displaying controlled non-participation, which involves feeling pressured to not partake in the learning activity (e.g., to save face; out of peer pressure). Correlational and experimental research will be reviewed suggesting that dynamics of autonomy versus control are paramount and critical for learners’ performance, persistence, and well-being across ages and cultures. Further, it is maintained that a need-supportive teaching style, involving the combination of high autonomy support and structure, is critical to foster high quality motivation, while a need-thwarting style, involving the combination of control with chaos, can better be avoided as it relates to poor motivation and disengagement. Specifically, a newly developed circumplex model will be introduced, which differentiates the teaching styles of autonomy support, structure, control and chaos into two subareas each and orders these eight subareas along a circumplex. The circumplex provides more nuanced and richer insights in the teaching practices that are most motivating and demotivating.

**Presenting Author:** Maarten Vansteenkiste, Ghent University, Belgium

Using Online Measures to Understand Underlying Processes During Learning

**Keywords:** Cognitive skills, Collaborative Learning, Comprehension of text and graphics, Emotion and affect, Experimental studies, Interdisciplinary, Learning analytics, Learning Technologies, Metacognition, Motivation, Motivation and emotion, Quantitative methods, Reading comprehension, Self-regulation, Student learning

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

**Chairperson:** Ellen Kok, Utrecht University, Netherlands

**Organiser:** Nicholas Mudrick, North Carolina State University, United States
Discussant: Ellen Kok, Utrecht University, Netherlands

Online measures of learning processes (e.g., eye tracking, log files, electrodermal activity, think aloud protocols, etc.) are transforming our understanding of how students enact cognitive, affective, metacognitive, motivational, and social processes during learning across many different types of learning environments (e.g., computer- and mobile-based learning, collaborative hypermedia learning environments, etc.). In contrast to traditional methods (i.e., self-reports, pre-posttest comparisons) used to understand learning, the contributions of this symposium demonstrate how micro- (e.g., eye movements) and macro-level (e.g., metacognitive monitoring utterances) processes can contribute to successful learning outcomes. As such, the aim of this symposium is to present novel methodological and analytical approaches for detecting, measuring, analyzing, and understanding different processes that are key for successful learning across learning environments. Although the contributions differ in measured construct (i.e., cognitive processes vs. motivational states) and learning environment (i.e., computer-based vs. collaborative hypermedia learning), each demonstrate how investigating processes (otherwise undetectable from traditional measures) with multimodal, multichannel data can significantly improve our understanding of student learning processes.

It is not only about the depth of processing: What if eye am not interested in the text?
Presenting Author: Leen Catrysse, University of Antwerp, Belgium; Co-Author: Vincent Donche, University of Antwerp, Belgium

This study aims at extending current research on how the interplay between cognitive processing and topic interest shapes the online learning process of students when learning from expository texts. We used eye tracking to monitor the reading and learning behaviour of 31 students in higher education. In addition, we used self-report questionnaires to map students’ general disposition towards deep and surface processing and their topic interest. Retrospective think alouds were conducted to capture students’ levels of processing during learning from text. We examined the interplay between levels of processing and topic interest on eye movement measures. Results indicate that high-interested students who use more deep processing reread key sentences longer than detailed sentences and thus process these sentences more deeply. This study advances present knowledge in the field by focusing on the online learning process and stresses the importance of giving students learning contents that spark their interest.

Metacognitive monitoring and subsequent control during dyadic hypermedia learning
Presenting Author: Cindy Klomppaaker-Paans, Radboud University Nijmegen, Netherlands; Co-Author: Inge Molenaar, Radboud University Nijmegen, Netherlands; Co-Author: Eliane Segers, Radboud University Nijmegen, Netherlands; Co-Author: Ludo Verhoeven, Radboud University Nijmegen, Netherlands

The current study investigated how metacognitive monitoring activities related to subsequent controlling activities, and to what extent these relations explain differences in learning gain. In addition, we investigated the effect of the monitoring valence. For this purpose, 30 same sex dyads of 5th and 6th grade children performed a 45-minute hypermedia assignment about the heart and living a healthy lifestyle. Of these dyads, 8 had low learning gains, 7 had medium gains, 7 had high gains, and 8 had unequal learning gains on a declarative knowledge test. We used two online measures to investigate metacognitive monitoring and control: their navigation activities were recorded via log-files and their verbal interactions were video recorded. To measure monitoring valence we distinguished between monitoring turns that were either positive, neutral, or negative. In order to measure metacognitive control, we will distinguish between situations in which monitoring is followed by a continuation of the activity the dyad was engaged in before the monitoring occurred, and situations in which monitoring is followed by a change of activity. We will then test whether monitoring valence affects the degree to which children continue their initial behavior, or change their behavior, and to what extent these relations can explain differences in learning gain. The results will help us understand important micro-level self-regulated learning interactions between monitoring, the valence thereof, and subsequent control. This will help us to improve our current interventions aimed at supporting children to become effective and self-regulating learners.

A gender issue? - Analyzing individual differences while solving tasks on mobile devices
Presenting Author: Vanesa Yepes-Serna, Bauhaus University of Weimar, Germany; Co-Author: Michael Montag, Bauhaus-University of Weimar, Germany; Co-Author: Steffi Zander, Bauhaus-Universität Weimar, Germany

Mobile devices provide interaction opportunities which support the use of touch and movement gestures during learning. An open question is whether such interactions also support spatial task solving, as spatial tasks have been shown to benefit from the use of gestures. The present study examined a gender-specific use of touch gestures when solving rotation tasks. Results show that female and male students start with pre-existing differences in spatial abilities and expected probability of success, with lower values in female students. Females and males subsequently differed in regard to success rate when tasks were presented in a mental/non-touch format, though no differences existed when tasks were presented in a physical/touch-based format. Subsequent analyses showed that females and males differ in rotation behavior, indicating an explorative way of solving the tasks in female students, and a stricter goal-oriented way of solving the tasks in males. Relations of motivation, gender and behavior are discussed.

Exploring the potential of wearable devices to measure motivation during self-regulated learning
Presenting Author: Moritz Niemann, MSH Medical School Hamburg, Germany; Co-Author: Thomas Martens, Medical School Hamburg, Germany
So far, insights about processes of self-regulated learning are gained by self-report data that are assessed post hoc as questionnaires or during the learning process itself by embedded experience sampling or thinking aloud techniques. Gathering self-report data after learning could be biased and self-report data during learning could be experienced as intrusive and therefore distort the learning process itself. So the aim of this study was to predict self-report data with sensor data. In a longitudinal study multilevel data were collected like self-report data with questionnaires and embedded experience samples as well as sensor data like electrodermal activity and EEG. 64 students from a private university in Germany performed a learning experiment followed by final measures of intrinsic motivation, self-efficacy and gained knowledge. During the learning experiment psychophysiological data like electrodermal activity combined with embedded experience sampling measuring motivational states like affect and interest every 270 seconds. Results show that electrodermal activity can predict final intrinsic motivation and interest, but not short-term changes during the learning process. EEG as measured by consumer-grade EEG headsets could not be used to predict motivation above chance level. In conclusion, we showed that physiological data can be used in principle to track motivational measures in self-regulated learning and therefore assist in identifying processes of self-regulated learning in an unobtrusive way.

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M.002
JURE 2018 SIG Invited Symposia
Motivational, Social and Affective Processes

Impact of Teachers’ Motivation and Emotion on Learning and Instruction

Keywords: Assessments method & tools, Attitudes and beliefs, Emotion and affect, Goal orientation, Higher education, Mixed-method research, Motivation, Motivation and emotion, Pre-service teacher education, Researcher education, Social aspects of learning and teaching, Teacher effectiveness, Teaching/instruction

Interest group: SIG 08 - Motivation and Emotion

Chairperson: Stefan Siegel, University of Augsburg, Germany
Chairperson: Martin Daumiller, University of Augsburg, Germany
Chairperson: Kristina Loderer, Ludwig-Maximilians-Universität (LMU), Germany
Discussant: Maarten Vansteenkiste, Ghent University, Belgium

Motivation and emotion of teachers are crucial for their instructional practice (Richardson, Karabenick, & Watt, 2014), and as such meaningful for the development of our societies. Their associations with teaching practices, support-seeking, and well-being at work count as well-researched. However, motivation and emotion do not only matter for these main pillars of teaching quality. They are also appraised as essential for other, empirically little investigated aspects of teacher professionalism. Especially, to facilitate learning and instruction with an impact, it is crucial to also include these in varied ways. Thus, the objectives of this session are to (a) share findings of research investigating the role of motivation and emotion for the broad range of teacher professionalism and (b) highlight the impact for successful education.

To this end, the symposium brings together multiple studies investigating teachers in different institutions (schools, higher education) utilizing a range of established motivational and emotional theories in order to examine the interplay of goals, attitudes and beliefs for the development and potential use of educational theories. The connection between teachers’ emotions and their relationship with students (Hölzl et al.), student-teacher agreement on instructional practices and potential predictors (Bardach et al.), and the importance of work load for the pursuit of learning goals at work (Hein et al.). Taken together, the findings demonstrate the impact of motivation and emotion on learning and instruction in the teaching profession and their potential for scaling up the skill, will and thrill of learning in manifold ways.

“Educational theories are far from reality and totally useless!?”: Results of a mixed-methods-study

Presenting Author: Stefan Siegel, University of Augsburg, Germany; Co-Author: Martin Daumiller, University of Augsburg, Germany

Dealing with educational theories is a constitutive element of educational studies and teacher training that can foster the individual professionalization of aspiring educators. Without thorough theoretical knowledge and, in particular, adequate theory-related attitudes and beliefs, they do not only act unprofessional but also forego a variety of learning and development opportunities. It can be assumed that prospective teacher’s attitudes and epistemological beliefs on educational theories are relevant, but not yet systematically researched, prerequisites for individual professionalization that may systematically be associated with different learning motivations and emotions. The aim of this study was to explore the attitudes and beliefs of undergraduate students on educational theories and their interrelations with their learning motivations and emotions as important aspects of individual professionalization. Towards this end, a mixed-methods-study was conducted. The transcripts of thirty-two interviews were then analysed by means of qualitative content analysis. In addition, the interviewees completed a questionnaire on learning motivations, emotions and other aspects of individual professionalization (i.e., expected academic performance). The results indicate that the student’s attitudes and beliefs on educational theories can be differentiated, as theoretically assumed. Furthermore, the importance of educational theories for their own individual professionalization was evaluated divergently, and various motivations and emotions were expressed depending on different theory-related attitudes and beliefs of the aspiring educators. Taken together, the results...
point to the importance of further exploring these constructs as disentangling their interrelations with learning motivations and emotions could help to better describe, explain and foster their individual professionalization.

The Teacher-Class Relationship – a new construct and its significance for teachers’ emotions

Presenting Author: Julia Hölzl, Ludwig-Maximilians-Universität (LMU), Germany; Co-Author: Anne Christiane Frenzel, University of Munich, Germany

This study investigates the new construct of the teacher-class relationship and its connection with teachers’ emotions. First findings indicate that teacher-student relationships are important for teachers’ well-being and their emotional lives (e.g. Aldrup, Klusmann, & Lüdtke, 2017). So far, this research focuses on teachers’ relationships with students, without taking the class as a group into account. Focusing on the classroom context, we developed a scale which measures the teachers’ relationship with a whole class. To explore its internal and external validity, we conducted two studies incorporating qualitative and quantitative procedures. In Study 1, cognitive interviews with teachers (N=53) examined the teachers’ common understanding of the items and the different aspects of the relationship with their class. Apart from aspects inherently connected to relational experiences and teaching-related aspects, emotions were frequently mentioned by each teacher. In Study 2, quantitative self-report data (N=208) further supported the validity of the scale, and provided quantitative evidence of the close links between the teacher-class relationship and teachers’ emotions ($r = .79$/$-.74$/$-.70$ for enjoyment/anger/anxiety) as well as other related constructs including burnout ($r = -.47$), emotional labor ($r = .20$/$-.26$/$-.37$ for deep acting/faking/hiding) and self-efficacy ($r = .41$). Overall, the newly constructed scale proved effective and suitable and revealed the teacher-class relationship to be an important aspect of teachers’ wellbeing and job satisfaction.

Do students and teachers agree in their perceptions of goal structures?

Presenting Author: Lisa Bardach, University of Vienna, Austria; Co-Author: Hassan Khajavy, University of Bojnord, Iran; Co-Author: Barbara Schober, University of Vienna, Austria; Co-Author: Marko Lüftenegger, University of Vienna, Austria

The concept of goal structures sees motivational climate as manifested in teachers’ instructional practices and the messages they convey to their students, i.e. the goal structures they create. Although goal structures have been extensively studied over the last decades, little is known about the extent to which teachers and students as the two key stakeholders in classrooms agree in their perceptions of goal structures. In this study we therefore triangulated student with teacher data to examine whether students and teachers agree in their perceptions of the four mastery goal structures dimensions task, autonomy, recognition/evaluation, and grouping. Additionally, we investigated factors on the student and teacher sides that are assumed to affect levels of agreement. Building on prior work, we tested whether higher achieving students’ perceptions would be more closely aligned to their teachers’ views. We furthermore explored whether motivational factors on the teacher side in terms of teachers’ basic psychological need satisfaction at work foster consistency between teachers’ and students’ ratings of goal structures. Using a sample of 1,099 secondary school students and their 57 teachers, results from multilevel structural equation models revealed moderate agreement for grouping and no agreement for the other dimensions. Higher levels of achievement narrowed the gap between teachers’ and students’ perceptions for all dimensions at the individual student level and for recognition/evaluation at the class level. Effects of need satisfaction were found for autonomy and grouping.

How Workload Moderates the Association of University Scholars’ Learning Goals and Learning Gains

Presenting Author: Julia Hein, University Mannheim, Germany; Co-Author: Martin Daumiller, University of Augsburg, Germany; Co-Author: Stefan Janke, University of Mannheim, Germany; Co-Author: Markus Dresel, University of Augsburg, Germany; Co-Author: Oliver Dickhaeuser, University of Mannheim, Germany

Recently, empirical research started investigating the impact of achievement goals on professional practices of university scholars. While research on this group of teaching staff is still scarce, an achievement goal approach allows first hypotheses regarding professional learning of university scholars. A well-established tenet in achievement goal research is that learning goals elicit actual learning, even though the strength of this relation seems to vary. We investigated whether this association can be found in university scholars as well and tested a potential moderator to explain the varying strength of this association. Workload was postulated as a moderator that could reduce the impact of learning goals. We propose that university scholars with a higher workload pursue their learning goals to a lesser extent as they intend to do. A higher workload should weaken the postulated positive association of learning goals and learning gains. We investigated this moderation hypothesis for university scholars’ learning in research and teaching. In a longitudinal study, we questioned a representative sample of 705 German university scholars during two succeeding semesters. Applying structural equation models, we found a positive effect of learning goals on self-reported learning gains in both work domains. The positive association between learning goals and learning gain was moderated by workload (indicated by emotional exhaustion) only in the teaching domain. These findings demonstrate the impact of motivation (learning goals) on professional learning (learning gain) and illustrate how workload moderates this association. Pursuing learning goals and feeling less emotional exhausted at work facilitates professional learning.
Considering Workplace Learning from different aspects

Keywords: Case studies, Culture, Informal learning, Lifelong learning, Motivation, Quantitative methods, Self-efficacy, Self-regulation, Workplace learning

Interest group: SIG 14 - Learning and Professional Development

Chairperson: Katrien Cuyvers, University of Antwerp, Belgium

Discussant: Simon Beausaert, Maastricht University, Netherlands

Selected papers for the SIG14 invited symposium all examine workplace learning, going from motivational and self-regulated learning aspects, to behavioural engagement and learning outcomes. More specifically, the first two papers investigate meta-cognitive and self-regulative strategy-use during learning processes, learning motivational beliefs. The latter paper focuses not only on informal learning situations but also motivational beliefs in formal learning situations. The participation in social informal learning activities and learning outcomes, such as competence development and work efficiency, are investigated in depth in the third and fourth papers. By considering learning as a process, as a participation in a learning activity or as a product, all four papers cover different conceptualizations of learning as found in the literature. Further, workplace learning is considered in relation with individual factors, such as goal orientation and age-related factors and also contextual factors, such as organizational culture, organizational climate and social support at work. In that way, insights into the way organizations may encourage and sustain workplace learning are provided.

Finally, within the symposium, workplace learning is studied in different working contexts (healthcare, public administrations and industrial sectors), including sample of white- and blue-collar workers. This makes our contribution very interesting in terms of possible comparisons of results across studies. To sum up, the present symposium aims at covering various aspects of workplace learning, using different conceptualizations and studying various working contexts.

Self-regulation of professional learning in the medical practice

Presenting Author: Katrien Cuyvers, University of Antwerp, Belgium

Self-regulation of learning has been recognized as an important 21st century skill. Nevertheless, research on self-regulation of professional learning, in which employees actively engage in attending their own learning needs to address changing demands and problems during job-performance, is scarce and scattered. Using long term observations and stimulated recall interviews during medical practice, this research showed that self-regulation of performance and learning go hand in hand and self-regulation of learning often takes place as a “byproduct” of self-regulation of performance. Different metacognitive strategies before, during and after a potential learning event can be distinguished. However, some metacognitive strategies, such as monitoring, evaluation and reflection are hard to extract from the data. This study contributes empirically to the domain of self-regulation of professional learning by measuring it in action during everyday experiences.

How do age-related relate to learning motivation while considering supportiveness at work?

Presenting Author: Nâné Kochoian, Université catholique de Louvain (UCL), Belgium; Co-Author: Mariane Frenay, Université catholique de Louvain (UCL), Belgium

The present paper considers learning motivational beliefs (learning self-efficacy and learning value) in formal as well as in informal learning situations in relation to age-related and organizational factors. The aim of this study is to better understand the role of age-related factors in learning motivation, when considering different learning situations and organizational factors. Based on a sample of 655 employees from Public Administration, this study shows the importance of supportiveness of the work environment (positive learning climate, support from supervisor and colleagues) over the age-related factors (chronological age, organizational age and occupational future time perspective). The implications and limitations of this study are discussed further.

The role of learning climate, social informal learning and employability in the public sector

Presenting Author: Samantha Crans, Maastricht University, Netherlands

Changing external demands and the continuous need to remain competitive and innovative directs organizations towards supporting employees’ learning and development to foster their employability competences (i.e., occupational expertise, anticipation and optimization, balance, personal flexibility, and corporate sense). In a time where knowledge, skills and abilities need to be updated in an almost continuous pace, especially informal workplace learning and not formal learning is increasingly important. More specifically, the current study focuses pro-active social informal learning, where employees pro-actively engage in learning activities with colleagues or supervisors (i.e., feedback seeking, help seeking and information seeking). Engaging in those kind of informal learning activities may highly depend on whether this is facilitated and supported by the organisation. Therefore, the role of the organisation’s learning climate is a focal point of this study as well. More concretely, this study investigates the relation between learning climate, social informal learning and employability. A total of 372 employees from the public sector (i.e., governmental organisation and a municipality) participated in this questionnaire study. The results showed that employees’ perceptions of learning climate significantly predicted the extent to which they engage in social informal learning activities. Furthermore, each social informal learning behaviour was significantly positively related to different employability competences. Additionally, the three social informal
Missing data is an omnipresent problem in research in the social and behavioral sciences. At best, deletion methods (traditional defaults in software) yield unbiased point estimates (only under very restrictive assumptions) but can lower power considerably. Under more realistic conditions, deletion methods yield biased point estimates, and single-imputation methods yield inflated Type I errors due to biased SEs. This workshop begins with a lecture format that includes a brief discussion of mechanisms by which data go missing; a review of traditional ad hoc methods for ignoring missing data (e.g., listwise deletion) or replacing missing values (e.g., mean imputation) and why those methods are irresponsible; and conceptual introductions to modern methods that succeed where other methods fail: multiple imputation and full-information maximum likelihood (FIML). Although multiple imputation can be used prior to any type of analysis, specifying even ANOVA or R has been installed.

The mediating role of informal learning between learning culture and work-related learning outcomes

Presenting Author: Julian Decius, University of Paderborn, Germany

Especially in the target group of blue-collar workers learning processes often take place directly at the workplace, self-directed and informally. In this way, learning outcomes such as employee competence development or more efficient work processes are established. The literature to date shows that the learning culture in the company plays an important role in work-related learning outcomes. A well balanced learning and working atmosphere has a positive effect on learning outcomes. However, the exact processes behind this connection are largely unclear. Based on theoretical considerations, this study uses a sample of 353 blue-collar workers to show that the relationship between learning culture and work-related learning outcomes is mediated by informal workplace learning partially. The indirect effect of mediation is significant and has a considerable impact. The variables examined are considered as second-order constructs in order to be able to better operationalize the various forms of informal learning in summary. The limitations and implications of the results for further research and practice in the companies are also discussed afterwards.

Handling Missing Data Responsibly with Structural Equation Modeling in R

Keywords: Experimental studies, Psychometrics, Quantitative methods, Quasi-experimental research

Interest group:

Missing data is an omnipresent problem in research in the social and behavioral sciences. At best, deletion methods (traditional defaults in software) yield unbiased point estimates (only under very restrictive assumptions) but can lower power considerably. Under more realistic conditions, deletion methods yield biased point estimates, and single-imputation methods yield inflated Type I errors due to biased SEs. This workshop begins with a lecture format that includes a brief discussion of mechanisms by which data go missing; a review of traditional ad hoc methods for ignoring missing data (e.g., listwise deletion) or replacing missing values (e.g., mean imputation) and why those methods are irresponsible; and conceptual introductions to modern methods that succeed where other methods fail: multiple imputation and full-information maximum likelihood (FIML). Although multiple imputation can be used prior to any type of analysis, specifying even ANOVA and regression models as structural equation models (SEM)—the paradigm under which FIML is most usefully exploited—also gives users the more efficient option of FIML. Therefore, the second half of this workshop will focus on applications in SEM. Most SEM software packages include FIML estimation for incomplete data, but few allow auxiliary variables (i.e., not of theoretical interest, but related to missing values) to be automatically incorporated without changing the interpretation of other model parameters. Some SEM software also incorporates multiple imputation and automatic pooling of results. This workshop will focus on two SEM software environments that provide all of these advantages: Mplus and the R packages lavaan and semTools. Participants are strongly encouraged to bring a laptop on which Mplus or R has been installed.

Handling Missing Data Responsibly with Structural Equation Modeling in R

Presenting Author: Terrence Jorgensen, University of Amsterdam, Netherlands

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Workshop materials (lecture slides, example data, and software syntax) can be downloaded from the lecturer’s homepage (http://www.uva.nl/profile/t.d.jorgensen) to participate in the software demonstration.
Eye tracking in educational research

**Keywords:** Cognitive development, Cognitive skills, Quantitative methods, Teacher professional development

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

Eye tracking is a technique that is used more and more in educational research these days. But what is eye tracking, how does it work, what are its possibilities and limitations and how do you recognize a 'good' eye tracking paper? These questions will be addressed during our workshop. In the first part of the workshop, we will introduce the eye tracking technique and its applications in educational research. We will discuss two types of eye trackers that are used in our discipline, remote and mobile eye trackers. Remote eye trackers allow for investigating visual attention in relation to a stimulus on a screen. This is useful for, for example, investigating multimedia learning, reading, visual expertise, learning from video examples and many other tasks that are executed on a screen. Mobile eye trackers allow for studying visual attention in dynamic real-world settings. An example of how this approach can be used is for investigating the visual expertise of teachers in their own authentic classroom environments. In the second part, we will practice designing eye tracking research based on your own research question and stimulus. We will discuss the ins- and outs of the design and analysis of eye tracking studies, and what kind of decisions you could make regarding your own question. Finally, we discuss what makes good eye tracking research. This workshop is aimed at researchers with no or only a limited experience in eye tracking. Additionally, we would also like to invite researchers who will not actually conduct eye tracking research in the future, but who would like to have the tools to critically evaluate eye tracking research.

Eye tracking in educational research

**Presenting Author:** Ellen Kok, Utrecht University, Netherlands; **Presenting Author:** Sharisse van Driel, Open University, Netherlands

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Towards more Fine-Grained and Integrative Insight into (De)Motivating Teaching

**Keywords:** Model-based reasoning, Motivation, Synergies between learning; teaching and research, Teacher effectiveness

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

Building on the key note talk, the present workshop aims to introduce in greater detail the recently developed circumplex model. This circumplex model (a) provides a helicopter view on (de)motivating teaching as it locates the teaching styles of autonomy support, structure, control and chaos into an integrative model; (b) offers more fine-grained insights into what each of these broader teaching styles involve as they get partitioned into subareas (i.e., participative, attuning, guiding, clarifying, demanding, domineering, abandoning, and awaiting), with each subarea involving a set of key teaching components and practices; (c) allows for a more dynamic perspective on (de)motivating teaching as it becomes insightful how teachers can shift from a demotivating to a motivating approach and vice versa. The newly developed scale, involving 15 ecologically valid situations and different teaching practices, will be presented and a number of concrete, authentic examples of each of the discerned subareas in the circumplex will be discussed.
Presenting Author: Maarten Vansteenkiste, Ghent University, Belgium

Building on the key note talk, the present workshop aims to introduce in greater detail the recently developed circumplex model. This circumplex model (a) provides a helicopter view on (de)motivating teaching as it locates the teaching styles of autonomy support, structure, control and chaos into an integrative model; (b) offers more fine-grained insights into what each of these broader teaching styles involve as they get partitioned into subareas (i.e., participative, attuning, guiding, clarifying, demanding, domineering, abandoning, and awaiting), with each subarea involving a set of key teaching components and practices; (c) allows for a more dynamic perspective on (de)motivating teaching as it becomes insightful how teachers can shift from a demotivating to a motivating approach and vice versa. The newly developed scale, involving 15 ecologically valid situations and different teaching practices, will be presented and a number of concrete, authentic examples of each of the discerned subareas in the circumplex will be discussed.

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JURE 2018 Workshop

Social network analysis in educational research

Keywords: Higher education, Qualitative methods, Quantitative methods, Researcher education

Interest group: SIG 17 - Methods in Learning Research

In this workshop, we will cover the foundations of social network analysis. You will get an overview of 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 should you 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/).

Social network analysis in educational research

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

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M.101
Single Paper
Educational Policy and Systems, Learning and Instructional Technology, Lifelong Learning

Learning and teaching in innovative ways

Keywords: Achievement, Collaborative Learning, Inquiry learning, Learning and developmental difficulties, Learning Technologies, Lifelong learning, Qualitative methods, Science education, Social aspects of learning and teaching, Social development, Social interaction, Teaching approaches, Teaching/instruction

Interest group: SIG 10 - Social Interaction in Learning and Instruction, SIG 20 - Inquiry Learning

Chairperson: Sharisse van Driel, Open University, Netherlands

School-based interventions for students with Autism Spectrum Disorders (ASD) in inclusive education

Keywords: Learning and developmental difficulties, Social aspects of learning and teaching, Social development, Social interaction

Presenting Author: Petra Jurjan, Universität Paderborn, Germany; Co-Author: Sven Lindberg, Universität Paderborn, Germany

Since the ratification of the UN Convention on the Rights of Persons with Disabilities in 2009 and the associated political and structural changes, the number of children and adolescents with Autism Spectrum Disorders (ASD) being taught in inclusive settings, has risen continually. Consequently, knowledge about the disorder and the treatment of students with
ASD has become increasingly important for teachers. So far, several school guides, brochures or practical recommendations are available to students affected by ASD, their parents, and professionals. These guidelines have in common that they refer to practical experience of those affected or of professionals. However, in the majority of cases the content is not based on empirical findings. Up to date, there is no overview article on empirically based interventions in inclusive settings in the German-speaking area. Therefore, the aim of this narrative review is to fill the existing gap and to provide support for experts and potential strategies for successful inclusive education. The selected interventions are identified from recent English meta-analyses and reviews by doing a systematic literature research focusing on the three core deficits of autism: communication, social interaction and repetitive and stereotyped behavior. Alternative communication systems (e.g. PECS), behavioral-based interventions (e.g. Pivotal Response Treatment) and the technology/computer-based interventions (e.g. iPads) are examples of effective methods for improving communicative skills in inclusive settings. In addition to behavioral and visual strategies (such as PECS or Social Stories), interventions based on the principles of model learning such as video modeling interventions or peer mediated interventions are effective in promoting social skills. In order to reduce repetitive and stereotyped behavior, behavioral and visual interventions have shown the strongest effectiveness once again. Practical implications and limitations will be discussed.

**Science Teachers’ Perceptions of the Emergence of Responsible Research and Innovation in School**

**Keywords:** Qualitative methods, Teaching approaches, Science education, Inquiry learning

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

Responsible Research and Innovation (RRI) has recently gained wider importance in the European Union (EU) as an emergent framework informing the governance of science. EU politicians have emphasized the need to promote science education in the RRI context, but the meaning of the concept of RRI is still vague. Furthermore, previous studies have not turned attention to if and how Responsible Research and Innovation will already emerge in school. The aim of the current study is to find out how RRI would emerge in science teachers’ perceptions in school. Data was gathered with semi-structured interviews from 29 science teachers working in comprehensive schools or hobby schools. Abductive content analysis was used in the study. In teachers’ work RRI emerged in four distinct categories: (1) meaning making; (2) taking action; (3) exploring; and (4) inclusion. This study provides an exciting opportunity to see the meaning of RRI in education both through the theoretical lense of RRI dimensions and through the empirical evidence.

**Teenaged Internet tutors’ level of interactivity by sharing knowledge with older learners**

**Keywords:** Teaching/instruction, Collaborative Learning, Social interaction, Lifelong learning

**Presenting Author:** Tiina Tambaum, Tallinn University, Estonia

Despite the fact that new technology is embedded into our everyday life the introduction of new technologies among older people tends not to be a tacit process. Young people represent a group of our society having the prerequisites to take on the role of tutors for older people by learning e-skills. The study analyses how teenaged tutors paired with older learners make use of scaffolding and another interactive style in teaching-learning Internet skills and what are the reasons of unused scaffolding opportunities. The participants were formally unprepared for the intergenerational cooperation and therefore the process of natural tutoring naturalistic tutoring (Graesser et al., 1995) was on the focuse. The research design of the study was based on 14 tutoring sessions. A total of 10.2 hours of video recordings was analysed on the base of interactive and non-interactive tutoring teciques used by Chi and colleagues (2001). In the course of analysis the tutors have been grouped (a) by their independent personal preparation for the tutoring task and (b) by their personal content knowledge about the teaching subject in order to ascertain whether their different personal preparatory work may have had an impact on their natural tutoring behaviour. The results show that teenagers who are formally unprepared for the role of an instructor of Internet skills for older person use interactive tactics inconsistently and their use of scaffolding tactics and other interactive interactive teciques is rather discreet. The most non-interactive nature of the dialogues between the older learner and the teenaged tutor was seen among pairs in which the tutor had prepared for the tutoring session at his/her own
discretion and at the same time the tutor had no tacit knowledge about the website that constituted the learning subject. The described results confirm the need for prior thorough training before tutoring older adults.

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3 July 2018 09:00 - 10:30
M.002
Single Paper
Instructional Design, Learning and Instructional Technology

Zooming in on the learning process

Keywords: Cognitive development, E-learning/Online learning, Educational Psychology, Emotion and affect, Instructional design, Learning analytics, Learning approaches, Mathematics, Misconceptions, Qualitative methods, Secondary education, Self-regulation, Teaching approaches

Interest group: SIG 27 - Online Measures of Learning Processes

Chairperson: Laura Pons Seguí, University of Barcelona, Spain

Computational estimation strategies in primary-school children

Keywords: Educational Psychology, Cognitive development, Learning approaches, Mathematics

Presenting Author: Svenja Hammerstein, Goethe-University Frankfurt, Institute of Psychology, Germany; Co-Author: Patrick Lösche, Goethe University Frankfurt; Institute of Psychology, Germany; Co-Author: Sebastian Poloczek, University of Bristol, United Kingdom

Children use various strategies to perform cognitive tasks. Which strategies children use on computational estimation tasks depends on subject, item, situational and sequential characteristics. Since sequential influences are linked to varying working memory load, we investigated the relationship of working memory updating capacities, response-stimulus-intervals (RSI) and various item parameters with computational estimation strategies in primary-school children. Third and fourth graders were asked to complete working memory updating tasks as well as 42 addition problems for which they should calculate the approximate sum by rounding the operands with one of two strategies (i.e., either rounding both summands upward or rounding both summands downward to the closest decades). RSI between addition problems were varied individually. We fitted cross-classified multilevel models to the dataset and analyzed children’s reaction times as well as their accuracy to choose the better strategy. Analyses revealed that children with higher updating capacities solved estimations faster. Additionally, children were faster on items with lower problem difficulty, on trials solved with the rounding down strategy and when executing a dominant strategy more often. Contrary to our hypothesis, children’s reaction times were slower for longer RSI. This effect varied strongly between children and further analyses revealed an interaction between the RSI effect and children’s flexibility in strategy choice which emphasizes the role of children’s workflow. Regarding children’s strategy choice, the odds ratio for choosing the better strategy was higher for fourth graders as well as for children with higher updating capacities. Accuracy was also higher for rounding down problems and items with lower problem difficulty. Furthermore, we found a cross-level interaction indicating a compensatory effect of children’s updating capacity on problem difficulty effects. The results do not only replicate some previous research but do also have new theoretical and empirical implications that shall be discussed.

A systematic review of the interrelationship between UDL and DI

Keywords: Instructional design, Learning approaches, Misconceptions, Teaching approaches

Presenting Author: Júlia Griful Freixenet, Vrije Universiteit Brussel (VUB), Belgium; Co-Author: Katrien Struyven, Vrije Universiteit Brussel, Belgium; Co-Author: Wendelien Vantieghem, Vrije Universiteit Brussel, Belgium; Co-Author: Esther Gheyssens, Vrije Universiteit Brussel, Belgium

Researchers in the field are calling for a new, accessible and inclusive approach that meets the learning needs of all students, and that replaces the inflexible traditional model based on a “one-size-fits-all” curriculum. The Universal Design for Learning (UDL) and the Differentiated Instruction (DI) models offer a promising alternative. Although UDL and DI share common goals, theoretical similarities and differences as well as their specific interrelationship remain unexplored. This leads to multiple meanings, confusion among practitioners, as well as notorious difficulties to draw conclusions or to combine insights derived from various studies in the field ofinclusive education. Therefore, the main goal of the present study is to provide conceptual clarity between UDL and DI by exploring apparent contradictions and to reach consensus on a number of concepts. A systematic literature review in five scientific databases was conducted to explore the peer-reviewed evidence. In total, 27 scientific articles were included and analysed. Preliminary findings describe the conceptual interrelationships found in the literature. For each interrelationship, conceptual similarities and differences of both UDL and DI models were described and analysed. The discussion highlights the origin, evolution and refinement of these two models during the last two decades. We can see that both most recent theories are converging towards each other, making it increasingly difficult to distinguish between both UDL and DI models. Finally, future directions of research are discussed.

Analysing Clickstream Data to Examine Online Regulation of Learning

Keywords: Learning analytics, Learning approaches, Self-regulation, E-learning/Online learning

Presenting Author: Jacqueline Wong, Erasmus University Rotterdam, Netherlands; Co-Author: Martine Baars, Erasmus
Self-regulated learning (SRL) is associated with student success and supporting SRL is important to help students who are poor at regulating their learning to become successful learners. However, little is known about how students taking Massive Open Online Courses (MOOCs) can be supported in SRL and how students approach learning when given an SRL support. The current paper reports on part of the data collected from a larger study examining videos containing SRL-prompts to support SRL in MOOCs. Coursera, the MOOC platform provider, logs students’ interactions with course content in the form of clickstream data. While the larger study aims to evaluate the effectiveness of using SRL-prompt videos, the current paper aims to examine the use of learning analytics methodologies to analyse clickstream data as an approach to understand how students learn and regulate their learning. Results of a sequential pattern analysis applied to the clickstream data show that students who viewed the SRL-prompt videos were more likely to follow the sequential structure of the course items. An attempt-quizzes-only pattern emerged from students who chose not to view the SRL-prompt videos. The findings of this study correspond to the comprehensive and targeted learner clusters identified in previous research. Moreover, the social network analysis of the clickstream data shows stronger transitions of course items for students who viewed the SRL-prompt videos than for students who chose not to view the SRL-prompt videos. The results suggest that students who viewed the SRL-prompt videos approach learning differently from students who chose not to view the SRL-prompt videos. However, further analysis is needed to examine how the interaction patterns relate to student success in MOOCs. Also, further development of the analytical method is needed to account for the duration and repetition of interactions in order to better model the SRL process in MOOCs.

Existential learning experiences in lower secondary

Keywords: Qualitative methods, Emotion and affect, Learning approaches, Secondary education

Presenting Author: Silvia Krenn, University of Innsbruck, Austria

This article elaborates upon learning and learning processes of students with phenomenological methodology and methods developed in context of a research project at the University of Innsbruck with Michael Schratz as project leader. It is based on the ideas of Edmund Husserl, Maurice Merleau-Ponty (1966), Bernhard Waldenfels (2002, 2010) and Käte Mayr-Drawe (2012) and seeks to get to the essence of remembered students’ learning experiences.

The question, what remains within the scope of a school career, is important for students, teachers and school-leaders, who are interested in success of their students. “Important experiences constitute the story of life” (Tengelyi 2007, 341). What happens to children and young people at school influences their life. Measurable learning outcomes seem to be of paramount importance in formalized education. However, students learn more and develop more competences than merely in subjects such as Mathematics, English or German language. Learning experiences have the possibility to change or widen their horizons, to develop “Bildung”.

Two females and two males aged 14 years were asked about their experiences in lower secondary in New Middle Schools in Austria. What did the students experience in four years? What did they learn? What did seize and impress them and change their relation to world, to others and to themselves?

The responses from the students were transcribed and the poignant parts of the transcripts were composed into so-called anecdotes. Anecdotes are memorable stories, which bring to the point concrete details of situations with special effectualness, which a person has experienced in her time at school and which are told to the researcher in a remembered experience” (Rathgeb/Krenn/Schratz 2017).

In total, sixteen anecdotes emerged from these interviews, one example of an anecdote can be found in the paper.

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M.003

Single Paper

Educational Policy and Systems, Higher Education, Learning and Instructional Technology, Lifelong Learning

Attitudes, beliefs and experiences related to education

Keywords: Attitudes and beliefs, Citizenship education, Educational Policy, Environmental education, Learning Technologies, Multicultural education, Pre-service teacher education, Quantitative methods, Survey Research, Teacher professional development, Teaching/instruction

Interest group: SIG 13 - Moral and Democratic Education, SIG 18 - Educational Effectiveness

Chairperson: Emine Simsek, Loughborough University, United Kingdom

The factor structure of STEM teachers attitudes towards mobile devices in learning

Keywords: Quantitative methods, Teaching/instruction, Attitudes and beliefs, Learning Technologies

Presenting Author: Liina Adov, University of Tartu, Estonia; Co-Author: Olev Must, University of Tartu, Estonia; Co-Author: Äli Leijen, University of Tartu, Estonia; Co-Author: Margus Pedaste, University of Tartu, Estonia
Teachers are more and more expected to integrate mobile devices in their everyday teaching practice. It is shown that teachers' positive attitudes towards technology influence whether technology is used in teaching. Research has shown several attitude factors which could be important when we aim to predict teacher mobile device use. However, researchers have not come to an agreement of which attitudes should we focus on when predicting technology use. The aim of the present study was to find out which attitude factors could be differentiated on STEM teacher sample in the context of mobile devices in teaching. In the spring of 2016 we conducted a large-scale study in Estonia questioning 377 STEM subject teachers. We conducted confirmatory and exploratory factor analysis and both supported 5 factor solution: self-efficacy, social influence, anxiety, facilitating conditions and performance expectancy, whereas the last factor also consisted of items from enjoyment and effort expectancy. This finding goes along with previous studies showing higher correlations between performance expectancy, effort expectancy and enjoyment compared to correlations between other factors. Therefore we could say that applications that teachers perceive complicated are also seen as not useful and not fun to use.

Future Concerns of Adolescents as Potentials for Global Citizenship Education

Keywords: Quantitative methods, Attitudes and beliefs, Citizenship education, Environmental education
Presenting Author: Daniel Deimel, University of Duisburg-Essen, Germany; Co-Author: Hermann J. Abs, University of Duisburg-Essen, Germany

Future generations will have to deal with multifaceted challenges in a global scale. Their dealing with these challenges may be dependent on how they evaluate them. The UN’s normative approach of global citizenship education pursues to educate young people to be capable and feel responsible to address these challenges, referred to by sustainable development goal (SDG) 4.7. As the International Civic and Citizenship Education Study (ICCS 2016) shows, young people in Europe evaluate global issues differently. It is hypothesised that local contexts, use of media and knowledge may influence the evaluation of these issues. To establish global citizenship education, insight may be needed on how global issues are evaluated by young people and what determines these evaluation. This study examines the German (North Rhine-Westphalia) subsample of ICCS 2016, including N=1,451 students in 59 classes. In a first step, a latent class analysis (LCA) is conducted. Four groups of students are described: two indifferent groups who are more likely to rate all or none of the issues presented as threatening and two more balanced groups. These are described as the globally concerned, showing a strong focus on environmental issues and the security concerned, seeing the world’s future threatened by crime and terrorism. In a second step, hierarchical linear models with the classification probabilities retrieved from the LCA as dependent variables are evaluated. Civic knowledge on the individual as well on the classroom level acts as strong predictor on the classification probabilities under control of other individual and contextual variables. A higher civic knowledge predicts students to be more likely a member of a latent class that evaluated ecological issues as threatening. Fostering knowledge about complex relations and processes in a democracy might be a feasible approach in pursuing SDG 4.7.

Development of pre-service teachers’ beliefs about inclusion through courses on inclusive education

Keywords: Quantitative methods, Pre-service teacher education, Teacher professional development, Attitudes and beliefs
Presenting Author: Saskia Opalinski, University of Education Freiburg, Germany; Co-Author: Katja Scharenberg, University of Education Freiburg, Germany

In the context of inclusive education aspects of teacher education for inclusion as well as the importance of pre-service and in-service teachers’ beliefs about inclusion are discussed (EADSNE, 2010). In conceptual terms these beliefs are one element of teachers’ professional competence, a key factor in inclusive school development and can influence teachers’ actions and affect students’ outcomes (Avramidis & Norwich, 2002; de Boer, Pijl & Minnaert, 2011). National and international research findings on pre-service and in-service teachers’ beliefs about inclusion are broadly inconclusive or even contradictory. However, there is empirical evidence that university courses on inclusive education can lead to more positive beliefs about inclusion (e.g. Kopp, 2009; Lancaster & Bain, 2007; Laubner & Lindmeier, 2017). Using a pre-post-design the paper considers the question of how primary and secondary pre-service teachers’ beliefs about inclusion can be developed by university courses on inclusive education and a conceptually grounded linkage between theory and practice. Data were collected at the beginning and end of semester in two courses on inclusive education. Beliefs of pre-service teachers (n=33) about inclusion were gathered with the subscale ‘orientation towards inclusion’ of the ‘Beliefs inventory teachers in the context of school support (Beliefsinventar Lehrkräfte im Bereich schulischer Förderung, BILF)’ (Moser, Kuhl, Redlich & Schäfer, 2014) using a four-point Likert scale with a total of 35 items. The statistical analysis was made by MANOVA (SPSS 23). Results showed a significant main effect of course attendance on pre-service teachers’ orientation towards inclusion (p

School integration of refugees in Germany: School participation and learning in preparatory classes

Keywords: Quantitative methods, Survey Research, Educational Policy, Multicultural education
Presenting Author: Lisa Pagel, Deutsches Institut für Wirtschaftsforschung (DIW), Germany; Co-Author: Aileen Edele, Institute for Educational Quality Improvement (IQB), Germany

In the most recent years, a historically high number of people in need of protection have come to Germany, of whom many are children and adolescents. Although German schools have comprehensive experience in teaching children with immigrant background, a number of education-related conditions makes the situation of refugee children and adolescents...
specific: They are more likely to have interrupted schooling biographies and enter school in Germany in the middle of a school year. Many are enrolled in so called preparatory classes where newly arrived students learn together with the main focus of German language acquisition (Massumi et al., 2016). Regarding secondary school type, a first regional study indicates that refugees are more likely to be enrolled in lower secondary school tracks and less likely to attend a Gymnasium (Kemper, 2016). However, very little is known about their school participation throughout Germany. Our study examines how well refugee students are integrated in schools in Germany based on the enrollment in preparatory classes and type of secondary school as first indicators. Drawing on data of the first wave (2016) of the representative IAB-BAMF-SOEP sample of refugees, we find that the vast majority (91%) of the accompanied refugees aged 7 to 17 already gained access to the educational system in Germany. Only about one third (30%) of them are enrolled in preparatory classes. Regarding the different school tracks in secondary school, refugee adolescents are disadvantaged compared to their non-refugee peers. Weighted logistic regression analyses that take the living situation, the school type and family characteristics into account indicate that living in shared accommodations is associated with both, a higher chance of being enrolled in a preparatory class and a lower probability to attend the Gymnasium. The implications of these findings, the validity of the indicators and further research is discussed.

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M.001
Introduction Session to EARLI’s Emerging Field Groups (EFG)

Introduction Session to EARLI’s Emerging Field Groups (EFG)

Keywords: Experimental studies, Interdisciplinary, Mixed-method research, Quasi-experimental research

Interest group:
Chairperson: Piet Van den Bossche, University of Antwerp, Belgium
Discussant: Julia Wyss, Switzerland

In January 2018, EARLI launched the “Emerging Field Groups” initiative, in order to foster out-of-the-box, innovative and risk-taking research. This initiative proved incredibly successful, demonstrating the great need for research grants which offer researchers the time and space to work process-based, rather than product-based. Four high quality applications have been selected to become EARLI’s very first Emerging Field Groups 2018 - 2020. This initiative is proudly supported by the Jacobs Foundation.

Portable Brain Technologies in Educational Neuroscience Research
Presenting Author: Nienke van Atteveldt, VU University Amsterdam, Netherlands

In the past few decades, neuroscience and cognitive psychology have produced a rich body of research on memory, learning and attention, but for the most part the translational value of this work to classroom practices has been limited. A major challenge for translation is that neuroscience research is typically conducted in artificial and highly controlled laboratory settings. Interestingly, recent developments in portable brain technology (e.g. electroencephalography (EEG) and functional Near-Infrared Spectroscopy (fNIRS)) now allow taking neuroscience research out of the lab and into working classrooms and other real-life settings. This will drastically enhance applicability of novel neuroscientific insights, optimizing the benefits of brain research for education and child development. The primary aim of this EFG is to explore the use of portable brain technologies to increase the ecological validity and worldwide implementation of educational neuroscience research. This will help bridge the gap between lab-based research on the one hand, and educational practice on the other. Portable technologies enable research in young children, and in areas of the world where access to advanced research labs is limited. Specific aims are to 1) Validate portable brain technologies; 2) Identify promising novel directions; and 3) Share knowledge between researchers and educators. The first aim is to assess whether and how we can measure brain activity reliably using portable technologies. We will address this by writing a collaborative review article, setting up a research agenda, and starting joint grant applications (validation studies comparing lab vs. portable EEG and fNIRS data). To address the second aim, we will share technology, methodology and ideas within the EFG and with other stakeholders. The third aim will be accomplished by fostering collaborations, in particular with low-GDP countries, to promote worldwide implementation. Finally, we will formulate guidelines for researchers and educators on brain technologies and develop accessible educational materials.

The potential of biophysiology for understanding learning and teaching experiences
Presenting Author: Tim Mainhard, Utrecht University, Netherlands

Our EFG-team is a group of researchers interested in the potential role of biophysiology (e.g., heart rate, cortisol, electrodermal activity, physical activity and rest) in educational contexts. We are also interested in the situation-specific perceptions, beliefs and behaviours students and teachers have, and how these change from one situation to another. This is known as a “process-perspective” (cf. intraindividual, within-person). Modern technology affords user-friendly and cost-efficient ways of collecting objective measures of biophysiology using unobtrusive wearable devices (e.g., heart rate monitors, accelerometers). The promise of such objective biophysiological measures is that - relative to existing “classic” approaches - they are considered more unbiased, allowing researchers to track processes as they occur in real time. Self-reports can straightforwardly be collected using experience sampling by apps on smartphones and tablets. Observations
data can be coded in real-time using Saddler joystick-procedures. Importantly, these innovations make it possible to take traditional lab-based biophysiological measures into real educational settings. While some measures (e.g., movement) may have a direct value for educational research, other measures (e.g., heart rate) are usually seen as proxies for underlying psychological processes such as stress or other affective responses. Ultimately, using biophysiological measures will enable us to focus on how “mind” and “body” function in interplay in educational contexts in real-time. The aims of our EFG are to: Support the transfer of classical lab-based physiological measures to real-life educational settings and ambulatory assessment; Enhance the psychological conceptualization of biophysiological measures in the educational context; Develop and accumulate the technological know-how to collect and prepare biophysiological data; Develop and accumulate the methodological and statistical knowledge about the specific characteristics of biophysiological data and its analysis; Develop guidelines for the implementation of biopsychological measures in educational research and educational practice.

Unifying Cognitive Load and Self-Regulated Learning Research

Presenting Author: Anique de Bruin, Maastricht University, Netherlands; Presenting Author: Felicitas Biwer, Maastricht University, FHML, Dept. of Educational Research and Development, Netherlands; Presenting Author: Luotong Hui, Maastricht University, Faculty of Health, Medicine and Life Sciences, Netherlands

Although learning in the 21st century is highly similar to learning in previous eras, it differs greatly in learners’ access to information and to digital services and devices. This transition evokes novel research questions, in particular related to how learners know when to invest and when to discontinue effort when information is abundant. However, little is known as to how learners monitor and regulate effort in complex learning environments. As we argued in the recent Special Issue in Learning and Instruction (De Bruin & Van Merriënboer, 2017), this topic inherently and simultaneously relates to matters of cognitive load (CLT; learning in complex and information-rich environments; Choi, Van Merriënboer, & Paas, 2014; Sweller, Van Merrienboer, & Paas, 1998) and to matters of self-regulated learning (SRL; learners’ monitoring and control of their learning processes; Bjork, Dunlosky, & Kornell, 2013; Winne & Hadwin, 1998). Building on the special issue ‘Bridging Cognitive Load and Self-Regulated Learning’ (Learning and Instruction, 2017), the aim of this Emerging Field Group is to explore how to unify these two research pillars, to develop a research agenda on their intersection, and to conduct joint, multi-site, pilot research that will provide evidence for a novel research paradigm. This new research agenda will result in a unified theoretical framework and research paradigm for contemporary issues in educational science. As a particularly prominent issue, the EFG will focus on how learners monitor and regulate their effort investment.

The aims of the Monitoring and Regulation of Effort (MRE) EFG are threefold:

To map the opportunities, challenges, and scope of a joint CLT-SRL research agenda, with a particular focus on monitoring and regulating effort.

To design a joint MRE research paradigm

To conduct, share, and discuss pilot research on the MRE research paradigm

EarlyWritePro: Developing methods for understanding early writing

Presenting Author: Mark Torrance, Nottingham Trent University, United Kingdom

Fluent transcription – the ability to perform the motor, spelling and syntactic operations necessary to construct a sentence without undue hesitation – is important for maintaining students’ motivation and skill development. As importantly, where and when a young writer pauses provides valuable information about what they have and have not learned: An accurate completed sentence can hide significant underlying bottlenecks. Teachers in typical classrooms cannot systematically monitor students writing processes. Writing timecourse data, from keyboard or writing tablet, offers potential for automatic extraction of important diagnostic information, thus providing earlier and more precise identification of writing difficulties. This potential will not be realised, however, without step-change in the computational and statistical methods used to interpret writing timecourse data. These present at least four challenges. (1) Statistical inference from writing timecourse data must handle complex multilevel and multi-distributional data. (2) Real-time handwriting traces require extensive pre-processing and this is difficult to perform automatically. (3) Routine collection of keystroke and digitised handwriting gives for “big data”, with associated analytical challenges (and potential benefits). (4) Computational-linguistic methods for syntactic markup must handle noisy and fragmented text. The proposed project will bring together field experts whose current work shows promise for providing solutions to one or more of these problems. Our goals in the first two years of the project will be to: Explore the potential of various approaches to the analysis of writing timecourse data, detailed in the next section, that go substantially beyond current state of the art. Give educational researchers access to these new developments in the form of published worked examples. Approaches will be linguistically / psycholinguistically informed. Outputs will be open-access / open-source, and accessible to literacy researchers without advanced statistical expertise. The project is broad and exploratory, and hence risky. However, we guarantee disseminating an honest summary of our successes and failures.

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M.107
Roundtable
Learning and Social Interaction, Motivational, Social and Affective Processes
Deliberate practice as a goal orientated practice method enables individuals to reach an expert level within their domain. Research has shown that deliberate practice needs to be planned and supported by knowledgeable actors from their personal network (e.g. teachers, peers etc.). Surprisingly, there is little research in music expertise about which actors are crucial for the support of deliberate practice and how musicians are supported by these actors for deliberate practice during their musical career. The objective of this study is to examine how musicians at two different skill levels (expert/amateur) were supported by actors within networks for deliberate practice during their whole musical career. The main research question is: What are the differences between experts and amateur regarding the network composition, structure and the quality of support for deliberate practice? Semi-structured interviews investigating the role of network actors regarding deliberate practice were conducted. 20 musicians at different skill levels (ten experts/ten amateurs) participated. The experts were selected based on a theory-driven catalogue with five factors. An ego-centric network analysis is used to analyse the size, composition and structure of the networks. The interview data is analysed deductively. A Mann-Whitney-U-Test is used to compare the different networks of experts and amateurs. Preliminary results based on the data of 15 participants indicate that especially single keypersons (e.g. peers) and teachers from master classes are the most important support for deliberate practice of experts during their whole career. In contrast, actors in amateur networks are an important source for knowledge creation, but not for supporting deliberate practice. Challenges that should be discussed during the session are 1) how to analyse the data of the three different career stages and 2) how to relate the qualitative data to the SNA data for publication.

Stimulating the Intention of Learning Behaviour Change: the Role of Narratives

- **Keywords:** Educational Psychology, Goal orientation, Learning approaches, Motivation
- **Presenting Author:** Luotong Hui, Maastricht University, Faculty of Health, Medicine and Life Sciences, Netherlands

Entering university, many students struggle to develop and implement effective learning strategies to achieve learning goals. Previous research found practice testing and distributed practice are the most effective learning strategies across many criterion tasks in educational contexts, especially for long-term retention. For students, however, the most frequently used learning strategies are highlighting and rereading, which actually are ineffective learning strategies, and they believe these are effective ones. For improving learning outcomes, we need to change students' ineffective learning strategies. As the intention is the most important determinant of behaviour and is antecedent of behaviour, interventions are needed to stimulate the intention of changing learning strategies. Since students are often resistant to change, simply telling them what strategies work is probably insufficient to persuade them to change beliefs and develop behavioural intention. In health-behaviour change domain, narratives are considered a widespread method for changing incorrect beliefs and stimulating behavioural intention. As changing learning behaviour is similar with changing health-behaviour, narratives are potentially promising for changing incorrect beliefs and stimulating students’ intention of stopping the use of ineffective strategies and start using effective learning strategies. By transported in the narrative world, individuals are likely to change real-world beliefs and behaviours by reducing counterarguing and increasing connections with exemplars. This study will examine the effect of narratives on learning behaviour change. Applying this technique to learning strategy use, we predict that combining learning strategy training with the use of narratives will lead to more behavioural intention than without the use of narratives (non-narratives). Keywords: learning strategies, narrative, behaviour change
Teaching and learning in higher education takes place in a wide diversity of learning contexts. These learning contexts have different requirements concerning the knowledge, skills and beliefs students need to engage with. Especially the role of the discipline has been highlighted as important in shaping the learning contexts. Disciplines bring with them a set of rules and conventions of how to organize and share knowledge, and which learning and teaching approaches are considered productive. These differences between disciplines and their typical learning contexts have made it difficult for the field of higher education research to integrate some of the findings that appear to be highly context-dependent. This symposium aims at providing further insight into the debate about the role of context and discipline in higher education research and how a focus on the context might advance our current theorizing about higher education teaching and learning. Three different contributions from Belgium, Germany and Switzerland add to this debate in the following ways:

Study 1 shows the importance of accounting for contextual factors when studying how and why students learn and develop self-efficacy in the learning context of political science simulation. Study 2 provides insight into the discipline-specific challenge of mathematics teacher students who experience a 'double discontinuity' when moving between learning contexts of school and university. Study 3 makes a conceptual contribution by discussing the notion of 'seamless learning' and how we can understand differences between learning contexts in higher education and how they could be bridged.

**Fostering self-efficacy in role-play simulations of decision-making: the case of political science**

*Presenting Author:* Dorothy Duchatelet, University of Antwerp, Belgium

Within political science education, the use of role-play simulations of decision-making is well spread. However, to date, educational scientists have only limitedly been involved in developing such simulation designs or conducting effect research. This contribution probes into the specific learning contexts of role-play simulations of decision-making, focusing on the outcome of self-efficacy for negotiating. Using mixed method design, the development of self-efficacy for negotiating is explored together with how its development relates to certain individual and contextual characteristics. Results of a quantitative study show an increase of self-efficacy for negotiating over time. However, development varies across students. A second qualitative study points to the importance of the relational component and how other participants' behavior or contextual circumstances may or may not contribute to the development of self-efficacy for negotiating.

**Designing interface learning opportunities for mathematics teacher students**

*Presenting Author:* Max Hoffmann, Paderborn University, Germany

An important question in higher education research in mathematics is how to deal with a concept called the "double discontinuity". This is about mathematics teacher students having problems with a gap between mathematics as taught in school and mathematics as taught at the university (first discontinuity), and later having problems to use their knowledge of university mathematics in a meaningful way for their teaching practice (second discontinuity). Thinking about possibilities for bridging those gaps, one have to deal with several challenges. The talk will introduce in the typical setting of learning mathematics at university with a focus on the different learning goals of mathematics students and mathematics teacher students. After that, approaches for dealing with the two discontinuities mentioned above will be discussed on the basis of the state of research, a small evaluation study and current work-in-progress experience.

**Seamless learning in higher education: binding together learning experiences in different contexts**

*Presenting Author:* Luci Gommers, University of St.Gallen, Switzerland; *Co-Author:* Bernadette Dilger, University of St.Gallen, Institute of Business Education and Educational Management, Switzerland; *Co-Author:* Christian Rapp, Zurich University of Applied Sciences (ZHAW), Switzerland

The literature about "Seamless Learning" calls for rethinking and redesigning learning environments, so that learners experience a continuity of learning even when their learning finds place across different contexts. The assumption behind it is that combining learning experiences from different contexts enhances learning, because learning finds place across time, by revisiting knowledge that was gained earlier in a different context, by moving from topic to topic, and managing a range of learning projects, rather than following a single curriculum. In reviewing seamless learning literature, an emphasis seen is on the different settings and contexts in which learning takes place and on the possibilities to link or bridge them. However, the core question remains: "What is, and makes, the difference in the learning process and learning outcomes from one context compared to another?" If a learner changes contexts, he or she has to be equipped with appropriate competencies to link the different knowledge structures, to switch between different skillsets or strategies, to change attitudes or beliefs or at least to be able to cope with the ambiguities of different learning context requirements. In this study, the objective is to analyse the differences between contexts in order to investigate the problem behind seams that hinder continuity of student learning. These differences show the necessary requirements for learners who need to cope with such differences. On the other hand, the differences inform the teachers on the relevant strategic aspects for learning, and thereby enrich the seamless learning designs with a deeper learning perspective.
The cognitive and neural bases of academic self-concept and metacognition

**Keywords:** Cognitive development, Cognitive skills, Mathematics, Metacognition, Neuroscience, Numeracy, Self-efficacy

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

**Chairperson:** Elien Bellon, KU LEUVEN, Belgium

**Organiser:** Annie Brookman-Byrne, Birkbeck, University of London, United Kingdom

**Discussant:** Elien Bellon, KU LEUVEN, Belgium

**Discussant:** Renske van der Crijisen, University of Leiden, Netherlands

**Discussant:** Laura van der Aar, Leiden University, Netherlands

**Discussant:** Laura Claude Dapp, University of Bern, Switzerland

The ability to think about one’s own thoughts and abilities is hypothesised to have an important impact on learning outcomes. The SIG 22 symposium brings together research investigating metacognition and self-concept in childhood and adolescence, in order to present our current understanding of the development of these skills and their importance for learning. Elien Bellon considers the role of metacognition in learning mathematics, showing that metacognition predicts arithmetic skills over and above cognitive control mechanisms (inhibition, shifting, and updating). Renske van der Crijisen investigates direct self-evaluation (e.g. ‘does this trait describe me?’) in relation to reflected self-evaluation (e.g. ‘do my peers think this trait describes me?’), showing changes in prefrontal cortex activation and ratings with age. Laura van der Aar presents the neural correlates of academic self-evaluations, demonstrating that academic self-evaluations are related to future study orientation (the awareness of the need to make decisions related to further study). These complementary presentations highlight the importance of investigating metacognition and self-concept within educational neuroscience research. They pave the way for future research to explore further the cognitive and neural mechanisms of metacognition and self-concept as they relate to education. In turn this may lead to educational programmes that help to encourage metacognition and positive academic self-concept, in order to improve academic attainment.

**More than number sense: The additional role of cognitive control and metacognition in arithmetic**

**Presenting Author:** Elien Bellon, KU Leuven, Belgium

Little attention has been paid to investigating the joint effects of domain-specific and domain-general correlates of arithmetic. Additionally, it is not clear how these correlates are associated in young children (i.e., early elementary school), and consequently, how these associations are dependent of lesser versus greater experience in arithmetic. To tackle this important gap in the current literature, this longitudinal study investigated cognitive control – by using a more fine-grained operationalization including inhibition, shifting and updating – and metacognition – both general metacognitive knowledge and on-task metacognition – as domain-general cognitive correlates, and symbolic numerical magnitude processing as a domain-specific cognitive correlates, and examined their unique contributions to arithmetic (i.e., addition and multiplication) in typically developing second to third graders in a within-subject follow-up design. Our results show that cognitive control, metacognition and numerical magnitude processing are all significant predictors of arithmetic performance, even in addition to each other. Importantly, there are both similarities and differences in cognitive correlates associated with arithmetic at different learning stages. We found a stable and unique influence of task-specific metacognition and symbolic numerical magnitude processing over time. Moreover, both cognitive correlates predicted growth in arithmetic performance from second to third grade.

**Neural and behavioural development of direct and reflected self-evaluations in adolescence**

**Presenting Author:** Renske van der Crijisen, University of Leiden, Netherlands

Adolescents are preoccupied with their peers’ opinions, which play a large role in the construction of the self-concept. We investigated the developmental patterns of the neural correlates of direct and reflected self-evaluations in the academic, physical, and prosocial domain, across adolescence. In this study, 150 adolescents (80 girls) between 11 and 21 years old participated in an fMRI study in which they evaluated trait sentences describing positive and negative traits in the three domains. They answered the question: ‘does this trait describe me?’ (direct self-evaluation) or ‘do my peers think this trait describes me?’ (reflected self-evaluation), on a scale of 1 (not at all) to 4 (completely). Behavioral results showed that in mid-adolescence (±16 years), participants were less positive about their academic traits compared to younger and older adolescents. Across domains, self-evaluations in the youngest adolescents (11-12 years) were more positive from their own perspective than from their peers’ perspective, and these young adolescents engaged stronger mPFC activation when evaluating their traits from a peers’ perspective versus from their own perspective. This difference in behavioural ratings and mPFC activation declined with age, suggesting that the perceived opinions of others about the self become adopted in one’s self-concept during adolescence.

**Neural correlates of academic self-concept and the relation to future-oriented academic choices**

**Presenting Author:** Laura van der Aar, Leiden University, Netherlands

This study examined the role of brain regions involved in academic self-evaluation in relation to problems with study orientation. For this purpose, 48 participants between ages 14 - 20 years evaluated themselves on academic traits sentences in an fMRI session. In addition, participants completed an orientation to study choice questionnaire, evaluated the importance of academic traits, and completed a reading and shortened IQ test as an index of cognitive performance. Behavioral results showed that academic self-evaluations, but not academic performance or academic importance, were
related to problems with study orientation. On a neural level, we found that individual differences in the positivity of academic self-evaluations were reflected in increased precuneus activity. Moreover, precuneus activity mediated the relation between academic positivity and problems with study orientation. Together, these findings support the importance of studying academic self-concept and its neural correlates in the educational decision-making process.

**The Multidimensional Self-Concept in Kindergarten and First Grade Children**

*Presenting Author:* Laura Claude Dapp, University of Bern, Switzerland

Self-concept, including the knowledge and the perceptions a person has about him- or herself, is believed to have an impact on many different psychological aspects, such as personality, health, social development, and education (Marsh & Craven, 2006). Today, it is assumed that self-concept is a multidimensional construct that organizes a person’s self-perceptions into a hierarchical structure comprising global and specific facets (Shavelson, Hubner, & Stanton, 1976). In the most common model of self-concept, the so-called Shavelson et al. (1976) model, a general factor called global self-concept is positioned in the apex. This global self-concept is divided into an academic self-concept and a non-academic self-concept. The non-academic self-concept is further divided into social, emotional and physical aspects of self-concept and the academic self-concept into mathematical, verbal and other school domains related self-concepts.

**Session Tue 3, 15:15 - 17:15**

3 July 2018 15:15 - 17:15
M.107
JURE 2018 Workshop
Learning and Social Interaction

**Qualitative analysis of multimodal data**

*Keywords:* Content analysis, Qualitative methods, Social interaction, Student learning

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

Contemporary learning research benefits from methodological and technical advancements that allow access to rich datasets, often including documentation of verbal and non-verbal interaction, self-reported data, artefacts produced or used by students, curriculum or course documents, etc. While this type of data can provide an insight into the complexity of the learning process, it poses an analytic challenge. This workshop will introduce participants to what it means to analyze thematically interaction data but adding input from other data types to obtain richer interpretations. Thematic analysis of interaction data (i.e., (video)recordings of student discussion) will be employed to demonstrate how interpretations can be drawn from dialogical communication. The insights emerging from this analysis will then complemented with input generated by other data harvested from students’ collaborative work and from course materials. This combination of different data generates complementary interpretations and understanding about the learning activities but also about the context or (qualitative) outcome of the process.

In this workshop, the aim is to support participants to understand thematic analysis in connection to other analyses applied to rich datasets and reflect on how that could serve their own analytic work. This aim will be addressed by triggering discussion and enable participants to engage themselves in analyzing a data snapshot from a rich data set and generate interpretations. Concretely, the workshop will consist of: Briefly introducing the rationale for analyzing qualitative multimodal data; Engaging with thematic analysis of sampled interaction data and connecting it to other data types to generate a richer interpretation; Discussing strategies and challenges associated with this analytic approach.

**Qualitative analysis of multimodal data**

*Presenting Author:* Crina Damsa, University of Oslo, Norway

Contemporary learning research benefits from methodological and technical advancements that allow access to rich datasets, often including documentation of verbal and non-verbal interaction, self-reported data, artefacts produced or used by students, curriculum or course documents, etc. While this type of data can provide an insight into the complexity of the learning process, it poses an analytic challenge. This workshop will introduce participants to what it means to analyze thematically interaction data but adding input from other data types to obtain richer interpretations. Thematic analysis of interaction data (i.e., (video)recordings of student discussion) will be employed to demonstrate how interpretations can be drawn from dialogical communication. The insights emerging from this analysis will then complemented with input generated by other data harvested from students’ collaborative work and from course materials. This combination of different data generates complementary interpretations and understanding about the learning activities but also about the context or (qualitative) outcome of the process.

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**Session Tue 3, 15:15 - 17:15**
3 July 2018 15:15 - 17:15
M.101
JURE 2018 Workshop

Good Academic Writing in English

Keywords: Language (Foreign and second), Researcher education, Second language acquisition, Writing/Literacy

Interest group:

‘Publish or perish.’ The pressure on academics to communicate their work to a global audience is huge, and with many top journals based in the US or UK, the challenge for non-native English speakers is even greater. Many young researchers are comfortable using English in everyday contexts, but Academic English is different. How do you make sure your writing is formal and ‘academic-sounding’, while also being clear and readable? How can you ensure your work gets the attention it deserves? This workshop will introduce participants to the key principles of good, clear, modern academic writing in English. After a brief introduction, participants will be divided into groups for a ‘carousel’ activity. There will be a number of tables in the room, each focusing on a different aspect of academic writing. Each group will spend a few minutes at each table, discovering, discussing and practising the tips and information presented there before moving on to the next table. The exact number of topics and tables will depend on the number of participants, but some examples include: - Formal language use: which informal/everyday words should you avoid in academic writing? Where can you find formal synonyms?- Readability: how can you get your message across clearly and concisely?- Inclusive language: English is a very ‘politically correct’ language – how can you avoid offending people unintentionally?- Personal/impersonal style: is it ok to use ‘we’? What about ‘I’? Are there any alternatives? At the end of the workshop there will be time for discussion and questions.

Good Academic Writing in English
Presenting Author:Samantha Brunt, University of Antwerp, Belgium

‘Publish or perish.’ The pressure on academics to communicate their work to a global audience is huge, and with many top journals based in the US or UK, the challenge for non-native English speakers is even greater. Many young researchers are comfortable using English in everyday contexts, but Academic English is different. How do you make sure your writing is formal and ‘academic-sounding’, while also being clear and readable? How can you ensure your work gets the attention it deserves? This workshop will introduce participants to the key principles of good, clear, modern academic writing in English. After a brief introduction, participants will be divided into groups for a ‘carousel’ activity. There will be a number of tables in the room, each focusing on a different aspect of academic writing. Each group will spend a few minutes at each table, discovering, discussing and practising the tips and information presented there before moving on to the next table. The exact number of topics and tables will depend on the number of participants, but some examples include: - Formal language use: which informal/everyday words should you avoid in academic writing? Where can you find formal synonyms?- Readability: how can you get your message across clearly and concisely?- Inclusive language: English is a very ‘politically correct’ language – how can you avoid offending people unintentionally?- Personal/impersonal style: is it ok to use ‘we’? What about ‘I’? Are there any alternatives? At the end of the workshop there will be time for discussion and questions.

Session Tue 3, 15:15 - 17:15 3

3 July 2018 15:15 - 17:15
M.002
JURE 2018 Workshop

Writing a review of the literature for your PhD: let’s do it systematic and aim to publish it!

Keywords: Doctoral education, Higher education, Researcher education, Writing/Literacy

Interest group:

For most PhD students in our field, a review of the literature is part of the first steps in writing the PhD. I will argue that it is worth doing a literature review in a very systematic way so that the review can serve as a good basis for your PhD but also opens possibilities to publish that work in well respected journals in the field. The workshop will start with a brief introduction about what a systematic review entails and which steps are usually taken in the process. Subsequently, we will go – in short - through these different steps (e.g., formulating a research question, defining key words, selecting databases, selecting studies, critical appraisal, analyzing studies, …). For each of the steps, I will provide some guidelines as well as ‘tips and tricks’ based on my own experience of writing review studies (e.g. Asikainen & Gijbels, 2017; Dochy, Segers, Van den Bossche & Gijbels, 2013; Dolmans, Loyens, Marcq & Gijbels, 2016; Gijbels, Dochy, Van den Bossche & Segers, 2005; Kyndt, Gijbels, Grosemans, & Donche, 2016; Stes, De Maeyer, Gijbels & Van Petegem, 2010) as well as the information I picked up from my time as an Assistant Editor, Associate Editor and Editor in chief for the EARLI journal Educational Research Review (2006-2017).

Writing a review of the literature for your PhD: let’s do it systematic and aim to publish it!
Presenting Author:David Gijbels, University of Antwerp, Belgium
For most PhD students in our field, a review of the literature is part of the first steps in writing the PhD. I will argue that it is worth doing a literature review in a very systematic way so that the review can serve as a good basis for your PhD but also opens possibilities to publish that work in well respected journals in the field. The workshop will start with a brief introduction about what a systematic review entails and which steps are usually taken in the process. Subsequently, we will go – in short - through these different steps (e.g., formulating a research question, defining key words, selecting databases, selecting studies, critical appraisal, analyzing studies, …). For each of the steps, I will provide some guidelines as well as ‘tips and tricks’ based on my own experience of writing review studies (e.g. Asikainen & Gijbels, 2017; Dochy, Segers, Van den Bossche & Gijbels, 2013; Dolmans, Loyens, Marcq & Gijbels, 2016; Gijbels, Dochy, Van den Bossche & Segers, 2005; Kyndt, Gijbels, Grosemans, & Donche, 2016; Stes, De Maeyer, Gijbels & Van Petegem, 2010) as well as the information I picked up from my time as an Assistant Editor, Associate Editor and Editor in chief for the EARLI journal Educational Research Review (2006-2017).

Session Tue 3, 15:15 - 17:15
3 July 2018 15:15 - 17:15
M.003
JURE 2018 Workshop

Structural equation modeling in educational research

Keywords: Higher education, Qualitative methods, Quantitative methods, Researcher education
Interest group: SIG 17 - Methods in Learning Research

Structural equation modeling (SEM) is very popular in educational sciences. SEM extends linear regression models to make them very versatile in depicting also complex relationships between (latent and manifest) variables. In this workshop, different types of models are introduced. It gives you a basic understanding of the theoretical rationale behind modeling, what kind of research questions can be addressed, when to use different types of models, and how to interpret estimates and fit indices and what needs to be reported. You will get an overview of statistical software that can be used for structural equation modeling. The workshop will benefit PhD-students and postdoctoral researchers who are interested in applying structural equation modeling in their research. You should have some basic understanding of statistics (e.g., how to interpret regression coefficients and p-values); the rest will be covered in the workshop.

Session Wed 4, 09:00 - 10:30
4 July 2018 09:00 - 10:30
M.107
Poster Presentation
Learning and Social Interaction, Motivational, Social and Affective Processes

Improving learning

Keywords: Competencies, Content analysis, E-learning/Online learning, Motivation, Primary education, Self-regulation, Social interaction, Student learning, Teaching approaches, Teaching/instruction
Interest group: SIG 08 - Motivation and Emotion, SIG 10 - Social Interaction in Learning and Instruction
Chairperson: Michiel Boncquet, Universiteit Gent, Belgium

Co-Regulation in the Classroom: A Teacher-Centered Approach

Keywords: Content analysis, Teaching/instruction, Self-regulation, Social interaction
Presenting Author: Birte Böning, Universität Paderborn, Germany; Co-Author: Katrin B. Klingsieck, University of Paderborn, Germany

In the context of inclusion, elementary school teachers are confronted with school classes that gradually become heterogeneous in terms of need for support regarding emotional, motivational, cognitive, metacognitive and behavioral aspects. To meet these different needs, teachers often use internal differentiation and hope for successful cooperative learning among students. However, cooperative learning requires a high degree of self-regulation on behalf of the students,
which is often rudimentarily developed upon entry to elementary school. Students suffering from emotional and social impairments, which are correlated with deficits in self-regulation, have even greater difficulties in this area. Thus, it is important for teachers to support the development of self-regulation as a basis for successful learning. Previous research suggests that co-regulation is an effective method of promoting student self-regulation. Co-regulation is grounded within ideas of social constructivism (e.g., Vygotsky’s), according to which skills are acquired through interaction with more experienced individuals. Therefore, by interacting with teachers who can provide appropriate regulation strategies, students gradually learn to regulate themselves. Across previous research, five domains of co-regulation emerged: motivation, emotion, cognition, metacognition and behavior. So far, these domains have not been studied in their interdependence but separately instead. This was reinforced by using video analyses as the method of choice, which captured specific sequences of interaction only. Therefore, the aim of this study is to extend previous research by investigating all domains at once. Using a qualitative approach, semi-structured expert interviews with elementary school teachers will be conducted in order to explore teachers’ knowledge and experience of using co-regulation strategies. The data will be analyzed using qualitative content analysis. Results will provide insight into current knowledge as well as self-reported teaching practice and outline areas in need of further training. Implications for teacher education and future research will be discussed.

Unearthing Quality of Knowledge, interaction, and Virtual Competence in the digital learning

**Keywords:** Student learning, Competencies, Social interaction, E-learning/Online learning

**Presenting Author:** Mehwish Waheed, TU Dortmund University, Germany; **Co-Author:** Liudvikia Leisyte, TU Dortmund University, Germany

Learning is one of the several outcomes that are desired from digital learning environment (DLe). A framework that delineates the quality and students’ competency factors in European virtual market is absent. Grounded in the information system success framework and social cognitive theory – this research aims to identify the role of knowledge quality, interactive quality, and virtual competence to assess the European students’ perceived learning from DLe. This is a conceptual study based on a review of the literature – where researchers discuss the increasing concerns about the quality of knowledge gained from online content, quality of interaction, and students’ competency in the digitized education. The quantitative research approach is suggested to investigate the relationship – and the registered students in online Masters’ programs in two countries (Germany and Sweden) are the targeted sample. The structured online closed-ended questionnaire is suggested as a survey tool. Exploratory and confirmatory factor analyses and structural equation modeling will be employed to evaluate the data using SPSS and SmartPLS. This research will help understand the factors that might help to improve the students’ learning from DLe and avoid impairment of knowledge flow.

Effective teaching interventions for improving learning and motivation of high ability students

**Keywords:** Teaching/instruction, Motivation, Self-regulation, Teaching approaches

**Presenting Author:** Katelijne Barbier, University of Antwerp, Belgium; **Co-Author:** Elke Struyf, University of Antwerp, Belgium; **Co-Author:** Vincent Donche, University of Antwerp, Belgium

Optimizing the quality of student motivation and student learning in everyday classrooms is an important challenge for teachers, but becomes even more challenging when confronted with a class population consisting of different levels of cognitive ability among students (Baeten, Kyndt, Struyven, Dochy, 2010). Research investigating the impact of specific teaching strategies on high ability students in regular educational settings has been less investigated. This conceptual review aims to offer an overview of published empirical research regarding effective interventions for highly able students. More specifically, we look for teaching strategies that aim to stimulate motivation and learning capacity of high ability students in everyday learning environments in elementary education. The research questions are: What type of teaching strategies for improving learning outcomes for high ability students in everyday classrooms have been examined? What kind of effects can be determined at the level of student learning outcomes (including motivational, regulatory, affective and cognitive variables)? For the purpose of this research, we collected articles published between 1998 and 2018. In line with a guiding theoretical framework, the key words ‘gifted’, ‘high ability’ and ‘high achieving’ (input terms) were combined with different process, outcome, and context search key terms. Different combinations were inserted in the databases ‘Web of Science’ and ‘Eric’. In this analysis phase, 14 articles were found on the basis of the inclusion and exclusion criteria. The vast majority of articles (12) are quantitative. Furthermore, different instruction strategies and training programs are discussed in the different articles and are argued to have a stimulating effect on the motivation and achievement outcomes of high ability students in a specific setting. The articles examine both students’ and teachers’ perceptions.

Feedback situations in inclusive classrooms: The importance of appreciation

**Keywords:** Content analysis, Teaching/instruction, Social interaction, Primary education

**Presenting Author:** Amelie Knoll, Pädagogische Hochschule Freiburg, Germany; **Co-Author:** Saskia Opalinski, University of Education Freiburg, Germany

Inclusive education is concerned with all students. Thus, one important principle of inclusion is valuing the diversity of students. Inclusion can only succeed if the principle value influences the teaching practise. Appreciation has an impact on central teaching actions and on the relationship between teachers and students. This becomes more important in feedback situations: teachers have to encourage the students in their individual learning process and comparative assessments and social references in classroom should be avoided. Therefore, teachers’ interactions with their students are the key part in
inclusive education, but it can be assumed that different teaching settings have an influence on these interactions. This exploratory study focused on the interactions between teachers and students in the context of different classroom situations. It was also addressed to what extent appreciative feedback in heterogenous classes succeeds.

Therefore, in 2016/2017, seven first grade classes of German primary schools, the schools with the greatest diversity of students and the highest rate of inclusion in German educational system, were observed. During the participatory observations, 187 individual classroom situations were documented and evaluated based on the qualitative content analysis. Analyses show that most of the documented interactions were appreciative. However, differences in the classroom situation between appreciative and non-appreciative situations couldn’t be shown. About one third (33.2%) of the 187 classroom situations are feedback situations. Almost half of these situations was appreciative, however 33.9% were coded ambivalent and 16.1% as non-appreciative. Therefore, further selected feedback situations were included in qualitative case analyses. Exemplary qualitative case analyses will be used to show the particular challenge of feedback situations in inclusive settings.

The results of this study indicate that according to the principal values of inclusions, feedback situations in heterogenous classes are challenging tasks for teachers. This must be considered for further pre-service and in-service teacher training.

Session Wed 4, 09:00 - 10:30 2

4 July 2018 09:00 - 10:30
M.003
Single Paper
Teaching and Teacher Education

Teacher development

Keywords: In-service teacher education, Literacy, Mixed-method research, Pre-service teacher education, Teacher effectiveness, Teacher professional development, Teaching approaches, Teaching/instruction

Interest group: SIG 11 - Teaching and Teacher Education

Chairperson: Tino Endres, University of Freiburg, Germany

The Role of Teacher Professional Development in Financial Literacy Education. A Literature Review.

Keywords: In-service teacher education, Teacher professional development, Teaching/instruction, Literacy

Presenting Author: Boukje Compen, Antwerp University, Belgium

Abstract: The global recognition of the relevance of financial literacy has strongly increased during the last two decades. Since financial literacy levels have been found to be insufficient, among both adults and youth, an increasing amount of national authorities started integrating financial education in school curricula. While it is generally recognized that well-trained teachers are one of the most important factors for effective financial education, previous financial education programmes seem to have paid little attention the process of teacher professional development (TPD). This paper aims to investigate the critical aspects for effective TPD in a financial literacy education context, by means of a systematic and comprehensive literature review. As a basis for the review, we propose an innovative general TPD model that is distinctive from earlier models by its emphasis on the interactivity of the TPD effects. Our results indicate that there is sound evidence on the student learning goals of financial education, the teaching practices that are desirable, the teacher quality that is required, and the contextual factors that play a role. However, it also reveals a lack of studies systematically investigating the effectiveness of TPD initiatives, and the implementation of the general TPD model’s key features in particular. Especially in light of the interest in the integration of financial education at school, this results in an urgent need for future research. We elaborate on three recommendations.

The general pedagogical knowledge of Estonian pre-service and in-service teachers

Keywords: In-service teacher education, Pre-service teacher education, Teacher professional development, Teacher effectiveness

Presenting Author: Liina Malva, University of Tartu, Estonia; Co-Author: Äli Leijen, University of Tartu, Estonia

Teacher education researchers have emphasized the importance of supporting the development of pre-service and in-service teachers’ knowledge base in teacher education programs. Numerous empirical studies have been conducted about content knowledge and pedagogical content knowledge, while teachers’ general pedagogical knowledge (GPK) is still less studied. The aim of this study was to find out which GPK dimensions pre-service teachers and in-service teachers possess, if this knowledge is rather theoretical or practice-based and what kind of cognitive demand it requires. All together 345 pre-service and in-service teachers from Estonia filled in a Teacher Knowledge Survey (Sonmark et al., 2017) measuring three dimensions of GPK: instructional process, learning process, and assessment. The 1PL item response theory analysis showed that the pre-service teachers and in-service teachers have rather similar level of GPK. Both groups performed better with items that required analysing or understanding, as well as items that where practice based. Less knowledge was acquired that requests recalling facts or theoretical knowledge. Further research is needed to investigate why pre-service and in-service teachers had so similar profile of GPK and critically examine whether the instrument needs to be adjusted to better address the potential knowledge gain of teachers.
An Analysis of Teachers' Competences for CLIL Teaching and Learning. The Experts' Perspective

**Keywords:** In-service teacher education, Pre-service teacher education, Teacher professional development, Teaching approaches

**Presenting Author:** Laura Pons Seguí, University of Barcelona, Spain; **Co-Author:** Elena Cano, University of Barcelona, Spain

Content and Language Integrated Learning (CLIL) is an educational approach in which subject contents are taught in a foreign language with the aim that students acquire both the content and the foreign language. Even though CLIL has rapidly expanded around Europe and outside its borders, the truth is that there is a shortage of teachers that are qualified for CLIL teaching. In addition, there is a lack of an agreement on the requirements and competences CLIL practitioners should have. The aim of this study is to identify teachers’ competences for CLIL teaching and learning according to CLIL experts. This study is part of the doctoral thesis “XXX”, which aims to identify the training needs of CLIL teachers from the stakeholders’ perspective and design a training proposal accordingly. The participants of this study are a group of experts (n=10) from the Spanish context. The field of expertise of the participants is CLIL research and CLIL teaching. These experts are from different Spanish regions. The results reveal three main findings. First, experts misunderstand and misuse the terms competence, requisite and knowledge. This misunderstanding explains the different opinions among the experts. Second, it appears that the requisites CLIL teachers should have are language knowledge, content knowledge and the theoretical underpinnings that sustain this approach. Third, a range of competences are identified for a CLIL teacher. However, not all these competences are regarded as equally important. Even though the findings are based on the opinions of ten experts from the Spanish context, these results shed some light on the qualification CLIL teachers should have. Consequently, these findings also have implications for teacher education. Nevertheless, this study leaves some unanswered question that future research should address.

**Mentor and mentee development during mentoring sessions supported by stimulated recall methodology**

**Keywords:** Mixed-method research, In-service teacher education, Pre-service teacher education, Teacher professional development

**Presenting Author:** Krisztina Nagy, Eötvös Loránd University, Hungary; **Co-Author:** Emma Gazdag, ELTE University, Faculty of Education and Psychology, Hungary; **Co-Author:** Judit Szivák, ELTE University, Faculty of Education and Psychology, Hungary

**Abstract**

As part of an extensive systematic literature review we examined the role and development of mentor teachers during video stimulated recall sessions. The research focused on the developmental potentials of video stimulated recall (as a tool of reflective practice) over the past four decades. Reflective attitude has become a fundamental component of the pedagogical sciences, teacher education and teacher evaluation system (Calderhead, 1981; Caena, 2011; Szivák, 2010, Hunya, 2014); therefore, reflectiveness is a significant and relevant research area of the international educational sciences (Creswell 2014; Polat, 2015), which is not only a fundamental but also a divers component regarding both the research fields and the used methodology (Gazdag, Nagy, & Szivák, 2016).

EU directives, along with literature, devote particular attention to the stage of early career (OECD, 2005; ETUCE, 2008; European Commission, 2010), and to the role of mentor teachers. Researches have shown that novice teachers are facing many difficulties during their early career (Szivák, 1999; Korthagen, 2010), and their problems could be overcome by practice-oriented training programs, reflection and mentoring support during the initial teaching practice. It is the mentors' responsibility to guide student teachers; therefore, their role is crucial during this period (Hennissen, Crasborn, Brouwer, Korthagen & Bergen, 2011; Mena, Garcia, Clarke & Barkatas, 2016).

Our study presents the conceptual and historical foundations of the video stimulated recall methodology and the findings of our systematic literature review focusing on the characteristics and use of video stimulated recall during mentoring sessions.

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4 July 2018 09:00 - 10:30

M.103

Poster Presentation

Cognitive Science, Learning and Instructional Technology

**Professional and perceptual learning**

**Keywords:** Arts, Attitudes and beliefs, Case studies, Cognitive skills, Comparative studies, Culture, Developmental processes, Educational technology, Intelligence, Mixed-method research, Professions and applied sciences, Social aspects of learning and teaching, Vocational education

**Interest group:** SIG 14 - Learning and Professional Development, SIG 27 - Online Measures of Learning Processes

**Chairperson:** Tiina Tambaum, Tallinn University, Estonia
Professional situation of gifted adults. Education, career and vocational satisfaction.

**Keywords:** Mixed-method research, Intelligence, Professions and applied sciences, Vocational education

**Presenting Author:** Maren Schlegler, Goethe-Universität Frankfurt / Frankfurt University of Applied Sciences, Germany

In recent years there has been an increasing public and scientific interest in giftedness with a special focus on educational issues. However, research mainly concentrates on gifted children and adolescents. Empirical findings about gifted adults in professional work life are lacking, even though it is a field of particular interest for vocational education, human resource management and organizational psychology. In some studies, authors point to non-linear career biographies of gifted and the risk of social conflicts at the workplace as well as their preference for independent and creative working tasks. The aim of this contribution is to shed light upon the professional situation and the career of gifted adults. A questionnaire on socio-demographics, education, professional status, career and vocational satisfaction was administered online. The sample consisted of n=227 members of Mensa in Deutschland e.V. which is the main German association for gifted people and member of Mensa International. Members have a tested IQ equal to or larger than 130 points. Descriptive results indicate an emphasis on persons who work in the fields of IT and natural sciences, Social Services and research and sciences. 17% of the sample are self-employed, which is more than in German population (10.33%). 26.8% have superior positions with responsibility for up to 650 employees. Gifted adults in the sample like their occupations, but often lack the feeling of being challenged adequately. The findings offer a first insight into the professional situation of gifted adults and will be further substantiated by means of interviews.

Student characteristics and their perceptions in tablet-instruction

**Keywords:** Educational technology, Attitudes and beliefs, Cognitive skills, Social aspects of learning and teaching

**Presenting Author:** Molly Hammer, University of Tuebingen, Institute of Education, Germany; **Co-Author:** Kathleen Stürmer, University of Tübingen, Germany; **Co-Author:** Katharina Scheiter, University of Tuebingen, Germany; **Co-Author:** Benjamin Caspar Fauth, University of Tübingen, Germany

Students’ characteristics and their perceptions in tablet-instruction Molly Hammer, Kathleen Stürmer, Katharina Scheiter, Benjamin Fauth Despite the importance of the student perspective, even as more studies investigate the impact of tablets on student learning, student perceptions are sparsely used in evaluating tablet instruction. In particular, student ratings of supportive climate have been linked with positive learning outcomes and may be an important indicator for how students perceive the new context of working with tablets. Extensive research investigating supportive climate uses student ratings but aggregates ratings at the class level, missing the link to students’ individual perceptions within a class. This is problematic as students with different cognitive and motivational-affective characteristics perceive learning environments quite differently. In particular, students with low cognitive ability and pre-knowledge as well as low self-concept and interest are less likely to perceive instruction as supportive. The aim of this study is to use latent class analysis to see if distinct groups can be found combining cognitive and motivational-affective characteristics of secondary education students in tablet integrated classes and whether membership in these groups can predict student perceptions of supportive climate. Furthermore, we aim to see if students’ ICT-related characteristics, including ICT literacy, media self-efficacy, and motivation to use media, moderate the relationship between membership in a group and their perceptions of supportive climate. This research intends to investigate the potential of tablets to boost low-achieving students, to what extent students perceive tablet-integrated classrooms to have supportive climate, and how their perceptions may depend on their learning characteristics.

Cognitive load and proof-reader’s error in music reading: evidence from eye movements

**Keywords:** Case studies, Cognitive skills, Culture, Arts

**Presenting Author:** Natalia Chitalkina, University of Turku, Finland; **Co-Author:** Marjaana Puurtinen, University of Turku, Finland; **Co-Author:** Hans Gruber, University of Regensburg, Germany

Expertise in music reading is considered to be connected to the development of prediction ability: when notes are easily predictable, performance is more correct. One of the specific examples of expectation in performance is a proof-reader’s error, when skilled pianists play what they expect instead of what is actually written in music scores. The goal of the present study was to investigate how the proof-reader’s error is reflected in the eye movements of skilled performers, while playing a famous folk song “Mary had a little lamb” with or without surprising “errors” in the target bar. The design of the task was deliberately made more difficult by the use of the familiar melody music notation. Two single cases were analyzed including one participant who made the proof-reader’s error in the altered folk song and one participant who performed the same song correctly. The results of the preliminary analysis reveal that the participant that made the proof-reader’s error is an experienced music reader. In her eye movement behavior the proof-reader’s error is reflected in lower total first-pass fixation durations in the pre-target and target bars and higher total first-pass fixation durations in the post-target bar. The same results can be seen for the sum of pupil sizes in first-pass fixations. Thus, performance in opposition to music prediction ability requires additional cognitive load.

Pictorial Perception of Professional Artists and Beginners

**Keywords:** Comparative studies, Mixed-method research, Developmental processes, Arts

**Presenting Author:** Linda Puppe, Universität Regensburg, Germany; **Co-Author:** Helen Jossberger, University of Regensburg, Germany; **Co-Author:** Christiane Settele, Institute for Educational Science, University of Regensburg, Germany; **Co-Author:** Hans Gruber, University of Regensburg, Germany
The aim of the study was to examine differences in pictorial perception processes between professional sculptors and art students with varying experience levels. The following research questions were addressed: How does the perception of a photograph differ between experts, semi-experts and novices? Which areas of the stimulus do experts, semi-experts and novices determine as relevant input for their own artistically work? An eye tracking study was conducted. 10 experts (1 female, mean age 48.96 (SD = 12.75)), 10 semi-experts (8 female, mean age 24.00 (SD = 1.66)) and 10 novices (7 female, mean age 23.36 (SD = 2.21)) participated. Experts have graduated at an academy or college for art. Semi-experts were university students in art study programmes and had already sculptural experience. Novices were also students in art study programmes, but they had only participated in an introductory course for sculpting. With a questionnaire we collected biographical information about academic and vocational training. Then, the eye movements during pictorial perception were recorded with a remote eye tracker. Retrospective reporting was used to explore, which areas of the stimulus participants perceived to be relevant for creating an own artwork and which areas of the shown image were considered interesting. The results reveal group differences in glances count, glance duration, revisits, fixation count, fixation time and dwell time. The retrospective reporting shows similarities and differences between the expertise level groups. No participant perceived planar elements as relevant for their own artistically work. Experts and semi-experts mentioned the voluminous elements as most relevant, while novices named the branched elements. The results help to understand what particular visual elements stimulate beginners and professional artists to create own artworks and in what respect they differ.

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M.001
JURE 2018 Keynote

Learning and professional development in science: Young researchers’ acquisition of expertise

Keywords: Cognitive skills, Doctoral education, Professions and applied sciences, Workplace learning

Interest group: SIG 14 - Learning and Professional Development

Chairperson: Dorothy Duchatelet, University of Antwerp, Belgium

Both in the keynote and in the workshop, a focus is set on the professional development of young researchers. As the title suggests, the keynote addresses issues how to understand (and foster) young researchers’ careers, if the perspective of EARLI SIG 14 research is taken, in particular research about expertise. An overview will be presented about current findings of research about expertise: the role of (deliberate) practice, the role of knowledge and knowledge restructuring, the role of experience and its reflection, and the role of guidance and of active participation in networks. Obviously, the findings require an elaborate understanding of the nature of the domain of (educational) science. This domain comprises much more than skills in research methodology and broad theoretical knowledge, e.g. academic writing, fund-raising, visibility at conferences, mastery of science administration techniques.

The components of the domain of (educational) science constitute the basic concepts of the workshop. Participants actively elaborate expectations (by others, e.g. supervisors, deans, peers) they were confronted with (or are afraid to be confronted with in the future) in academia. Collectively, we try to understand why there is considerable variance in the expectations about professional development in science (e.g. differences between the PhD phase and the Post-Doc phase; supportiveness of supervisors; availability of training programs; commitment to one’s research; support by others vs. own activity). Chances are that after the workshop (at least some) participants will know better which activities to undertake so that JURE and EARLI will be able and willing to provide new and innovative affordances for professional development in science.

Learning and professional development in science: Young researchers’ acquisition of expertise

Presenting Author: Hans Gruber, University of Regensburg, Germany

Both in the keynote and in the workshop, a focus is set on the professional development of young researchers. As the title suggests, the keynote addresses issues how to understand (and foster) young researchers’ careers, if the perspective of EARLI SIG 14 research is taken, in particular research about expertise. An overview will be presented about current findings of research about expertise: the role of (deliberate) practice, the role of knowledge and knowledge restructuring, the role of experience and its reflection, and the role of guidance and of active participation in networks. Obviously, the findings require an elaborate understanding of the nature of the domain of (educational) science. This domain comprises much more than skills in research methodology and broad theoretical knowledge, e.g. academic writing, fund-raising, visibility at conferences, mastery of science administration techniques.

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that JURE and EARLI will be able and willing to provide new and innovative affordances for professional development in science.

**Session Wed 4, 13:15 - 14:45**

4 July 2018 13:15 - 14:45
M.107
Poster Presentation
Cognitive Science, Motivational, Social and Affective Processes, Teaching and Teacher Education

**BEST OF JURE Poster Presentations**

**Keywords:** Achievement, Cognitive skills, Competencies, Educational Psychology, Emotion and affect, Experimental studies, In-service teacher education, Intelligence, Language (L1/Standard Language), Mathematics, Motivation, Motivation and emotion, Peer interaction, Pre-service teacher education, Student learning, Teacher effectiveness, Teacher professional development

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

**Chairperson:** Kristi Mets-Alunurm, Tallinn University, Estonia

**Effects of teacher expressive behaviors on students’ attention, recall and affect**

**Presenting Author:** Lik Au, University of Munich (LMU), Germany; **Co-Author:** Anne Christiane Frenzel, University of Munich, Germany; **Co-Author:** Angelica Moè, University of Padova, Italy

**Abstract**

Teachers’ enthusiasm, defined here as nonverbal expressive behaviors, positively impacts students’ motivation, learning and affect (Keller, Hoy, Goetz, Frenzel, 2016; Moè, 2015). While a linkage between teacher expressive behaviors and students’ attention has been proposed (e.g. Bettencourt, Gillett, Gall, & Hull, 1983), empirical evidence is lacking regarding a causal effect. The current study investigates the effects of teacher expressive behaviors on students’ attention (operationalized as observed attentive behaviors), recall performance and affect. In a field experiment with a within-subjects one-factorial design, we manipulated two levels of expressiveness (high vs. low) based on the nonverbal indicators of enthusiastic teaching introduced by Collins (1978). Students (N = 196) were read two texts (one descriptive and one narrative), once with low and once with high expressiveness (text order and behavior order being counter-balanced). Students’ attention was recorded during the experiment and their recall performance and affect during the delivery were assessed via questionnaire and with a free recall test. We found students showed more attention (looking towards the experimenter) in the high as compared to the low expressiveness condition (F (1, 15) = 28.51, p = .00, η² = .65). Additionally, we found a positive impact of high teacher expressiveness on students’ ratings of their positive affect (F (1, 15) = 11.44, p = .004, η² = .43). Yet students did not differ in recall between high and low expressiveness (F (1, 14) = .21, p = .65, η² = .02). The study suggests teacher expressiveness plays a key role in attracting students’ attention and enhancing their positive affect during learning.

**Effects of online-based video-feedback on preservice teachers’ competencies in classroom management**

**Keywords:** Experimental studies, Pre-service teacher education, Educational Psychology, Peer interaction

**Presenting Author:** Miriam Jähne, Friedrich-Schiller-Universität Jena, Germany; **Co-Author:** Susi Klaß, Friedrich Schiller University Jena, Germany; **Co-Author:** Alexander Groeschner, Friedrich Schiller University Jena, Germany

**EFFECTS OF ONLINE-BASED VIDEO-FEEDBACK ON PRESERVICE TEACHERS’ COMPETENCIES IN CLASSROOM MANAGEMENT**

Competencies in classroom management (CM) are crucial for an optimal learning environment (Brophy, 2006). Students’ learning processes during teaching practicum can be supported by university, school and peers (e.g. Gröschner & Seidel, 2012). Recent studies show that online-based video-feedback is an effective tool to reflect upon own teaching experiences (Kleinnecht & Gröschner, 2016). However, previous research lacks experimental studies that investigate the effects of online-based video-feedback on CM during teaching practicum. Applying a newly developed online- and video-based learning environment, we addressed the following research questions:

1. What effects can be found on preservice teachers’ competencies in CM in an online-based video-feedback course (intervention group, IG1) compared to a written reflection course (IG2)?
2. To what extent is CM associated with teaching competencies (planning, teaching, reflecting) and the perceived quality of accompanying learning opportunities during practicum (university, school, peer)?
3. To what extent do teacher self-efficacy and personality predict the preservice teachers’ competencies in CM in both intervention groups?

In the winter term 2017/18 N=48 randomly distributed preservice teachers reflected on one of their own lessons during teaching practicum either based on a video recording (IG1) or a text report (IG2) and received feedback by peers and teacher educators. Dependent and independent variables were assessed via self-reported measures.
A medium effect in preservice teachers’ competencies in CM on the subdimension ‘procedures’ was found for both IGs at the end of the practicum. Significant correlations were found for competencies in CM with competencies in teaching and with university support in both IGs. Teacher self-efficacy and extraversion significantly predicted competencies in CM in both IGs. Further data collection and (qualitative/quantitative) analysis will provide information on performance in CM, feedback quality and the predictive power of beliefs on teaching interactive practices.

**Clarifying the link between giftedness and the implicit beliefs of intelligence.**

**Keywords:** Student learning, Achievement, Intelligence, Motivation

**Presenting Author:** Nurit Viesel-Nordmeyer, Technische Universität Dortmund (TU), Germany; **Co-Author:** Ute Ritterfeld, Technische Universität Dortmund, Germany

The link between implicit beliefs of intelligence, the way in which an individual conceptualizes the nature of his intelligence, and giftedness has proven to be complex. Given the inconsistencies in the literature, the purpose of this study is to clarify this relation. We used data of the SiBO project, in which a cohort of Flemish pupils were followed intensively. We specifically looked at the transition from 6th to 7th grade, a period in which most students start attending secondary school. We assessed students’ entity beliefs, quality of motivation, math achievement and well-being using well-validated questionnaires. Despite theoretical assumptions based on earlier research, we didn’t find any evidence that a gifted group of students would be more vulnerable to develop an entity mindset than an average group of students. In the contrary, when we investigated IQ as a continuous predictor, we found that IQ is negatively linked with showing an entity way of thinking about intelligence. Students with a higher IQ score would therefore be less likely to believe that ability is a stable trait. We also found that the factorial structure of the measure tapping into entity beliefs was equivalent across gifted and average students. So we didn’t find any evidence that the structure and meaning of an entity belief is different for average and gifted students. Furthermore we found that the effect of an entity mindset didn’t differ between average and gifted students. Specifically, we found several direct effects between our concepts. An entity mindset was negatively related to math achievement. Autonomou motivation was positively linked with well-being whereas controlled motivation was negatively linked with well-being. Further research within gifted students would prove useful to broaden our knowledge of giftedness, a concept still in need of a lot of exploration.

**Peer group mentoring - a potential resource for supporting teachers’ mental health**

**Keywords:** In-service teacher education, Teacher professional development, Educational Psychology, Emotion and affect

**Presenting Author:** Triin Peitel, University of Tartu, Estonia; **Co-Author:** Liina Adov, University of Tartu, Estonia

Peer group mentoring - a potential resource for supporting teachers’ mental health

Triin Peitel, Liina Adov (University of Tartu)

Abstract Research has shown that teachers are at a higher risk for stress and mental health problems such as anxiety and depression. This poses a serious problem where mentally exhausted teachers do not work as effectively or even quit their jobs. One theoretical framework for explaining the pathways to stress and mental problems was proposed by Lazarus and Folkman. They emphasize coping skills as a mediator between stressful environment and perceived stress which, in turn, may lead to mental health problems. The main objective of this paper is to test Lazarus and Folkman’s model to see whether a potential resource (i.e., participating in peer group mentoring) in an otherwise stressful environment plays a role in predicting teacher’s coping with stress, perceived stress and mental health. To this end, a longitudinal study is conducted from April 2017 to January 2018. The data are gathered electronically via questionnaires. Altogether 329 Estonian school teachers responded in the first wave. Data from the first wave show a good fit for the proposed model with formal (but not informal) peer group mentoring as an environmental resource predicting teachers’ mental health through coping styles and perceived stress.

**The developmental interdependencies between working memory, language and mathematical learning**

**Keywords:** Cognitive skills, Competencies, Language (L1/Standard Language), Mathematics

**Presenting Author:** Karine Verschueren, KU Leuven, Belgium; **Co-Author:** Bieke De Fraine, KU LEUVEN, Belgium

Research of learning processes indicates the existence of complex relationships within academic competence development like language or mathematics. On the one hand, results of research prove that language skills influence the development of mathematical learning. On the other hand, current studies show that the cognitive system of working memory is related to the development of academic skills including language and mathematics. The present study aims at supporting a clarification of existing interdependencies of all three indicators – language, mathematics and working memory. Here it is of particular interest whether there are bidirectional influences between the competence development (language acquisition and mathematical acquisition) and the development of the capacity of working memory. In addition, it will be examined which role the exposed developmental interdependencies between working memory components and academic competencies play for the influence of language on mathematical learning. To answer the research questions, longitudinal path analyses have been performed using data of starting cohort 2 (SC2) from the German National Educational Panel Study (NEPS) (n = 253). Based on data of the competence measurement it is possible to derive linguistic, mathematical and cognitive competencies (working memory and cognitive basic skills) from the second year of preschool (four-year-old children) to the end of elementary school. The analyses show that language skills fundamentally
influence the development of mathematical learning over time. Grammatical competence and working memory performance (central executive, phonological loop) show reversing directions of effect of causal relationships. Mathematical competence and cognitive basic skills replicate this reciprocal pattern over a longer period. In addition, the central executive directly influences the development of mathematical competence. Further language acts as a mediator for the effects of the phonological loop on mathematical performance. The relevance for a better comprehension of learning processes and an improvement of instruction will be discussed.

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4 July 2018 13:15 - 14:45

M.101

Single Paper

Motivational, Social and Affective Processes, Teaching and Teacher Education

**Motivational aspects of learning and teaching**

**Keywords:** Assessments method & tools, Educational Psychology, Instructional design, Motivation, Pre-service teacher education, Quantitative methods, Secondary education, Self-efficacy

**Interest group:** SIG 08 - Motivation and Emotion, SIG 11 - Teaching and Teacher Education

**Chairperson:** Tapashi Binte Mahmud Chowdhury, University of Tartu, Estonia

**Preservice Teachers' Self-Efficacy: Predicting Changes over an Internship Period by Attributions**

**Keywords:** Quantitative methods, Pre-service teacher education, Motivation, Self-efficacy

**Presenting Author:** Kathrin Ding, Heidelberg School of Education, Germany; **Co-Author:** Carsten Rohlfis, Pädagogische Hochschule Heidelberg, Germany; **Co-Author:** Birgit Spinath, Heidelberg University, Germany

Teachers’ self-efficacy has a positive impact on many different aspects of daily school life and is part of their professional competence. It is supposed that self-efficacy is mainly influenced by initial experiences, and hence its development during school internships when the first teaching experiences are made is of particular interest. We assumed that not only teaching outcomes alone, but the way they are attributed to subjectively perceived causes would be decisive for self-efficacy. For example, a success should have a greater value if it is explained by the own ability instead of luck. Furthermore, since believing in intelligence as something that is not fixed but can be improved is associated with enhanced interest in learning opportunities and reduced threat of failure experiences, we supposed that an incremental theory of intelligence would be a predictor for the development of self-efficacy. In sum, the current study focused on preservice teachers’ self-efficacy, its development during their school internship, and whether and to what extent this development could be predicted by attributional styles and implicit theories of intelligence at the beginning of their internship. Two surveys with \(N = 162\) German preservice teachers at the beginning and end of their school internship were conducted, and revealed an increase of self-efficacy over student teaching. Moreover, in a structural equation model self-efficacy at the end of the internship was significantly predicted by self-efficacy at the beginning as well as by attributing successes to internal, stable and controllable causes, but not by incremental theories of intelligence. Regarding teacher education, addressing preservice teachers’ attributional styles could possibly be used to enhance their self-efficacy already during studying.

**Not Giving up: Academic Perseverance in Adolescents**

**Keywords:** Quantitative methods, Motivation, Self-efficacy, Secondary education

**Presenting Author:** Pooneh Roney, University of Bristol, United Kingdom

Prior research has demonstrated the importance of academic perseverance in affecting academic achievement and other life outcomes. However, limited research to date has attempted to identify potential predictors of academic perseverance. Specifically, empirical evidence addressing predictors of grit and self-control, as the two key manifestations of academic perseverance, is presently lacking. The primary goal of the current study was to address this gap in research and explore possible predictors of academic perseverance in adolescence. The participants in this study were students \((N=1448)\) from two comprehensive schools in the UK, (\(M \text{ age} = 14.00 \text{ years, } SD = 0.46)\). Self-reported responses for students’ school grit (adapted GRIT-S), self-control (adapted Brief Self-control Scale), academic self-efficacy (SEQ-C), and mindset about intelligence were administered in a single survey. Measures of prior academic attainment and cognitive ability were also obtained from the schools. Findings from this study showed that mindset about intelligence and academic self-efficacy both positively predicted school grit and self-control, as the two key manifestations of academic perseverance in adolescents. Furthermore, it appears that the effect of mindset about intelligence on academic perseverance was mediated through academic self-efficacy. The findings of this study are consistent with previous research which showed that when faced with challenge, students with high self-efficacy and a growth mindset were more likely to persevere. The findings provide initial support for the relationship between mindset about intelligence and academic perseverance as a key process, mediated by academic self-efficacy. These results contribute to the current understanding of academic perseverance in school-age children. Moreover, the findings provide tentative evidence for possible ways to cultivate academic perseverance in adolescents. Implications of the findings for future research are discussed.
Assessing domain-specific learning motivation: Development & validation of an expectancy-value form

**Keywords:** Assessments method & tools, Educational Psychology, Motivation, Self-efficacy

**Presenting Author:** Kerstin Kisielksi, TU Dresden - Psychology of Learning and Instruction, Germany

The questionnaire’s design allows to measure motivation at task- and domain-specific level. Present findings support major assumptions regarding the EVF-LM’s theoretical structure. In further studies the EVF-LM’s structure consistency over different domains will be investigated.

The structure analysis suggests seven factors following the screeplot criterion: (1) [activity-, interest-related] intrinsic value; (2) instrumentality and future utility; (3) external evaluation and its emotional costs; (4) aspiration for success given the external level of control and the perceived level of personal mastery; (5) loss of alternatives due to task effort; (6) self-evaluation; (7) motivational interference. Item selectivity (.39 ≤ rt ≤ .78) and scale’s internal consistencies (.68 ≤ α ≤ .91) yielded satisfactory to very good results for all scales except one.

This study examined the EVF-LM’s factor structure with data collected from 253 university students. Principal components analysis with varimax rotation was used as factor extraction method.

This study aims at developing and validating a domain-specific expectancy-value form on learning motivation (EVF-LM). Rooted in integrative expectancy-value models of motivation (e.g. Eccles et al. 1983; Heckhausen & Rheinberg, 1980; Narciss, 2006) and the current state-of-the art on the role of costs (e.g. Flake et al., 2015; Hofer et al., 2017) for learner’s motivation the EVF-LM differentiates 13 subscales: Three expectancies scales (external level of control, level of personal mastery, instrumentality of outcome), five value scales (self-evaluation, external evaluation, utility value, activity-related intrinsic value, interest-related intrinsic value) and five cost scales (loss of other valued alternatives, task effort, two emotional cost scales, motivational interference).

### Triggering Motivation by Emotional Design

**Keywords:** Quantitative methods, Instructional design, Educational Psychology, Motivation

**Presenting Author:** Tino Endres, University of Freiburg, Germany; **Co-Author:** Steffen Weyreter, University of Freiburg, Entrepreneurship Education, Germany; **Co-Author:** Alexander Renkl, University of Freiburg, Germany

Emotional design is a factor supplementing multimedia research in the last years. Multiple studies have found mixed learning effects. In this study we were particularly interested in the process of motivation via situational interest and the development of potential positive consequences of emotional design. This is why process measures are a big factor in this study. 79 students took part in a between-subject study. We had two conditions: the neutral condition learned from a video design after cognitive design principles; the emotional design condition; learned from a sketched explanation video, which was based on the neutral video but enriched with emotional design elements. The emotional design condition did not outperform the neutral condition in overall learning outcomes. We designed detailed mediation analyses to investigate the processes with lead to learning. We found feeling towards material as being the key factor in triggering situational interest. Maintained situational interest towards the content had both a feeling and a value component. The consequences of the emotional design were a reduced external load, a higher use of elaborative strategies and a higher persistence. The use of elaborative strategies did not lead to higher learning outcomes. The emotional design condition outperformed the neutral condition at the later parts of the learning material. Persistence seems to be the key factor for learning in this study. One reason for mixed effects could lie in the length of learning material or the attitude towards emotional design elements.

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M.002

Single Paper

Assessment and Evaluation, Teaching and Teacher Education

### Teaching and teacher education

**Keywords:** Attitudes and beliefs, Competencies, Comprehension of text and graphics, Knowledge creation, Literacy, Mathematics, Qualitative methods, Quantitative methods, Science education, Secondary education, Teacher effectiveness, Teacher professional development

**Interest group:** SIG 02 - Comprehension of Text and Graphics, SIG 11 - Teaching and Teacher Education

**Chairperson:** Silvia Krenn, University of Innsbruck, Austria

**Intra-individual differences in mathematics and reading: Impact of context and individual factors**

**Keywords:** Attitudes and beliefs, Competencies, Literacy, Mathematics

**Presenting Author:** Lisa Ehrtmann, Leibniz Institute for Educational Trajectories (LIfBi), Germany; **Co-Author:** Ilka Wolter, Leibniz Institute for Educational Trajectories (LIfBi), Germany; **Co-Author:** Bettina Hannover, Freie Universität Berlin, Germany

Gender differences and stereotypes exist with respect to the domains reading and mathematics. This study focuses on secondary school students’ gender stereotyped competence profiles, i.e. when boys perform better in mathematics than reading, and girls achieve higher scores in reading than in mathematics. In an attempt to finding conditions of individual and classroom level determinants we explored the interaction between students’ gender-role orientation on the individual level
and teachers’ attributions of achievement to aptitude or effort as well as the gender composition of classrooms on the classroom level as having an impact on students’ gender stereotyped competence profiles. In a sample of 6863 grade seven students (48.4 % female) from the German National Educational Panel Study results confirmed a three-way interaction between gender composition of classrooms, teachers’ attributions of achievement to aptitude or effort, and students’ gender-role orientation. Students generally showed a less stereotyped competence profile in classrooms with an unbalanced gender composition, i.e. in classrooms with either more boys than girls or more girls than boys, regardless of their teachers’ attributions of achievement. Only egalitarian students whose teachers attributed achievement to effort over aptitude became more stereotyped in their competence profiles in classes with an unbalanced gender composition. Egalitarian students whose teachers endorsed effort attributions as well as traditional students whose teachers endorsed aptitude attributions were also more stereotyped in their competence profiles than egalitarian students whose teachers endorsed aptitude attributions and traditional students whose teachers endorsed effort attributions.

Assessing graph understanding of students in the context of sustainable development

Keywords: Quantitative methods, Competencies, Comprehension of text and graphics, Science education

Presenting Author: Malte Ring, University of Tübingen, Germany; Co-Author: Taiga Brahm, University of Tübingen, Germany; Co-Author: Christoph Randler, University of Tübingen, Germany

Data visualizations such as tables, graphs and charts are an important part of everyday life. They are not only used in science but in different media as a means of communication. Graph comprehension, i.e. the process behind reading, analysing and interpreting information presented in data graphs, is an important skill for students and is thus grounded in different school curricula. In this research project, an instrument was developed to assess students’ competence in extracting information from data-oriented graphs in the context of sustainable development. The instrument was tested with around 200 pupils in grade 8 of German grammar school. First results suggest that the test is relatively robust and that pupils are more competent than originally assumed: students are quite capable of reading data points, identifying trends and are also able to extrapolate, i.e. make predictions or evaluate new information with the help of the graph. Furthermore, the test suggests that different levels of questions (data points, data trends, extrapolation) are not associated with the difficulty of items. The results, problems and further development and focus of the test instrument will be discussed in the paper.

Pedagogical knowledge and its visibility in the teaching profession

Keywords: Qualitative methods, Teacher professional development, Teacher effectiveness, Knowledge creation

Presenting Author: Ann-Kathrin Dittrich, Teacher Education and School Research, Austria

Teacher professional pedagogical knowledge takes into account socio-political developments and is currently a pertinent topic in education. An important question is which kind of knowledge teachers should possess for teaching and learning. The first comprehensive model regarding teacher knowledge presented by Shulman (1987), classifies such knowledge into subject, pedagogical content and general pedagogical knowledge. Recently, Voss & König’s internationally comparative studies provided the first operationally normative studies about general pedagogical knowledge. The research focus, with an economic based approach, reduces the scope of research in this field to a mere construction of professional competence indicators. This research project (PhD-project) is part of the Teacher Education Research Group (TERG) at the University of Innsbruck and focuses on the perspective of general pedagogical knowledge in professional practice. It concentrates on the understanding and also on the differences and agreements between the individual concepts of general pedagogical knowledge and its transformation in practice. Considering societal challenges (especially diversity), the field research stage of the study adopts a qualitative approach which uses an inductive reconstructive strategy. Interviews and subsequent observations with teachers are undertaken in order to demonstrate pedagogical knowledge and to explore into practice how teachers act in school. First results show that the majority of teachers struggle with the concept of general pedagogical knowledge, although recognize the value of pedagogical knowledge. It becomes evident that differences between the cognitive concept of pedagogical knowledge and their performative acting in school exist. However, teachers have hidden potential because they can unconsciously apply a variety of pedagogical knowledge but cannot name it.

Estonian Teachers With Multiple Professions on the Bases of Narrative Professional Life Stories

Keywords: Qualitative methods, Teacher professional development, Teacher effectiveness, Secondary education

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

Having a supplementary job is a growing phenomenon among teachers, although its mainly studied in United States as teachers moonlighting or slash careers. An increasing amount of second-career teachers entering the school, and there are more findings about their satisfaction, performance and values brought to classes. However, we don’t have enough information about teachers, who are engaged in some additional professional activity. We lack the knowledge if and how their experiences from additional position are used and valued at school context nor if their potential has yet to be fully exploited. There are still stereotype about them as a problem, hence a need to find out more and clarify if they might conversely, be a valuable resource for school system. In the light of teacher professionalism it is becoming extremely difficult to ignore the existence of phenomena of teachers with multiple professions. In Estonia, affected by Nordic, German and Russian culture, in 2016 there were 32% of general school full-time teachers with additional job. This paper makes the one step forward to an awareness about teachers with multiple professions, and tries to find out when and why teachers...
had supplementary employment, and what role they have attributed to it in point of view their professional career. Narrative professional life history interviews were conducted with eight Estonian general school full-time teachers with additional profession. Answers for research questions were sought from life stories interviews’ transcriptions. The results indicate that there are four type of teachers from the point of view two characteristic – continuous versus occasional supplementary employment, and personal fulfillment in the school versus out of school. This is the basis for further studies about added value and use the potential of teachers with multiple professions for school and classes.

**Session Wed 4, 13:15 - 14:45 4**

4 July 2018 13:15 - 14:45
M.003
Single Paper
Educational Policy and Systems, Higher Education

**Challenges in teaching**

**Keywords:** Collaborative Learning, Computer-supported collaborative learning, Conceptual change, Design-based research, Educational Policy, Emotion and affect, Mixed-method research, Motivation and emotion, Pre-service teacher education, Problem-based learning, Qualitative methods, Secondary education, Teacher effectiveness, Teacher professional development

**Interest group:** SIG 03 - Conceptual Change, SIG 04 - Higher Education, SIG 23 - Educational Evaluation, Accountability and School Improvement

**Chairperson:** Julia Schultheis, University of Mannheim, Germany

**Italian Teachers’ Expectations and Experiences of Educational Reforms**

**Keywords:** Educational Policy, Teacher professional development, Conceptual change, Motivation and emotion

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

For the last two decades, the enhancement of educational processes has been one of the most essential goals pursued by the European Community, which has devoted strong commitment, and adequate resources in order to redefine the social meaning and collective value of education. EU member states have been responding to these policy requests by issuing several reforms and applying new criteria for teaching and learning at all level in their educational systems. Research literature suggest that educational innovation and change are really complex processes, since they deal with different levels, several stakeholders, specific roles, mutual relations and influences, that are strictly interconnected and interdependent with each other. Moreover, it highlights how difficult it is for teachers to conceptualise these new learning practices and environment when stimulated by a reform-based change implementation – both individually and collectively. The overall study applies mixed method research, based on a case study about an Italian Comprehensive School situated in the Frosinone area in Lazio region. This article presents the qualitative analysis of 15 teachers’ response to a curriculum innovation, issued by the Italian Ministry of Education in 2012, involving the Early Childhood and the First Cycle of Education. The paper aims to investigate the ways these agents have been perceiving the transformation and the development of their role since 2012 as well as to identify barriers and supports in the process. The study uses semi-structured interviews as data collection method and a thematic analysis for the analytical process. The results show the complex system of influences and pressures they have been exposed to and the intense and hard work of mediation they have been carrying on with aligning the political requests, the social expectations, some structural inefficiencies and their own professional expertise in order to produce a daily practice effective for their students’ learning needs.

**Participatory Design: Designing Infrastructures for Learning in resource constraint settings**

**Keywords:** Design-based research, Collaborative Learning, Computer-supported collaborative learning, Problem-based learning

**Presenting Author:** Geoffrey Tabo Olok, Faculty of Humanities, Uganda

In this paper we explore a Participatory Design as methodological approach for designing Infrastructures for learning. We specifically emphasise the need to accommodate for socio-technical and socio-cultural aspects of new innovative ways of learning (Problem Based Learning and eLearning). Socio-technical and socio-cultural aspects of infrastructures for learning has been left out of the design processes especially in circumstances where expert led design approach is used. We investigate design options for designing infrastructure for learning in a limited resource setting with a case study at a University where we are introducing these the new ways of learning simultaneously. Scandinavian Participatory Design methodology has a strong tradition in empowering workers in decision making on matters that affect their work but not popularly used in developing countries. We use Future Workshop and co-Design for vividly exploring user participation in the design process. Our results show that participants are able to appreciate their peer contributions, expressed themselves freely, were deeply involved in the design process and able to understand the socio-technical and socio-cultural issues in design in limited resource settings. Co-Designers expressed their participation makes the product of the design more sustainable because of the collective responsibility as compared to an expert led delivered product. This study uniquely contributes knowledge by exploring participatory design as an alternative solution to designing in resource constraint environments. Future Workshop and co-Design techniques are new to the participants and has opened new
ways to design for the future of infrastructure for learning through participation. Keywords: Participatory design, Future Workshop, co-Design, Socio-technical, Socio-cultural.

Preservice teachers’ professional vision in relation to their classroom management
Keywords: Mixed-method research, Pre-service teacher education, Teacher professional development, Secondary education
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

Classrooms full of pupils are information-dense and dynamic real-world environments. Managing such classrooms is a major challenge for many beginning teachers, yet crucial for pupils’ learning. The basis for classroom management is teachers’ professional vision: including noticing and interpreting of salient classroom management events. The goal of the present study is to identify characteristics of preservice teachers’ professional vision for classroom management while they are actually teaching their own class. Twenty-one preservice teachers (ten females; 20-30 years old) conducted one lesson while wearing eye tracking glasses. During teaching, teachers signaled salient classroom management situations to the first-person perspective camera of the eye tracking glasses. Afterwards, teachers viewed the first-person perspective recordings of these situations and reported the thoughts they had during teaching. The verbal data will be analysed on teachers’ interpretations of salient classroom management situations based on a validated coding scheme (Wolff et al., 2015; 2017). Quantitative analysis will be conducted to define statistical effects. To support these findings, eye tracking data will be qualitatively analyzed. The data analysis is in progress and results will be presented at the conference. Findings from this study will contribute to better understanding preservice teachers’ professional vision in relation to their classroom management and the support they might require in their educational program.

Teachers’ Cognitive and Affective Responses to School Inspection Feedback
Keywords: Qualitative methods, Educational Policy, Teacher effectiveness, Emotion and affect
Presenting Author: Amy Quintelier, University of Antwerp, Belgium; Co-Author: Jan Vanhoof, University of Antwerp, Belgium; Co-Author: Sven De Maeyer, University of Antwerp, Belgium

Studies have shown that, despite the developmental perspective of school inspections, teachers in inspected schools are not always willing to accept the school inspection’s feedback and use it for the improvement of their own teaching and learning processes. Literature distinguishes several aspects of feedback that stimulate or hinder the acceptance of feedback, such as recipient’s cognitive and affective responses to feedback. In terms of cognitive responses, the source’s perceived credibility, the perceived fairness of feedback processes and outcomes, and characteristics such as sign, constructiveness, and accuracy are distinguished. With regard to affective responses, positive affective responses to feedback increase feedback acceptance, while negative affective responses (anger, anxiety, or sadness) decrease this chance. This study investigates cognitive and affective responses of teachers during feedback reception in a school inspection context, and their influence upon feedback acceptance. The study draws on data from 21 in-depth interviews with teachers in eight primary schools. Interviews were administered until three months after the inspection. Beside the inspector’s positive attitude and teachers’ perceived procedural fairness, results also indicate that specific, constructive feedback is more accepted than vague, generalized feedback. Under these circumstances, emotions of joy, such as happiness and relief, are expressed. Conversely, respondents reject feedback more easily when inspectors are perceived to be inadequately informed, arrogant, or disrespectful. When negative feedback is rated as unfair, negative emotions, that evoke during feedback reception, interfere with feedback acceptance. 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.

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4 July 2018 15:15 - 17:15
M.003
JURE 2018 Workshop
Designing Mixed Methods Research by Mixing and Merging Methodologies
Keywords: Mixed-method research, Qualitative methods, Quantitative methods, Social sciences
Interest group:
The workshop Designing Mixed Methods Research by Mixing and Merging Methodologies aims at beginning and experienced researchers who want to learn more about combining various methodologies in one study. This may involve combining qualitative and quantitative methodologies (“mixed methods”) or two or more different qualitative or two or more different quantitative methodologies (“multi-method”). A distinction is made between mixed methodology research, which contains two or more separate research strands, each designed according to a different methodology, and merged methodology research, in which a researcher creates a new methodology by combining elements from existing methodologies. The workshop has the following aims for participants. Understand that combining methods often means combining different methodologies, of which these methods are a part. For example, when a study combines data
collection through questionnaires and through interviews, it combines two different methodologies, each with their own requirements. One requirement that applies to the questionnaire methodology (the survey), but not to the interview methodology, is a large sample size; one requirement that applies to the interview methodology, but not to the survey, is that the data are narrative, rich data. Become acquainted with a 13-step model for combining methodologies in one study. Understand that the combination of research question and the desired scope of the conclusion plays an important role in selecting methodologies. Understand that combining methodologies in not a simple juxtaposition. Combining methodologies puts restrictions on each of the methodologies involved that would not apply if the methodology would be used on its own. Understand why educational research is very well suited for combining methodologies Apply these insights to your own research.

**Designing Mixed Methods Research by Mixing and Merging Methodologies**

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

The workshop Designing Mixed Methods Research by Mixing and Merging Methodologies aims at beginning and experienced researchers who want to learn more about combining various methodologies in one study. This may involve combining qualitative and quantitative methodologies (“mixed methods”) or two or more different qualitative or two or more different quantitative methodologies (“multi-method”). A distinction is made between mixed methodology research, which contains two or more separate research strands, each designed according to a different methodology, and merged methodology research, in which a researcher creates a new methodology by combining elements from existing methodologies. The workshop has the following aims for participants. Understand that combining methods often means combining different methodologies, of which these methods are a part. For example, when a study combines data collection through questionnaires and through interviews, it combines two different methodologies, each with their own requirements. One requirement that applies to the questionnaire methodology (the survey), but not to the interview methodology, is a large sample size; one requirement that applies to the interview methodology, but not to the survey, is that the data are narrative, rich data. Become acquainted with a 13-step model for combining methodologies in one study. Understand that the combination of research question and the desired scope of the conclusion plays an important role in selecting methodologies. Understand that combining methodologies in not a simple juxtaposition. Combining methodologies puts restrictions on each of the methodologies involved that would not apply if the methodology would be used on its own. Understand why educational research is very well suited for combining methodologies Apply these insights to your own research.

**Session Wed 4, 15:15 - 17:15 2**

4 July 2018 15:15 - 17:15
M.107
JURE 2018 Workshop

**Everything you always wanted to know about life as a researcher (but were afraid to ask)**

**Keywords:** Cognitive skills, Doctoral education, Professions and applied sciences, Workplace learning

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

Both in the keynote and in the workshop, a focus is set on the professional development of young researchers. As the title suggests, the keynote addresses issues how to understand (and foster) young researchers’ careers, if the perspective of EARLI SIG 14 research is taken, in particular research about expertise. An overview will be presented about current findings of research about expertise: the role of (deliberate) practice, the role of knowledge and knowledge restructuring, the role of experience and its reflection, and the role of guidance and of active participation in networks. Obviously, the findings require an elaborate understanding of the nature of the domain of (educational) science. This domain comprises much more than skills in research methodology and broad theoretical knowledge, e.g. academic writing, fund-raising, visibility at conferences, mastery of science administration techniques. The components of the domain of (educational) science constitute the basic concepts of the workshop. Participants actively elaborate expectations (by others, e.g. supervisors, deans, peers) they were confronted with (or are afraid to be confronted with in the future) in academia. Collectively, we try to understand why there is considerable variance in the expectations about professional development in science (e.g. differences between the PhD phase and the Post-Doc phase; supportiveness of supervisors; availability of training programs; commitment to one’s research; support by others vs. own activity). Chances are that after the workshop (at least some) participants will know better which activities to undertake so that JURE and EARLI will be able and willing to provide new and innovative affordances for professional development in science.

**Everything you always wanted to know about life as a researcher (but were afraid to ask)**

**Presenting Author:** Hans Gruber, University of Regensburg, Germany

Both in the keynote and in the workshop, a focus is set on the professional development of young researchers. As the title suggests, the keynote addresses issues how to understand (and foster) young researchers’ careers, if the perspective of EARLI SIG 14 research is taken, in particular research about expertise. An overview will be presented about
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Session Wed 4, 15:15 - 17:15

4 July 2018 15:15 - 17:15
M.101
JURE 2018 Workshop
Higher Education

My post-PhD dream job: Academic or not?

Keywords: Competencies, Doctoral education, Qualitative methods, Researcher education

Interest group: SIG 14 - Learning and Professional Development

What can PhD students do to effectively navigate their trajectories from PhD to academic and non-academic careers? This talk draws on a ten-year longitudinal qualitative research program in the UK and Canada and reports the career trajectories of 48 social scientists and scientists as they navigated their careers post-PhD. Their experiences of moving into positions in the higher education, public, para-public and private sectors provide the basis for exploring what doctoral students might do during their degrees to better prepare for the future.

My post-PhD dream job: Academic or not?

Presenting Author: Lynn McAlpine, University of Oxford, McGill University, Canada

What can PhD students do to effectively navigate their trajectories from PhD to academic and non-academic careers? This talk draws on a ten-year longitudinal qualitative research program in the UK and Canada and reports the career trajectories of 48 social scientists and scientists as they navigated their careers post-PhD. Their experiences of moving into positions in the higher education, public, para-public and private sectors provide the basis for exploring what doctoral students might do during their degrees to better prepare for the future.

Session Thu 5, 09:00 - 10:30

5 July 2018 09:00 - 10:30
M.102
Roundtable
Educational Policy and Systems, Motivational, Social and Affective Processes

Contextual influences on learning

Keywords: Collaborative Learning, Content analysis, Educational Policy, Parental involvement in learning, Primary education, Qualitative methods, Social aspects of learning and teaching, Teacher professional development

Interest group: SIG 04 - Higher Education, SIG 10 - Social Interaction in Learning and Instruction

Chairperson: Pooneh Roney, University of Bristol, United Kingdom

Parent as an agent in child’s home preparation for school

Keywords: Qualitative methods, Parental involvement in learning, Social aspects of learning and teaching, Primary education

Presenting Author: Barbora Petrů Puhrová, Tomas Bata University, Czech Republic

The research subject in presented contribution is a parent as a key agent in child’s home preparation for school. The objective is to point out the broad issues of parental involvement in home preparation including mainly dealing with homework. The theoretical background views the individual possibilities and assumptions based on parent’s socio-economic status, emotional and cultural capital. The emphasis is on the ways in which parents engage in homework, with regard to family backgrounds and parental style strategies. The aim is to describe the process of home preparation and comparison of the motivational strategies, realisation and evaluation stressed on the most frequent problems, controversial or critical situations, finding answers to the identification of internal and external factors affecting parents involvement in homework. Our research aim is to identify and describe the parent’s agency in child’s home preparation. Following
research questions respond to the research questions: 1. What is the parent's agency in home preparation? 2. How does this agency manifest itself, change and who or what influences it? 3. What internal and external factors affecting the home preparation process? The research sample based on an accessible choice of participants consists of 5 families (mothers or fathers with secondary or high school degree level) with the child in primary school (1st-5th grade, age 6-12) in the Czech Republic. Through the semistructured interviews, realised 5 unstructured observation/video recording in the home environment and diary method we are going to bring the relevant data. The qualitative analysis is based on open coding and the categorisation. The particular results identified that parents are involved in homework from their parent's role in order to child's completion the assigned tasks to be successful at school. The parent's agency is associated with the help, control and fulfilling their ambitions and aspirations.

**Teacher’s collaborative learning experiences in the context of neoliberal educational changes**

**Keywords:** Content analysis, Educational Policy, Teacher professional development, Collaborative Learning

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

The globalising neoliberal education reform have had an influence on teacher’s learning and teaching experiences, while social change insists quick reaction and transformation of knowledge, but teachers as professionals cannot afford failure. The Estonian context and experience about changes in education enables to take a deeper look, how teachers learn together and what kind of collaborative learning experiences are particularly meaningful to teachers in a transition society. The aim of the current study is to describe teachers’ collaborative learning experiences and to give an overview what kind of collaborative learning experiences teachers have in the context of neoliberal educational changes. A research question that needs to be answered is, what kind of learning experience emerges from teachers’ collaborative learning activities in the context of social change? To describe the teachers’ meaningful collaborative learning experiences, 20 qualitative semi-structural interviews with in-service preschool and school teachers were used. The interviews questions based on Wenger’s (1998) concept of social learning. Firstly in the data analysis learning experiences were analysed according to components of social learning theory. At the next step, after re-reading, the interviews examined the meaningful collaborative learning activities described by the teachers. The findings demonstrate individually performed learning experiences and collectively experienced learning in a teacher’s learning process. In the context of changes teacher learning experiences express inevitability and intensity, teachers had to gain new information, knowledge immediately. Teacher’s individual freedom in daily practice needs to have collaborative settings in a school context, but they describe slightly more individual learning experiences. Teachers consider learning experiences conducted with students to be the most valuable collaborative learning experience. Teachers also consider professional discussions to be meaningful learning, but the most frequently referred activities in their professional learning are reading subject materials and getting more familiar with the Internet and technology.

**Session Thu 5, 09:00 - 10:30 2**

5 July 2018 09:00 - 10:30
M.003
Single Paper
Assessment and Evaluation, Teaching and Teacher Education

**Learning through technology**

**Keywords:** Assessments method & tools, Cognitive development, Computer-supported collaborative learning, E-learning/Online learning, Early childhood education, Educational technology, In-service teacher education, Learning analytics, Motivation, Peer interaction, Pre-service teacher education

**Interest group:** SIG 05 - Learning and Development in Early Childhood, SIG 11 - Teaching and Teacher Education

**Chairperson:** Claudia Schmaltz, Pädagogische Hochschule Freiburg, Germany

**Preschool children’s social and emotional interaction during tablet game sessions**

**Keywords:** Assessments method & tools, Peer interaction, Early childhood education, Computer-supported collaborative learning

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

There is a concern over social and emotional skill development in early childhood settings. Systematic observational studies are needed to build a detailed understanding of children’s prosocial and problem behavior in interaction with their peers. The present study observes children’s prosocial and problem behavior during tablet game sessions. The participants of the study played in 4 members groups. Altogether 9 video recordings during one academic year from 15 children aged 5-6 years were analyzed. Coding of the recordings was conducted under the guidance of Social Skills Improvement System (SSIS) Rating Scales. Social Network Analysis was employed to analyze the density and centrality of the interaction at group level. Our results showed that there was a wide variety in how frequent or rare different kind of prosocial and
problem behavior were during the sessions but in all, prosocial behavior was 4 times more typical than problem behaviour. Children showed slightly more prosocial as well as problem behaviour with their best playmates than with their casual peers. Boys contributed more both in prosocial and problem behaviour than girls. Problem behaviour was more unevenly distributed among children than prosocial behaviour. In addition to the results found, our study developed a practical and concise classroom observation tool based on earlier studies. Along the tool it is possible to follow and develop children's social and emotional skills by their teachers.

Could learning analytics improve teachers' motivation and assessment experience in the workplace?

Keywords: Learning analytics, Assessments method & tools, In-service teacher education, Motivation

Presenting Author: Pihel Hunt, University of Tartu, Estonia; Co-Author: Äli Leijen, University of Tartu, Estonia; Co-Author: Marieke van der Schaaf, Utrecht University, Netherlands

Feedback and assessment are widely acknowledged to have an important role in the workplace learning process and in supporting teachers' professional development. Existing research shows potential benefits of the use of e-portfolios and learning analytics in workplace settings in supporting teachers' professional development. However, not much research is done on the impact of the learning analytics on users' motivation and assessment experience. This paper reports on the results of a posttest-only control group study, where 23 in-service teachers used the e-portfolio with the learning analytics applications and 38 in-service teachers used the e-portfolio without the learning analytics applications. A questionnaire was administered among the participants to investigate the impact of the learning analytics applications on the motivation and assessment experience of the teachers. The results show that there was no difference in motivation between the two groups. However, the assessment experience score was higher in the experimental group. This indicates that learning analytics offer a major assistance in organising and supporting learning in the workplace.

Adapting Feedback to Self-Efficacy: Effects of web-based environments on feedback expertise

Keywords: Assessments method & tools, Pre-service teacher education, E-learning/Online learning, Computer-supported collaborative learning

Presenting Author: Christopher Neil Prilop, Leuphana University Lueneburg, Germany; Co-Author: Kira Elena Weber, Leuphana Universität Lüneburg, Germany; Co-Author: Marc Kleinkecht, Leuphana Universität Lüneburg, Germany

Adapting Feedback to Self-Efficacy: Effects of web-based environments on feedback expertise

Feedback plays a decisive role in acquiring teaching expertise (Hammerness et al., 2015). However, feedback does not necessarily increase performances (Kluger & DeNisi, 1996). It needs to take individual and situational factors into consideration (Narciss, 2013). Individual factors such as self-efficacy possess an extremely strong impact on individuals' future performances (Bandura, 1997; Stajkovic & Luthans, 1998). Hence, teacher education needs to foster pre-service teachers' peer feedback expertise (PFE) that adapts to their colleagues' level of self-efficacy.

A pre-post-design was applied in which students were asked to provide a written feedback concerning classroom management in two scenarios (low and high self-efficacy teachers). During their practicum pre-service teachers practiced feedback on a web-based platform that was either video- (n = 21) or text-based (n = 19). They uploaded video- or text-records of their teaching and received written feedback from their peers. The written feedbacks were coded using a manual based on Gielen et al. (2010). It consists of three categories determining the quality of PFE (evaluative feedback/tutoring feedback/presentation of feedback).

Results of the pre-posttest showed that pre-service teachers improved their adaptive peer feedback on both platforms. However, the video-based environment yielded better results than the text-based setting. Paired t-tests revealed that both groups improve their feedback concerning tutoring feedback (CG: t(18)=6.20, p<0.001, d=0.95; IG: t(21)=4.06, p<0.001, d=1.06) and presentation of feedback (CG: t(18)=6.20, p<0.001, d=0.95; IG: t(21)=4.06, p<0.001, d=1.06) from pre- to posttest. Analyses of variance showed that increases of the tutoring feedback category are determined by interaction effects of time and group (F(1,39)=6.46, p=0.02, ηp²=0.14) and the presentation of feedback category is mainly influenced by the group (F(1,39)=8.27, p<0.007, ηp²=0.18). 18% of variance can be explained by the superiority of the video-based setting.

Reading Assessment and Eye Movements During Reading in Swedish Children Aged 7-9

Keywords: Assessments method & tools, Educational technology, Cognitive development, Early childhood education

Presenting Author: Andrea Strandberg, Karolinska Institute, Sweden

Numerous eye-tracking studies have provided new knowledge on skilled adult reading and its constituent processes. However, there is significantly less eye movement research on children’s reading. The present study examined reading ability and eye movements during reading in a large population-based sample of Swedish children in school year 1-3 (n = 3444). Results showed a significant decrease in mean fixation duration across school years. Saccade amplitude remained somewhat stable and regression frequency decreased significantly between school year one and two, and remained equal between school year two and three. Results on letter-RAN, text reading and decoding of words and pseudo-words indicate improved processing speed, reading speed and decoding across the school years. The strongest correlation was found between reading speed and mean fixation duration in school year three (r = 0.6, p < 0.01). Results confirm a connection between average fixation duration and reading speed. Moreover, the current study provides a trove of information on early literacy, eye movements and reading from what likely is the largest eye tracking study ever performed.
Antecedents of a controlling coaching style: role of an evaluative and performance-oriented context

Keywords: Achievement, Motivation, Social aspects of learning and teaching, Teaching approaches

Presenting Author: Sofie Mombée, Ghent University, Belgium; Co-Author: Maarten Vansteenkiste, Ghent University, Belgium; Co-Author: Nathalie Aelterman, Ghent University, Belgium

The detrimental impact of a controlling coaching style on a wide range of outcomes, such as motivation and performance, has been investigated rather extensively. Yet, up until today, the antecedents that elicit a more controlling motivating style have remained fairly understudied. In the current study, we investigated whether sport coaches who experience to be in an evaluative and performance-oriented environment, are more likely to engage in a controlling coaching style. In addition, we examined whether this relation is moderated by a coach characteristic (i.e. experience), and mediated by coaches’ experiences of need frustration. In total, 585 coaches filled out validated questionnaires on controlling coaching and perceived pressure from above (e.g. perceived degree of being judged and evaluated based on their athletes’ performances). In a subsample (N = 211) we also measured experienced need frustration. In line with the tenets of Self-Determination Theory (Ryan & Deci, 2002), structural equation modeling revealed a positive relationship between the degree to which coaches experience their environment as more evaluative and performance-oriented and their engagement in controlling coaching. Coaches’ experience appeared to have no moderating role, but the relationship was significantly mediated by experienced need frustration.

Underperforming teachers: the impact on co-workers and their responses

Keywords: Qualitative methods, School effectiveness, Teacher effectiveness, Secondary education

Presenting Author: Loth Van Den Ouweland, Universiteit Antwerpen, Belgium; Co-Author: Jan Vanhoof, University of Antwerp, Belgium; Co-Author: Piet Van den Bossche, University of Antwerp, Belgium

Research indicates that underperforming teachers have a profound impact on students and on principals who struggle to deal with the underperformance. However, the impact on other teachers (i.e. co-workers), as well as their responses, are rarely studied. Therefore, we interviewed co-workers about incidents of teacher underperformance using the Critical Incident Technique. Depending on the nature of the underperformance, co-workers were more directly or indirectly affected. However, all expressed negative emotions and concerns, not only about the underperformance itself, but also about their principals’ responses to the underperformance and the performance management in the school. Co-worker responses to the underperformance depended on how they perceived their responsibility and authority to respond, and the necessity and utility of responding. This was influenced by characteristics of the underperformance, underperformer and co-worker, as well as leadership and team factors. Our findings have important implications for leadership and performance management in schools and they underline the importance of paying attention to co-workers when studying or dealing with teacher underperformance.

Motivating and Demotivating Teaching in Primary Education: The Value of a Circumplex Approach

Keywords: Teaching/instruction, Motivation, Teaching approaches, Primary education

Presenting Author: Branko Vermote, University of Ghent, Belgium

Previous research within Self-Determination Theory has extensively documented the content and meaning of a (de)motivating teaching style, thereby considering autonomy-supportive, controlling, structuring and chaotic teaching styles as separate classifications. Recently, Aelterman, Vansteenkiste et al. (in revision) argued for a more integrative and refined insight in those teaching styles, and provided initial promising evidence for a circumplex approach among a secondary school population. The present study aims to apply and evaluate this circumplex model in primary education, using an adjusted version of the Situations-in-School (SIS) Questionnaire that was developed by Aelterman et al. (in revision). After pilot testing, the SIS – Primary Education was validated in a sample of 323 Belgian primary school teachers (13.9% men; Mage = 39.57 years; Meaching experience = 15.22 years). Analogous to the secondary education context, multidimensional scaling indicated that motivating and demotivating teaching practices could best be graphically represented by a two-dimensional configuration, with practices differing in terms of need support and directiveness. In addition, the same eight subareas (two subareas per style) could be distinguished along the circumplex model: participative, attuning, guiding, clarifying, demanding, domineering, abandoning, and awaiting. Further testifying to the circumplex approach, evidence was obtained for an ordered pattern of correlations, with each subarea being most strongly
correlated with the adjacent subareas and the pattern becoming decreasingly positive and increasingly negative as one moves along the circle. Results concerning construct validation and associations with outcome variables will be available at the conference.

**Effects of Experimentally Induced Choice on Intrinsic Motivation in Middle Childhood**

**Keywords:** Experimental studies, Student learning, Teacher effectiveness, Motivation

**Presenting Author:** Joachim Waterschoot, Ghent University, Belgium; **Co-Author:** Bart Soenens, Ghent University, Belgium; **Co-Author:** Maarten Vansteenkiste, Ghent University, Belgium

**Objectives.** Based on Self-Determination Theory (SDT), many studies have investigated the effects of choice provision on people’s intrinsic motivation. However, the number of experimental studies is still limited and many questions concerning moderating factors are still open. Therefore, we set up an experimental field study to examine the effect of choice provision (versus choice deprivation) on the intrinsic motivation of elementary school children. In doing so, we addressed the moderating role of teacher (i.e., child-teacher relatedness and teachers’ general autonomy-supportive teaching style) and child (i.e., indecisiveness) characteristics. **Methods.** In a group of elementary school children (N = 104), we induced an experimental manipulation of choice in which the teacher allowed half of the children to perform their preferred painting activity (i.e., the choice confirmation condition), while the other half was obliged to do another one (i.e., the choice removal condition). After actually performing the activities, we assessed levels of intrinsic motivation, need satisfaction, and psychological well-being through questionnaires. **Results.** Results showed that children in the choice condition displayed enhanced intrinsic motivation, higher levels of need satisfaction, and more vitality in performing the painting activity. In addition, the perceptions of choice and the experience of competence satisfaction mediated these main effects of choice provision. Further, multiple regression analyses showed that high-indecisive children benefitted less from choice provision in terms of intrinsic motivation. **Conclusion.** This study identifies choice provision as a contextual factor to enhance children’s intrinsic motivation and reveals the attenuating effect of indecisiveness. Limitations and directions for future research are discussed.

**Session Thu 5, 11:00 - 12:00 1**

5 July 2018 11:00 - 12:00

M.001

JURE 2018 Keynote

Higher Education

The importance of work-related learning in workplaces: Are students prepared?

**Keywords:** Higher education, Lifelong learning, Student learning, Workplace learning

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

**Chairperson:** Leen Catrysse, University of Antwerp, Belgium

It has been recognised that the current situation of young individuals embarking on their careers has become increasingly difficult since the economic crisis in 2008. When entering the labour market, young individuals are increasingly confronted with structural barriers in finding (high-quality) jobs as evidenced in the increasing levels of youth unemployment or underemployment. Both students and employers experience a gap between education and the labour market. Moreover, it has been stated that education is not able to keep up with the many changes on the labour market. Consequently, employers have started recognising that rather than hiring graduates because of the job-specific skills they possess, they
are looking for employees who possess the ability and motivation to continue learning and developing throughout their careers.

Over the past years, many different definitions and concepts (e.g., workplace learning, (in)formal learning, mimetic learning, etc.) have been used for studying work-related learning across a variety of settings. This keynote will start with unravelling the conceptualisation of work-related learning. Taking the diversity in theoretical frameworks and research traditions (e.g., educational sciences vs. occupational psychology) into account, the importance of work-related learning will be highlighted from the perspective of the individual as well as the organisation. However, work-related learning should not be taken for granted and requires effort from both the individual as well as organisation. Organisations need to provide support and opportunities, and individuals need to possess the right attitude and competences. While more and more educational institutions are recognizing that they should play a role in preparing students for the labour market, little attention seems to be given to preparing students for work-related learning. Starting from our research on the transition from education to work, the question if students are actually (being) prepared for work-related learning will be discussed.

Session Thu 5, 13:15 - 14:45 1

5 July 2018 13:15 - 14:45
M.107
Single Paper
Higher Education, Learning and Special Education

BEST OF JURE Single Paper

Keywords: Competencies, Higher education, Learning disabilities, Literacy, Primary education, Quantitative methods, Reading comprehension, Self-efficacy, Self-regulation, Special education, Writing/Literacy

Interest group: SIG 12 - Writing, SIG 15 - Special Educational Needs

Chairperson: Emine Simsek, Loughborough University, United Kingdom

Enhancing Students’ Skill and Will for Academic Writing

Keywords: Self-efficacy, Self-regulation, Writing/Literacy, Higher education

Presenting Author: Christiane Golombek, University of Paderborn, Germany; Co-Author: Katrin B. Klingsieck, University of Paderborn, Germany; Co-Author: Ingrid Scharlau, University of Paderborn, Germany

Academic writing poses high demands on students’ skills as well as on their will when it comes to regulating their writing activities. Writing centers offer manifold interventions that are ought to help students dealing with those demands. Evaluation of these interventions are scarce and consequently little is known about their effects. In our study, we focused on two constructs that are closely related to writing performance: self-efficacy for self-regulation of academic writing (SSAW) and implicit theories about writing ability. We investigated both factors in a quasi-experimental design with time series analysis including three points of measurement to track down the effects of an intervention offered by a writing center. The intervention was a workshop focusing on how to write a thesis. Data was collected during two pretests (T1 & T2) and a posttest after the intervention (T3). A total of 59 students (M_age = 24.31, SD = 3.71; 67.8% female) took part in all three points of measurement. To assess SSAW, we used the Self-efficacy for Self-regulation of Academic Writing scale (3 subscales; .85 < η² < .95). It addresses three phases in writing: forethought, performance, and self-reflection. Additionally, we assessed students’ implicit theories about writing ability with a short scale (η² = .73). We expected significant positive effects after workshop attendance. In line with our hypotheses, repeated measure ANOVAs and planned contrasts yield significant positive differences for the SSAW scale and its subscales as well as for implicit theories after workshop attendance. Partial η² ranges between .12 and .22, indicating medium to strong effects. Results indicate that students’ perceive themselves as being more able to regulate their writing activities after taking part in the intervention. Furthermore, their theories about writing became more malleable indicating a conceptual change consequently leading to a change in writing as well.

Differential and Gender-Specific Relations among Vocabulary and Reading Comprehension by Text Genres

Keywords: Quantitative methods, Competencies, Reading comprehension, Primary education

Presenting Author: Theresa Schlitter, Technical University Dortmund, Germany; Co-Author: Nele McElvany, Technical University Dortmund, Germany

Vocabulary and reading comprehension are key components of educational processes and outcomes. Many studies confirmed the complex and strongly relation of vocabulary for reading comprehension (e.g., Cromley, & Alzevedo, 2007; Joshi, & Aaron, 2000). In a deeper view, it is important to keep also “[t]he ability to use and understand academic language [as] a prerequisite for school success” (Scheele, Leseman, Mayo, & Elbers, 2012, p. 419) in mind. So, vocabulary can be distinguished in everyday and academic vocabulary, which are among others differing in morphological complexity, abstractness and frequency of use (e.g., Townsend, 2015). Furthermore, different text genre, like narrative and expository texts, are central learning issues in school. Expository texts are often more demanding and using academic vocabulary in a higher frequency than narrative texts do (e.g., Eason et al., 2012). In this context in particular international large-scale studies implied time stable gender differences in reading as well as in vocabulary (e.g., Kleecker et al., 2014; Mullis et al., 2017). Contrary, other studies indicated, that observed differences are rather small or neglectable (e.g., Lietz, 2006). So,
evidence regarding gender differences in both spheres of competence is inconclusive and only a few studies focused on these complex relations between reading and vocabulary. Thus, the present study investigated systematic differences between \( n = 43 \) boys and \( n = 59 \) girls in third grade in everyday and academic vocabulary as well as narrative and expository text comprehension. Moreover, gender specific patterns of relations between the vocabulary registers and the areas of text comprehension were examined. All constructs were assessed by reliable competence tests (Author, 2013). Analyses were conducted by latent and manifest SEM. Gender differences were identified for reading comprehension in both genres. Additionally, the results indicated the importance of everyday vocabulary in predicting reading comprehension. Implications for further instruction and research are discussed.

**Keywords:** elementary school, gender, reading comprehension, text genre, vocabulary

**Behavior and Response to Intervention for Upper Elementary Students with Reading Difficulties**

**Presenting Author:** Garrett Roberts, University of Denver, United States

Reading difficulties often co-occur with problem behaviors and increase the risk of inadequate response to intensive reading interventions. There is also a lack of reading intervention research in the upper elementary grades for students with reading difficulties and problem behaviors (SWRD+PB), a time reading demands shift from word reading to more complex and difficult to remediate reading comprehension. To better understand how problem behaviors are associated with reading comprehension outcomes in the upper elementary grades, we delivered the norm-referenced Social Skills Improvement System – Rating Scale, Teacher Report to measure externalizing, internalizing, hyperactive, and inattentive behaviors following, a year-long reading intervention for fourth- and fifth-grade students with reading difficulties. Students in the study scored ≤ 85 standard score on a reading fluency and comprehension screener measure and were randomized (1:1) to the treatment condition \( (n = 55) \) or comparison condition \( (n = 53) \). We did not screen for behavioral difficulties to better identify variation in response to reading intervention across a range of behavioral outcomes. Furthermore, the reading intervention did not include systematic behavioral supports, to better understand the extent to which problem behaviors were associated with response to an intensive reading treatment (both within each condition and across the treatment and comparison conditions). Using bi-variate correlations and general linear modeling, results indicated that problem behaviors were associated with lower reading comprehension outcomes within each condition and reading comprehension outcomes varied significantly, across the treatment and comparison condition, in favor of the treatment condition, for students with higher levels of externalizing behavior. Outcomes demonstrated that students with higher levels of problems behaviors benefited from the intervention, but also require supports beyond an intensive reading intervention to have outcomes similar to those without behavioral difficulties. Future research is needed on how to best develop individualized intensive programs of reading instruction for SWRD+PB.

**Session Thu 5, 13:15 - 14:45 2**

5 July 2018 13:15 - 14:45

M.003

Single Paper

**Assessment and Evaluation, Higher Education**

**Learning & assessment**

**Keywords:** Assessments method & tools, Higher education, Metacognition, Multimedia learning, Pre-service teacher education, Reading comprehension, Secondary education, Self-efficacy, Self-regulation, Survey Research, Teacher professional development, Teaching approaches

**Interest group:** SIG 01 - Assessment and Evaluation, SIG 04 - Higher Education

**Chairperson:** Loth Van Den Ouweland, Universiteit Antwerpen, Belgium

**Learning Assessment in Secondary Education: Conceptions and Practices**

**Presenting Author:** Javier Fernández, Universidad Autonoma de Madrid, Spain; **Co-Author:** Ernesto Panadero, Universidad Autonoma de Madrid, Spain

Abstract: Teacher’s conceptions influence all educational processes, including assessment. Considering that assessment in Spanish Secondary Education has a lesser focus on formative approaches than assessment in previous educational levels, it is necessary to further explore the nature of such conceptions and how they might affect the chosen assessment methods. 219 secondary teachers filled a survey and a dilemmas questionnaire. It was found that secondary teacher’s conceptions were related with the type of tests used, the use of self-assessment and peer assessment, and the characteristics of feedback. The results add to the existent empirical evidence on the effects of teacher’s conceptions for the educational system. It also emphasizes the need for collaborative and reflective training of teachers in pursuit of applying a real formative assessment in the classrooms. **Keywords:** Formative assessment, secondary education, teacher’s conceptions, feedback, self-assessment, peer-assessment

An analysis of the type of feedback provided by students in a peer-assessment context

**Keywords:** Assessments method & tools, Pre-service teacher education, Self-regulation, Higher education
Self-regulated learning is not a competence easy to promote in higher education unless there is a specific intention. This intention implies providing training and practice for a sustained period. The purpose of this contribution is to analyse the feedback students provided in a peer-assessment practice. A peer-assessment experience in pre-service teacher studies at the University of Barcelona is presented. This study was carried out during the academic course 2016-2017 in different subjects. The experience consisted of developing a complex task that was composed of several activities. After the submission of each activity, students peer-assessed their colleagues' activity. This feedback had to be used for the next assignment, trying to close the learning loop. In the experience, the assessment criteria of the task, the feedback provided, students' satisfaction questionnaires and the initial and final data about students' self-regulation capacity (by ad hoc questionnaire) were collected. Four researchers conducted and validated the classification of the types of feedback. The application of the classification found that the majority of feedbacks were focused on the task, just a few on the process and even less on self-regulation. There was also some feedback on the person, although the initial criteria never referred to the person. When comparing the content of the feedbacks with the criteria given by the teaching staff, a close alignment was observed. The students are very dependent on the criteria indicated by the teacher at the beginning of the course. These findings can be the result of the lack of specific training and the limited duration of the experience (four months). A cultural change (assessment literacy), a deeper active role in the representation of the criteria and a greater engagement with the application of the received (by peers) feedback are necessary in order to foster a dialogical and self-regulated feedback.

**Reading Strategy Study at Hogeschool Leiden**

**Keywords:** Metacognition, Teaching approaches, Reading comprehension, Higher education

**Presenting Author:** Deborah Yapp, University of Utrecht, Netherlands; **Co-Author:** Rick de Graaff, IVLOS, Universiteit Utrecht, Netherlands; **Co-Author:** Huub van den Bergh, Utrecht University, Netherlands

For a student today to succeed academically in higher education there are many skills required, the ability to read effectively and efficiently are a few of them. However, there is concern whether students in Dutch higher education are achieving this effective literacy or failing at it (Chall et al. 2009). Moreover, there is growing evidence to suggest that some Dutch students lack essential second language (L2) which may manifest in struggles with L2 reading comprehension leading to problems and delays in their studies. Furthermore, students transferring from lower levels of higher education experience great difficulties in their L2 reading, having had little or no experience with academic texts in English (Beeker, 2012). An effective programme of L2 reading strategies combined with training in metacognitive awareness can help improve L2 reading comprehension for struggling adult students (Macaro & Erler, 2008). This one year reading strategy study of a complete faculty of a Dutch polytechnic institute, follows the L2 reading development of 247 first year students from five different departments. The study uses a regression discontinuity design (Cook, Shadish, & Campbell, 2002) with participants functioning as their own control. During the intervention participants received two hours of weekly reading strategy instruction for 7 weeks combined with awareness training. All reading comprehension tests were taken from Cambridge Advanced English. Results were analyzed using multilevel and contrast analysis and point to the benefits of an L2 reading strategy programme. A mean improvement in student reading scores of 4.99 between pretest and posttest \( p = .002; \text{ES} = 1.25 \) was found. Intervention teachers attended weekly reading strategy training sessions for one year, contributing actively to the programme. While all student’s reading scores improved between treatment conditions, the level of improvement varied between instructors, calling for more research into fidelity issues at class level implementation of reading strategy interventions.

**Digital Media Use among University Students Depending on Individual, Contextual and Social Factors**

**Keywords:** Survey Research, Self-efficacy, Higher education, Multimedia learning

**Presenting Author:** Marina Pumptow, University of Tübingen, Germany; **Co-Author:** Taiga Brahm, University of Tübingen, Germany

While the impact of socio-economic background on academic achievement via academic self-efficacy (ASE) has been addressed in research, the patterns and relevance of digital media behaviour in higher education, digital media self-efficacy expectations (DMSE) and potentially linked socio-economic backgrounds are mainly unknown. The aim of the study is to develop a reliable and valid survey instrument to explore the relationship of university students’ study and media behaviour, self-efficacy and social background. For that purpose, a standardised online-survey instrument is developed and evaluated. In addition to approved scales, a scale to measure DMSE is constructed based on a reliable general scale. Experts have been consulted to ensure content validity for the DMSE scale and the whole survey instrument. The pre-test survey was conducted using an online questionnaire at three higher education institutions in Switzerland and Germany in 2017. Internal consistency and construct validity of DMSE are analysed statistically based on the pre-test data. The analyses show high values for internal consistency and item-scale correlations. Also, one-dimensionality is given. Reliability and validity are examined for other scales used in the survey instrument as well. Moreover, descriptive results give insights into student’s media behaviour and preferences. The survey instrument of the present research project appears to be adequate to measure students’ media behaviour and attitudes. It therefore allows to take into consideration behaviour determining factors such as attitudes, self-efficacy or socio-economic background, to go beyond a mere description of different types of media usage patterns in higher education and thus fill in an existing research gap.
From fast food to a well-balanced diet: toward a programme focused approach to feedback

**Keywords:** Assessments method & tools, Teacher professional development, Developmental processes, Higher education

**Presenting Author:** Kimberly Wilder, Edinburgh Napier University, United Kingdom; **Co-Author:** David Carless, University of Hong Kong, United Kingdom; **Co-Author:** Mark Huxham, Edinburgh Napier University, United Kingdom; **Co-Author:** Velda McCune, University of Edinburgh, United Kingdom; **Co-Author:** Joan McLatchie, Edinburgh Napier University, United Kingdom; **Co-Author:** Tansy Jessop, Southampton Solent University, United Kingdom; **Co-Author:** Hazel Marzetti, The University of Edinburgh, United Kingdom

Feedback may be considered ‘good’ according to many of the criteria in the literature whilst still having little or no impact on students’ learning in the longer term. Fast food feedback is designed for rapid consumption and to satisfy basic rather than sophisticated needs; whilst this might sometimes be appropriate too much will lead to serious problems. This kind of feedback can be unbalanced in that it contains only ‘empty calories’; by analogy summative marks and simple directions in feedback Here we argue for greater prominence for feedback in curriculum design. Clear principles for giving guidance on assessments and feedback at the programme level, which complement those already established and widely used for single assessments, would help curriculum designers consider communication to students about assessments in a broader context. These processes should create a dialogue that aids the students’ progression in their learning from one module to the next and encourages the development of autonomous learners. Based on a review of the literature on programme-focused approaches to teaching, assessment and feedback, the current theoretical paper delineates the benefits of a programme level approach to communication around assessments and proffers a list of broad principles that will help academics achieve a coherent and developmental approach to feedback.

**Socio-Scientific Issues in Science Education**

**Keywords:** Pre-service teacher education, Citizenship education, Science education, Secondary education

**Presenting Author:** Tapashi Binte Mahmud Chowdhury, University of Tartu, Estonia; **Co-Author:** Jack Holbrook, University of Tartu, Estonia

Two very profound literature reviews, Sadler (2009) and Karisan & Zeidler (2017)) securitise the studies conducted to examine the interrelationships between two important areas of science education: socio-scientific issues (SSI) and the nature of science (NOS). Karisan & Zeidler (2017) find it desirable for students to develop mature or informed views on NOS aspects as these require students to understand that science is based on and derived from observations of the world, interpretations are made by using those observations, and scientists depend on empirical evidence whereas Sadler (2009) summarise that SSI provide ideal contexts for the exploration and application of ethical principles and the cultivation of character; negotiation of social complexities that stem from economic, ethical and scientific tensions; and the development of scientific habits of mind such as skepticism. However, the conclusions regarding the relationship between SSI and NOS in the two studies are inconsistent. Sadler in reviewing 24 articles over a fifteen-year period between 1994 and 2008 comes to a conclusion that the literature provides limited support to the claim that SSI offers a meaningful context for NOS conceptualisation. Karisan and Zeidler, on the other hand, review 7 articles, also over a fifteen year period between 2002 and 2014, but they conclude, contrasting with Sadler’s finding, that SSI embedded contexts do enrich students’ NOS understanding.

**The Effects of Parental Involvement in Financial Literacy Education**

**Keywords:** Experimental studies, Economics of Education, Parental involvement in learning, Secondary education

**Presenting Author:** Joana Elisa Maldonado, KU LEUVEN, Belgium; **Co-Author:** Kristof De Witte, KU LEUVEN, Belgium; **Co-Author:** Koen Declerq, KU LEUVEN, Belgium

The Effects of Parental Involvement in Financial Literacy Education.

Evidence From a Randomized Experiment. In today’s increasingly complex market economies, financial literacy has become the basis of generating, managing and utilising earnings. Incorporating financial skills and knowledge in the compulsory education could ensure a minimum level of financial literacy and amplify the effects of education interventions beyond a single generation by involving parents. While economic survey studies have shown that parents determine the
financial capability of their children and parental involvement programmes in schools are becoming more popular, the research on the impact of these interventions remains limited. This paper illustrates how parents can add value to financial education interventions in the four dimensions of behaviour, motivation, reciprocity and persistence. An explorative literature review of experimental studies identifies homework as a promising tool for parental involvement in financial literacy education. Based on a randomised control trial with 6,566 8th grade students from 59 Flemish schools, we assess if a homework assignment together with parents enhances learning of students in a financial literacy education programme. Intent-to-treat regression shows that a financial education programme on payment methods increases financial knowledge and behaviour scores. Homework increases these learning effects. In contrast to homework alone, homework together with parents effectively increases learning effects on the specific topics covered in the homework.

**Developing high quality interactions in Play-for-Learning situations in early childhood**

**Keywords:** Design-based research, Teacher professional development, Teacher effectiveness, Early childhood education

**Presenting Author:** Mariska Venema, Windesheim Flevoland University of Applied Science, Netherlands

Role play and play in a rich material learning environment in which children simulate life-word situations, combined with high quality teacher-child interactions, provide children with opportunities to learn social and academic skills (Slot, 2014). In early childhood care and education settings in the Netherlands, professionals expressed the wish to put (role) play as a starting point for learning from 2-6 years and their own incapacity. Six integrated education and care facilities in the Netherlands, teachers and care takers (N=19) collaborate and design situations in which children (age 2 – 6 ) learn through play. In order to investigate this, we apply the methodology of educational design research (McKenney & Reeves, 2012). The central question is: How can professionals in Early Childhood Education and Care facilities collaborate on effective designing play-for-learning situations with high quality teacher-child interactions? The aim is to gain more awareness about teacher-child interactions and effective designing play-for-learning situations in their own practice. In professional learning communities (PLC) professionals collaborate to design three play-for-learning situations and reflect on the outcomes according to the principles of Lessons Study (Goei, Verhoef, De Vries, Coenders & Van Vugt, 2015). Before and after implementation of the design the level of teacher-child interactions is captured with the Classroom Assessment Scoring System Pre-Kindergarten (CLASS-PreK) (Pianta, La Paro & Hamre, 2008). At the end of the research project focus group meetings (Liamputtong, 2011) capture new insights and make explicit connections between the play-for-learning designs, developmental outcomes and the role of the professional. All data will be examined and selected for indications of change in teacher-child interactions (CLASS scores 6-7) and matched with the play designs and the reflections from the focus group meetings. Preliminary results in this study showed indications that designing, implementing and discussing play designs changes the mindset of participants.

**Development of lesson planning skills in an in-service teacher training course.**

**Keywords:** Mixed-method research, In-service teacher education, Teacher professional development, Mathematics

**Presenting Author:** Claudia Schmaltz, Pädagogische Hochschule Freiburg, Germany

Using a mixed-methods-design, this contribution shows that pedagogical and pedagogical content knowledge can be promoted in an in-service teacher training course and that the integration of both perspectives enables teachers to develop differentiated lesson plans for heterogeneous learning groups. Over the two-day training course, planning sketches were made by the participating math-teachers (N = 50) at three times. In addition, interviews with some of the teachers were conducted (N = 8) and all the teachers (N = 50) filled out a questionnaire about their background, their beliefs and their self-efficacy. The data was analyzed both in a summarizing and in a structured way with the qualitative content analysis (Mayring, 2015). The lesson plans showed an increase in the elements planned by the teachers, both in the pedagogical and the pedagogical content field. The analysis of the lesson plans at the end of the training showed that all teachers had mainly included differentiating elements in their lesson planning during the course of the training. The interviews show that the teachers’ focus in lesson planning is on the requirements and motivation of the students. Teachers also addressed the antinomies of pedagogical action (see Helsper, 1996) as well as occupational biographical challenges (see Terhart, 1996). After the training, it turns out that the previously expressed challenges (for example, the problem of the gap in performance) have lost significance due to the reflection in the in-service teacher training course. The main benefit of this study, beyond the results presented, is the systematic linking of aspects relevant to professionalization in an integrative model for professional lesson planning competence. There are a variety of further research opportunities both on a theoretical and empirical level, for example the expansion of the target groups and the subjects.

**Session Thu 5, 15:15 - 17:15 1**

5 July 2018 15:15 - 17:15

M.107

**JURE 2018 Workshop**

**Writing and reviewing for international scholarly journals**

**Keywords:** Doctoral education, Higher education, Researcher education, Writing/Literacy

**Interest group:**
This workshop aims to provide an introduction to writing and reviewing international scholarly journals. In particular, it will discuss the purpose of academic journal publishing, how to choose a journal and to tailor your manuscript appropriately; as well as the function and experience of peer review and editorial decisions. We will also look at how to review well, and how to respond to peer review comments. It will also provide an overview of essential publishing ethics, and provide an opportunity for you to ask questions and for general discussion.

**Writing and reviewing for international scholarly journals**

*Presenting Author:* Lauren Ashby, Elsevier, United Kingdom; *Presenting Author:* Helen Jossberger, University of Regensburg, Germany

This workshop aims to provide an introduction to writing and reviewing international scholarly journals. In particular, it will discuss the purpose of academic journal publishing, how to choose a journal and to tailor your manuscript appropriately; as well as the function and experience of peer review and editorial decisions. We will also look at how to review well, and how to respond to peer review comments. It will also provide an overview of essential publishing ethics, and provide an opportunity for you to ask questions and for general discussion.

**Investigating work-related learning: The importance of bridging research fields**

*Presenting Author:* Eva Kyndt, KU Leuven, Belgium

When investigating topics such as work-related learning and the transition from education to work, it is important that different perspectives are combined. In my research, I especially try to integrate insights from educational sciences as well as occupational psychology. On the one hand, educational sciences provides a lot of knowledge about individuals' learning processes and outcomes at the individual level. However, it is a field that is struggling with a lack of theoretical frameworks and consequently generalisability of results. Occupational psychology, on the other hand, is a fruitful source of information when it comes to organisational characteristics and outcomes as well as individuals' professional careers. However, this field marginalizes learning and is sometimes constrained by clear-cut theoretical frameworks. Working on the border of two research disciplines provides interesting opportunities but also presents several challenges. During this workshop, the aim is twofold. On the one hand, experiences and merits of working on the border of disciplines will be exchanged as well as how certain challenges were tackled. On the other hand, researchers who are also working on this border, or who want to include another perspective in their research, will be invited to present their specific questions and obstacles. Questions can pertain to both the process as well as content of the study at hand.

**Social media as a tool for researchers**

*Presenting Author:* Computer-supported collaborative learning, Higher education, Researcher education, Synergies between
learning; teaching and research

Interest group:

In this workshop participants will get hands-on experience in using social media as a tool for scientific and social activities. The author of the workshop has given several presentations about the topic at the University of Oulu. He works as a university lecturer, technology enhanced learning at the faculty of education and got best ICT teacher in Finland award in 2014.

Social media as a tool for researchers
Presenting Author: Jari Laru, University of Oulu, Finland

In this workshop participants will get hands-on experience in using social media as a tool for scientific and social activities. The author of the workshop has given several presentations about the topic at the University of Oulu. He works as a university lecturer, technology enhanced learning at the faculty of education and got best ICT teacher in Finland award in 2014.

Session Fri 6, 09:00 - 10:30

6 July 2018 09:00 - 10:30
M.002
Single Paper
Learning and Instructional Technology, Teaching and Teacher Education

Teaching and teacher education (2)

Keywords: Achievement, Artificial Intelligence, Content analysis, Design-based research, E-learning/Online learning, Educational technology, Game-based learning, Instructional design, Mathematics, Mixed-method research, Synergies between learning; teaching and research, Teaching approaches
Interest group: SIG 07 - Technology-Enhanced Learning And Instruction
Chairperson: Daniel Deimel, University of Duisburg-Essen, Germany

Adaptation of the Curriculum through Schemes of Work: Algebra in Year 6 Mathematics Programme

Keywords: Content analysis, Instructional design, Achievement, Mathematics
Presenting Author: Emine Simsek, Loughborough University, United Kingdom

This study analyses how the intention stated in the National Curriculum for England (NC) of introducing the abstract idea of letters in algebra transfers to lesson planning. There being a small number of studies on early algebra undertaken in the UK, the scarcity of studies about early algebra curricula, and the fact that the new National Curriculum for primary mathematics not only is comprised of new features and excludes some of the objectives which were included in the previous curriculum regarding algebra motivated me to conduct this study.
This study thus used two schemes of work, which are the major sources that teachers draw upon when planning their lessons, as data sources and integrated features of the case study approach and documentary research. The analysis focused on four elements of schemes of work: mathematical content, teaching, time and assessment. The findings suggest that both schemes of work seem to adopt the approach stated by the NC partially. Although they take the NC's intention into consideration, some limitations were identified when introducing the mathematical use of letters in the documents (e.g. letters are mostly used to represent variables and unknowns but not to represent generalised numbers). The evidence also shows that the resources used to shape a scheme of work play an important role in what content the scheme of work will have and what form it will take. Overall, this study contributes to a better understanding of issues related to classroom planning concerning teaching early algebra in Year 6.

MOOC Learners’ Behavioral Traces Using Self-Allocated Learning Time

Keywords: Artificial Intelligence, Educational technology, Instructional design, E-learning/Online learning
Presenting Author: Saman Zahra Rizvi, Institute of Educational Technology/The Open University, United Kingdom; Co-Author: Bart Rienties, Open University, United Kingdom; Co-Author: Jekaterina Rogaten, Open University, United Kingdom

Massive Open Online Courses (MOOCs) are a relatively new online learning phenomenon, whereby in 2016 more than 58 million learners have followed around 6850 courses offered by more than 700 universities (Shah, 2016). The structure, curriculum, and learning activity design within MOOCs have lately been topics of interest for both researchers and MOOC providers. Retention has been one of the most vital issues associated with MOOC learning. A large body of literature can be found addressing various aspects of retention. However, few studies have examined the temporal aspects of learning processes, and why some learners complete only a few learning activities, while others persist over time. This study aims to fill this gap in knowledge by conducting a cross-module interdisciplinary analysis on three Open University MOOCs offered via the FutureLearn. Using exploratory methods associated with Educational Process Mining (EPM) on system logs, the study explored self-allocated time that 4,994 learners assigned to a variety of learning activities. Firstly, we examined and compared learning events and number of active learners over time. Secondly, we compared the difference between two groups of learners: “Non-Completers” and “Completers” in how they access different activities. Thirdly, we looked at the participation differences in Completers using the mean and median duration of the completed engagement.
The results showed that there are indeed some differences between Non-Completers and Completers in their engagement with learning activities. Completers showed patterns of behavior that included remaining aligned with predetermined curriculum, with limited deviation from expected engagement. As compared to Non-Completers, Completers started late, were prone to rush in completing typical learning activities spent longer than usual or expected time on assessments, and lingered till the end. Findings from this study can be used to provide useful, actionable insights on how adaptations in learning design can make MOOCs more sustainable.

Development and validation of a scheme for analysing serious games in financial literacy education

Keywords: Content analysis, Mixed-method research, Synergies between learning; teaching and research, Teaching approaches

Presenting Author: Julia Schultheis, University of Mannheim, Germany; Co-Author: Auli Toom, University of Helsinki, Finland

Due to current socioeconomic trends, financial literacy (i.e. the ability to reasonably deal with money and financial matters) is essential for every person responsible for managing his or her financial affairs. Thus, the assessment and promotion of financial literacy constitute key concerns for educational practice, policy and research. However, traditional diagnostic and instructional means seem rather unsuitable in this respect, mainly because they are not sufficiently able to capture the behavioural, motivational and emotional aspects of financial decision making and respective learning. At this point, serious games come into play. Although their potential for financial literacy education is widely acknowledged and has led to many initiatives for developing such games, there is a lack of procedures that help to understand the way serious games operate and how they could effectively be used for educational purposes in this field of application. The present study aims to contribute to filling this gap by describing the development and validation of a respective analysing scheme. Particularly, two research questions are addressed: (1) Which criteria should be included in a scheme that intends to judge the potential of serious games for financial literacy education? and (2) How reliably could this scheme be used in analysing financial literacy games? To answer these questions, an iterative process has been conducted with alternating phases of deliberation, prototyping and practical testing of the evolving analysis scheme. Up until now, this process yielded a set of criteria that could be subsumed by four categories: contextual criteria, game design criteria, learning criteria and ethical criteria. The research activities have not been terminated yet. However, they should finally enable us to conduct a comprehensive review of available financial literacy games and provide a basis for adapting the scheme to support educational decisions in this field of application.

Finnish teacher educators’ integration of research and teaching

Keywords: Content analysis, Mixed-method research, Synergies between learning; teaching and research, Teaching approaches

Presenting Author: Yanling Cao, University of Helsinki, Unknown; Co-Author: Liisa Postareff, University of Turku, Finland; Co-Author: Sari Lindblom, University of Helsinki, Finland; Co-Author: Auli Toom, University of Helsinki, Finland

Research-teaching nexus is supposed to have a close relationship and previous studies have identified various forms and dimensions to analyse the nexus. The current study aims to provide a perspective from the teacher education discipline. Teacher educators approach their teaching to educate qualified future teachers, at the same time they are researchers investigating issues in teaching and education. Finnish teacher education is well-known for its research-based teaching, thus Finnish teacher educators have a long tradition of integrating research and teaching. The present study explores the ways in which Finnish teacher educators (n = 101) integrate their research and teaching, furthermore, how this integration is related with their approaches to teaching. The questionnaire included 22 items from the revised version of Approaches to Teaching Inventory, two items about teacher educators’ perception of their researcher/teacher role and the intensity between research and teaching, and one open-ended question about the research-teaching integration. With the qualitative content analysis applying abductive strategy, seven categories of research-teaching integration were revealed: content of teaching is based on research, teaching methods are based on research, applying inquiry-oriented methods in teaching, doing research on one’s own teaching, integrating students to one’s own research project, developing as a researcher through teaching and research supports teaching. Three clusters of teacher educators with different approaches to teaching were identified. However, they did not show any differences about how much they consider themselves as teachers and researchers, or how they perceive the intensity between their research and teaching. No relationship was detected between how teacher educators integrate research and teaching and their approaches to teaching, either. Suggestions for teacher educators to further integrate research and teaching are made, the categories identified in the study are also helpful for the institutions to develop professional training programmes for teacher educators.

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M.107
Single Paper
Learning and Social Interaction, Learning and Special Education, Teaching and Teacher Education

Teaching and teacher education (3)

Keywords: Attitudes and beliefs, Educational attainment, History, Parental involvement in learning, Pre-service teacher education, Primary education, Secondary education, Special education, Student learning, Teaching approaches
Across the world, there have been many policy developments in and reviews of inclusive education (IE) but what appears to be missing is an up to date and thorough review of IE in general. What is required is a synopsis of previous reviews to help guide future practice and research. The aim of this paper is to analyse existing reviews of IE regarding; (1) which themes have been studied, (2) what can be learned from these reviews and (3) what gaps there are in the research that can be addressed. Published reviews were identified through a systematic search using the Education Resource Information Center (ERIC) and Web of Science (WoS) databases. A thematic analysis of 26 reviews revealed four main themes: attitudes towards IE, teachers’ professional development in IE, IE practices, student participation, and participation of students with SEN. The conclusion is that for the implementation of IE it is vital that there is professional development for teachers regarding evidence-informed IE practices which would lead to successful teacher experiences. In addition, suggestions for research into the attitudes of all students, with and without special educational needs (SEN), and school leaders are made, as well as some suggestions regarding students’ academic participation in IE.

Contexts of school and nomadic herder family communication in Mongolia: A conceptual framework

Keywords: Pre-service teacher education, Educational attainment, Parental involvement in learning, Primary education

Presenting Author: Batdulam Sukhbaatar, University of Szeged, Hungary; Co-Author: Klara Tarko, University of Szeged, Hungary

Communicating and cooperating with nomadic herder families is a big challenge for schools and teachers since these children are separated from their families during the school year. A natural question then is how do teachers provide herder parents with regular reports on their children’s performance? Parental involvement in children’s schooling is an area that has been insufficiently studied in Mongolia. While Sosorbaram (2010) discussed the importance of evaluating children’s non-cognitive skills by involving parents, Sukhbaatar’s study (2014) discussed some institutional and social factors contributing to a lack of parental involvement preparation at one of the three national teacher-training institutions. Findings of recent studies (Farrell & Collier, 2010; Pang, 2011; Sukhbaatar, 2014) suggest a need for a continuing and deeper examination of family-school communication involving a broader inclusion of various constituents and contextual factors at the systemic level. This paper attempts to examine the contextual factors that influence school and nomadic herder family communication in Mongolia by analyzing data from academic journal papers, technical reports, book chapters, and official statistics of the government agencies. A conceptual framework is proposed using the Bronfenbrenner’s ecological systems theory (1977), and adapting the Pang’s (2011) contextual factors and home-school cooperation to locate the influencing contextual factors at different levels of the ecological systems. The proposed conceptual framework consists of four levels: microsystem, mesosystem, exosystem, and macrosystem. Unlike the other studies which used Bronfenbrenner’s ecological systems theory to examine home-school cooperation and communication, this study adds a weather context as an important factor in the exosystem to understand nomadic herder family and school communication in Mongolia. Weather context is important because nomadic herding is heavily dependent on weather conditions and weather context seems to impact education in many different ways, including school-family communication. Methodology for a further empirical study is discussed in great detail.

Teachers’ conceptions of and approaches to student engagement

Keywords: Student learning, Attitudes and beliefs, Teaching approaches, Primary education

Presenting Author: Amy Berry, The University of Melbourne, Australia

Abstract The concept of student engagement continues to capture the attention of researchers, policy makers and practitioners. Increasing student engagement is seen as an important goal for schools and teachers, with an understanding that teachers have an important role to play in promoting the engagement of their students in classroom learning experiences. Despite this, it remains that little is known about how teachers conceptualise student engagement or how they attempt to influence it within their lessons. This research seeks to test the validity of a typology of engagement that represents teachers’ conceptions of engagement and its usefulness in categorising their engagement related interactions within lessons. Semi-structured interviews were conducted with four upper-primary teachers to explore their beliefs about student engagement. In order to investigate their attempts to influence student engagement within lessons, four lesson observations were conducted for each teacher. Findings from the interviews support the existing categories in the typology: disrupting, avoiding, withdrawing, participating, investing, and driving. Together these categories represent the range of meanings that the teachers express when describing student disengagement and engagement in classroom learning experiences. The categories were used to code teachers’ engagement interactions within observed lessons identifying three distinctly different approaches to engaging students. Keywords: student engagement, teaching, teacher beliefs

Beliefs about the Nature of History: Adaptation and Development of a Questionnaire

Keywords: Pre-service teacher education, Attitudes and beliefs, History, Secondary education
In the accelerated 21st century, ever-expanding knowledge is increasingly challenging for history experts, teachers and students. Developing discipline-specific cognitive skills, namely historical thinking, can be seen as a solution to this problem (e.g. Kojanitz, 2013). The understanding of the interpretive nature of history in the classroom practice is key to foster historical thinking. In this context, epistemic beliefs are relevant prerequisites of historical thinking and critical democratic citizenship (e.g., Stoel et al. 2017; VanSledright & Reddy, 2014; Maggioni et al., 2009). Although, the importance of this issue has been stressed in Hungarian didactics, yet: measuring epistemic beliefs is a neglected area. Therefore, the aims of this presentation are (1) to describe the adaptation of a questionnaire developed by Stoel and his colleagues (2017) to the Hungarian context; and (2) to give an overview about history teachers’ epistemic and instructional beliefs gained from semi-structured interviews. In the first preliminary study, the paper-and-pencil questionnaire was completed by 11th grade (n=29), 12th grade (n=29) grammar school students and 1st year university students (n=59). In the second study, semi-structured interviews (interview protocol from Voet & De Wever, 2016) were carried out with grammar school history teachers (n=9) in order to gain more information to develop the questionnaire. In the case of the questionnaire, reliability analysis showed that Cronbach’s alpha was good (.76). What is more, positive correlations were pinpointed between nuanced beliefs about historical knowing and interest in history, but also a positive correlation between nuanced and naïve beliefs about historical knowing that indicates the review of the translation process in the first instance. History teachers suggested the consequent use of history-related terms and the emphasis on contextual factors (e.g. matriculation examination). These results allowed for the conclusion that the questionnaire can be used in the Hungarian context as well.

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6 July 2018 09:00 - 10:30  
M.101  
Poster Presentation  
Higher Education, Instructional Design, Teaching and Teacher Education  
**Keywords:** E-learning/Online learning, Educational Psychology, Experimental studies, Higher education, Instructional design, Learning approaches, Metacognition, Mixed-method research, Motivation, Peer interaction, Pre-service teacher education, Reflection, Science education, Self-regulation, Student learning, Writing/Literacy  
**Interest group:** SIG 06 - Instructional Design, SIG 11 - Teaching and Teacher Education, SIG 12 - Writing, SIG 16 - Metacognition, SIG 27 - Online Measures of Learning Processes  
**Chairperson:** Júlia Griful Freixenet, Vrije Universiteit Brussel (VUB), Belgium

**Study smart – How to improve students’ learning strategies in higher education**  
**Keywords:** Mixed-method research, Metacognition, Self-regulation, Higher education  
**Presenting Author:** Felicitas Biwer, Maastricht University, FHML, Dept. of Educational Research and Development, Netherlands; Co-Author: Anique de Bruin, Maastricht University, Netherlands; Co-Author: Pauline Aalten, Maastricht University, Netherlands; Co-Author: Mirjam oude Egbrink, Maastricht University, Netherlands

When entering university, students are faced with the challenge of self-regulating their learning. The effective use of learning strategies during self-study is thereby crucial for long-term learning and academic achievement. While research on cognitive psychology has provided insight into the effectiveness of different learning strategies, showing that practice testing and distributed practice are the most effective ones, most students use rather ineffective strategies, e.g. highlighting or rereading. Due to a lack of formal training, students might lack sufficient metacognitive knowledge about learning strategies. Moreover, although some students know about the advantages of specific strategies, they struggle to put this knowledge into action as effective learning strategies are perceived as too effortful or students are lacking the time to use these strategies.  

The aim of the present study is to determine whether students’ competences about effective learning strategies can be increased by a formal training and to examine the mediators and barriers of applying effective learning strategies during self-study. Sixty first- and second year university students from Health, Medicine and Life Sciences will be randomly assigned to either a training condition or a waiting list control condition. Participants of the training condition will attend three sessions and fill out a weekly learning strategy survey over six weeks. Participants of the control condition will fill out the weekly learning strategy only. Pre-post and process measures of self-regulated learning are used to evaluate the training effects. The reasons, barriers, and mediators for applying effective learning strategies will be examined via focus group interviews.  

The training is expected to improve students’ metacognitive knowledge about effective learning strategies. Furthermore, we expect to gain valuable insights into the barriers and mediators of applying learning strategies during self-study and the discrepancy between knowledge and practice.  

**Video Feedback to Promote the Motivation to Reflect Own Teaching? Predicting Task Values and Effort**
This study focuses on the motivation to reflect on one’s own or other’s teaching, its changes during practicum, and effects of video feedback. More detailed, we investigate whether certain aspects of video feedback predict changes in utility values and whether expectancies predict students’ effort in their video forums aimed to reflect on teaching. We therefore utilize the expectancy-value theory (Eccles et al., 1983) to show how achievement motivation changes in a group reflecting on own teaching using video (intervention group) compared to a group which is reflecting on own teaching without usage of videos (control group). It is shown that increases in expectancies are relatively stable over time even six months after practicum, whereas utility values change after the practicum. Additionally, it was found that changes in utility value could be predicted by feedback in the video forum. Furthermore, increases in expectancies predicted own effort in the video forum. Keywords: teacher education; video; reflection; expectancy-value theory

Writing in Physics

Keywords: Student learning, Metacognition, Science education, Writing/Literacy

Presenting Author: Rachel Riedner, George Washington University, United States; Co-Author: Zachary Wolfe, George Washington University, United States

This collaboration between the Physics Department and the University Writing Program at the George Washington University studies whether explicit teaching of two transfer-focused writing skills – genre awareness and source application – enhances student writing across two sequenced, upper division, undergraduate capstone course for physics majors. Our objective is to determine how, and if, writing skills taught in a junior year capstone course for physics majors translates to the students’ senior thesis/research project. Preliminary data from the study will be available in May after student writings have been collected and coded. We expect that preliminary data from our joint study, supported by this DICE grant, will show how well GW physics students are able to learn genre awareness and source use.

Reading to learn: an in-depth look into how students learn from academic texts using eye-tracking

Keywords: Experimental studies, Student learning, Learning approaches, Higher education

Presenting Author: Margot Chauliac, University of Antwerp, Belgium; Co-Author: Vincent Donche, University of Antwerp, Belgium; Co-Author: David Gijbels, University of Antwerp, Belgium; Co-Author: Leen Catrysse, University of Antwerp, Belgium

Reading to learn: an in-depth look into how students learn from academic texts using eye-tracking In higher education, academic texts are the main medium through which students acquire scientific knowledge. Learning from texts is therefore an essential academic skill and an important indicator to success in higher education. Current research in the field of reading comprehension has its main focus on learning outcomes. Until now, less is known about the learning process. In our research we strive to fill this knowledge gap. The Student Approaches to Learning (SAL) tradition is one of the dominant research traditions with a focus on acquiring insights into the learning process. SAL describes two main types of cognitive processing: deep and surface processing. Deep processors try to engage in meaningful learning and to relate the knowledge gathered in the text to prior knowledge. Surface processors focus on memorizing the contents of the text in order to reproduce. Current research on cognitive processes uses self-report instruments to uncover differences in students’ preferences towards processing strategies. However, although these measures are claimed to be reliable in measuring processing strategies, many authors argue that the results are poor indicators of the specific processing strategies whilst studying. In this study we aim to move beyond current shortcomings by linking offline – the self-report questionnaires – to online measuring – eye-tracking data. The sample for this study consists of 60 academic bachelor students who participated in a one hour eye-tracking study during which they were asked to read two academic texts, to score a self-report questionnaire on topic interest and to score a self-report to measure their task-specific levels of cognitive processing. Based on the results of both the retrospective self-report questionnaires and the eye-tracking data a distinction will be made between learners using more deep and/or surface levels of processing.

Self-Managing Cognitive Load by Using Finger Pointing to Enhance Learning

Keywords: Instructional design, Educational Psychology, Learning approaches, E-learning/Online learning

Presenting Author: Shirong Zhang, Erasmus University Rotterdam, Netherlands; Co-Author: Bjorn de Koning, Erasmus University Rotterdam, Netherlands; Co-Author: Fred Paas, Erasmus University Rotterdam/University of Wollongong, Netherlands

Abstract: Over a long period of time, educators and researchers have been concentrating on “instructor-manipulated interventions” and endeavors to optimally design and present learning materials based on principles of cognitive load theory (CLT). One typical example concentrates on the split-attention effect, which refers to the finding that learning is enhanced when instructors have combined the to-be-studied text and diagram in an integrated format than when studying the same materials in a spatially separated format. However, these instructor-generated optimal designs are still scarce, especially in online learning environments. Recently, there is an increasing expectation that it is essential to equip learners themselves with strategies to deal with poorly structured learning resources and self-manage their cognitive load. Using the theoretical frameworks of cognitive load theory, evolutinal views of educational psychology, and embodied cognition, this
study will investigate the impact of explicit instructions to self-manage spatially separated information in split-attention materials, consisting of mutually referring text and graphics. Participants will be 120 university students who study split-attention materials by pointing at the related information with their index finger of both hands, index finger of one hand or without such pointing in split-attention material, or by studying an the integrated format of the same material. We hypothesize that learners who learn from the split-attention materials by finger pointing will outperform (i.e., higher test performance and lower cognitive load) learners who learn from the split-attention materials without finger pointing and learners who learn from the integrated materials. It will also be explored whether learners who learn from the split-attention materials by finger pointing with both hands will outperform learners who use only one hand during learning. Keywords: Cognitive load theory, guided self-management, learning, pointing effect, split-attention

Session Fri 6, 11:00 - 12:00

6 July 2018 11:00 - 12:00
M.001
Policy Making Panel Session

Strengthening the ties between research, policy and practice in order to increase impact

Keywords: Economics of Education, Educational Policy, Lifelong learning, Synergies between learning; teaching and research

Interest group:
Chairperson: Piet Van den Bossche, University of Antwerp, Belgium

There is an important relationship between educational research, educational policy and educational practice in every country. Policy provides the environment and the legal basis for the growth and development of educational practice, and educational research provides reliable arguments and solid evidence that may guide practice and policy. The interplay between policy, practice and research requires considerable joint efforts to build a common understanding of the most prevalent educational problems and their solutions and a network of different stakeholders. The theme of the JURE 2018 conference is “Learning and instruction with an impact - scaling up the skill, will and thrill of learning”. The conference presentations, workshops and keynotes will showcase the newest findings about the cognitive, motivational and emotional aspects of learning and highlight the practical implications for practice and policy. In this panel discussion, we would like to focus on how junior researchers can strengthen ties between their research on the one hand and policy and practice on the other hand. Junior researchers are aware that creating impact with their research is important but are less familiar with strategies that can be used to increase impact not only at the research level, but also at the policy and practice level. In this panel discussion, we would like to see the following questions discussed from the different perspectives (policy, practice and research): · How can (junior) researchers strengthen the ties between research and practice? · How can (junior) researchers strengthen the ties between research and policy? · Which strategies can we (junior) researchers use to increase impact at the policy and/or practice level?

Strengthening the ties between research, policy and practice in order to increase impact

Presenting Author:Hans Gruber, University of Regensburg, Germany; Presenting Author: Sarah Gielen, Katholieke Onderwijs Vlaanderen, Belgium; Presenting Author: Isabel Raemdonck, Université Catholique de Louvain, Belgium

There is an important relationship between educational research, educational policy and educational practice in every country. Policy provides the environment and the legal basis for the growth and development of educational practice, and educational research provides reliable arguments and solid evidence that may guide practice and policy. The interplay between policy, practice and research requires considerable joint efforts to build a common understanding of the most prevalent educational problems and their solutions and a network of different stakeholders. The theme of the JURE 2018 conference is “Learning and instruction with an impact - scaling up the skill, will and thrill of learning”. The conference presentations, workshops and keynotes will showcase the newest findings about the cognitive, motivational and emotional aspects of learning and highlight the practical implications for practice and policy. In this panel discussion, we would like to focus on how junior researchers can strengthen ties between their research on the one hand and policy and practice on the other hand. Junior researchers are aware that creating impact with their research is important but are less familiar with strategies that can be used to increase impact not only at the research level, but also at the policy and practice level. In this panel discussion, we would like to see the following questions discussed from the different perspectives (policy, practice and research): · How can (junior) researchers strengthen the ties between research and practice? · How can (junior) researchers strengthen the ties between research and policy? · Which strategies can we (junior) researchers use to increase impact at the policy and/or practice level?