Keynote Speech by Prof. Sanna Järvelä 1

24 November 2021 09:15 - 10:15
Auditorium
EAPRIL Keynote

Strengthening human capabilities with digital technologies for ongoing learning needs

Keywords: 21st century learning, Beliefs and conceptions of learning, Innovations in education, Lifelong Learning
Interest group:
Chairperson: Nick Gee, Birmingham City University, United Kingdom

There is much interest to advance digital technologies supporting teaching, learning and education for ongoing learning needs. Yet, many ideas, e.g., implementing data and artificial intelligence in education, still lack systematic understanding of human learning process. Also, new kind of capabilities are needed that are necessary to succeed in a rapidly changing world. I claim that a way forward is to strengthen human capabilities, so that they can adapt to new situations and tasks, collaborate productively and proficiently, develop socio-emotional skills for tackling challenging problems, and have an ability to take initiative set goals and monitor self and others. I introduce recent advancements in research on socially shared regulation in learning which provides a framework for developing these competences. I also discuss how co-evolution of human capabilities and technologies can be enhanced for lifelong and ongoing learning needs.

Strengthening human capabilities with digital technologies for ongoing learning needs
Presenting Author: Sanna Järvelä, University of Oulu, Finland

There is much interest to advance digital technologies supporting teaching, learning and education for ongoing learning needs. Yet, many ideas, e.g., implementing data and artificial intelligence in education, still lack systematic understanding of human learning process. Also, new kind of capabilities are needed that are necessary to succeed in a rapidly changing world. I claim that a way forward is to strengthen human capabilities, so that they can adapt to new situations and tasks, collaborate productively and proficiently, develop socio-emotional skills for tackling challenging problems, and have an ability to take initiative set goals and monitor self and others. I introduce recent advancements in research on socially shared regulation in learning which provides a framework for developing these competences. I also discuss how co-evolution of human capabilities and technologies can be enhanced for lifelong and ongoing learning needs.

Sessions A 1

24 November 2021 11:30 - 13:00
Session Room 13
Present & Discuss
Higher education, Primary education

STEM Education in the 21st century

Keywords: 21st century learning, Cognitive Skills & Development, Collaborative Learning, Curricula, Higher education, Initial Teacher Education (Pre-service), Self-regulation and self-regulated learning, STEM
Interest group: CLOUD 01 - Teacher education, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Alfred Steinbach, Fachdidaktik Naturwissenschaften, Switzerland

Embedding computational thinking in Dutch primary teacher education
Keywords: 21st century learning, Curricula, Initial Teacher Education (Pre-service), STEM
Presenting Author: Rosanne Hebing, Iselinge Hogeschool, Netherlands; **Co-Author:**Bram Oonk, Iselinge Hogeschool, Netherlands; **Co-Author:**Ronald Keijzer, Hogeschool iPabo, Netherlands; **Co-Author:**Anna Hotze, Hogeschool iPabo, Netherlands

The proposed presentation addresses the gradually growing role of computational thinking (CT) in the Dutch primary teacher training curriculum. Over recent years, CT has gained the status of 'desired newcomer' in primary education, as a subset of digital literacy. However, teachers often feel ill-equipped to teach CT. It stands to reason that the marginal role for CT in primary teacher education is at least partly to blame. The research question central to this study is, therefore, 'How do student characteristics relate to the knowledge, skills, and attitude that Dutch pre-service primary school teachers have towards CT?'. A survey was conducted among some 200 Dutch pre-service teachers. The results show significant differences between institutes for teacher training and the way they teach CT, but also between groups of students: female students and students less proficient in mathematics especially appear to be less confident in teaching CT. Moreover, even though the concept of CT is generally familiar to students, many of them are not aware of the newly formulated core objectives pertaining to CT in primary education. This implies that institutes for teacher training should find common ground in teaching CT didactics as well as stimulate students' confidence in this field.

Reflection in Technical Higher Education: Student Perceptions
Keywords: 21st century learning, Cognitive Skills & Development, Higher education, STEM
Presenting Author: Elise Eshuis, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Kariene Woudt-Mittendorff, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Sharon Holterman, Saxion University of Aplied Sciences, Netherlands; **Co-Author:**Karin van der Heijden, Saxion University of Applied Sciences, Netherlands

The project 'Strengthening reflection in technical higher education programs' is a response to the need for well-trained reflective science and engineering professionals and the subsequent question of teachers about how reflection can be designed and embedded in a meaningful way, especially in *technical* programs. Within this project, eight technical education teams from two Dutch universities of applied sciences are working on improving the use of reflection in their curriculum. Among other things, teachers are professionalized in their guidance skills, to improve the guidance of reflective activities of their students. Throughout the project, there are also several research activities being performed and one of them focuses on answering the following three research questions: 1) How do technical students value current reflection activities in their study program?; 2) On which level do technical students reflect according to their own judgement?; and 3) To what extent do technical students have and inclination and need for self-reflection? A questionnaire was used to answer these questions. Data of 943 students (year 1-4; 8 technical programs) were gathered, results are now being analyzed. The results will be shared during the presentation and give further direction to optimize reflection activities within higher education programs.

Promoting 21st century skills through STEAM-education -a case study from Finnish elementary school
Keywords: 21st century learning, Collaborative Learning, Self-regulation and self-regulated learning, STEM
Presenting Author: Essi Vuopala, University of Oulu, Finland; **Co-Author:**Arto Hietapelto, Rajakylä elementary school, Finland; **Co-Author:**Jouni Karsikas, Rajakylä elementary school, Finland; **Co-Author:**Jussi Näykki, Rajakylä elementary school, Finland

This study illustrates how primary and secondary school students' (N=65) skills for collaborative learning and regulation develope when participating in collaborative STEAM-activities. Participants from 4th, 6th and 8th grades participated in STEAM-project for 3-5 weeks. Questionnaire and group learning diary data was collected regularly throughout the STEAM-project. Qualitative content analysis and descriptive statistics are used to capture the development of collaborative learning skills and attitudes. Preliminary results indicate that in general, engaging in a STEAM-project affected positively both to collaborative learning skills and attitudes. Also, it is evident that even the 4th graders can plan, monitor and assess their progress and learning when they are guided and supported to do that. Preliminary results also indicate that STEAM-project offered possibilities to learn various knowledge and skills. This study supports the current field of practice-based educational research by increasing our understanding about the possibilities and challenges of collaborative learning and socially

shared regulation of learning among primary and secondary school students. In addition, this study provides practical examples of conducting STEAM- project which guides the children to develop their collaboration and regulation skills.

Sessions A 2

24 November 2021 11:30 - 13:00
Session Room 1
Present & Discuss
Higher education

Innovations in Higher Education

Keywords: 21st century learning, Higher education, Innovations in education, Professional Development, Professionalisation of educators, Social interaction, Teaching approaches, Well-being and engagement
Interest group: CLOUD 02 - Educators' professional development, CLOUD 04 - Improving learning and well-being
Chairperson: Silvia Annen, Otto-Friedrich-Universität Bamberg, Germany

Building professional development for higher education teachers aimed at innovation with technology
Keywords: Higher education, Innovations in education, Professional Development, Professionalisation of educators
Presenting Author: Anne Horvers, Radboud University Nijmegen, Netherlands; **Co-Author:**Marlies ter Beek, University of Twente, Netherlands; **Co-Author:**Dorien Hopster-den Otter, University of Twente, Netherlands; **Co-Author:**Dana Uerz, HAN University of Applied Sciences (UAS), Netherlands

Following the rapid developments in educational technology, many higher education institutes are starting to innovate education to offer flexible and personalised education. This changes what is required of teachers by asking them to support novel ways of teaching and developing their students' digital literacy (Uerz, Volman, & Kral, 2018). However, research has shown that teachers often lack the knowledge, skills, and self-confidence to improve their courses through the use of educational technology, indicating a need for professional development in this field (Tondeur et al., 2012). In the context of higher education, little is known about what constitutes successful professional development in this specific area. Therefore, there is a practical demand to identify building blocks for arranging effective professional development programmes. This study presents the results of a practical literature review focusing on all aspects related to professional development of higher education teachers in the context of educational innovation with technology. The literature review resulted in a large number of building blocks, which were narrowed down based on interviews with experts in the field of professional development. The findings will be used to develop a toolkit to help design professional development programmes in higher education aimed at educational innovation with technology.

"What teaching approaches do HE teachers use in their classes?"
Keywords: Higher education, Innovations in education, Professional Development, Teaching approaches
Presenting Author: Tineke Kingma, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Anneke Smits, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Debbie Jaarsma, University of Groningen, Netherlands; **Co-Author:**Joke Voogt, Windesheim University of Applied Sciences, Netherlands

In order to investigate how HE teachers use need-supporting and need-thwarting teaching approaches in their classes, a qualitative, descriptive study was conducted. Twelve classes of four HE teachers were video recorded. In response to the lack of a validated coding scheme for need-supportive and need-thwarting teaching approaches in HE, an appropriate coding scheme was developed consisting of 26 deductive and 9 inductive codes. The total number of coded teaching approaches was N=1508. Teachers showed 12 different forms of structure, 6 different forms of relatedness, 8 different forms of autonomy, 6 ways of control and 3 forms of non-relatedness. Teachers used structure, relatedness and autonomy approaches in a ratio of 2:1:1. In addition, the need-thwarting approaches constituted 11% of the total number of approaches used. The control approaches were mostly used when informing students about the way of testing. After identifying the different need-supportive and need-thwarting teaching approaches and the relative distribution of approaches in the instructional patterns, a higher order cluster analysis was performed to identify more frequent combinations of teaching approaches. This analysis resulted in 5 clusters.

Insights in student drop out from a social field research and 4D-mapping perspective (CANCELLED)
Keywords: 21st century learning, Innovations in education, Social interaction, Well-being and engagement
Presenting Author: Els Laenens, University of Antwerp, Belgium

Students of the bachelor of Computer Science program at the University of Antwerp were invited to participate in this study on a voluntary basis. The central research question is 'What insights into the high percentage of student drop-out during the first semester of their study can the deeper dimensions of the social student system/field give us?' To answer this question we apply social field research, a new research domain under development at MIT and the presencing institute (Koenig 2021, Hayashi 2021). Students cocreate sculptures by embodying different roles representing important aspects that influence their study. To identify these roles students first draw field maps showing which factors influenced their study in a positive and/or negative way. Descriptive statistics was used to analyse these field maps. This study shows the impact of the quality of the semester planning (week schedules, tasks and deadlines, evaluations, classes, etc.) on students' wellbeing and learning. The sculptures also illustrate the very low status that students take in relation to all other roles which suggests the need to transform the relationship between course leaders and students. This research also demonstrates a possible value of social field research and 4D-mapping to get further insight in educational systems.

Sessions A 3

24 November 2021 11:30 - 13:00
Session Room 12
Present & Discuss
Higher education, Primary education

Beliefs and conceptions of teaching

Keywords: Beliefs and conceptions of learning, Beliefs and conceptions of teaching, Curricula, Deep-level and profound learning, Initial Teacher Education (Pre-service), Primary school education, Professional identity, Teacher thinking, Training and Development
Interest group: CLOUD 01 - Teacher education, CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Sibel Inci, Turkey

Factors Affecting the Teaching of Computational Thinking in Fundamental Schools: A Path Analysis
Keywords: Beliefs and conceptions of learning, Beliefs and conceptions of teaching, Curricula, Primary school education
Presenting Author: Jeff Hennico, SCRIPT (Service de coordination de la recherche et de l'innovation pédagogiques et technologiques), Luxembourg; **Co-Author:**Robert Reuter, University of Luxembourg, Luxembourg; **Co-Author:**Armin Weinberger, Universität des Saarlandes, Germany

Computational thinking (CT) in fundamental education is an emerging topic in research about educational policies and practices around the globe. In Luxembourg, CT was introduced as a learning topic in fundamental schools in 2020. This situation offers a unique opportunity to investigate how various factors influence emerging CT teaching practices.
Based on a revised version of the Technology Acceptance Model (Inan & Lowther, 2010), a research-based path model of CT teaching was developed, emphasising the influence of teachers' beliefs and readiness on CT teaching practices. It investigated the effects of demographic factors, teaching approaches,

ICT proficiency, previous CT experience, and overall support for technology integration on readiness, beliefs, and CT teaching practices.

The current study reveals that teachers are interested in teaching CT. However, they hold a widespread misconception (Fessakis & Prantsoudi, 2019), confusing CT with programming or technology use. ICT proficiency is indeed associated with beliefs about CT and readiness for teaching CT. Readiness for teaching CT, beliefs about CT, and previous CT experience are the strongest predictors for CT teaching practices.

In line with Cuny et al. (2010), the current study highlights the importance of training teachers to accurately define CT and to identify good practices.

The Practice of On-Site Educators of Estonian Institutions of Science and Culture

Keywords: Beliefs and conceptions of teaching, Deep-level and profound learning, Professional identity, Teacher thinking
Presenting Author: Helene Uppin, Tallinn University, Estonia; **Co-Author:**Inge Timoštšuk, Tallinn University, Estonia

One way to prepare todays' children to manage wicked problems such as loss of biodiversity, or climate change is to enable students to solve authentic and meaningful problems, support perspective-taking and boundary-crossing during formal education by expanding schools' learning environment. Field trips to different out-of-school institutions of science and culture (museums, zoos, science-centres, etc.) can be beneficial for students' learning, motivation, social skills, etc. Yet, the educational promise of field trips is often challenged due to problems of inter-professional communication of school teachers and on-site educators. Current qualitative study aims to explore the practice of educators (N-32) of Estonian out-of-school learning environments. Semi-structured group interviews enabled us to describe the practice of on-site educators in the context of formal education in detail. Preliminary results indicate that educators are enthusiastic, enjoy their work, and understand the value of field trips in general. On the other hand, they tend to neglect students previous experience and especially their long term preparation for learning such as existing content knowledge or learning skills, and do not coordinate their pedagogical decision-making with school teachers. Research highlights the "blind spots" in the communication between school teachers and on-site educators and offers solutions for more meaningful learning.

Profiles of preservice teachers' pedagogical reasoning in internships: an international study

Keywords: Beliefs and conceptions of teaching, Initial Teacher Education (Pre-service), Teacher thinking, Training and Development
Presenting Author: Ottavia Trevisan, University of Padova, Italy; **Co-Author:**Anneke Smits, Windesheim University, Netherlands; **Co-Author:**Lisa Bugno, University of Padova, Italy, Italy; **Co-Author:**Marina De Rossi, University of Padua, Italy

Preparation of preservice teachers for Pedagogical Reasoning & Action (PR&A) takes place both at the teacher training institute and in internships. The individual developmental path towards PR&A is influenced by a multitude of factors, many of them not under the control of the teacher training institute. Therefore, the quality of PR&A may turn out very differently in different individuals. In this interview study, we probed the quality of preservice teachers' PR&A as enacted during internships. A normative framework for the quality appraisal of PR&A was developed on the basis of the interviews with Dutch and Italian preservice teachers. Four different qualities of PR&A profiles were identified: Naïve, Emerging, Evolving, and Substantiated. The first two profiles not being particularly conducive to high quality teaching for learning.

Sessions A 4

24 November 2021 11:30 - 13:00
Session Room 9
Present & Discuss
Higher education, Secondary education

Learning approaches & Self-regulation and self-regulated learning

Keywords: Equality / Education for All, Knowledge Building and Development, Learning styles / approaches, Multiculturalism in Education, Organisational learning, Self-efficacy, Self-regulation and self-regulated learning
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 08 - Diversity & equality in different contexts
Chairperson: Kerstin Helker, Eindhoven University of Technology, Netherlands

Stories from the Digital Classroom; International Students Experiencing Epistemic Moments

Keywords: Equality / Education for All, Knowledge Building and Development, Learning styles / approaches, Multiculturalism in Education
Presenting Author: Gemma Coughlan, Rijksuniversiteit Groningen, Netherlands; **Presenting Author:**Sjoerd-Jeroen Moenandar, Rijksuniversiteit Groningen, Netherlands

This paper explores the idea that educators in the international environment are often unaware of epistemic relations that underpin pupil's learning behaviour.Although educators are increasingly sensitive to tangible behavioural differences among learners, there is less awareness of deeper cultural differences: epistemic relations, logic patterns, or how students interact with knowledge. It is expected that this awareness becomes even more [Sm1] muted in digital learning environments. We propose that to better manage intercultural encounters, we need to further understand how students experience epistemic moments in digital classrooms. What sociocultural factors influence how students experience, and act upon, epistemic moments? Are there misalignments in students' and educators' expectations of deliverables? How has digitization during the Covid-19 pandemic impacted students' experience?Using a new qualitative research method (structured narrative interviewing), semi-structured interviews were conducted with 12 international business students, mapping how students worked through and gave meaning to specific epistemic events in hindsight. Inductive analysis highlighted key epistemic variables that have impact upon the students' learning, particularly in terms of the intersectionality of specializations, semantics and autonomy.The results of this research are relevant in terms of tailoring digital didactics and online learning pedagogies to effectively suit the needs of diverse online learners.

The Power of Self-organized Learning in Schools

Keywords: Learning styles / approaches, Organisational learning, Self-efficacy, Self-regulation and self-regulated learning
Presenting Author: Ingrid Geier, Salzburg University of Teacher Education, Austria

Self-organized learning (SoL) is based on the theoretical models of self-control and self-organization within the framework of systemic and constructivist learning theories. This study wants to find what SoL means for all stakeholders of a Middle School, which is practising this pedagogy. The results of an empirical study with mixed methods (group discussions with all 43 teachers) and surveys in 3 classes (58 students, 40 parents) show that SoL requires different quality characteristics (e.g., reflection of the learning process, learning success control...) and, regarding the question of the encounter of heterogeneity in the classrooms, it enables different aspects of self-control and, out of itself, ways to a teaching and learning culture in which the learners take responsibility for their learning. SoL means participation or transfer of responsibility to learners who, from an organizational point of view, co-determine the subject matter, learning time, methods, place of learning and social form within certain time or content specifications and external structures. It intends to increase the learners' self-competence and knowledge of their own learning and to enable learners to act responsibly and competently which has become more and more important not just during COVID-19.

Sessions A 5

24 November 2021 11:30 - 13:00
Session Room 11
Present & Discuss
Higher education, Primary education, Workplace learning

Continuing Professional Development in Teachers

Keywords: Continuing professional development in Teachers, Cooperative learning, Educational Technology, Emotion and emotional development, Higher education, In-service Teacher Training, Initial Teacher Education (Pre-service), Self-efficacy, Well-being and engagement

The emerging role of Professional Learning Communities as a holistic support system for educators

Keywords: Continuing professional development in Teachers, Cooperative learning, Self-efficacy, Well-being and engagement
Presenting Author: Jonathan Mendels, The Mofet Institute, Israel; **Co-Author:**Tali Berglas-Shapiro, The Mofet Institute, Israel

The proposed research deals with the challenges faced by discipline-based and Inter-institutional Professional Learning Communities (DIPLCs) in Israel when the Covid-19 crisis began in March 2020. As part of the school shutdown and the emergency transition to distance education, teachers were faced with a myriad of challenges, amongst which was the struggle to teach remotely using diverse digital technology, sometimes with no prior experience. As part of this change, all teacher education processes – including DIPLCs – also shifted to distance learning. The study focuses on the changes the DIPLCs incorporated during the transition to the digital medium and on the ways it affected the teachers' resilience, wellbeing and their sense of teacher efficacy. In addition, the study deals with the shift's effect on the community's learning process and on the role DIPLCs leaders played in this transition. The findings were collected using mixed methodologies: an online questionnaire (N-442) and ten semi-structured interviews with DIPLC leaders. The results indicate that in the most part, the DIPLCs managed to offer the participating teachers a safe space for consultation and sharing regarding the difficulties they faced, created an empowering atmosphere for collaborative learning and contributed greatly to the teacher's wellbeing and resilience.

Relocating narrative contradictions in the context of an intervention to promote teacher resilience.

Keywords: Continuing professional development in Teachers, Emotion and emotional development, In-service Teacher Training, Well-being and engagement
Presenting Author: Alba Vallés, University of Lleida, Spain; **Co-Author:**Marc Clarà, University of Lleida, Spain

In this study, we present the first results of an interventionist research design that aims to understand how certain transformations on a teacher narrative may explain changes in different psychological constructs such as burnout, perceived stress, resilience, and mental wellbeing. An Early Career Teacher who was struggling at work participated in a support program to enhance resilience. We qualitatively analyzed the teacher narratives of the first and the last program sessions. Several parts of the narrative appeared in both narratives; however, we found important differences in the surrounding structure and the concepts that these equivalent parts articulated. We present the details of these semiotic transformations in relation with two of these equivalent parts of the narrative related to students' problems and misbehavior. These results are the first steps to gain a better understanding on the semiotic transformations that take place through an intervention and come along with positive changes in resilience related constructs.

Supporting pre-service teachers in their development of their pedagogical ICT-competence.

Keywords: Continuing professional development in Teachers, Educational Technology, Higher education, Initial Teacher Education (Pre-service)
Presenting Author: Gerton Cazemier, Inholland University of Applied Science, Netherlands

Five teacher training institutes (TTI) of a university of applied science in The Netherlands raised the question if the current programme in the curriculum which focusses on digital literacy in primary education and the development of effective technology integration knowledge of pre-service teachers is adequately supporting pre-service teacher in this development. A quantitative research approach was used. Data from a survey based on the SQD-model which includes six micro-level strategies for TTI's that support pre-service teachers in the integration of technology was collected from 70 final-year pre-service teachers. The results show that the pre-service teachers recognize all the six strategies in the current curriculum, but that the strategies are often underutilized, and that learning how to use technology by design and providing continuous feedback by teacher trainers of the TTI's and schools are strategies that need specific improvement. The research results help the TTI's to further develop a curriculum that adequately prepares pre-service teachers in using technology for teaching and learning.

Sessions A 6

24 November 2021 11:30 - 13:00
Session Room 8
EAPRIL Cloud Spotlight Symposium
Higher education

CLOUD 06 - Online Teaching & Learning in the Time of COVID-19

Keywords: Cognitive Skills & Development, Distance Education, Educational Effectiveness and quality of education, Educational Technology, Higher education, Instructional Design and Instructional Strategies, Motivation, Teacher thinking, Web-Based Learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Ning Ding, Hanze University of Applied Sciences, Netherlands
Discussant: Marca V.C. Wolfensberger, Hanzehogeschool Groningen, Netherlands

Shifting to online-only education during the COVID-19 pandemic has challenged education practitioners to re-define their didactic methods and ponder upon how to motivate students to engage in online education. In this symposium, three researchers from a Dutch university of applied sciences are going to present their studies regarding online teaching during the COVID-19 crisis. (1) Dr. van Heugten studied the relationship between students' resilient capacity and their learning engagement at the outset of the pandemic when classes were abruptly forced to be online; (2) Dr. Xu collected the virtual attendance data from the first-year university students and discussed the importance to participate in real-time online classes. The findings showed that simply relying on asynchronous education cannot guarantee successful a learning outcome; (3) Langeloo et al. introduced an on-going research focusing on teachers' experiences with one-year online teaching in the pandemic. These three studies are aligned to make us rethink of how to improve students' learning effectiveness and teachers' working efficiency during the pandemic. Interactivity: We plan to use online voting system such as Mentimeter or Socrative to trigger real-time discussion for each topic during the symposium. The collected ideas will be analyzed and shared with participants.

Resilience and Online Learning Engagement under the impact of the Corona-crisis

Presenting Author: Petra van Heugten, Hanzehogeschool Groningen, University of Applied Science, Netherlands; **Presenting Author:**Ning Ding, Hanze University of Applied Sciences, Netherlands

The COVID-19 pandemic is not only a threat to people's health, but it also affects the ability to cope with stress and adversity. Adversity impacts particularly first year students graduating from high schools and starting their higher education in September, 2020. They have not yet met their teachers or classmates, nor have they visited the campus yet. Considering this, urgent calls for studies on students' resilience and their online learning engagement in the pandemic era are issued. Better understanding students' resilience and online learning engagement can provide insights for educators to better help students. The findings indicated relationships between resilient capacity and cognitive engagement in online education and a gender difference was addressed.

Virtual Class Attendance and Learning Achievement during COVID-19 Pandemic

Presenting Author: Ning Ding, Hanze University of Applied Sciences, Netherlands; **Co-Author:**Xiaoyan Xu, Hanze University Groningen. University of Applied Sciences, Netherlands

Previous research addressed a controversial finding regarding the relationship between class attendance and learning achievement. During the COVID-19 crisis, most higher education institutes are forced to provide online-only education, and this question becomes more vexing and pressing. We utilize the data of students' virtual class attendance of one subject in the first-year bachelor program to explore how attendance may impact students' learning performance. The research question is, *how the first-year students' attendance at virtual classes is related to their exam grades in the Management Accounting subject?* Over 150,000 pieces of attendance information from more than 300 students in the first study period (September to November, 2020) have been retrieved from the school server computer. Students' demographic information such as gender and nationality, as well as their virtual class attendance data are used as predictors while their individual exam grades are used as the dependent variable.

Building a Common Vision on Blended Learning: Teacher Experiences and Wellbeing During the pandemic
Presenting Author: Marca V.C. Wolfensberger, Hanzehogeschool Groningen, Netherlands; **Co-Author:**Annegien Langeloo, Hanze University Groningen. University of Applied Sciences, Netherlands

When all higher education facilities shut down in March 2020, teachers were forced to abruptly change their common teaching methods and switch to online learning. This led to an increased workload and higher levels of distress among teachers. Also, teachers showed difficulty creating committed communities with colleagues and students online. One year into the pandemic, most teachers are still working and teaching remotely and express a need to develop a vision on how post-pandemic education should be organized, both online and face-to-face. In the current study, we examined throughout the pandemic year how teachers experienced the impact of the pandemic on their wellbeing and their online teaching skills, as well as their wishes for future teaching. By means of focus groups and a survey study in-depth data was collected which is used to develop a common vision on blended learning and how to create committed (online) communities in higher education. During EAPRIL 2021, the results of this study and practical implications will be presented and discussed with the audience.

Sessions A 7

24 November 2021 11:30 - 13:00
Session Room 5
EAPRIL Cloud Spotlight Session
Higher education

CLOUD 03 - Improving learning experiences

Keywords: Deep-level and profound learning, Higher education, Instructional Design and Instructional Strategies, Learning and neuroscience
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

Focus on learner experience is key to the strategic development of learning and teaching environments. Some may even say that it is the only measure. This cloud spotlight session offers insights and results from three different research projects that approach the learning experience from different angles and through unique methodology. The first presentation is based on a quantitative survey research on learners' deep and surface approaches to the learning of mathematics. The second, exploratory study, introduces learning analytics as a means of supporting study progress and enhancing the student learning experience. Finally, the third presentation focuses on how we can measure, through physiological and self-reported means, learning experiences in simulations, and if we can identify meaningful learning moments.After each session, there is time for questions, feedback and comments from the audience.

CLOUD 03 - Improving learning experiences
Presenting Author: Ilona Laakkonen, JAMK University of Applied Sciences, Finland; **Presenting Author:**Minna Silvennoinen, Jyvaskyla University of Applied Sciences, Finland; **Presenting Author:**Satu Aksovaara, Jamk, University of Applied Sciences, Finland; **Presenting Author:**Elina Vaara, Jyvaskyla University of Applied Sciences, Finland; **Co-Author:**Anne Rantakaulio, JAMK University of Applied Sciences, Finland; **Co-Author:**Tiina Parviainen, University of Jyväskylä, Finland; **Co-Author:**Mikko Vesisenaho, University of Jyväskylä, Finland; **Co-Author:**Anita Malinen, University of Jyväskylä, Finland; **Co-Author:**Suvi Karjalainen, University of Jyväskylä, Finland; **Co-Author:**Sirpa Laitinen-Väänänen, JAMK University of Applied Sciences, Finland; **Co-Author:**Minna Koskinen, JAMK University of Applied Sciences, Finland; **Co-Author:**Santtu Hartikainen, JAMK University of Applied Sciences, Finland

Focus on learner experience is key to the strategic development of learning and teaching environments. Some may even say that it is the only measure. This cloud spotlight session offers insights and results from three different research projects that approach the learning experience from different angles and through unique methodology. The first presentation is based on a quantitative survey research on learners' deep and surface approaches to the learning of mathematics. The second, exploratory study, introduces learning analytics as a means of supporting study progress and enhancing the student learning experience. Finally, the third presentation focuses on how we can measure, through physiological and self-reported means, learning experiences in simulations, and if we can identify meaningful learning moments.After each session, there is time for questions, feedback and comments from the audience.

Sessions A 8

24 November 2021 11:30 - 13:00
Session Room 6
Symposium
Higher education

Video-based collaborative learning: evidence for a pedagogical model

Keywords: Assessment and evaluation, Collaborative Learning, Cooperative learning, Educational Technology, Higher education, In-service Teacher Training, Initial Teacher Education (Pre-service), Vocational education
Interest group: CLOUD 01 - Teacher education, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Alberto Cattaneo, Switzerland
Chairperson: Frank De Jong, Netherlands
Organiser: Marije Bent, Aeres University of Applied Sciences Wageningen, Netherlands
Discussant: Ricardo Jorge Monginho, Universidade de Évora, Portugal

The educational potential of video is a long-lasting, multi-faceted topic, and the affordances of technological advancement have recently revitalized this discussion. However, teachers are still far from competently integrating or becoming accustomed to video-based pedagogy, especially in combination with collaborative pedagogy. To provide teachers and teacher educators with sound principles for implementing video-supported collaborative learning (VSCL), this symposium fosters a teacher experiment, a cross-over analysis on a pedagogical model for effective VSCL, and student feedback in relation with VSCL. The experiment shows students' growing lexical richness and cohesion by working peer feedback on student's video recorded teaching practice. The cross-over analysis shows the evidence for the VSCL-pedagogical model based on data from many other experiments in the European ViSuAL-project. The same holds for the student-feedback analysis. In this symposium we interact about practical experiences in relation with the effective principles of the developed pedagogical model and the experiences of the students. There will be a brief presentation of the contributions and during these presentations participants can ask questions who are shared on the screen. The contributors respond to the questions and participate after the presentations in the plenary conversation with a discussant and all participants.

Acquiring Expert's Vocabulary: Analyzing Students Textual Feedback on Video Recordings.
Presenting Author: Marije Bent, Aeres University of Applied Sciences Wageningen, Netherlands; **Co-Author:**Frank De Jong, Aeres University of Applied Sciences & Open University Heerlen, Netherlands; **Co-Author:**Erick Velazquez-Godinez, Artificial Intelligence, MyTommorrows, Amsterdam, Netherlands

Teacher education aims to move students from novice to expert level. In this study, we analysed student's textual peer feedback on video recordings of their teaching practice. The question was: What is the impact of curriculum literature on the word use in the peer feedback? Secondly, do lexical richness and cohesion as indicators of growing expertise increase in the students' feedback during the course? First, the impact of the curriculum and literature on students' feedback was analysed by semantic network analysis of prominent words. Secondly, the lexical richness and the semantic cohesion of students' feedback and reflections were analysed. Our findings show that students created stronger connections between the prominent words from the literature. The lexical richness and semantic cohesion also increased. This means that students incorporated vocabulary from expert sources and maintained semantic consistency while using the expert vocabulary. This might be seen as an evidence that peer-feedback on students' own video recordings stimulates that students are becoming experts in the field of teaching.

Video-Supported Collaborative Learning within the ViSuAL Project: a qualitative analysis using nVivo

Presenting Author: Ricardo Jorge Monginho, Universidade de Évora, Portugal; **Co-Author:**Alessia Evi-Colombo, Swiss Federal Institute for Vocational Education and Training (SFIVET), Switzerland; **Co-Author:**Alberto Cattaneo, Swiss Federal University for Vocational Education and Training, Switzerland; **Co-Author:**Jose Ramos, University of Evora, Portugal

The present contribution's goal is to present the collected evidence to answer the question: To what extent did the video-supported collaborative learning (VSCL) approach prove efficient for the teachers and students involved in the ViSuAL-project? Qualitative data from 58 documents was analyzed using the NVivo software, where the data corpus was coded. Data was thematically organized into eight categories: 1) collaborative learning activities; 2) effects; 3) issues; 4) objectives; 5) prerequisites; 6) role of the teacher; 7) technology function; and 8) technology. This presentation focuses specifically on the references coded into categories 1 and 2.

The analysis revealed the essential components to rely on when adopting a VSCL perspective and shows that the interventions led to changes in teaching practices, effective feedback, learning from viewing video recorded practices, positive attitudes towards VSCL, deeper reflections and learning, changes in video competences, knowledge sharing and students' engagement on learning, but also allowed us to understand better the different collaborative activities that took place. The participants clearly perceived the positive contribution of video to teaching and learning, particularly in their self-analyses, in which they were able to realize the usefulness of integrating videos into shared reflection and collaboration.

Enhancing video-supported collaborative learning - learners' perspective.

Presenting Author: Sirpa Laitinen-Väänänen, JAMK University of Applied Sciences, Finland; **Co-Author:**Eila Burns, JAMK University of Applied Sciences, Jyväskylä, Finland

Essential for learning at vocational and professional higher education is the tight integration between practical, theoretical, and self-regulative knowledge (Tynjälä 2008). One method to enhance this integration is a systematic video-observation of one own's real work situations, where students can analyse and reflect the practice in the frame of theories. Several studies have been published regarding the role and benefits of using videos and video-observations in education and in teacher education, particularly. This study focuses on higher education trainees' and students' experiences focusing on the questions, what kinds of meanings do the higher education students give to the video-supported collaborative learning? Students and trainees (N = 57) replied to the open-ended questions, as part of their final program assignments and in their course feedback. The data was analysed by applying the content analysis (Miles and Huberman 1994). Based on the analysis, five main themes emerged describing the meanings students gave to the VSCL: 'positive experience', 'saves and requires time', 'difficult but instructive', 'peer's essential role' and 'I learn a lot'. Based on our study, we suggest expanding the research-based use of video-supported teaching and learning in vocational and higher education.

Sessions A 9

24 November 2021 11:30 - 13:00
Session Room 4
Roundtable
Vocational education

Vocational Education

Keywords: Continuing professional development in Teachers, Medical & health education, Practice-based research (methodology), Professional Development, Teacher thinking, Vocational education, Web-Based Learning
Interest group: CLOUD 02 - Educators' professional development, CLOUD 13 - Starting Researchers
Chairperson: Rasa Poceviciene, Lithuania

International cooperative development of VOOCS for VET teacher professionalisation: Lessons learned

Keywords: Continuing professional development in Teachers, Professional Development, Vocational education, Web-Based Learning
Presenting Author: Pieter Seuneke, Aeres University of Applied Sciences Wageningen, Netherlands; **Co-Author:**Nataša Papić-Blagojević, Novi Sad School of Business, Serbia; **Co-Author:**Andrey Belotserkovsky, Tver State University, Russian Federation

The importance of professional development of educational professionals is universal, so from a learning perspective, it's good to work jointly towards good practices of supporting these teachers in their professionalisation. In Europe and beyond we share a lot of common challenges as well as experiences to jointly work towards professionalization and further development. In this round table, we will reflect upon how the ongoing EU Erasmus+ project Pro-Vet aims/ed to support and facilitate professionalisation of educational professionals (VET teachers) and in particular how we in this project jointly worked towards developing methods, courses to support development of educational professionals. We will present its aims, objectives, its project methodology and revisit its underlying methodology. Purpose of this contribution is drawing most important conclusions or lessons learned from this international cooperation by reflecting how we in the project have jointly worked on the development of tools, methods (Voocs) for supporting the professionalisation of educational professionals.

Understanding vocational healthcare students' skills of research and inquiry

Keywords: Medical & health education, Practice-based research (methodology), Teacher thinking, Vocational education
Presenting Author: Erica Wijnands-Pot, mboRijnland, Netherlands

Recently there has been a growing interest in the development of healthcare students' research and inquiry skills (RIS) in Dutch upper secondary vocational education (MBO, ISCED3&4). RIS are essential for students' performance in healthcare and enables them to deal with problems and innovations. However, unexplored is how to understand students´ RIS in ISCED3&4-education and how educators can intervene to develop students' RIS. This research will conceptualize vocational healthcare ISCED3&4-students' RIS from the angle of research literature and vocational practice. Educators' interventions to enhance students' RIS are explored in depth in a multiple case study and a vignette study. Research QuestionsHow can vocational healthcare students' research and inquiry skills (RIS) be conceptualised, and how can educators enhance the development of these skills? How are students' RIS defined in educational and healthcare research? 2. How do vocational healthcare professionals and -educators characterize students' RIS? 3. How do expert educators intervene to enhance the development of students' RIS? 4. What interventions do vocational healthcare educators perceive important in enhancing healthcare students' RIS?

Sessions A 10

24 November 2021 11:30 - 13:00
Session Room 2
EAPRIL Cloud Spotlight Session
Higher education

CLOUD 09-Multisensory Musical Design– Rediscovering musical learning pathways in the age of industry

Keywords: Collaborative Learning, Culture and Education, Higher education, Music & Arts Education
Interest group: CLOUD 09 - Sounds & Arts in Transversal Learning

Music and arts are at the core of learning, and the missing of those will weaken the abilities to connect, and to learn. Also, at the age of industry, arts-based dialogues are needed. This cloud submission is constructed as activities and dialogues, starting with the theoretical-philosophical frameworks, especially with the basic ideas of the Multisensory Musical Design (Marjanen 2021) and the dialogical-integrative model and method concepts (Gruber 2019). The cloud members are invited to an active participation, supported by steps to lead us all together onwards through this Cloud 9 spotlight session. The active part will be clearly designed for the target of understanding the meanings of arts-based experiences in learning. Our journey will start with explorations for self-concept connected with music and arts (Spychiger 2013).

CLOUD 09-Multisensory Musical Design– Rediscovering musical learning pathways in the age of industry
Presenting Author: Kaarina Marjanen, University of Tampere, Finland; **Presenting Author:**Hubert Gruber, Pädagogische Hochschule NÖ / University College of Teacher Education Lower Austria, Austria

Music and arts are at the core of learning, and the missing of those will weaken the abilities to connect, and to learn. Also, at the age of industry, arts-based dialogues are needed. This cloud submission is constructed as activities and dialogues, starting with the theoretical-philosohpical frameworks, especially with the basic ideas of the Multisensory Musical Design (Marjanen 2021) and the dialogical-integrative model and method concepts (Gruber 2019). The cloud members are invited to an active participation, supported by steps to lead us all together onwards through this Cloud 9 spotlight session. The active part will be clearly designed for the target of understanding the meanings of arts-based experiences in learning. Our journey will start with explorations for self-concept connected with music and arts (Spychiger 2013).

Sessions A 11

24 November 2021 11:30 - 13:00
Session Room 10
Present & Discuss
Higher education, Secondary education

Diversity & Practice-based research methodology

Keywords: Beliefs and conceptions of teaching, Diversity, Higher education, Inclusivity, Practice-based research (methodology), Professional Development, Professional identity
Interest group: CLOUD 08 - Diversity & equality in different contexts, CLOUD 11 - Practice-based Research Methodology
Chairperson: Anje Ros, Fontys University of Applied Sciences, Netherlands

Responding to student diversity: how SE teachers learn to implement differentiated instruction
Keywords: Diversity, Inclusivity, Practice-based research (methodology), Professional Development
Presenting Author: Wouter Smets, Karel de Grote University college, Belgium

Paper InformationAbstract:As student populations in schools become more diverse in many western countries the urge for teachers to provide instruction that caters for students' needs increases concurrently. Teachers however find it difficult to put differentiated instruction into practice. This study is based on an action research project that documented teachers professional development. Three teams of secondary education teachers were trained and coached to implement differentiated instruction in their classrooms. They collaboratively planned their instructional design to align with the contextuality of their school and while implementing the planned instructional design, they responded to students with diverse readiness levels or learning profiles. Teachers' implementation of differentiated instruction was observed and interpreted using action research methodology. Results show that teachers struggled assessing students' differences. Moreover, teachers' responsivity appeared to be not only determined by cognitive traits, but also by other types of individual differences. Implications for theory and practice are discussed.

The benefits of thesis in higher education studies - Alumni perspective (CANCELLED)
Keywords: Higher education, Practice-based research (methodology), Professional Development, Professional identity
Presenting Author: Liisa Vanhanen-Nuutinen, HAAGA-HELIA University of Applied Sciences, Finland; **Co-Author:**Altti Lagstedt, HAAGA-HELIA University of Applied Sciences, Finland; **Co-Author:**Hannu Kotila, HAAGA-HELIA School of Vocational Teacher Education, Finland; **Co-Author:**Kimmo Maki, HAAGA-HELIA University of Applied Sciences, Finland

This far, the research of theses in higher education have focused on student's professional growth, supervision, evaluation and completion of thesis work, but the benefits of theses after graduation are studied rarely. Therefore, this article examines the experiences of higher education graduates, alumni about thesis and its benefits.
To achieve a holistic view of the situation, a mixed method study was conducted in spring 2020. The data was collected via alumni survey, and the target group had graduated from the University of Applied Sciences two years earlier. The target group had graduated from the University of Applied Sciences two years earlier. This article is based on data of 644 alumni and, as sub-data, on the responses of graduates of the three largest degree programmes (business, IT and business service solutions) (n=296). The data were analysed by descriptive statistical methods and, in addition, the associations between the variables were tested. The open-ended questions were analysed by thematic content analysis.
According to the results, the form of thesis (research, functional or diary) was related to the perceived benefits. In the thesis process following competencies were emphasised: scientific writing, systematic information processing, information retrieval and justification of activities.

Contributing to Inclusive Higher Education Programs: Educators' views.
Keywords: Beliefs and conceptions of teaching, Diversity, Higher education, Inclusivity
Presenting Author: Martijn Willemse, Windesheim University of applied sciences, Netherlands; **Co-Author:**Sui Lin Goei, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Fer Boei, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Jarise Kaskens, Hogeschool Windesheim en Radboud Universiteit Nijmegen, Netherlands; **Co-Author:**Monique Ridder, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**thijs hemmer, Windesheim University of Applied Sciences, Netherlands

This proposal is about a study conducted at one University of Applied Sciences aiming to explore higher education teachers' views and experiences on inclusive higher education. Nowadays inclusion is a buzz word in higher education (HE). However, perspectives on inclusion and what inclusive HE should look like, vary. Given the variety of perspectives on inclusive HE, HE-teachers' views on inclusive programs might differ too. Unfortunately research on this matter is scarce. Therefore, nine online focus group interviews with in total 45 HE teachers were organized to study HE teachers' views and experiences. Central questions of this study were *How do HE teachers define Inclusive HE, what competencies do they consider necessary and which challenges do they discern as contributing to inclusive practices*? Support of students' development regardless disabilities, background, gender or other educational needs as crucial part of Inclusive HE practices was emphasized in all group interviews. In most groups, teachers distinguished the need for a positive attitude towards inclusion as a distinctive part of teachers' competencies. In this regard they emphasized a lack of collaboration and debate among faculty members about their own or shared inclusive teaching practices, including a lack of discussion how to improve their programs.

Sessions B 1

24 November 2021 14:00 - 15:30
Session Room 8
Poster Presentation
Primary education

Primary Education

Keywords: 21st century learning, Continuing professional development in Teachers, Educational Technology, Emotion and emotional development, In-service Teacher Training, Instructional Design and Instructional Strategies, Pre-school education / kindergarten, Primary school education, Self-regulation and self-regulated learning, Well-being and engagement
Interest group: CLOUD 01 - Teacher education, CLOUD 02 - Educators' professional development, CLOUD 04 - Improving learning and well-being, CLOUD 06

Chairperson: Rasa Poceviciene, Lithuania

Critical Thinking among primary teachers in ESD context
Keywords: 21st century learning, Continuing professional development in Teachers, Educational Technology, Primary school education
Presenting Author: Sonia Felix, NTNU (Norwegian University of Science and Technology), Norway

I present some theoretical and empirical findings about the importance of Education for Sustainable Development (ESD) as a learner-centered and Critical Thinking (CT) as a participatory decision-making tool and value-based at the learning (Ichinose, 2017). The specific argument that is put forward is: learning in the Age of Industry 4.0 should privilege digitalization and digital technologies with the critical awareness of the importance of Critical Thinking (CT) facets such as source criticism (as part of establishing validity of information) in a sustainable perspective (demanding the local intertwined with the global arena). Addressing ESD with the focus on CT is an imperative to rethink about modern didactic concepts specially with focus on securing sustainable future through educational action. The main question in education field is: how do primary teachers able to deal and cope with CT when they are working with the students through ESD tasks? The findings are elaborated with selected empirical data.

Self-regulation for children and teachers: A practice-based research
Keywords: Continuing professional development in Teachers, In-service Teacher Training, Self-regulation and self-regulated learning, Well-being and engagement
Presenting Author: Katrien Goossens, UCLL, Belgium; **Co-Author:**Caroline Vancraeyveldt, UC Leuven-Limburg, Belgium; **Co-Author:**Maai Huyse, UC Leuven Limburg, Belgium; **Co-Author:**Marieke Vandersmissen, UC Leuven-Limburg, Belgium

Stress-related children's mental health problems are on the rise. The self-reg model of Stuart Shanker (Shanker, 2016) helps children and teachers to become calm, alert and learning by detecting the causes of their stress, so that they can reflect on their behavior and use personalized strategies to self-regulate. In this practice-based research, we investigated what 10 voluntary Flemish school counsellors and (care) teachers learned from the self-reg model and how they integrated this model in their daily practice in (pre)primary education. A professionalization of 9 sessions was organized over the course of two school years. The research shows that teachers who enrolled in the professionalization program struggled with their own self-regulation and often felt hyper-aroused or tired. This is why we put a strong focus on the self-regulating of teachers. During professionalization teachers also learned how to reframe maladaptive behavior of children into stress behavior. Classroom environment was chosen as a way to help children to calm down children en make sure they are ready to learn. We conclude that the self-reg model offers teachers great insight in the stress behavior of children but teachers also express the need for more specific strategies to stimulate children's self-regulation in the classroom.

Improving emotion regulation in young children: an arts-based mindful intervention in schools.
Keywords: Emotion and emotional development, Pre-school education / kindergarten, Primary school education, Well-being and engagement
Presenting Author: Katrien Goossens, UCLL, Belgium; **Co-Author:**Hanne Vanmierlo, UCLL, Belgium

The aim of this research project is to improve emotion regulation in young children (5-8 years) at school. A literature study on emotion regulation (Berking, 2017) on the one hand and mindfulness on the other hand was completed in the first part of this project and demonstrated promising links between emotion regulation and mindfulness. This was further explored by designing and implementing an arts-based intervention to improve emotion regulation in young children. To meet the needs of our young target group, we explicitly chose for a child-centered approach wherein active, playful, arts-based activities were designed. 13 Flemish teachers in 6 schools participated in a professionalization. The professionalization consisted of training in the intervention and individual coaching. The teachers were considered as co-researchers as we strive to adapt the intervention to their experiences, feedback and suggestions. Qualitative data will be collected by observations and semi-structured interviews of both teachers and children. The data-analysis will focus on the (perceived and observed) extent to which the intervention achieved the goals we prioritized and how teachers and children experienced the intervention. The main goal is to achieve a practice-based improvement of the intervention to support teachers in improving emotion regulation in children.

Ubuntu, Manjaro, & Raspbian OS in K-12. Designing open-source interfaces for digital citizenship
Keywords: 21st century learning, Educational Technology, Instructional Design and Instructional Strategies, Primary school education
Presenting Author: Mathieu Payn, HEP Fribourg, Switzerland; **Co-Author:**Lionel Alvarez, HEP-Fribourg | Université de Fribourg, Switzerland; **Co-Author:**Cuko Kostanca, Haute école pédagogique de Fribourg, Switzerland; **Co-Author:**Ania Tadlaoui-Brahmi, Haute Ecole pédagogique Fribourg, Switzerland

Most of digital competence frameworks for compulsory education embedded problem-solving skills. However, none of these frameworks specify in which digital environments must the students be able to problem solve. Thus, this skill should certainly be demonstrable in a variety of operating systems (OS). The standardization of digital learning environments organized by public schools often limits this ambition. So, a variety of digital learning environments were chosen, designed and developed with openness and plurality in mind. A large diversity of Linux distros exists and knowing them might be part of a digital culture to promote an ambitious digital citizenship. If the OS are free, the hardware might be expensive. Going with Raspberry Pi micro-computers, the openness to other OS becomes suddenly possible and can be organized with fewer expenses. To design the user interfaces on the Pi, the successive approximation (three-phase) model has been chosen as a process. Several Linux distros were tested with clear pedagogical intentions. Three interfaces were selected: Ubuntu, Manjaro, Raspbian OS. Interfaces tests will be carried out in classrooms between now and the congress and the communication will invite participants to experiment these.

Sessions B 2

24 November 2021 14:00 - 15:30
Session Room 5
Poster Presentation
Higher education

Teacher Education & Meta-cognition and metacognive learning

Keywords: Assessment and evaluation, Higher education, Initial Teacher Education (Pre-service), Innovations in education, Instructional Design and Instructional Strategies, Mentoring, Meta-cognition and metacognive learning, Motivation, Professional Development, Professionalisation of educators, Reading, Web-Based Learning
Interest group: CLOUD 01 - Teacher education, CLOUD 02 - Educators' professional development, CLOUD 03 - Strategies to improve teaching and learning environments
Chairperson: Zarina M. Charlesworth, Switzerland

Change of Teacher Motivations during Teacher Education (CANCELLED)
Keywords: Initial Teacher Education (Pre-service), Motivation, Professional Development, Professionalisation of educators
Presenting Author: Sabine Bruch, University of Education Upper Austria, Austria; **Co-Author:**Karin Busch, University of Education Upper Austria, Austria; **Co-Author:**Eeva Kaisa Hyry-Beihammer, University of Education Upper Austria, Austria

Based on previous studies, we know a lot about the motivation for choosing a teacher career, like altruistic reasons (e.g finding work as socially important), intrinsic reasons (e.g. enthusiasm for a certain subject) and extrinsic reasons (e.g. holiday) (König & Rothland, 2012; Whatt et al. 2012). Motivational factors like enthusiasm, self-regulation and self-efficacy have also an impact on the professional development during teacher studies and on the teachers' work (Baumert & Kunter 2006; Krapp & Hascher 2009). Teacher motivation is not only important for being successful in studying but also an important aim for an effective teacher education (Krapp 2002). However, teacher motivation may also change during the studies – a topic that is seldom addressed. In this paper we ask, "How do teacher motivation change during their studies"? Here, we use the definitions of extrinsic and intrinsic motivation as well as the self-determination theory (SDT)

according to Ryan & Deci (2017). Based on this theory, we try to understand the factors that promote teacher motivation.

The effect of reading instruction on absolute metacomprehension accuracy – A mixed method study
Keywords: Higher education, Instructional Design and Instructional Strategies, Meta-cognition and metacognive learning, Reading
Presenting Author: Jennifer Steckel, Bergische University of Wuppertal, Germany

This study examines whether directly instructing students what comprehension constitutes and giving students opportunities to use that information for their reading process impact absolute metacomprehension accuracy. To do so, I used a mixed method design to be able to (1) assess the effect of direct instruction on comprehension and metacomprehension accuracy, (2) assess student's processing through think-aloud and (3) combine quantitative and qualitative data for a whole impression of how direct instruction influences comprehension and metacomprehension accuracy. In this study forty teacher student's take part. I assume that direct instruction impact comprehension and especially metacomprehension accuracy for poor comprehenders. More specifically, I hypothesize that (1) instructing students to read for construction of a situation model reduces overestimation of situation model comprehension for poor comprehenders. (2) instructing students to read for construction of a textbase will lead to a higher overestimation of situation model comprehension for poor comprehenders. (3) The effect of instruction on comprehension and metacomprehension accuracy depends on student's processing during reading. If student's are better able to judge their comprehension level when instructing them what to read for, this study shows an effective but easy to use method for student's to be able to accurately judge their comprehension level.

Online Self-Assessments in Teacher Education in Germany
Keywords: Assessment and evaluation, Initial Teacher Education (Pre-service), Professionalisation of educators, Web-Based Learning
Presenting Author: Jorg Holle, Westfälische Wilhelms-Universität Münster, Germany

In teacher education, it appears sensible for universities to install an assessment strategy which balances the dimensions of attraction and selection. In recent years, due to a recommendation by the standing committee of the German ministers of culture in 2013, a growing number of universities relies on online self-assessments (OSA) in order to a) inform prospective students, b) instigate a process of self-reflection about the person-job-fit and c) try to assess student's prerequisite for successful studies. While research has focused on a) compiling a list of universities using OSA (Nieskens and Demarle-Meusel 2013, Nieskens 2016), b) describing and evaluating the most common OSA (Rothland and Tirre 2011) or c) individual reports by universities about their experiences (Boeger 2016, Faust et al 2003), little can be found about why universities choose to install an OSA , why they opted for which OSA and how they use the data for competence development.

Supporting student-teachers training process
Keywords: Initial Teacher Education (Pre-service), Innovations in education, Mentoring, Meta-cognition and metacognive learning
Presenting Author: Manal Raoui, Regional Center for Education and Training Professions - El Jadida, Morocco; **Co-Author:**Fatima-Zahra Guerss, Ibn Tofail University, Morocco

Improve student-teachers education is now important over the world including Morocco. To that end, supporting self-regulation of their training process is to consider. Self-regulation abilities prepare them for lifelong learning (Butler, 2005). To address this issue, this research aims to respond to three questions : during the training course, how the student-teachers training process is going? how the student-teachers process is related to their characteristics? how the student-teachers process is related to the characteristics of the context? To that end, a qualitative inquiry (Miles & Huberman, 1994) was conducted. Data was collected essentially from an online logbook that student-teachers (N=90) used during a course session. They fill it at the beginning of the training, before and after each theme and at the end of the course. A survey was used to collect demographic data and more information about participants. Data were analyzed using the mixed coding method (Miles & Huberman, 1994) and grids and codes developed in our previous study (Raoui, 2019). Inductive coding contributes to develop the code list to better describe the new context and participants.

Sessions B 3

24 November 2021 14:00 - 15:30
Session Room 6
Poster Presentation
Primary education, Workplace learning

Workplace Learning & Special Educational Needs in Primary Education

Keywords: Collaborative Learning, Emotion and emotional development, Innovations in education, Medical & health education, Parental Involvement in Learning, Peer Interaction / learning, Practice-based research (methodology), Professional Development, Special Educational needs, Workplace learning
Interest group: CLOUD 04 - Improving learning and well-being, CLOUD 14 - Learning in Organisations
Chairperson: Ilona Laakkonen, JAMK University of Applied Sciences, Finland

What immediate value is created in a starting learning community within a hospital?
Keywords: Collaborative Learning, Medical & health education, Professional Development, Workplace learning
Presenting Author: Wendy Heemskerk, Haga Teachting Hospital, Netherlands; **Co-Author:**Christian Wallner, University of Applied Sciences Leiden, Netherlands

Research context: A starting learning community within the pulmonary ward of Haga Teaching Hospital in the Netherlands. Research question: To what extent does immediate value emerge during first sessions of a starting learning community in which staff nurses, nursing students and a nurse lecturer participate together?
Methodology: A qualitative and descriptive design was chosen for a secondary analysis of observation data. The value creation framework of Wenger et al. (1) provided the basis for the study design.
Results: Data were identically clustered in five groups and independently coded with an almost perfect agreement (K 0.979). Of a total of 15 members, sessions attracted 12-14 members. Immediate value aspects were recognized during the sessions and categorized into five themes: participation, activities, engagement, interaction and confidence/trust. For example, returning presence at sessions, asking questions, giving feedback and having fun. According to the members, clear expectations, familiarization with community learning and a safe atmosphere were essential elements during their learning.
Conclusion: Even in a starting learning community, immediate value emerge and can be indicated during first sessions. However, it is important to facilitate a community-building process that stimulates sharing expectations and creates an atmosphere in which members feel confident to learn and experiment.

Youth Service Point (YSP) (CANCELLED)
Keywords: Collaborative Learning, Emotion and emotional development, Peer Interaction / learning, Professional Development
Presenting Author: Mariette Haasen, Fontys OSO, Netherlands; **Co-Author:**Victorien Saamena, Boei Limburg, Netherlands; **Co-Author:**Rian Alders, Boei Limburg, Netherlands

The majority of teachers experience problems coping with students who have behavioral problems in their classroom. Youth care professionals indicate that schools only seek their support when critical problems occur, rather than taking a preventive approach. This study is part of a larger research project focused on this issue. In three educational contexts, teachers and youth professionals work together in order to develop a preventive approach for enhancing students' social-emotional development. The present study concerns further development of a 'youth service point' (JSP) in a school for secondary education and a school for vocational education. The research question is: *How can the Youth Service Point more integrated in the school community and curriculum by working collaboratively with teachers on social-emotional learning?* A lesson program to promote more respectful behavior in the school was designed and will be implemented in ten classrooms in each school. Preliminary results show differences between the two schools, especially with regard to the complexity of language that can be used. Reflection on dynamics in the own group based on the lessons is hard to achieve in both schools. Tensions between teachers and

youth care professionals with regard to the moment and way of intervening become visible.

WisH
Keywords: Collaborative Learning, Emotion and emotional development, Parental Involvement in Learning, Professional Development
Presenting Author: Mariette Haasen, Fontys OSO, Netherlands; **Co-Author:**Miriam de Werd, GGD Hof van Brabant, Netherlands

The majority of teachers experience problems coping with students who have behavioral problems in their classroom. On the other hand, youth care professionals indicate that schools only seek their support when problems have arose, rather than taking a preventive approach, such as developing activities that students' social-emotional skills in the classroom. This study is part of a larger research project focused on this issue. In three educational contexts, teachers and youth professionals work together in order to develop a preventive approach for enhancing students' social-emotional development. The study proposed for this poster concerns further development of an existing resilience training for elementary school students, called WIsH. The research question is: *How can WIsH be better embedded within the school and the home context, so that the elements of the program are implemented in the whole approach aimed at students' social-emotional learning and well-being?* After the intervention program, data was/will be gathered from parents and teachers using focus group interviews, questionnaires and logbooks. Data collection was disturbed by the coronavirus, this will be continued when school are open. First results show that parents are highly involved, they appreciate the video clips and parents practice more with their children at home.

Collaboration on attachment issues
Keywords: Emotion and emotional development, Innovations in education, Practice-based research (methodology), Special Educational needs
Presenting Author: Mariette Haasen, Fontys OSO, Netherlands; **Co-Author:**pieter jansen, combinatie jeugdzorg, Netherlands

The majority of teachers experience problems coping with students who have behavioral problems in their classroom. Youth care professionals indicate that schools only seek their support when critical problems occur, rather than taking a preventive approach. This study is part of a larger research project focused on this issue. The present study concerns the development of methods for collaboration in the classroom between education and youth professionals from the same (semi) residential institution with the theme of attachment. The research question is: *How can teachers and youth professionals collaborate in the school practice and develop approaches that help students to develop relational skills more adequately?* Teachers form three schools for special education and youth professionals (SwH: "Collaboration on attachment issues", an intervention program that can be used in the classroom to cope with attachment problems of students. After the intervention program, data was gathered from teachers and youth care workers using focus group interviews, questionnaires and logbooks. Data collection was disturbed by the coronavirus, this will be continued when school are fully open. First results show that collaboration does not come naturally, cooperation this develops by doing it.

Sessions B 4

24 November 2021 14:00 - 15:30
Session Room 12
Poster Presentation
Higher education

Diversity, Creativity & Innovation in Education

Keywords: Creativity, Game-based learning / Gamification, Higher education, Innovations in education, Interaction and discourse in education, Leadership development, Medical & health education, Organisational learning, Practice-based research (methodology), Professional identity, Research-based learning
Interest group: CLOUD 01 - Teacher education, CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 12 - Leadership in Education
Chairperson: Niek van den Berg, Aeres University of Applied Sciences Wageningen, Netherlands

Arts-based research and professional development in teacher Education
Keywords: Creativity, Higher education, Professional identity, Research-based learning
Presenting Author: Hanneke Maassen, Aeres Applied university Wageningen, Netherlands

Poster Presentation TitleArts-based research and professional development in teacher Education AbstractIn this preliminary research I focused on Arts-based research (ABR) and the professional development of students on teacher training. My research is about the question: "How can the research approach Arts-based Research contribute to the development of students?".The research consists a literature study of ABR and the professional development of students in teacher training. In addition, dialogues were held with students and teachers AHW. The core of ABR lies with Rolling and Heijst in practice-oriented research in the social-, behavioral-, and educational domain, in which empirical methods and interpretations help to build up a theory. It is about giving words to people's feelings and experiences. This type of research stimulates all senses to arrive at a meaning. Biesta mentions creativity in relation to subjectification: "creativity helps people to be in the world to live together". According to Dewey gaining experience plays a role by learning. The core of learning is: experience, give meaning and participate. Maister states that a starting teacher must have a broad professional basis (behavior and action). Professional identity is important, it gives the student its own color, serves as a personal motivation and motor for learning.

Interactions that support congruence of values in schools
Keywords: Innovations in education, Interaction and discourse in education, Leadership development, Organisational learning
Presenting Author: Ria de Gooijer, Hogeschool Inholland, Netherlands

Central question: What characterizes interactions that support schoolteams in aligning collective values and behaviour? Sub questions:1. Which interactions support alignment of collective values and behaviour in the context of designing and implementing a new curriculum at a Dutch institute for higher education? 2. Do interactions that are perceived to be effective share specific characteristics? 3. What role does leadership play in initiating and/or designing value-based interactions?4. Which environmental factors are perceived to influence the value-based interactions? MethodologyTeachers who are shaping a new curriculum are interviewed in focusgroups, using the storyline-method. Main conclusionData analysis is currently conducted, results are expected in august. Preliminary results indicate that teachers appreciate interactions which [1] provide feedback and [2] are focused on learning and developing together. Teachers expect leadership to support organisational congruence in creating conditions which facilitate the learning and developing together. One of those conditions is stability in team-composition, another is to safeguard the team of concerns about organisational conditions. If these conditions are not secured by leadership, teachers experience difficulties in aligning personal and collective mental models and behaviour, which can result in lack of personal congruence and loss of meaning and wellbeing.

'Playful' Quizzes in Flipped Classroom
Keywords: Creativity, Game-based learning / Gamification, Medical & health education, Practice-based research (methodology)
Presenting Author: Piret Hussar, University of Tartu, Estonia

The aim of the research was to study the use of quizzes as a tool of flipped classroom on learning histology. Quizzes of the interactive presentation software Mentimeter (Stockholm, Sweden) were used at the beginning and end of histology practical sessions in autumn semester 2020. 70 first year medical students had the possibility individually and voluntary solve the quizzes on four different topics of general histology and at the end of the term they were asked to voluntary feedback how they experienced quizzes. Comparing the results of the quizzes conducted at the beginning and end of the internships, the scores of quizzes at the end of the practical sessions were 17% higher. Results of the feedback showed that 91% of the students who took quizzes gave feedback stating that the tests are important for getting feedback on both pre-classroom (30%) and classroom (70%) learning. The playful role of quizzes was noted to be important (76,5%). As the results of student's feedback revealed the importance of quizzes in learning, it can be assumed that furter use of quiz tests improves both the level of preparation for contact learning as well as the level of knowledge acquisition during learning.

Sessions C 1

24 November 2021 15:45 - 17:15
Session Room 6
Workshop

"The "LC Star": Creating shared views on learning culture, goals & results in a Learning Community

Keywords: Collaborative Learning, Higher education, Medical & health education, Professional Development
Interest group:

Learning- and innovation networks are hot. Professional learning communities, communities of practice & innovation and leaning communities emerge like flowers in spring. Here we use the phrase 'Learning Community' (LC) to indicate those collaborative learning systems. To facilitate community building in starting LCs we have developed a method called the "LC Star" (1). The LC Star is a five-pointed star where each point represents a question. The method provides an explication of the shared learning culture, goals and results within the LC. In order to capture the image from the LC Star session for the follow-up, the outcome of the LC Star session is summarized, through a qualitative analysis. This summery describes the "Foundation of the LC" on the basis of the learning culture, shared goals and shared ideas on LC results.The workshop attendees will first receive a short explanation to learn what the method is, how it can be applied, and what the value of the method can be to LC participants. They will then experience the LC Star method themselves.

"The "LC Star": Creating shared views on learning culture, goals & results in a Learning Community
Presenting Author: Christian Wallner, University of Applied Sciences Leiden, Netherlands; **Co-Author:**Wendy Heemskerk, Haga Teaching Hospital, Netherlands

Learning- and innovation networks are hot. Professional learning communities, communities of practice & innovation and leaning communities emerge like flowers in spring. Here we use the phrase 'Learning Community' (LC) to indicate those collaborative learning systems. To facilitate community building in starting LCs we have developed a method called the "LC Star" (1). The LC Star is a five-pointed star where each point represents a question. The method provides an explication of the shared learning culture, goals and results within the LC. In order to capture the image from the LC Star session for the follow-up, the outcome of the LC Star session is summarized, through a qualitative analysis. This summery describes the "Foundation of the LC" on the basis of the learning culture, shared goals and shared ideas on LC results.The workshop attendees will first receive a short explanation to learn what the method is, how it can be applied, and what the value of the method can be to LC participants. They will then experience the LC Star method themselves.

Sessions C 2

24 November 2021 15:45 - 17:15
Session Room 1
Workshop
Higher education

No more time for flimsy tea, let's go for infusion! (CANCELLED)

Keywords: Diversity, Equality / Education for All, Higher education, Professionalisation of educators
Interest group: CLOUD 08 - Diversity & equality in different contexts

An inclusive and diverse teacher education programme, aimed at educational opportunities for all students, is supported by teacher educators who create an inclusive culture and recognise an inclusive and diverse practice ("teach what you preach"). Within this teacher education programme there is room for teacher educators to work together around inclusion and diversity, and these themes are integrated into the various course units, i.e. infusion. Therefore the aim of our workshop is: (1) to provide insight into the three pillars of inclusive and diverse teacher education: (2) to create a culture in teacher education which is open to diversity; (3) to offer concrete tools for a practice which is infused with diversity and to apply the principles of UDL for this purpose. We will use two experiential exercises which deal with "multiperspectivity" and "attitudes" in the context of diversity. Furthermore, we explain and provide a framework for diversity in teacher education based on the three pillars mentioned above: culture, practice and policy. We alternate between interactive learning discussions, giving input and exercises.

No more time for flimsy tea, let's go for infusion! (CANCELLED)
Presenting Author: Elke Emmers, UCLL, Belgium; **Co-Author:**Reinhilde Pulinx, University College Leuven Limburg, Belgium

An inclusive and diverse teacher education programme, aimed at educational opportunities for all students, is supported by teacher educators who create an inclusive culture and recognise an inclusive and diverse practice ("teach what you preach"). Within this teacher education programme there is room for teacher educators to work together around inclusion and diversity, and these themes are integrated into the various course units, i.e. infusion. Therefore the aim of our workshop is: (1) to provide insight into the three pillars of inclusive and diverse teacher education: (2) to create a culture in teacher education which is open to diversity; (3) to offer concrete tools for a practice which is infused with diversity and to apply the principles of UDL for this purpose. We will use two experiential exercises which deal with "multiperspectivity" and "attitudes" in the context of diversity. Furthermore, we explain and provide a framework for diversity in teacher education based on the three pillars mentioned above: culture, practice and policy. We alternate between interactive learning discussions, giving input and exercises.

Sessions C 3

24 November 2021 15:45 - 17:15
Session Room 13
Workshop
Vocational education

The role of design-based research in transition from standalone to intertwined learning environments

Keywords: Higher education, Innovations in education, Practice-based research (methodology), Vocational education
Interest group: CLOUD 11 - Practice-based Research Methodology

For several years the design of learning environments at the boundary of school and work has been researched in Vocational Education and Training institutes mboRijnland and Aventus and Higher Educational Institutes Fontys, Saxion and HU Utrecht, all Universities of Applied Sciences. In this research we distinguish the following designs of learning environments at the boundary of school and work: (1) designs based on alignment between the two different contexts of school and work; (2) designs based on the incorporation of elements from school into the work context or of elements from work into the school context; and (3) designs based on (partial) hybridisation of the two contexts (Bouw, Zitter, & de Bruijn, 2019).

The role of design-based research in transition from standalone to intertwined learning environments
Presenting Author: Kathinka van Doesum, mboRijnland, Netherlands; **Co-Author:**Maria Custers, Fontys, Netherlands; **Co-Author:**Gemma Groenewoudt, ROC Aventus, Netherlands; **Co-Author:**Tjark Huizinga, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Amber Kornet, Saxion University of Aplied Sciences, Netherlands; **Co-Author:**Jantje Timmerman, mboRijnland, Netherlands; **Co-Author:**Ilya Zitter, Hogeschool Utrecht (University of Applied Sciences Utrecht), Netherlands

For several years the design of learning environments at the boundary of school and work has been researched in Vocational Education and Training institutes mboRijnland and Aventus and Higher Educational Institutes Fontys, Saxion and HU Utrecht, all Universities of Applied Sciences. In this research we distinguish

the following designs of learning environments at the boundary of school and work: (1) designs based on alignment between the two different contexts of school and work; (2) designs based on the incorporation of elements from school into the work context or of elements from work into the school context; and (3) designs based on (partial) hybridisation of the two contexts (Bouw, Zitter, & de Bruijn, 2019).

Sessions C 4

24 November 2021 15:45 - 17:15
Session Room 9
Workshop

Making practice-based research more meaningful 2.0

Keywords: Innovations in education, Knowledge Building and Development, Practice-based research (methodology), Research-based learning
Interest group: CLOUD 11 - Practice-based Research Methodology

This workshop aims at collectively discussing instruments that could contribute to a more dialogical approach of practice-based research, in which both researchers and practitioners are actively engaged in developing practice-based research projects. As practice-based researchers, all workshop leaders find themselves struggling in projects to creatively achieve innovative and useful outcomes for practice as well as for research. In a previous workshop, at EAPRIL 2019, we presented and discussed six ground rules for co-designing and implementing meaningful practice-based research. We invited participants to strengthen the ground rules and brainstorm collectively on how to realize them in actual projects. In this follow-up workshop, we will elaborate on this discussion and introduce a number of practical instruments that can be deployed to ensure a more dialogical approach. During the workshop, two rounds will be held consisting of: a) a plenary round in which the workshop leaders discuss practical instruments used in past practice-based research projects, connected to the six ground rules, b) Discussion in small groups in which participants are asked to discuss the instruments presented, share additional instruments from their own experiences and discuss possible future actions. The group interaction will be scaffolded by use of Mural or Miro.

Making practice-based research more meaningful 2.0
Presenting Author: Aimée Hoeve, HAN University of Applied Sciences, Netherlands; **Presenting Author:**Kariene Woudt-Mittendorff, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Peter den Boer, Onderzoekend Leren, Netherlands; **Co-Author:**Aniek Draaisma, TU Delft, Netherlands

This workshop aims at collectively discussing instruments that could contribute to a more dialogical approach of practice-based research, in which both researchers and practitioners are actively engaged in developing practice-based research projects. As practice-based researchers, all workshop leaders find themselves struggling in projects to creatively achieve innovative and useful outcomes for practice as well as for research. In a previous workshop, at EAPRIL 2019, we presented and discussed six ground rules for co-designing and implementing meaningful practice-based research. We invited participants to strengthen the ground rules and brainstorm collectively on how to realize them in actual projects. In this follow-up workshop, we will elaborate on this discussion and introduce a number of practical instruments that can be deployed to ensure a more dialogical approach. During the workshop, two rounds will be held consisting of: a) a plenary round in which the workshop leaders discuss practical instruments used in past practice-based research projects, connected to the six ground rules, b) Discussion in small groups in which participants are asked to discuss the instruments presented, share additional instruments from their own experiences and discuss possible future actions. The group interaction will be scaffolded by use of Mural or Miro.

Sessions C 5

24 November 2021 15:45 - 17:15
Session Room 3
Workshop
Higher education

Boosting creativity, fostering holistic learning and, reinventing learning environments

Keywords: 21st century learning, Creativity, Innovations in education, Well-being and engagement
Interest group: CLOUD 04 - Improving learning and well-being

This workshop invites delegates to join a group of practitioner researchers to create, enrich and consolidate their reflection and identify actions to improve education and learning from a transdisciplinary perspective and in light of the ongoing change we are seeing in learning environments. During the 90-minute session, three phases will allow for the sharing of ideas and practice, discussion and reflection about innovative ways to improve learning and finally, the co-creation of potential solutions. The first phase, comprises three short presentations: (a) approaches to creating new environments for collaborative learning, (b) sensemaking, well-being and Education 4.0 and (c) the aesthetic experience integrating sound and arts in education. The second phase of the workshop calls for reflection on creativity, holistic learning comprehension and, learning environments closing with a selection of situations to be addressed. During the third phase participants will co-create solutions to the situations identified. The outcome of this workshop is expected to be an interdisciplinary, creative and collaborative work that should suggest new ways to address learning environments in a holistic and innovative manner. This workshop will be of interest to anyone with enthusiasm towards human, social solutions for the improvement of education at the period of digital transformation.

Boosting creativity, fostering holistic learning and, reinventing learning environments
Presenting Author: Zarina M. Charlesworth, University of Applied Sciences & Arts Western Switzerland // HES-SO, Switzerland; **Co-Author:**Sabine Chatelain, University of Teacher Education, State of Vaud (Lausanne), Switzerland; **Co-Author:**Hubert Gruber, Pädagogische Hochschule NiederOsterreich, Austria; **Co-Author:**Ilona Laakkonen, JAMK University of Applied Sciences, Finland; **Co-Author:**Els Laenens, University of Antwerp, Belgium; **Co-Author:**Kaarina Marjanen, University of Tampere, Finland

This workshop invites delegates to join a group of practitioner researchers to create, enrich and consolidate their reflection and identify actions to improve education and learning from a transdisciplinary perspective and in light of the ongoing change we are seeing in learning environments. During the 90-minute session, three phases will allow for the sharing of ideas and practice, discussion and reflection about innovative ways to improve learning and finally, the co-creation of potential solutions. The first phase, comprises three short presentations: (a) approaches to creating new environments for collaborative learning, (b) sensemaking, well-being and Education 4.0 and (c) the aesthetic experience integrating sound and arts in education. The second phase of the workshop calls for reflection on creativity, holistic learning comprehension and, learning environments closing with a selection of situations to be addressed. During the third phase participants will co-create solutions to the situations identified. The outcome of this workshop is expected to be an interdisciplinary, creative and collaborative work that should suggest new ways to address learning environments in a holistic and innovative manner. This workshop will be of interest to anyone with enthusiasm towards human, social solutions for the improvement of education at the period of digital transformation.

Sessions C 6

24 November 2021 15:45 - 17:15
Session Room 12
Workshop
Workplace learning

Innovative practice-based research approaches with added value

Keywords: Creativity, Inquiry learning, Practice-based research (methodology), Professional Development
Interest group: CLOUD 11 - Practice-based Research Methodology

Practice-based research (PBR) requires specific methodological considerations, choices and strategies to reach research quality in terms of methodological rigor, practical relevance and ethics (Pijlman et al., 2017). As initiators of this workshop – practice-based researchers and teacher researchers – we are connected by our interest in and inquisitive search for innovative PBR approaches such as participatory action research (PAR), arts-based research (ABR) and creative research (CR). We intend to stretch our own mindsets and repertoire, and that of EAPRIL colleagues. In this workshop five methodological issues will be addressed in in-depth dialogues, following the word café method. By using the world café method, the attendants not only gain insights in the issues discusses, but also experience how this method can be used as research tool. The inquisitive search for innovative PBR approaches contributes to the methodological knowledge base and toolbox of practice-based researchers.

Innovative practice-based research approaches with added value

Presenting Author: Niek van den Berg, Aeres University of Applied Sciences Wageningen, Netherlands; **Presenting Author:**Pim van Heijst, HU University of Applied Science Utrecht, Netherlands; **Presenting Author:**Hanneke Maassen, Aeres Applied university Wageningen, Netherlands; **Presenting Author:**Lisette Munneke, Utrecht University of Applied Sciences, Netherlands; **Co-Author:**Arja Veerman, University of the Arts, Utrecht, Netherlands

Practice-based research (PBR) requires specific methodological considerations, choices and strategies to reach research quality in terms of methodological rigor, practical relevance and ethics (Pijlman et al., 2017). As initiators of this workshop – practice-based researchers and teacher researchers – we are connected by our interest in and inquisitive search for innovative PBR approaches such as participatory action research (PAR), arts-based research (ABR) and creative research (CR). We intend to stretch our own mindsets and repertoire, and that of EAPRIL colleagues. In this workshop five methodological issues will be addressed in in-depth dialogues, following the word café method. By using the world café method, the attendants not only gain insights in the issues discusses, but also experience how this method can be used as research tool. The inquisitive search for innovative PBR approaches contributes to the methodological knowledge base and toolbox of practice-based researchers.

Sessions C 7

24 November 2021 15:45 - 17:15
Session Room 5
EAPRIL Cloud Spotlight Session
Lifelong learning

CLOUD 12-The significance of positive school leadership for school improvement&professional learning

Keywords: Educational Effectiveness and quality of education, Knowledge Building and Development, Leadership development, Leadership styles
Interest group: CLOUD 12 - Leadership in Education

We're proud to have such a renowned researcher, Karen Seashore Louis to be our keynote speaker. Karen will give a keynote about the significance of positive leadership for schoolimprovement and professional learning. She will present a powerful model of school leadership that is grounded in both existing research and the complexities of life in schools. The Positive School Leadership model draws on the strengths of relationships among staff and the broader school community to communicate and instil shared values and a common mission. Karen will build a compelling case for creating a more inclusive, less "mechanistic" approach to leadership. She will ask the participants questions which makes them reflect on educational practice and current assumptions about the purposes and goals of leadership in schools. After the keynote we will have a prepared Q&A. Researchers and school leaders will ask Karen some questions.

CLOUD 12-The significance of positive school leadership for school improvement&professional learning

Presenting Author: Loes van Wessum, Windesheim Flevoland, Netherlands; **Presenting Author:**Karen Seashore, University of Minnesota, United States; **Co-Author:**Anje Ros, Fontys University of Applied Sciences, Netherlands

We're proud to have such a renowned researcher, Karen Seashore Louis to be our keynote speaker. Karen will give a keynote about the significance of positive leadership for schoolimprovement and professional learning. She will present a powerful model of school leadership that is grounded in both existing research and the complexities of life in schools. The Positive School Leadership model draws on the strengths of relationships among staff and the broader school community to communicate and instil shared values and a common mission. Karen will build a compelling case for creating a more inclusive, less "mechanistic" approach to leadership. She will ask the participants questions which makes them reflect on educational practice and current assumptions about the purposes and goals of leadership in schools. After the keynote we will have a prepared Q&A. Researchers and school leaders will ask Karen some questions.

Sessions C 8

24 November 2021 15:45 - 17:15
Session Room 11
Present & Discuss
Higher education, Vocational education

Strategies to improve teaching and learning environments

Keywords: Continuing professional development in Teachers, Distance Education, Doctoral education (PhD education), Higher education, Innovations in education, Problem-based learning, Professional Development, Project-based learning, Self-regulation and self-regulated learning, Vocational education, Well-being and engagement, Work environments
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments
Chairperson: Amber Hoefkens, Belgium

Do we need a doctor in the library? The value of a PhD to library service provision

Keywords: Doctoral education (PhD education), Higher education, Professional Development, Work environments
Presenting Author: Eva Hornung, University of Sheffield/Trinity College Dublin, Ireland

Higher Education in Ireland has seen a record number of students enrolled in doctoral programmes. Increasingly, library and information professionals hold doctorates, too. There is a presumption that having a PhD is a positive addition to the workplace, but does it really make a difference to the service librarians provide in their respective organisations? And what is the role of the doctorate in the library?
This Phenomenographic study explored the perceptions of ten librarians with doctorates and ten library managers, who employed information professionals with PhDs. Additionally, a focus group of four experienced librarians, who do not hold a doctorate themselves, but are currently working (or have done so in the past) with colleagues who do, was held.The findings revealed three different conceptions and four dimensions of variation for each cohort of interviewees, forming two so-called outcome spaces. Since both overlapped, vignettes summarising these three distinct ways were created: 'providing a better service', 'being an expert' and 'developing as a person'. Each perception had implications for service provision. The focus group data provided additional insight. In the presentation, advantages and disadvantages of the PhD in the library will be examined. Some observations and recommendations for future research will be made.

Wicked problems, black elephant and higher education teacher!

Keywords: Distance Education, Higher education, Well-being and engagement, Work environments
Presenting Author: Liisa Vanhanen-Nuutinen, HAAGA-HELIA University of Applied Sciences, Finland; **Co-Author:**Kimmo Maki, HAAGA-HELIA University of Applied Sciences, Finland

In March 2020 Covid19-pandemic spread all over world. Higher education institutes closed their campuses and study programmes were transferred to be implemented online. The purpose of the present study was to examine teachers' experiences about the effects of Covid19-pandemic in their work in Finnish Universities of Applied Sciences, in particular from the viewpoint of online teaching, use of digital tools and well-being at work during the first months of lock-

down. The study was conducted as an online survey in the end of 2020. A total of 673 teachers responded the questionnaire, which included both structured and open-ended questions. The data were analysed by using descriptive statistical analysis and qualitative content analysis. In this presentation, the results concerning coping during the beginning of Covid19-pandemic are presented. The results show that higher education teachers' experiences during Covid19-pandemic reflect also their perceptions of change and actions in rapidly changing situations at work. Majority of teachers reported good adjustment e.g. in online teaching and use of digital tools, but there were also growing experiences of isolation, tiredness and worries about own and students' well-being. The results indicate concerns about teachers' well-being in online teaching and distance work.

Working on Global Challenges: A Pre-University Student Experience in Online Project-Based Learning
Keywords: Distance Education, Higher education, Problem-based learning, Project-based learning
Presenting Author: Plews Plews, Northeastern University, United States; **Co-Author:**Mary English, Northeastern University, United States

Problem- and project-based learning (PBL) are learner-centered, inquiry-based approaches where learners work in small groups to develop solutions to complex, real-world problems. The purpose of this research was to explore Northeastern University's "Global Challenge" model for engaging early admission students in a fully online, asynchronous PBL environment designed to acclimate them with experiential learning at Northeastern. We explore two questions: (1) To what extent did students perceive that specific features of our model and its enactment supported their learning and collaboration in teams? (2) To what extent did students perceive that the course prepared them to apply specific collaborative and academic skills in future coursework?
Students in the PBL courses were asked to complete a mid-point course survey and an end-of-term survey. Both surveys asked questions about the extent to which various types of activity, materials, feedback, and other communications supported learning and motivation across the stages of the project. Findings suggest that the online PBL courses motivated pre-university students and helped them increase their readiness for university-level solving of real-world problems through inquiry and analysis, working collaboratively in teams, and self-directed learning.

Nudging Autonomous Learning Behavior: Four Field Experiments in Vocational Education and Training
Keywords: Continuing professional development in Teachers, Innovations in education, Self-regulation and self-regulated learning, Vocational education
Presenting Author: Robert Weijers, Erasmus University Rotterdam, Netherlands; **Co-Author:**Björn de Koning, Erasmus University Rotterdam, Netherlands; **Co-Author:**Yvonne Vermetten, NHTV Breda University of Applied Sciences, Netherlands; **Co-Author:**Fred Paas, Erasmus University Rotterdam/University of Wollongong, Netherlands

Autonomous learning behavior is an important skill for students in vocational education and training (VET), but they often do not (sufficiently) engage in it. In this study, we investigated the potential of nudging as a teaching strategy to support three important autonomous learning behaviors: planning, preparing for class, and asking for help. Nudging is a strategy derived from behavioral economics that aims to influence behavior by changing the environment. Using a novel design approach focused on stakeholder involvement, researchers collaborated with teachers to design four nudges: a *reminder* and a *video booth* to support self-reported planning behavior and deadline adherence, a *checklist* to support class preparation, and a *goal nudge* to encourage students to ask questions during class. These nudges were tested in four experiments with VET-students. We report marginal significance for the goal nudge increasing the number of questions asked by students, and found evidence for an increase in self-reported planning behavior in the video booth group – but no decrease in missed deadlines. No significant change in behavior was found for the checklist and reminder nudges. Based on our findings, we conclude that, for some autonomous learning behaviors, nudging has potential as a quick and effective teaching strategy.

Sessions C 9

24 November 2021 15:45 - 17:15
Session Room 10
Present & Discuss
Higher education, Primary education

Educational Technology A

Keywords: Collaborative Learning, Deep-level and profound learning, Educational Technology, Higher education, Knowledge Building and Development, Practice-based research (methodology), Primary school education, Reading, Research-based learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Piret Hussar, University of Tartu, Estonia

Listening to an audiobook while reading: An eye-tracking study with German primary school students
Keywords: Educational Technology, Primary school education, Reading, Research-based learning
Presenting Author: Sabrina Gerth, University College of Teacher Education Tyrol, Austria; **Co-Author:**Julia Festman, University College of Teacher Education Tyrol, Austria

We investigated if listening to an audiobook while reading improves reading fluency. Here, specific reading patterns of primary school children were of interest.We recorded the eye movements of 33 slow- and 34 fast-reading children in two conditions: They read a text in their individual reading speed (non-audio condition), and they listened to the audiobook while simultaneously reading the text (audio condition).In the audio condition, both groups adapted their reading speed to the audiobook speakers' reading pace. Slow readers showed an acceleration and fast readers a deceleration without compromising comprehension (above 79% accuracy on comprehension questions). Apparently, when simultaneously listening to an audiobook, children are motivated to read for comprehension and can even modulate their reading speed.The analyses of word length and frequency show a group difference in reading patterns. Slow readers rely more on letter-by-letter word decoding and are similarly influenced by world length and frequency. Fast readers generally apply a whole-word-recognition and only fall back on letter-by-letter decoding if the word is unfamiliar.We recommend the method of listening to an audiobook while reading to primary school teachers for reading education. This method not only motivates children to read more, but also improves their reading fluency.

The university-industry collaboration in the video-supported collaborative learning
Keywords: Collaborative Learning, Educational Technology, Higher education, Practice-based research (methodology)
Presenting Author: Satu Parjanen, Lappeenranta-Lahti University of Technology LUT, Finland; **Presenting Author:**Sirpa Laitinen-Väänänen, JAMK University of Applied Sciences, Finland; **Co-Author:**Mirva Hyypiä, Lappeenranta - Lahti University of Technology LUT, Finland

In the video-supported collaborative learning a joint pedagogical vision of educators and education technology companies could provide clear alignment for product development and usage benefitting various fields of knowledge-intensive work-life. A user-driven understanding about the process of learning and teaching via video-based collaborative teamwork can benefit the companies striving to meet the needs of customers in the emergent and changing digital environments. The collaboration between universities and the industry is increasingly perceived as a vehicle to enhance innovation through knowledge exchange. However, this collaboration is not without challenges. This study investigates the significant factors of university-industry collaboration in the context of video-supported collaborative learning. To answer the research question which factors can be identified to support industry-university collaboration qualitative research was conducted. The data included the observation of the workshop for education experts and six company representative interviews. The study suggests that collaboration is a process that needs, for example, common objectives, commitment, the presence of the participants, dialogue, and the facilitation of social interaction including digital tools and forums to reflect and discuss about the experiences. Collaboration should not be considered as a static path; the collaboration needs to be continuously evaluated based on objectives formulated by the participants.

Knowledge Use in Knowledge Building Discourse
Keywords: Collaborative Learning, Deep-level and profound learning, Educational Technology, Knowledge Building and Development
Presenting Author: Frank De Jong, Aeres University of Applied Sciences & Open University Heerlen, Netherlands; **Co-Author:**Erick Velazquez-Godinez, Mytomorrows, Netherlands; **Co-Author:**Yoshiaki Matszuawa, Aoyama Gakuin University, Japan

There is still little insight into how exiting knowledge is used in theknowledge building discourse in the activity of knowledge construction.The use of authoritative knowledge sources is one of theprinciples of knowledge construction (Bereiter, 2002; Paavola & Hakkarainen, 2005;Scardamalia, 2002; Scardamalia & Bereiter, 2014). To explore this gap, KBDeX networkanalyzes (Jun Oshima, Oshima, & Matsuzawa, 2012) have been carried out into the way inwhich two MEd student groups from a MEd Learning and Innovation use 'curriculum'literature in their knowledge-constructing dialogues. On basis of the analysis crucialphases/activities in the discourse could be determined. These discourse activitiesconcern: Group formation (sharing everyone's 'acquired' insights and finding a substantivesocio-cognitive match); Collective involvement (loosening one's own egocentric perspectiveand becoming involved in a collective knowledge construction dialogue);Grounding ("dialogue" about what exactly everyone means with seemingly clear terms thatpeople use); and Integration and construction (accommodation, creation of collective andtherefore own ideas by integrating and connecting ideas that transcend previous ideas (risingabove); finally writing or creating the conceptual artifact). The transition from one discourseactivity to another seems to be supported by "bringing-our-knowledge-together" transgressions.These are contributions in which a state of affairs is drawn up and relationships are establishedbetween topic terms and their own ideas at that time.

Sessions C 10

24 November 2021 15:45 - 17:15
Session Room 8
EAPRIL Cloud Spotlight Session
Workplace learning

CLOUD 05 - Everything you always wanted to know about Cloud 5 but were afraid to ask.

Keywords: Training and Development, Vocational education, Work environments, Workplace learning
Interest group: CLOUD 05 - HRD & Workplace learning

While the title of the cloud suggests that we address only the corporate world, it is important to know that we also understand schools and universities as workplaces where learning can happen. Since we believe that this may be difficult to differentiate from cloud 1 (teacher education) or cloud 14 (learning in organisations), we will start this spotlight session with a short presentation of research connected to our cloud, which gives you an example of our understanding of workplace learning. To get you from the receiving end into a more active role, we will then work in groups on topics about your ideas and needs within the cloud and possible new project ideas. Of course we will afterwards come together as a group to reflect on the results and to set the direction for the future of cloud 5.

CLOUD 05 - Everything you always wanted to know about Cloud 5 but were afraid to ask.
Presenting Author: Arnoud T. Evers, Open Universiteit, Netherlands; **Co-Author:**Jorg Holle, Westfälische Wilhelms-Universität Münster, Germany

While the title of the cloud suggests that we address only the corporate world, it is important to know that we also understand schools and universities as workplaces where learning can happen. Since we believe that this may be difficult to differentiate from cloud 1 (teacher education) or cloud 14 (learning in organisations), we will start this spotlight session with a short presentation of research connected to our cloud, which gives you an example of our understanding of workplace learning. To get you from the receiving end into a more active role, we will then work in groups on topics about your ideas and needs within the cloud and possible new project ideas. Of course we will afterwards come together as a group to reflect on the results and to set the direction for the future of cloud 5.

Sessions C 11

24 November 2021 15:45 - 17:15
Session Room 2
EAPRIL Cloud Spotlight Session
Higher education

CLOUD 10 - Going for nurturing meta-cognitive abilities? Use formative assessment.....or not?

Keywords: 21st century learning, Assessment and evaluation, Cognitive Skills & Development, In-service Teacher Training
Interest group: CLOUD 10 - Assessment & Evaluation

Nowadays, a lot of attention in education is paid to formative assessment, including in higher education. The reason often given is that this form of testing helps students to better view their own learning process and improve it where possible. With the information obtained from formative testing, the student should be better able to take optimal control of the learning process. However, recent research gives cause to question this. It seems as with so many things in education, unfortunately it is not that simple! First of all, the theory and outcomes of relevant research are briefly discussed. We then divide into groups to determine, based on various propositions, which (in)possibilities exist to use formative tests and thereby supporting our students' metacognitive skills.

CLOUD 10 - Going for nurturing meta-cognitive abilities? Use formative assessment.....or not?
Presenting Author: Jeroen van der Linden, HAN University of Applied Sciences, Netherlands; **Presenting Author:**Fer Boei, Windesheim University of Applied Sciences, Netherlands

Nowadays, a lot of attention in education is paid to formative assessment, including in higher education. The reason often given is that this form of testing helps students to better view their own learning process and improve it where possible. With the information obtained from formative testing, the student should be better able to take optimal control of the learning process. However, recent research gives cause to question this. It seems as with so many things in education, unfortunately it is not that simple! First of all, the theory and outcomes of relevant research are briefly discussed. We then divide into groups to determine, based on various propositions, which (in)possibilities exist to use formative tests and thereby supporting our students' metacognitive skills.

Sessions D 1

25 November 2021 09:00 - 10:30
Session Room 1
Present & Discuss
Early childhood education, Primary education

Early Childhood & Primary Education

Keywords: At-risk students, Cognitive Skills & Development, Creativity, Early childhood education, Higher education, Mathematics Education, Motivation, Philosophy of education, Physical education, Pre-school education / kindergarten, Professional Development
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 04 - Improving learning and well-being
Chairperson: Jenni Koponen, Metropolia University of Applied Sciences, Finland

Professional development in 'Mathematics in play'
Keywords: Early childhood education, Mathematics Education, Pre-school education / kindergarten, Professional Development
Presenting Author: Ronald Keijzer, Hogeschool iPabo, Netherlands; **Co-Author:**Marjolijn Peltenburg, Marnix Academie, Netherlands; **Co-Author:**Eefje van der Zalm, retired, Netherlands; **Co-Author:**Annerieke Boland, iPabo University of Applied Sciences, Netherlands

The 'Mathematics in play'-project aims at stimulating language and mathematics in young children's spontaneous play. In the project professionals from

kindergarten and preschool are joined with educators and researchers in a professional learning community (PLC) in order to search for strategies in reaching this goal. In order to arrive at these strategies, the PLC participants discussed interaction strategies and young children's mathematics. Additionally, the professionals presented examples from their practice. The case study presented here describes the development of one kindergarten teacher, Oumnia, in this PLC setting. We conclude that Oumnia's development starts with intuitively stimulating language mathematics in children's spontaneous play. After six PLC meetings, however, she is able to recognize mathematics in young children's spontaneous play and shows how she can elaborate on this knowledge both in her practice and in reflecting on young children's development in mathematics more generally.

More and better outdoor education in early childhood education
Keywords: Early childhood education, Higher education, Physical education, Pre-school education / kindergarten
Presenting Author: Bendik Sierra, Western Norway University of Applied Sciences (HVL), Norway; **Presenting Author:**Marianne Størkson, Western Norway University of Applied Sciences (HVL), Norway; **Co-Author:**Trond Egil Arnesen, Western Norway University of Applied Sciences (HVL), Norway

The educational problem addressed in this work originated from the graduating class of 2016 in the early childhood teacher education (ECTE). Their teaching-practice experiences uncovered lack of emphasis on outdoor education for the toddlers in early childhood education (ECE) and in their own ECTE. Based on Educational Design Research (EDR) (McKenney & Reeves, 2019), a project with two integrated strands was developed, namely a curriculum design strand and a research strand.
RQ: How can novice ECE teachers work to improve outdoor education for toddlers in ECE?
The data were obtained from focus group interviews with ECTE students (2016-2020) as well as semi-structured qualitative interviews with 3 experienced ECE teachers and managers. The analysis of the teacher/manager data drew on theories on agency. In contrast, theories on affordances were used to examine the student-based material.
Good leadership, a shared pedagogical foundation, a flexible organization and a clear ECE teacher-role were essential aspects to promote quality outdoor education in ECE for toddlers in Norway.
ECTE needs to foster ECE students that are able to better exert individual academic agency, socially oriented agency and ecological agency if they want to influence an established practice in ECT in a desired direction.

Can you eat numbers? Increasing motivation for mathematics through the use of philosophical dialogue
Keywords: Creativity, Mathematics Education, Motivation, Philosophy of education
Presenting Author: Veerle Verschoren, Odisee University College, Belgium; **Co-Author:**Jan Sermeus, KULeuven, Belgium; **Co-Author:**Jelle De Schrijver, Antwerp University, Belgium

As primary and secondary school students experience mathematics as abstract, enhancing their motivation for mathematics can be challenging. In this research project we aim to develop a method to stimulate motivation for mathematics by allowing students to participate in philosophical dialogues about mathematics. The first focus of the research is to formulate the design criteria for successfully introducing philosophical dialogues in the mathematics class for students aged 10 to 14. According to the principles of an education-design-research, a method was developed and evaluated through interviews and observations. Secondly, a pre- and post-test allowed to assess the impact of the approach on students' motivation for mathematics. With regard to the design criteria, it appears an approach that combines the use of philosophical dialogues with hands-on activities is promising. Furthermore, the role of the teacher is key, as an authoritarian role may inhibit the dialogue. Activities can contain stories, challenging questions and small experiments that stimulate thought and reflection. Last, little and low-cost material helps to carry out the activities. From the pre- and post-test it appeared that students predominantly appreciate the approach. From the interview derived that not all mathematic teachers feel safe to facilitate dialogues. Adequate training seems crucial.

Mastery Motivation, Executive Function Difficulties and Academic Achievement in Kenyan First Graders
Keywords: At-risk students, Cognitive Skills & Development, Early childhood education, Motivation
Presenting Author:STEPHEN AMUKUNE, University of Szeged, Hungary; **Co-Author:**Krisztian Jozsa, Institute of Education, University of Szeged, Hungary

Children in transition to kindergarten face a myriad of challenges as they try to settle down in school. Some children overcome such challenges faster than others. Identifying such factors as potential targets for intervention strategies is critical. One possible factor is mastery motivation (MM), the ability to solve problems and master challenges in our environment (Barrett and Morgan, 2018). This study aims to examine the possible role of MM in mitigating executive function (EF) difficulties to enhance school readiness and academic achievement. At-risk grade one children (n = 525) aged 7-11 years were selected using stratified random sampling for the study in pre-school and in grade one. Teachers rated children on MM using the school version of the dimension of mastery questionnaire, whereas EF Difficulties was evaluated using the Childhood Executive Functioning Inventory. Academic achievement was measured directly using standardized tests. High academic achievement was associated with high MM and low EF difficulties. Further analysis indicated that MM had indirect effects on academic achievement through working memory difficulties. Since MM is malleable, intervention strategies that promote a warm child-caretaker relationship, classroom autonomy, quality parenting, and home and school environment are suitable.

Sessions D 2

25 November 2021 09:00 - 10:30
Session Room 13
Present & Discuss
Primary education

Primary Education

Keywords: Early childhood education, Initial Teacher Education (Pre-service), Leadership development, Leadership styles, Music & Arts Education, Primary school education, Professional identity, School Development
Interest group: CLOUD 01 - Teacher education, CLOUD 12 - Leadership in Education
Chairperson: Essi Vuopala, University of Oulu, Finland

Interprofessional collaboration between teachers and childcare workers from an HRM perspective
Keywords: Early childhood education, Leadership development, Leadership styles, Primary school education
Presenting Author: Rachel Verheijen-Tiemstra, Fontys University of Applied Sciences, Netherlands; **Co-Author:**Anje Ros, Fontys University of Applied Sciences, Netherlands

In the Netherlands interprofessional collaboration between the fields of primary education and child care services is an indispensable factor in order to realize alignment in pedagogical and learning pathways. However knowledge on this collaboration from an employee centred perspective is very limited. This angle is relevant since employee's behaviour can be seen as the cornerstone of performance in practice. Therefore our study aims to answer the following research question: *How do employees' abilities, motivation and opportunity to perform in IP collaboration affect perceived performance in integrative child centres?* Data have been gathered through a survey among 273 primary school teachers and child care workers from 16 integrative child care centres (ICCs) in the Netherlands. Results indicate that child care workers put more effort in IP collaboration in order to receive social rewards, such as praise and respect from others than primary school teachers. Furthermore child care workers perceive a lower interprofessional collaboration supportive climate than primary school teachers. Interprofessional collaboration supportive climate, intrinsic motivation and social regulated motivation are statistically significant predictors of a uniform pedagogical approach in integrative child centres. These results offer ICC leaders practical information aiming to develop IP collaboration.

School leadership potential of educational practitioners in Flanders
Keywords: Leadership development, Primary school education, Professional identity, School Development

Presenting Author: Hannelore De Greve, Karel De Grote University College, Belgium; **Co-Author:**Loth Van Den Ouweland, Karel De Grote University College, Belgium

Educational systems worldwide are facing difficulties to find candidates to apply for the job of school leader. However it is crucial to have the best possible professional in that job, because the impact of a strong leader is large. A lack of candidates jeopardizes the need for a thoughtful selection. In most countries there is little attention to a proactive approach in this matter. Talent pools, leadership pipelines, high potential programs, etc. are exceptional in educational settings. Hiring school leaders occurs in a rather ad hoc and unsystematic way.In our exploratory research we try to find out how educational practitioners in pre- and primary schools in Flanders think about themselves as future school leaders. After all, the believe of educational practitioners in one's own potential, is the very first prerequisite for increasing the number of candidates, as the evaluation of one's own potential will make or break the extent to which a person will apply for a job. Based on an understanding of how and why educational practitioners think about themselves as future school leaders we propose actions to increase the amount of them who do rate themselves as being able to become a good school leader.

Professional gestures for teaching music at primary school: supporting generalists and specialists
Keywords: Initial Teacher Education (Pre-service), Music & Arts Education, Primary school education, Professional identity
Presenting Author: Marcelle Moor, University of Teacher Education (HEP-BEJUNE), Bienne, Switzerland; **Co-Author:**Sabine Chatelain, University of Teacher Education, State of Vaud (Lausanne), Switzerland

Generalist teachers undertake music lessons having benefitted from few hours of music teacher training. Specialist music teachers can find themselves ill equipped when faced with a full class of diverse students. Both types of teacher mobilise different professional gestures in varying proportions depending on training, experiences, identities, and perceived competencies. How does the use of professional gesture differ between generalists and specialists? How can music teacher trainers approach professional gesture, opening meaningful dialogue between generalists and specialists, leading to pooled resources and greater self-confidence in areas of music teaching perceived as challenging? Parallel to a project on bodiliness in lessons concerning rhythmical knowledge, a collaboration between a generalist and a specialist music teacher was studied in order to examine their use of pedagogical, didactic and artistic gesture. Both teachers video-recorded three to four lessons, then discussed significant extracts during self-confrontation interviews. The data have been analysed using systematic coding in order to observe and interpret this cooperative situation. Results indicate the complementary natures of musical knowledge, professional knowledge and personal experience, which combined, influence teachers' use of professional gesture and their teaching efficacy. An argument is made for supporting cooperative teaching situations that enrich both generalists and specialists.

Sessions D 3

25 November 2021 09:00 - 10:30
Session Room 4
Present & Discuss
Higher education

Social Interaction & Blended Learning in Higher Education

Keywords: Blended learning, Collaborative Learning, Cooperative learning, Higher education, Peer Interaction / learning, Social interaction, Well-being and engagement
Interest group: CLOUD 02 - Educators' professional development, CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 04 - Improving learning and well-being
Chairperson: Henderijn Heldens, Fontys University of Applied Science, Netherlands

Scripting collaborative learning in technology-supported thesis groups (CANCELLED)
Keywords: Blended learning, Collaborative Learning, Cooperative learning, Higher education
Presenting Author: Bob Gotte, Inholland University of Applied science, Netherlands

Graduation projects in higher education are increasingly organized in thesis groups where lecturers and students form a community of learner. They collaboratively share the responsibility to support each other's individual learning processes. Teachers on a Business Studies Bachelor program encountered difficulty in effectively organizing collaborative learning in their thesis groups. The main cause were differences in the research subject, the level of expertise and how the students planned their research project. Using a design-based research approach, a script was developed together with teachers to effectively organize, promote and facilitate the collaborative learning activities in their thesis groups. Technology was used to support and stimulate collaboration. The script was tested in practice. Then evaluated with students and teachers. The findings of this study provide insights into the characteristics of a script for the effective organization and facilitation of collaborative learning activities in technology-supported thesis groups in a specific educational context. The research yielded insights into the limitations of the chosen design-oriented approach and of the focus in scripting for proper implementation. Suggestions are made to use a different approach that suggests a different type of scripting which may address the problems encountered.

Developing a sense of community in online learning communities in the context of flexible education
Keywords: Blended learning, Higher education, Social interaction, Well-being and engagement
Presenting Author: Kariene Woudt-Mittendorff, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Rosalien van der Meer, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Jacqueline van Oijen, Leiden University of Applied Sciences, Netherlands; **Co-Author:**Renée Oosterwijk, Hanze University Groningen. University of Applied Sciences, Netherlands; **Co-Author:**Anne Venema, The Hague University of Applied Sciences, Netherlands; **Co-Author:**Dineke van Essen, Leiden University of Applied Sciences, Netherlands; **Co-Author:**Ellen Sjoer, The Hague University of Applied Sciences, Netherlands; **Co-Author:**Jelly Zuidersma, Hanze University Groningen. University of Applied Sciences, Netherlands

This design-oriented study explores different methods for stimulating a sense of community in online and blended learning communities that are part of programs in which students differ in their intended learning outcomes or their pace of study. Based on a theoretical framework experiments with online or blended learning communities are conducted by teachers in four universities of applied sciences. These experiments are designed in various 'co-creation sessions' led by the researchers. Teachers and students of the involved learning communities actively participated in these sessions. In order to evaluate the results of the experiments both quantitative and qualitative methods are used. An online survey is conducted before and at the end of the experiment, discussions during the co-creation sessions are documented and participants are interviewed. Preliminary results indicate that the factors identified from literature are relevant for optimizing sense of community, suitable to be applied in educational practice and that ICT tools can be helpful in this. Data collection will be completed in May 2021. Eventually, findings of this study will be translated into a practical guide for teachers in order to inspire them for the purpose of stimulating sense of community in their own online and blended learning communities.

Community of practice for Digitalization and Innovation in homeworking: motivation or constraint?
Keywords: Cooperative learning, Higher education, Peer Interaction / learning, Social interaction
Presenting Author: Natalie Sarrasin, HES-SO Valais / University of Applied Sciences & Arts Western Switzerland, Switzerland; **Co-Author:**Beverley Todeschini, HES-SO Valais-Wallis / University of Applied Sciences & Arts of Western Switzerland, Switzerland

Communities of practice (CoPs) (Wenger, 2015) are based on formal and informal meetings of enthusiastic participants, who engage in a process of collective learning in a shared domain. This paper demonstrates that CoPs can operate even at a distance in the case of a compulsory home office situation. We present the case of our CoP based on digitalization & innovation at the UAS of Sierre, Switzerland. Through the various practices observed, we identify general rules that have favored the remote operation of these CoPs. Digitalization and the ability to use digital technology are in the heart of the change in emergency remote teaching. Therefore, strengthening one's digital knowledge and skills was the first step for many teachers. The members of our CoP closed ranks and took advantage of this difficult context to share and even more. The trust and goodwill that already existed within the community also helped to maintain and enhance

it. The problems, concerns and questions were numerous and the opportunities to exchange on very diverse themes too. The initial loss of time was quickly replaced by the richness of the exchanges. Thus, this CoP has totally contributed to continuing professional development of the teachers involved.

Sessions D 4

25 November 2021 09:00 - 10:30
Session Room 9
Present & Discuss
Higher education, Workplace learning

Practice-based research methodology

Keywords: Higher education, Initial Teacher Education (Pre-service), Innovations in education, Practice-based research (methodology), Professionalisation of educators, The role of research on learning and instruction in developing education systems, Workplace learning
Interest group: CLOUD 01 - Teacher education, CLOUD 05 - HRD & Workplace learning, CLOUD 07 - Research impact on school development
Chairperson: Sjoerd-Jeroen Moenandar, Rijksuniversiteit Groningen, Netherlands

Designing, implementing and investigating workplace learning in teacher education
Keywords: Higher education, Innovations in education, Practice-based research (methodology), Workplace learning
Presenting Author: Sabrina Govaerts, AP University of Applied Sciences and Arts Antwerp, Belgium; **Presenting Author:**Elena Van den Broeck, AP University of Applied Sciences and Arts Antwerp, Belgium; **Co-Author:**Annelies Aerts, AP university of Applied Sciences and Arts Antwerp, Belgium; **Co-Author:**Lieke Lochten, University of Antwerp, Belgium; **Co-Author:**Inge Havermans, AP University of Applied Sciences and Arts Antwerp, Belgium

The teacher education training of AP University of Applied Sciences (Antwerp, Belgium) offers an alternative training in which the practical component does not include regular internship learning, but relates to workplace learning. Workplace learning, defined as consciously and planned learning in an authentic situation (Veldhoven et al, 2010) can act as a powerful learning environment (Ostenk, 2001). The aim of this research is 1) to iteratively adjust the policy on workplace learning and 2) to investigate the perceptions, preconditions and learning effects (feeling of competence and self-perception) of workplace learning. Results were collected by a mixed-method approach with desk research, qualitative research methods (e.g. focus groups, in-depth interviews) and quantitative data from questionnaires. Students, supervisors from AP and the workplaces see the added value of workplace learning: the student is given greater responsibility and everyone is involved in the evaluation of the future teacher. However, it also appears that this concept still has its challenges. The main challenge lies in building a professional relationship between all actors: building a relationship of trust, getting to know each other and being present. Based on the results of this research and the following recommendations, the trajectory is further designed and developed.

Educating students at the boundary: Tapping into unused learning potential
Keywords: Higher education, Initial Teacher Education (Pre-service), Practice-based research (methodology), Professionalisation of educators
Presenting Author: Carolien Duijzer, Marnix Academie (PABO), Netherlands; **Co-Author:**Marjolijn Peltenburg, Marnix Academie, Netherlands

The present study explores how institute-based teacher educators and primary school-based teacher educators partaking in a professionalization trajectory aimed at learning-in-connection develop their brokering activities at the intersection of the teacher education institute and primary school via lesson study, and what kind of learning they experience. Following boundary crossing theory we operationalize learning into four learning mechanisms (identification, coordination, reflection, and transformation). Collected data include the dialogues taking place during three meetings of the professionalization trajectory and in-depth interviews with six institute-based teacher educators and six school-based teacher educators, partaking in the professionalization trajectory at the beginning and at the end of the schoolyear, as well as in-depth interviews with six of their students. Preliminary results show that the learning mechanisms can be related to the brokering activities of the respondents, and hence to the learning potential residing at the boundary between the teacher education institute and primary schools.

The impact of practice-based research on educational practice - factors of influence explored
Keywords: Higher education, Innovations in education, Practice-based research (methodology), The role of research on learning and instruction in developing education systems
Presenting Author: Garmt Meulendijks, Hogeschool Inholland / University of Applied Sciences, Netherlands; **Co-Author:**Nynke Bos, Inholland University of Applied Sciences, Netherlands; **Co-Author:**Jeroen Bottema, Inholland University of Applied Sciences, Netherlands

The impact of research is often measured in terms of output, while recent studies have shown that measuring impact by these standards does not adequately describe actually achieved impact as reported by stakeholders. But how can it be described, if not by simply looking at output? Theoretical study shows that the concept of impact can be measured in three dimensions; scope, nature and progression. Previous research showed that using these dimensions to allow stakeholders to describe impact, yields data that allows for a more in depth description of impact than merely looking at output. It also showed that looking at factors of influence on the scope, nature and progression of impact and adding qualitative and quantitative data on these factors to the description of the impact itself allowed the making of recommendations towards potentially improving future impact. This was also the starting point of this study. A theoretical framework was based on literature review, that resulted in a conceptual model of factors of influence on impact. This model, which is central to the discussion, is used as the foundation for an ongoing study into previously achieved impact, with the goal to ultimately achieve greater impact from future research results.

Sessions D 5

25 November 2021 09:00 - 10:30
Session Room 12
Present & Discuss
Higher education, Lifelong learning, Primary education

Educational Technology B

Keywords: 21st century learning, Artificial intelligence, Beliefs and conceptions of teaching, Continuing professional development in Teachers, Educational Technology, In-service Teacher Training, Innovations in education, Workforce diversity & equality
Interest group: CLOUD 01 - Teacher education, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Anthony Thorpe, University of Roehampton, United Kingdom

Recognising Immigrants' competence in the era of virtual reality
Keywords: 21st century learning, Educational Technology, Innovations in education, Workforce diversity & equality
Presenting Author: Merja Drake, HAAGA-HELIA University of Applied Sciences, Finland

Virtual reality (VR) has been seen a promising tool especially for learning with the capacity to enhance interaction, immersion, and attention. VR has been studied in many areas, such as engineering, transportation, aviation, and especially in medicine. It is a popular research subject in terms of both primary and high educational contexts. However, the development of competence recognition through virtual technology has been studied to a limited extent. Competence includes skills, attitudes, and knowledge, competence recognition provides tools to recognise previously acquired competencies. VR could be a promising tool for competence recognition, since it provides immersion, and a way to create interactive virtual twins, virtual counterparts of the real-life environments. VR also offers an opportunity to test interactivity, which is important competence in the service industry.In this paper, we discuss how to develop a VR-based competence-recognition model for the immigrants living in Finland seeking work in the service industry, especially in th restaurant or health-care companies, and present preliminary results and observations on the functionality of the model.

Teachers' digital competencies and training workshops as predictors of the ICT use in teaching
Keywords: Continuing professional development in Teachers, Educational Technology, In-service Teacher Training, Innovations in education
Presenting Author: Barbara Roncevic Zubkovic, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia; **Co-Author:**Martina Bažon, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia; **Co-Author:**Svjetlana Kolic-Vehovec, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia; **Co-Author:**Rosanda Pahljina-Reinić, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia

The purpose of the present correlational study was to examine whether teachers' digital competencies self-reported prior to the implementation of a project aiming at applying ICT in teaching, as well as the frequency of attending teacher training workshops during the project, predicted teachers' reported ICT use in educational activities.Elementary and high school teachers (N=1234) filled up an online questionnaire about their general and specific digital competencies, at the beginning of the project, and, at the end of it, an online questionnaire about their use of ICT and digital educational content in various school-related activities. Teachers also assessed the frequency of their participation in workshops during the project.Three hierarchical regression analyses were performed with digital competencies and frequency of participation in workshops as predictors and three indicators of reported ICT use as criteria.The results revealed that specific digital competencies (especially one related to using digital technology for teaching and learning) and participation in workshops were significant and strongest predictors of all selected indicators of ICT use. Future education training and/or projects for teachers should focus on developing specific digital competencies and on offering various educational workshops to increase teachers' probability of successful ICT use.

Hands-on artificial intelligence in K-12. How can GOFAI and machine learning be taught?
Keywords: Artificial intelligence, Beliefs and conceptions of teaching, Educational Technology, Innovations in education
Presenting Author: Cuko Kostanca, Haute école pédagogique de Fribourg, Switzerland; **Co-Author:**Lionel Alvarez, HEP-Fribourg | Université de Fribourg, Switzerland; **Co-Author:**Ania Tadlaoui, Haute école pédagogique de Fribourg, Switzerland

For the new K-12 study plan about digital education in the French-speaking side of Switzerland (CIIP, 2020), a teaching material based on digital citizenship has been developed.The instructional design of the artificial intelligence (AI) sessions raised many questions. In addition to the digital environment that had to be chosen, the retained definitions of AI, the message conveyed at the end of the sessions, and the learning experience proposed to each kid were particularly challenging because of the scope of the concept of AI. By working with various tools, students should become aware of the potential uses of these tools in the professional world and question their own professional ambitions in an inclusive perspective. This paper session will be the opportunity to present the instructional design process and the impact of the first implementations in K-12 classrooms.

Sessions D 6

25 November 2021 09:00 - 10:30
Session Room 6
Present & Discuss
Secondary education, Vocational education

Improving learning and well-being in Secondary Education & Leadership in Education

Keywords: 21st century learning, Creativity, Culture and Education, Innovations in education, Multiculturalism in Education, Practice-based research (methodology), Professional Development, Secondary school education, Self-regulation and self-regulated learning, Vocational education, Well-being and engagement
Interest group: CLOUD 04 - Improving learning and well-being, CLOUD 12 - Leadership in Education
Chairperson: Julian Ng, United Kingdom

Photovoice as a Collaborative Research Methodology of Teaching Practices in Junior High Schools
Keywords: Innovations in education, Practice-based research (methodology), Secondary school education, Self-regulation and self-regulated learning
Presenting Author: Leen Alaerts, UC Leuven-Limburg, Belgium; **Co-Author:**Anne Decelle, UC Leuven-Limburg, Netherlands; **Co-Author:**Ruth Wouters, UCLL, Belgium

This collaborative research contributes to the discussion whether education in junior high schools should be comprehensive, rather than categorical. The educational reform in Flanders (September 2019) insists on a more comprehensive approach. However, because of the rather loose character of the reform, schools have given rise to a rich variety of innovative educational practices. In order to investigate the quality of these initiatives, the research question of this project (2018-2021) is: what contributes to a successful junior high school? The qualification 'successful' is specified as: (a) meeting up to the required learning goals; (b) having a positive impact on wellbeing; (c) having a positive impact on learners' academic self-concept and (d) offering a positive orientation in school curriculum. Photovoice is chosen as main data-collection methodology. Photovoices are focus-groups in which the members identify, represent and enhance certain processes by taking, sharing and discussing photos (Wang, 1997) These data (photos and transcriptions) were iteratively analyzed in combination with desk research and a participatory trajectory in schools. The analysis confirms prudently that there is a positive correlation between a more comprehensive approach and the wellbeing of learners. Offering opportunities to enhance autonomous learning and self-regulation seems to be a crucial factor.

Impact of Education 4.0 environments on students' learning approach&teacher's awareness (CANCELLED)
Keywords: 21st century learning, Creativity, Innovations in education, Well-being and engagement
Presenting Author: Els Laenens, University of Antwerp, Belgium; **Co-Author:**Ellen Vandervieren, University of Antwerp, Belgium; **Co-Author:**Kristien Verbist, Stedelijk onderwijs Antwerpen, Belgium

To face our VUCA-world (Volatile, Uncertain, Complex, Ambiguous), we need Education 4.0 according to the social innovation framework Theory U (Scharmer & Kaufer, 2013). This kind of co-creative education requires a shift in awareness of teachers and puts students at the center of the learning process. The aim of this awareness-based action research was to realize an education 4.0 environment and to examine its impact on students' learning approach and on the teacher's awareness. We coached a teacher and her 53 students towards and in a 4.0 learning environment. The students filled in a questionnaire on learning approaches twice (pretest-posttest design). Descriptive statistics and paired t-tests show a statistically significant positive impact of the co-created learning environment on students' learning approach. Lack of regulation, controlled motivation and amotivation reduced while autonomous motivation, self-efficacy, student cohesiveness, teacher support, student involvement, cooperation, enjoyment of learning and academic efficacy increased. Mapping the teacher's experience through in-depth interview revealed shifts in awareness. She went from an open mind over an open heart to an open will, and let come what wanted to emerge in her classroom. The prototype resulting from this practice-based research might be a source of inspiration for launching innovation in schools.

Finnish-Dominican Education Programme for Managers Developing Competences for Industry 4.0
Keywords: Culture and Education, Multiculturalism in Education, Professional Development, Vocational education
Presenting Author: Essi Ryymin, Häme University of Applied Sciences, Finland; **Co-Author:**Pirjo Tuominen, Hämeen ammattikorkeakoulu/Häme University of Applied Sciences, Finland; **Co-Author:**Taru Lilja, Häme University of Applied Sciences (HAMK), Finland; **Co-Author:**Nana Niskanen, Häme University of Applied Sciences (HAMK), Finland; **Co-Author:**Maura Corporán, INFOTEP, Dominican Republic; **Co-Author:**José Rafael Croussett Paredes, INFOTEP, Dominican Republic

This research gives an example of how the framework of Design-Based Implementation Research (Fishman, Penuel, Allen, Haugan, & Cheng 2013) was applied in the co-design of a Finnish-Dominican professional development programme "Programa de Desarrollo de Educación Vocacional" for vocational education managers and pedagogical developers of INFOTEP from the Dominican Republic. Fifty-eight participants co-designed, implemented and evaluated 12 regional development projects of vocational education within the two-year programme, 2018-2020. The data gathering concerns 1) the participants' most important learning experiences of the first contact period of programme, 2) their expectations for the online guidance period and 3) the Dominican programme managers' expectations for the concrete outcomes of the process. The most meaningful learning experiences were the introduction of *the student-centered*

approach including *active learning methods* and *personalisation*. Furthermore, *collaboration with the world of work* and *evaluation* were important. Regarding online guidance, the participants wished to have *support for their development projects, follow and accompanying, support for group-based project themes, evaluation and reaching the goals of the project.* The programme managers' wish for the concrete outcome was to gather conclusions of regional development projects and, on their basis, co-design a practice-based pedagogical model for INFOTEP to embrace challenges of Industry 4.0.

Sessions D 7

25 November 2021 09:00 - 10:30
Session Room 11
Present & Discuss
Higher education, Secondary education

Instructional Design and Instructional Strategies

Keywords: Competence-based education, Educational Technology, Initial Teacher Education (Pre-service), Instructional Design and Instructional Strategies, Motivation, STEM, Training and Development, Vocational education
Interest group: CLOUD 01 - Teacher education, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Michiel Veldhuis, Hogeschool IPABO Amsterdam/Alkmaar, Netherlands

Effects of using teaching scenarios on students' motivation, emotion and performance
Keywords: Educational Technology, Instructional Design and Instructional Strategies, Motivation, STEM
Presenting Author: Rosanda Pahljina-Reinić, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia; **Co-Author:**Barbara Roncevic Zubkovic, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia; **Co-Author:**Svjetlana Kolić-Vehovec, University of Rijeka, Faculty of Humanities and Social Sciences, Croatia

Within a pilot project e-Schools aimed at introducing ICT into the Croatian school system, the teaching scenarios were created as suggestions for teachers concerning digital content and tools that might effectively support the achievement of learning outcomes. Teaching scenarios for chemistry, biology, mathematics and physics for the 7th and 8th grades of middle school and the 1st and 2nd grades of high school were designed. A quasi-experimental study was conducted in order to investigate effects of 16 teaching scenarios (one scenario for each of the four courses in each grade). Experimental condition included instruction based on teaching scenario, and control condition included teaching the same topic without ICT. Six hundred and fifty students participated in experimental and 566 in control condition. A questionnaire assessing students' topic-related motivation and emotions, as well as tasks assessing students' knowledge were applied before and after instruction. While no significant differences in cognitive achievement between the two conditions was found, a significant difference in motivation and emotions between the two groups of students were found in biology and mathematics, indicating that students respond favorably to the instruction based on the implementation of teaching scenarios.

Improving teachers' competence of lesson planning in the light of learning processes and interaction
Keywords: Competence-based education, Initial Teacher Education (Pre-service), Instructional Design and Instructional Strategies, Vocational education
Presenting Author: Matthias Söll, University of Kassel, Germany

Learning how to plan lessons is an important element of teachers' professional development. This applies in particular when learning processes and interaction in digital learning environments have to be prepared, as numerous participants are not yet familiar with appropriate procedures.Although there is a range of theories and guidelines about lesson planning, just a few studies focus this competence. The research project to be presented is based on an evidence-based approach to improve lesson planning competence of student teachers.The innovative idea of the concept at hand is an analogy between lesson planning and scriptwriting for anchored instruction films. By focusing the preproduction of digital learning environments, students should be encouraged to concentrate on learning processes of individuals and their interaction. It is also hypothesized that they should plan more theory based and elaborated.To examine these effects, pre-post vignette tests were applied. 84 paired tests were collected in the master's degree program business and economics education. The data was analyzed with methods of qualitative content analysis.In general, the analysis of the vignette tests shows positive developments of the student teachers' competence of lesson planning. However, the explanations of coherences between the categories are partially absent or little sophisticated.

Digital Training Intervention on How to Tackle Students' Misconceptions in Physics
Keywords: Initial Teacher Education (Pre-service), Instructional Design and Instructional Strategies, STEM, Training and Development
Presenting Author: Markus H. Hefter, Bielefeld University, Germany; **Co-Author:**Bärbel Fromme, Bielefeld University, Germany; **Co-Author:**Kirsten Berthold, University of Bielefeld, Germany

One of the manifold challenges for (future) teachers is how to tackle their students' misconceptions. Misconceptions are students' naïve concepts often in conflict with the correct scientific concepts taught at school. We developed a short-term digital training intervention for future teachers to foster basic instructional knowledge about how to address students' misconceptions in physics. The intervention's core components were cognitive models of three instructional strategies (i.e., ignoring, refuting, and integrating) and self-explanation prompts. We designed our digital training intervention to last about one hour. In a web experiment with 58 teacher students, we tested our intervention against a control group. Results showed that our short-term digital intervention is an effective first step for teacher students to acquire basic instructional knowledge about how to tackle students' misconceptions. Furthermore, self-explanation quality mediated the training intervention's effect on instructional knowledge both immediately and three weeks after the intervention. These findings underscore the practical relevance of self-explanations while learning from complex cognitive models. Instructors should thus not just model their strategies for their students, but also ensure that students deeply process their instructor's modeled strategies. Finally, the intervention's positive side effect of reducing participants' own misconceptions is an additional practical advantage.

Sessions D 8

25 November 2021 09:00 - 10:30
Session Room 2
Present & Discuss
Higher education, Secondary education, Vocational education

Educational Policy

Keywords: Competence-based education, Curricula, Distance Education, Educational Policy, Educational Technology, Higher education, Innovations in education, Research cooperation frameworks, Secondary school education, Vocational education
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning, CLOUD 11 - Practice-based Research Methodology
Chairperson: Tineke Kingma, Windesheim University of Applied Sciences, Netherlands

Flexibility in higher education curricula
Keywords: Curricula, Educational Policy, Higher education, Innovations in education
Presenting Author: Herma Jonker, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Anneke Smits, Windesheim University, Netherlands

Flexibility is considered important in Dutch higher education. However, defining and implementing flexibility is not simple and straight forward. In order to clarify how flexibility is defined and implemented, this study offers insights into the ways flexibility is present in written curriculum materials of three higher education programs. The main question is: In what ways is flexibility expressed in part-time Bachelor curricula? This question is answered by conducting a multiple case

study. A product scan is used for determining the flexibility at an organizational level (intended curriculum) and a classroom level (implemented curriculum). A within case analysis is followed by a between case analysis. Results show contradictory statements concerning flexibility in curriculum documents. Documents about the intended curriculum generally contained open formulations about aims, assessment and planning of assessments. However, this openness was hardly reflected in the study guides of the corresponding implemented curriculum that tended to restrict flexibility for students through detailed descriptions.

COVID-19 and School Closures in Japan: Survey Findings on the Effects on Junior High School Students

Keywords: Distance Education, Educational Policy, Research cooperation frameworks, Secondary school education
Presenting Author: Hiroaki Ayabe, National Institute for Physiological Sciences, Japan; **Co-Author:**Yukio Fuwa, Gifu Shotoku Gakuen University Junior High School, Japan; **Co-Author:**Emmanuel Manalo, Kyoto University, Japan

The Japanese government implemented a 3-month school closure during March-May 2020 as part of its strategy to control COVID-19. However, it imposed few behavioral restrictions on adults, which may have rendered the school closures ineffective in controlling virus transmission but mentally stressful for students. We report on an investigation into the experiences of 205 junior high school students (age = 13.23 ± 0.84 years, female = 97; all from the same school) and the closure effects on their daily activities and mental states (feelings/moods, and anxiety). The findings indicate that the students' sleep time increased during the closure period ($F_{(1,204)} = 50.68, p$

SELFIE-tool study for Vocational Education Teachers' and Mentors´ digital pedagogical training

Keywords: Competence-based education, Educational Policy, Educational Technology, Vocational education
Presenting Author: Kati Mäenpää, Oulu University of Applied Sciences, Finland; **Co-Author:**Sanna Brauer, Oulu University of Applied Sciences, Finland; **Co-Author:**Elina Juntunen, Oulu University of Applied Sciences, Finland

This study explores 1) existing practices of using digital tools and digital pedagogical models in vocational education and training (VET) and work-based learning (WBL), 2) digital tools and digital pedagogical models available for VET and WBL and 3) suggests recommendations
for digital pedagogical training. The study is conducted in three European countries, Latvia, Lithuania, Portugal, in their participating VET institutions in a joint ERASMUS+ project implemented with Finland and Czech Republic. The study utilizes mixed methods. The main quantitative data were collected by SELFIE - tool questionnaire (n=219) and with additional questionnaire (n=81) and analyzed during spring 2021. Qualitative data supplements the recommendations for a training program to improve digital pedagogical skills and competences of VET teachers, trainers, mentors, for both on-campus and online learning. The study provides an overview of three profiles; school leaders', teachers' and students' perceptions of training needs in the use of digital tools and technologies in WBL settings in seven areas: 1) Leadership, 2) Collaboration and Networking, 3) Infrastructure and Equipment, 4) Continuing Professional Development, 5) Pedagogy 6) Assessment Practices and 7) Students Digital Competence. The study relies on European Commission's DigCompEdu - framework and competence-based professional development.

Sessions D 9

25 November 2021 09:00 - 10:30
Session Room 7
Present & Discuss
Higher education

Distance Education in Higher Education

Keywords: 21st century learning, Blended learning, Distance Education, Higher education, Instructional Design and Instructional Strategies, Lifelong Learning, Professional Development, Self-regulation and self-regulated learning
Interest group: CLOUD 02 - Educators' professional development, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Karin Diemel, Fontys University of Applied Sciences, Netherlands
Chairperson: Rasa Poceviciene, Lithuania

Self-directed Learning Competencies - a Key to Success in Online Learning

Keywords: Distance Education, Higher education, Professional Development, Self-regulation and self-regulated learning
Presenting Author: Rasa Poceviciene, Šiauliai State College, Lithuania

Announced by M. Knowles (1975) and developed by other scientists, self-directed learning competencies, are more and more important in the XXI century and especially in online education. Here even more than in a contact students need to know how to organize and manage their learning. They need self-directed learning competencies. As well as teachers need to know how to develop those skills for the students, how to organize studies for self-directed learners, and how to prepare the qualitative online courses. Those were the main research questions.Research methods: content analysis for theoretical background and the questionnaire of students and educators for the gathering of empirical data. Empirical research showed that those students who had developed self-directed learning competencies are more successful than others. As well as the educators - those who had self-directed competencies overcome all online teaching challenges easier, and those who had experience in online teaching and didactical knowledge and skills how to prepare qualitative online courses were more successful and felt less stress and had fewer problems in online teaching. The main conclusion is the need to develop self-directed learning competencies for students and for educators as well as didactical competencies of educators in preparing online courses.

Analysis of learning motivations and consideration of appropriate interventions for online students

Keywords: Distance Education, Higher education, Instructional Design and Instructional Strategies, Lifelong Learning
Presenting Author: Yasuhisa Kato, Tokyo Online University, Japan

Online learners have to take distance courses themselves and keep their pace from the first to the last. So, they can easily feel loneliness and some students will stop learning because of a loss of motivation. Students studying at online universities have a wide range of purposes to study. Some of them actually want academic activities, and some of them just need degrees and so on.This article clarifies the main drivers of learning motivation in the online university and possible appropriate interventions to enhance their learning motivation towards the end of their degree.After an online survey of 94 online students, it was found that the communication activities of teachers and students or some sort of information can help students to continue their studies. It also found that students at an online university have more autonomy and self-managed characteristics, and less communication-oriented than those of regular students attending schools.Factor analysis and correlation analysis show that students who feel good to study or who focus during their studies are more motivated to learn.The result of the questionnaire will ensure the ability to submit some sort of feedback information or the status of students' progress will improve their motivation to learn.

Implementing Hybrid Virtual Classroom: Effects on students' 'Community of Inquiry' feeling

Keywords: 21st century learning, Blended learning, Distance Education, Higher education
Presenting Author: Tjark Huizinga, Saxion University of Applied Sciences, Netherlands; **Presenting Author:**Anne Lohuis, Saxion Hogeschool Enschede, Netherlands; **Co-Author:**Rosalien van der Meer, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Judith Zwerver, Saxion University of Aplied Sciences, Netherlands

The COVID-19 period asked for innovative teaching and learning practices in higher education. Whereas some courses were offered online, other courses were offered through hybrid virtual classrooms. This study addresses part-time students' experiences regarding the 'community of inquiry' framework
and how teachers stimulated social, cognitive and teacher presence within a hybrid virtual classroom in vocational education. The study was guided by the questions how part-time students experience and how teachers stimulate social, cognitive and teacher presence within a hybrid virtual classroom.
A mixed-method approach was used in which Swan et al.'s (2008) questionnaire was used to identify students' experiences of the 'community of inquiry'.
Qualitative data was collected to identify teachers' experiences by using semi-structured interviews. The results illustrate that

students value hybrid virtual classrooms. Teachers applied various strategies to enhance social presence. However, this was affected by the available communication tools. Students felt more motivated to engage in deeper learning and felt supported by teachers in their learning process. Teachers expressed that stimulating student interaction was challenging. In conclusion, students and teachers both value hybrid virtual classroom, but enhancing social presence is challenging. Hence, teachers require a better understanding of meaningful learning activities to stimulate interaction.

Sessions D 10

25 November 2021 09:00 - 10:30
Session Room 8
Workshop
Higher education

Using virtual reality (VR) in primary school teacher education

Keywords: Educational Technology, Higher education, In-service Teacher Training, Professional Development
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning

This workshop is about the use of VR in a in-service teacher training setting for primary school teachers. The participants will experience a VR application that has been designed to support the social and conversation skills of students teachers. They will also be informed about the design thinking approach that has been used to develop the prototype. Results of the design research process will be presented and further steps will be discussed. The aim is to give the participants a clear idea of how VR (and interactive 360° videos) could support skills development of student teachers. Hands-on experiences and reflective dialogues will be key features of this workshop.

Using virtual reality (VR) in primary school teacher education
Presenting Author: Ellen Rohaan, Fontys University of Applied Sciences, Netherlands

This workshop is about the use of VR in a in-service teacher training setting for primary school teachers. The participants will experience a VR application that has been designed to support the social and conversation skills of students teachers. They will also be informed about the design thinking approach that has been used to develop the prototype. Results of the design research process will be presented and further steps will be discussed. The aim is to give the participants a clear idea of how VR (and interactive 360° videos) could support skills development of student teachers. Hands-on experiences and reflective dialogues will be key features of this workshop.

Best Practice-Based Research Award Session 1

25 November 2021 11:00 - 12:30
Auditorium
Best Practice-Based Research Award
Primary education

Best Practice-Based Research Award Session

Keywords: Cooperative learning, Primary school education, Professional Development, Research-based learning
Interest group: CLOUD 07 - Research impact on school development

POINT: A sustainable educational research lab for professionalization in the field of giftedness
Keywords: Cooperative learning, Primary school education, Professional Development, Research-based learning
Presenting Author: Anouke Bakx, Fontys University, Radboud University, Netherlands; **Co-Author:**Kim Smeets, POINT / Stichting BOOM, Netherlands; **Co-Author:**Elise Samsen, POINT / Stichting BOOM, Netherlands; **Co-Author:**Jeroen Zeeuwen, Stichting BOOM, Netherlands

POINT (Passend Onderwijs voor Ieder Nieuw Talent; Tailored Education for Every New Talent) started as a project, but has developed into a successful educational research lab, in which teachers, teacher-educatorsand researchers work together on studies concerning the theme giftedness. The purpose of POINT is to improve (tailored) education for all pupils - including gifted pupils - and to link educational practice and scientific research.
The educational research lab POINT aims for: Shaping a sustainable professional learning community, in which teachers, teacher-educators and researchers work together on themes that are in line with tailored education for gifted pupils; Knowledge development and knowledge sharing by (Dutch) teachers, teacher-educators and researchers on the theme of giftedness; Development of an investigative attitude and investigative capacity among the participating POINT-teachers; Sharing insights from our studies on giftedness with other people interested, nationally and internationally in all ways possible (publications, presentations, video's, games etc.).

Sessions E 1

25 November 2021 13:30 - 15:00
Session Room 7
Roundtable
Higher education

STEM education

Keywords: 21st century learning, Blended learning, Curricula, Higher education, Initial Teacher Education (Pre-service), STEM
Interest group: CLOUD 01 - Teacher education
Chairperson: Essi Vuopala, University of Oulu, Finland

Supporting student teachers in creating an evidence-informed teaching practice in STEM-education
Keywords: Curricula, Higher education, Initial Teacher Education (Pre-service), STEM
Presenting Author: Ria Dolfing, University of Groningen, Netherlands; **Co-Author:**Mina Atia, University of Groningen, Netherlands; **Co-Author:**Sabine Fechner, University of Paderborn, Germany; **Co-Author:**Pascal Pollmeier, University of Paderborn, Germany; **Co-Author:**Christian Bokhove, University of Southampton, United Kingdom; **Co-Author:**Sally Bamber, University of Chester, United Kingdom; **Co-Author:**Eliza Rybska, Adam Mickiewicz University, Poznan, Poland; **Co-Author:**Lesley De Putter, Eindhoven University of Technology, Netherlands; **Co-Author:**Adri Dierdorp, DUDOCnetwork, Netherlands

The universities of Groningen, Southampton, Paderborn, Poznan and Chester, under the support of the DUDOCNetwork, are jointly developing curricula to support students in creating an 'evidence-informed teaching practice'. The aim is to teach students how to use evidence from research in education and domain-specific fields of science, technology, engineering and mathematics (STEM) to improve their own teaching practice. Following a cyclical learning process of developing, implementing and evaluating, curricula are developed using mechanisms of evidence-informed policy making. All universities conduct a case study in which they develop, implement and evaluate their curriculum in their local initial teacher education (ITE) context. Data collection instruments involve a questionnaire, student test and pre-post interviews. Data analysis focuses on getting insight into student teachers perspectives on, beliefs about and abilities in creating evidence-informed teaching practices. This project results in five empirical validated curricula which could result in universal insights about student teachers who systematically use evidence to develop, implement and improve their lessons.

Interdisciplinary educational development in science and technology in higher education

Keywords: 21st century learning, Blended learning, Higher education, STEM
Presenting Author: Iris Peeters, KU Leuven, Belgium

Recently the complex multicampus structure of the University of Leuven has initiated educational development at an extra, intermediate level, hereby stimulating interdisciplinary educational innovation without losing touch with the specific context and content. Three project managers educational innovation were appointed, each responsible for a cluster of faculties. During this meet-up the project manager of the Group of Science, Engineering and Technology seeks colleagues who also work as educational developers, innovators, facilitators and network builders in an interdisciplinary STEM-context in higher education. A common theme could be the complex but interesting interplay between bottom-up initiatives and university-wide policy priorities, between policy makers and those who teach and learn. The focus of this meet-up may then be experience exchange for instance in network building, but also specific topics such as multicampus educational technology, distance learning, teaching assistant training, learning analytics, MOOC development, active learning spaces and orientation tests for incoming students could initiate an inspiring collaboration.

Sessions E 2

25 November 2021 13:30 - 15:00
Session Room 3
Roundtable
Secondary education

Continuing Professional Development in Teachers in Secondary Education

Keywords: Continuing professional development in Teachers, Innovations in education, Professional Development, Professional identity, Secondary school education, Team Learning, Workplace learning
Interest group: CLOUD 01 - Teacher education
Chairperson: Lisette Munneke, Utrecht University of Applied Sciences, Netherlands

Constructing and evaluating activities for teacher design teams working on technology innovation
Keywords: Continuing professional development in Teachers, Innovations in education, Professional Development, Secondary school education
Presenting Author: Lysanne Post, ICLON-Leiden University Graduate School of Teaching, Netherlands; **Co-Author:**Anouschka van Leeuwen, Utrecht University, Netherlands; **Co-Author:**Ditte Lockhorst, Oberon research institute, Netherlands; **Co-Author:**Wilfried Admiraal, Leiden University, Netherlands; **Co-Author:**Liesbeth Kester, Utrecht University, Netherlands

An effective way to stimulate teachers' engagement and involvement in educational innovations is by employing teacher design teams (TDTs, Vangrieken et al., 2013). The activities that TDTs engage in should be chosen carefully, and a facilitator should be available to supervise the TDTs (Becuwe et al., 2016). So far, little attention has been paid in the literature to the nature and role of such design activities (Vangrieken et al., 2013; Brouwer et al., 2012). Therefore, the goal of this ongoing practice-based research is to construct and evaluate a series of design activities in order to support and enhance TDTs in the context of technology innovation in schools. Two research questions were formulated: (1) Which design activities can be offered to support TDTs in secondary education in the context of technology innovation? (2) How do members of the TDTs evaluate the supportive design activities? In this multiple-case study, the constructed supportive design activities were enacted by five TDTs in secondary education in the Netherlands. The TDTs undertook design activities in five sessions, guided by a facilitator. The research questions will be answered based on audio recordings of each session, logbooks and interviews about teachers' perceptions of the design process and activities.

Adaptive capacity of teachers, schools and teacher education: shaping future teaching profession
Keywords: Continuing professional development in Teachers, Professional identity, Team Learning, Workplace learning
Presenting Author: Wouter Schenke, Kohnstamm Institute, University of Amsterdam, Netherlands; **Presenting Author:**Marieke van der Pers, University of Groningen, Netherlands; **Presenting Author:**Monika Louws, Utrecht University, Netherlands; **Co-Author:**Ditte Lockhorst, Oberon research institute, Netherlands; **Co-Author:**Bregje de Vries, VU University, Netherlands; **Co-Author:**Patricia Brouwer, Hogeschool Utrecht Lectoraat Beroepsonderwijs, Netherlands; **Co-Author:**Amber Walraven, Radboud University, Netherlands

Teaching is becoming more diverse and increasingly complex. Teachers not only teach a diversity of students; they are also held responsible for developing new curricula and integrating new technologies in their classrooms. How does the teaching profession stay 'ahead of the curve' in terms of technology and curricular innovation in order to stay future-proof?During this round table session a conceptual framework on 'adaptive capacity' will be outlined that is developed in a Dutch research project. Adaptive capacity can assist individuals and organisations to balance the need for innovation (exploration) with the need for continuation of regular educational processes (exploitation) (Newey & Zahra, 2009). The dialogue in this session will centre around the manifestations of adaptive capacity of teachers, school organisations and teacher education. We will provide insights from ten case studies, for instance of a teacher education institute that differs from the internship schools in their vision of the professional identity for their students. How to cope with these kind of frictions? Insight into how adaptive capacity of teachers and organisations can be identified and strengthened could contribute to the teaching profession.

Sessions E 3

25 November 2021 13:30 - 15:00
Session Room 9
Roundtable
Secondary education

Secondary School Education

Keywords: 21st century learning, Creativity, Educational Technology, Interaction and discourse in education, Music & Arts Education, Secondary school education, Web-Based Learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning, CLOUD 09 - Sounds & Arts in Transversal Learning
Chairperson: Hubert Gruber, Austria

The development of interactive quality of online learning activities during the Corona crisis
Keywords: Educational Technology, Interaction and discourse in education, Secondary school education, Web-Based Learning
Presenting Author: Francine Behnen, NHL Stenden, Academie Educatie vo & mbo, Netherlands; **Co-Author:**Marielle Kuijper, Windesheim University of Applied Science, Netherlands

In March 2020 schools closed to contain the spread of Covid-19 virus. Shortly after, schools took to online education. The condensed setting of the Covid-19 situation provided a background to study which learning activities and tools teachers choose in online education and how they use them. We expect that teachers will initially use the information possibilities offered by ICT and will start experimenting with interactive possibilities later. After schools have re-opened, we expect teachers to merge some of their newly acquired online expertise with their face to face practice. Our central research question is how interaction within online education changes over time. An online longitudinal survey amongst teachers was conducted. The questions in this survey covered four aspects of interactive quality in distance education 1) social rapport building activities 2) instructional designs, i.e. the learning activities 3) technology resources and 4) learner response, i.e. the initiative pupils/students take to establish communication. The questionnaire was set out six times, three times during the initial lockdown period (March-May 2020), two during partial opening (September – November 2020) and one during the second full lockdown (January-February 2021). Preliminary results show slight changes in interaction over time.

Unpacking student´s artistic creativity: an integrative arts education project in a secondary school
Keywords: 21st century learning, Creativity, Music & Arts Education, Secondary school education
Presenting Author: Sabine Chatelain, University of Teacher Education, State of Vaud (Lausanne), Switzerland; **Co-Author:**Carlos Lage, Universidad Complutense de Madrid, Spain

Creativity considered from a socio-cultural perspective as a relational and culturally mediated action and collaboration are important human qualities in the era of digitalization and changing environments (OEDC, Education 2030). Our ongoing research aims to better understand how students mobilize and perceive their creativity by working on an interdisciplinary arts education project in a secondary school. Adolescents' music consumption is largely mediated by images (music videos). Considering their practice, we are going to get an in-depth understanding of the way students give meaning to some connections between music and visual arts. They will analyse existing examples and improvise music on paintings by using voice, instruments and smartphones as a music instrument. Students' creativity should be enhanced through the didactic setting: the transcreation from visual elements to sound in a collaborative task. The participants of this study are students from two classes of the second year of secondary education (13-14 years old) in Madrid (Spain), their music teacher and two researchers. From a mixed research approach, the instruments used are participant observation, audio recordings, individual and group interviews, class diary, and questionnaires. Data will be triangulated and coded through Activity Theory, statistical analysis, and the software Atlas.ti8.

Sessions E 4

25 November 2021 13:30 - 15:00
Session Room 6
Roundtable
Early childhood education, Higher education

Continuing Professional Development in Teachers

Keywords: Continuing professional development in Teachers, Early childhood education, Higher education, Practice-based research (methodology), Professional Development, Self-regulation and self-regulated learning, Work environments
Interest group: CLOUD 02 - Educators' professional development, CLOUD 03 - Strategies to improve teaching and learning environments
Chairperson: Helene Uppin, Tallinn University, Estonia

Influence of preparatory co-creation sessions and process characteristics on team effectiveness
Keywords: Continuing professional development in Teachers, Higher education, Professional Development, Self-regulation and self-regulated learning
Presenting Author: Sabrina Govaerts, AP University of Applied Sciences and Arts Antwerp, Belgium; **Presenting Author:**Elena Van den Broeck, AP University of Applied Sciences and Arts Antwerp, Belgium; **Co-Author:**Astrid Koelman, AP University of Applied Sciences and Arts Antwerp, Belgium; **Co-Author:**Maja Christiaens, AP University of Applied Sciences and Arts, Belgium

This design research focuses on the development process of professors in Teacher Design Teams (TDT) in the implementation of interventions in the curriculum of first year student in preprimary education to further develop learning competences among these students. In previous research, little attention was drawn to process characteristics (intra- and interpersonal factors) that influence team effectiveness of TDTs. The central research question therefore relates to the team effectiveness and the influence that process characteristics have on team effectiveness. We set up a multi-method study with interviews, participatory observation and log analysis to gain insight into intra- and interpersonal factors that are related to team effectiveness. Furthermore, we perform a questionnaire research to map the evolution of team effectiveness.

Room for improvement - Comparative study on the impact of the kindergarten classroom on the teacher
Keywords: Continuing professional development in Teachers, Early childhood education, Practice-based research (methodology), Work environments
Presenting Author: Caroline Moons, UCLL, Belgium; **Co-Author:**Maai Huyse, UC Leuven Limburg, Belgium; **Co-Author:**Liesbeth Alaerts, UCLL, Belgium

Classrooms play a fundamental role in children's learning. In Belgium, kindergarten classrooms are often decorated in an exuberant manner (e.g. children's art work, bright wall paint, open closets fronts for easy access to materials). Much research has been done on the impact of such an environment on learners (Fisher et al., 2014; Shanker & Barker, 2017; Barret et al., 2017). On the contrary, studies on the impact on teachers are limited. In this round table we discuss the preliminary results of a comparative research study, using quantitative and qualitative data-analysis to investigate the impact of the classroom environment on the teacher and her/his teaching practices. We developed observation tools to screen the classroom, to observe teaching practices and to stimulate high-quality teacher-child interactions. We used both tools to screen 7 teachers in their classroom, before they spent time with their children in the 'kindergarten lab', a rich yet sober classroom environment on our teacher education campus. This lab is designed according to the principles of Art Basics for Children (www.abc-web.be). The aim of this study is to show the impact of the classroom environment on teachers and to strengthen teachers in their teaching practices by raising awareness on this matter.

Sessions E 5

25 November 2021 13:30 - 15:00
Session Room 1
Roundtable
Higher education

Collaborative Learning in Higher Education

Keywords: Collaborative Learning, Higher education, Inquiry learning, Lifelong Learning, Professional Development, Professional identity, Social interaction
Interest group: CLOUD 01 - Teacher education
Chairperson: Anthony Thorpe, University of Roehampton, United Kingdom

Teachers and youth care professionals in schools: working together = learning together?
Keywords: Collaborative Learning, Professional Development, Professional identity, Social interaction
Presenting Author: Karin Diemel, Fontys University of Applied Sciences, Netherlands; **Co-Author:**Anja van Zon, Fontys Opleidingscentrum Speciale Onderwijszorg, Netherlands; **Co-Author:**Mariette Haasen, Fontys OSO, Netherlands

In this round table, we focus on the professionalization questions that arise in the NRO project 'Integration of youth care in schools. Teachers and youth professionals working together in the classroom'. This project focuses on interprofessional collaboration between teachers and youth professionals in developing preventive approaches to enhance students' social-emotional development and well-being.The majority of teachers report that it is not easy to work with students with behavioural problems. Teachers across all educational sectors report that they need support in dealing with these challenges. At the same time and despite efforts regarding the collaboration between education and youth care, youth care is still not asked to support teachers preventing problem behaviour and developing socio-emotional competences in the classroom, while they can be a valuable partner with expertise in this field. It appears that the interprofessional collaboration between teachers and youth care professionals in the classroom, requires specific competences of the partners. In this round table, we use statements from the first research results to discuss how teachers and youth care professionals can professionalise together, to become more agile professionals who reinforce each other in the classroom.

Strategic educational development as a co-operative inquiry

Presenting Author: Jenni Koponen, Metropolia University of Applied Sciences, Finland; **Co-Author:**Kirsi Kuosa, Metropolia University of Applied Sciences, Finland; **Co-Author:**Katri Luukka, Metropolia University of Applied Sciences, Finland

This research is ongoing action research in a higher education institution (HEI) aiming at studying ongoing strategic educational development work. The HEI has initiated a new institution-wide process for educational development to support the new strategy and its aims of lifelong learning.The new educational development process is evaluated by this research with the research questions below:· What kind of expectations the pedagogical expert teacher group members have at the beginning of the process?· What is the role and community of practice of the pedagogical expert teacher in the departments?· Did the expectations of the pedagogical expert teacher group members change at the end of the first year of the process?The data is collected from the pedagogical expert teacher group members at different points of the process including reflective writings, field notes, and a questionnaire during the first year of the activities. The data is analysed using quantitative and qualitative methods. This development work gives new insight to strategic institutional-wide educational development work, its organising, and implementation at HEIs. In the first place, the research evaluates the new approach chosen for the process of strategic educational development and gives an important research base for the development work.

Sessions E 6

25 November 2021 13:30 - 15:00
Session Room 12
Roundtable
Primary education, Secondary education

Culture and Education

Keywords: Artificial intelligence, Culture and Education, Curricula, Equality / Education for All, Language Education, Secondary school education, Teaching approaches
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Leen Alaerts, UC Leuven-Limburg, Belgium

Talking about inclusive Artificial Intelligence in Education

Keywords: Artificial intelligence, Culture and Education, Curricula, Equality / Education for All
Presenting Author: Sibel Inci, Kocaeli university, Turkey

Artificial intelligence (AI) is still developing but it has already found a place for itself in every fields of life and is becoming a part of our education day by day. Transforming education into technology has been a long time plan but no one expected that it would be an overnight due to COVID-19 pandemic. Education switched into digital platforms because of school closures due to the pandemic, which has showed us the possibility of and need for digitalization in learning worldwide. It may be anticipated that Artificial Intelligence in Education (AIED) may have a leading role. However, we also realised that there was a risk of biased AI. Therefore, it is high time to question the role of AI in education and issues about inclusion. I aim to find out what has been done so far about inclusion in AIED by conducting systematic review.

The framework of the Language Mindset: evidence-based teaching in the (foreign) language classroom

Keywords: Culture and Education, Language Education, Secondary school education, Teaching approaches
Presenting Author:tinne van camp, UCLL, Belgium; **Co-Author:**Karen De Jonghe, UC Leuven Limburg, Belgium; **Co-Author:**Katrien Dewaele, UCLL, Belgium

The framework of the Language Mindset project (2019-2022) aims to make (foreign) language teaching (English, French, Dutch) more evidence-informed. It translates insights from (neuro)cognitive and education psychology research into practical examples. We investigate how it can be used to develop a growth mindset in the (foreign) language classroom in secondary schools. More precisely we want to know
- whether the interventions of the framework result in a more growth mindset and a culture that focuses on learning. We compare the initial mindset of 36 language teachers and 423 pupils (pretest) with their mindset after the interventions (posttest). The class culture is reported via an observational tool.
- why teachers prefer some interventions more than others. After a training (first year of the project), teachers implement the framework in their classes (second year). They register their interventions via an app and indicate the perceived efficacy. Teachers are united in Teacher Design Teams (*TDT's*) to discuss and design interventions.
- how we can optimize the framework (ecological validity). Here we use the data of the previous questions and focus groups conversations (teachers and pupils).
- how teachers experience evidence-informed teaching and working in TDT's. This we investigate via focus groups conversations.

Sessions E 7

25 November 2021 13:30 - 15:00
Session Room 13
Roundtable
Higher education, Primary education

Educational Technology

Keywords: Competence-based education, Educational Technology, Initial Teacher Education (Pre-service), Innovations in education, Mathematics Education, Primary school education
Interest group: CLOUD 01 - Teacher education, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Tom De Schryver, Netherlands

Adaptive learning systems in mathematics in primary education

Keywords: Educational Technology, Innovations in education, Mathematics Education, Primary school education
Presenting Author: Anouk Wezendonk, Marnix Academie (PABO), Netherlands; **Co-Author:**Stella van der Wal-Maris, Marnix Academie, University of Applied Sciences, Netherlands

Over the last decade, the use of adaptive learning systems in primary education has been increasing significantly. The first studies into the effects of adaptive learning systems on mathematics learning outcomes tends to be positive. However, the way in which teachers use adaptive learning systems varies. Little is known about how teachers can best link their actions to data derived from the learning system. It is important to investigate how adaptive learning systems can be used in such a way that it actually benefits learning. After conducting a quantitative survey, additional qualitative data will be collected by the use of video-stimulated recall interviews to determine the ways in which teachers use adaptive learning systems meaningfully in mathematics education.

Immersive virtual reality simulations for competence development: innovative or rather utopic?

Keywords: Competence-based education, Educational Technology, Initial Teacher Education (Pre-service), Innovations in education
Presenting Author: Delphine Franco, University of Ghent, Belgium; **Co-Author:**Ruben Vanderlinde, Ghent University, Belgium; **Co-Author:**Martin Valcke, Ghent University, Belgium

Recently, teacher training programs implement more authentic learning experiences in their courses. For aiding preservice teachers (PSTs) to practice their classroom management skills for example, desktop (video-based) simulations are increasingly used. However, due to a lack of authenticity, these simulations appear to make a limited contribution to the acquisition of complex competences such as aggression management (AM). This study wants to explore a different,

innovative path, and therefore aims to evaluate the impact of virtual reality (VR)-based simulations on the development of the AM competence of PSTs. Participants of this experimental study are randomly assigned to an experimental or control group. Via head-mounted display 360-degree videos, PSTs from the experimental group will be immersed in situations which require the use of AM skills. The control group participates in a desktop simulation. A mixed methods approach will be used (1) to investigate to what extent VR-based simulations foster the AM competence of PSTs, (2) to compare the impact of VR-based simulations with online simulations and (3) to formulate design principles specifically for competence development via VR-based simulations. This study offers a contribution to research on AM skills in teacher training, as the use of immersive simulations in this context is scarce.

Sessions E 8

25 November 2021 13:30 - 15:00
Session Room 4
EAPRIL Spotlight Session
Vocational education

Skillman.eu: the global innovation alliance for a future-proof TVET

Keywords: Innovations in education, Training and Development, Vocational education, Workforce diversity & equality
Interest group:

The Skillman poster presentation will introduce a panel of services targeted at TVET providers and industry stakeholders, implemented under the Skillnet project framework and based on a collaborative approach to innovation. The project is aimed at establishing and reinforcing global networks of stakeholders around TVET, focusing on increasing public awareness on the importance of both ethical skills and the adoption of an ethical approach to Technical Vocational Education and Training. The network established under the Skillnet umbrella has a global geographical dimension, scaling its impact on TVET systems from the local environment to the European level, and currently involving 600+ members, from 93 countries in 300+ regions.

Skillman.eu: the global innovation alliance for a future-proof TVET
Presenting Author: Giovanni Crisonà, Skillman.eu, Italy; **Presenting Author:**Julian Ng, Warnborough College, United Kingdom; **Co-Author:**Valentina De vico, Skillman.eu, Italy; **Co-Author:**Elena Romanini, Skillman.eu, Italy; **Co-Author:**Birgit Sandu, AER, Belgium; **Co-Author:**Aurora Carrasco Minguez, Accion contra el hambre, Spain

The Skillman poster presentation will introduce a panel of services targeted at TVET providers and industry stakeholders, implemented under the Skillnet project framework and based on a collaborative approach to innovation. The project is aimed at establishing and reinforcing global networks of stakeholders around TVET, focusing on increasing public awareness on the importance of both ethical skills and the adoption of an ethical approach to Technical Vocational Education and Training. The network established under the Skillnet umbrella has a global geographical dimension, scaling its impact on TVET systems from the local environment to the European level, and currently involving 600+ members, from 93 countries in 300+ regions.

Sessions E 9

25 November 2021 13:30 - 15:00
Session Room 5
Case study
Higher education

Innovations in Higher Education

Keywords: Biology education, Chemistry education, Inclusivity, Innovations in education, Research-based learning, Secondary school education, Workplace learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning, CLOUD 08 - Diversity & equality in different contexts
Chairperson: Eva Hornung, Ireland

Students advising management: A cross-curricular case study on intercultural learning
Keywords: Inclusivity, Innovations in education, Research-based learning, Workplace learning
Presenting Author: Marlene Bradbury, Zuyd University of Applied Sciences, Netherlands; **Presenting Author:**Joris Boonen, Zuyd University of Applied Sciences, Netherlands; **Co-Author:**Ankie Hoefnagels, Zuyd University of Applied Sciences, Netherlands

Internationalisation at Home (IaH) is a promising avenue for successful intercultural learning. Ideally, IaH is not an isolated part of the curriculum, but happens through "purposeful integration of international and intercultural dimension (…) within domestic learning environments"(Beelen & Jones, 2015). Therefore, the challenge is to look for opportunities for students to engage in such authentic exercises.We propose a case study in which intercultural learning at home is achieved through an integrated real-life research project in which Dutch students study the experiences of their Dutch and international peers at a different faculty. Based on their self-conducted analyses of a large-scale survey (N=189), students are asked to develop innovative solutions to further encourage the inclusion of the international students, and present these ideas to the faculty management. By not only thoroughly analyzing the perspective of their international peers, but also transforming their research insights into concrete policy recommendations, we expect the students to go through a rich learning experience that they can use to optimally prepare themselves for their own stay abroad at a later stage in their curriculum. We measure their learning experiences using both reflective interviews and a content analysis of their proposed innovations for inclusion of international students.

Technological, data and media literacy in the science classroom
Keywords: Biology education, Chemistry education, Innovations in education, Secondary school education
Presenting Author: Alfred Steinbach, Fachdidaktik Naturwissenschaften, Switzerland; **Co-Author:**Nicolas Robin, Fachdidaktik Naturwissenschaften, Switzerland

The «Berzelius project» is an interdisciplinary science education approach offering an outstanding, borrowable high-tech instrument park and dedicated theme-oriented multimedia laboratory journals (MLJs). A team of highly skilled science educators elaborates these MLJs using high-class videos, graphics and audios to get students hands on the lendable high-tech instruments that are generally far beyond school reach. The fusion of instruments and MLJs similarly aims at fueling students' sense of wonder and excitement, demonstrating straightforward scientific concepts and theories and at developing technological, data and media literacy. By arousing students` ability to question scientific topics in big data context, «Berzelius» is an invaluable product in modern science education. In this interactive case study, participants cruise through defined parts of a «Berzelius» multimedia presentation and have the possibility to size its impact on students and teachers. Additionally, we will present and field experiences and discuss possible improvements.

Sessions E 10

25 November 2021 13:30 - 15:00
Session Room 2
Present & Discuss
Secondary education, Vocational education, Workplace learning

Team & Wrkplace Learning

Keywords: Competence-based education, Professional Development, Secondary school education, Self-regulation and self-regulated learning, Teaching approaches, Team Learning, Training and Development, Work environments, Workplace learning

Interest group: CLOUD 01 - Teacher education, CLOUD 05 - HRD & Workplace learning
Chairperson: Christian Wallner, Netherlands

Teacher's coaching by the coach in the school context
Keywords: Professional Development, Self-regulation and self-regulated learning, Team Learning, Workplace learning
Presenting Author: Manal Raoui, Regional Center for Education and Training Professions - El Jadida, Morocco

This research aims to respond to three questions : during the coaching in a school, how the process of teacher's coaching is going? how the process of teacher's coaching is related to the coach individual characteristics? how the process of teacher's coaching is related to the characteristics of the school context?To that end, an embedded multiple case study (Yin, 2003) was conducted with two coaches who each coached a team of female teachers in a school. Data collected through interviews, observations, and literature were analyzed using the mixed coding method (Miles & Huberman, 1994; 2003, Van Der Maren, 1996). The results documented aspects of the two coachs' coaching process: complex, dynamic, oriented, precise and agentive. It showed an interrelation between the coaching process carried out and, above all, the conceptions of the coaches and their perceptions of the school context. Finally, the results showed the role played by the school principal in the coaching process. The results show how important it is for the coach to control his coaching process in relation to the teachers and the school principal. Better collaboration can lead to better engagement on the part of teachers.

Learning at work in disruptive industries: an international case study in the touristic sector
Keywords: Competence-based education, Training and Development, Work environments, Workplace learning
Presenting Author: Francesca Amenduni, Swiss Federal Institute for Vocational Eduation and Training (SFIVET), Switzerland; **Co-Author:**Essi Ryymin, Häme University of Applied Sciences, Finland; **Co-Author:**Katja Maetoloa, HAMK University of Applied Sciences, Finland; **Co-Author:**Paolo Nardi, Cometa Research, Italy; **Co-Author:**Alberto Cattaneo, Swiss Federal University for Vocational Education and Training, Switzerland; **Co-Author:**Peter Gruenheid, Bildungswerk der Niedersächsischen Wirtschaft Gemeinn, Germany

The case study explores the effect of disruption on learning at work in the Swiss and Italian touristic sector. Specifically, we investigate which skills are considered pivotal by tertiary level (PET) hospitality schools and hotels and which training practices have been adopted to face disruptive challenges. Data collected consists of 1. Delphi interviews with employers and PET school directors 2. Employees' and adult educators' interviews, 3. A questionnaire for employees. Interviews' data will be analyzed through qualitative content analysis. We will compare perspectives from school and companies and from workers with different roles (e.g., manager and employees) and nationalities. From preliminary data collection, (4 PET school managers, 4 PET teachers, 1 hotel director; M = 5; F = 4) we retrieved commonalities and differences between school and hotel managers' perspectives. They report similar transversal and field specific skills. Role modeling is considered an effective strategy to develop those skills. Concerning digital skills, the hotel management emphasizes more industry 4.0 digital skills-related whilst the school management focused on digitally enhanced individual and team management. These results will be enriched at the light of the international comparison and the employee perspective from several disruptive industries from Finland, Germany, Italy and Switzerland.

Learn to think: developing a teaching method to enhance critical thinking in secondary education
Keywords: Secondary school education, Teaching approaches, Team Learning, Training and Development
Presenting Author: Jelle De Schrijver, Antwerp University, Belgium; **Co-Author:**Laura Van den Broeck, Odisee University College, Belgium; **Co-Author:**Sarah De Wachter, Odisee University College, Belgium; **Co-Author:**Jan Sermeus, KULeuven, Belgium

Especially in times of fake news and populism, critical thinking is a key skill for students to master. In the ongoing "Redeneerling"-project, a cross-curricular teaching method is developed aiming to stimulate the critical thinking skills of students through dialogue, focusing on argumentation skills, recognition of logical fallacies, and analysis of sources. Following the principles of education-design research, the "Redeneerling"-teaching method is developed and evaluated in different cycles in cooperation with interdisciplinary Teacher Design Teams. The goal of this practical research project is to formulate the design principles of and the teacher's attitude towards the cross-disciplinary critical thinking approach. In addition, we aim to measure the impact of the teaching method on students' critical thinking skills. Interviews, observations and the use of questionnaires allow us to discuss how some critical thinking skills are easier implemented into specific school subjects than others. The discussion includes the role of visualization and vocabulary necessary to link these skills across different subjects. Preliminary findings show how teachers appreciate the approach as it helps them to stimulate argumentation and reflection among students.

Sessions F 1

25 November 2021 15:15 - 16:45
Session Room 1
EAPRIL Cloud Spotlight Session
Lifelong learning

CLOUD 07 - Creating impact: Criteria for research impact on school development

Keywords: Inquiry learning, Knowledge Building and Development, Research cooperation frameworks, Research-based learning
Interest group: CLOUD 07 - Research impact on school development

Education prepares students for a permanently changing society. Schools are urged to innovate and change to meet these societal and technological developments. However, educational innovations are often based on intuitive or ad hoc decisions. To make meaningful choices for innovations and school development actual knowledge and research results are needed. To create impact it is needed that both researchers and practitioners make an effort to achieve this. It is also important that research is relevant and meaningful and that results are presented clearly and comprehensibly. In this Spotlight Session we will explore the following question: What criteria should be fulfilled to create research impact on school development? We will firstly elaborate the concept of impact and present a model with factors that enhance or impede research impact on school development, based on the literature. After this presentation we will break up in sub groups and apply this model to examples of high impact research projects. We will use the impact factors model to analyse the success criteria for impact regarding the level of research on the one hand and practitioners and researchers on the other hand.

CLOUD 07 - Creating impact: Criteria for research impact on school development
Presenting Author: Anje Ros, Fontys University of Applied Sciences, Netherlands; **Co-Author:**Linda Sontag, NRO, Netherlands; **Co-Author:**Rowan Zuidema, Netherlands Initiative for Education Research (NRO), Netherlands

Education prepares students for a permanently changing society. Schools are urged to innovate and change to meet these societal and technological developments. However, educational innovations are often based on intuitive or ad hoc decisions. To make meaningful choices for innovations and school development actual knowledge and research results are needed. To create impact it is needed that both researchers and practitioners make an effort to achieve this. It is also important that research is relevant and meaningful and that results are presented clearly and comprehensibly. In this Spotlight Session we will explore the following question: What criteria should be fulfilled to create research impact on school development? We will firstly elaborate the concept of impact and present a model with factors that enhance or impede research impact on school development, based on the literature. After this presentation we will break up in sub groups and apply this model to examples of high impact research projects. We will use the impact factors model to analyse the success criteria for impact regarding the level of research on the one hand and practitioners and researchers on the other hand.

Sessions F 2

25 November 2021 15:15 - 16:45
Session Room 9
EAPRIL Cloud Spotlight Session

Vocational education

CLOUD 08 - What happens next? Diversity & equality in vocational education in the post COVID-19 era.

Keywords: Diversity, Equality / Education for All, Professional identity, Workforce diversity & equality
Interest group: CLOUD 08 - Diversity & equality in different contexts

This session aims to raise awareness of crucial issues related to diversity and equality in further and higher vocational education in the post COVID-19 era by asking 'what happens next?'. The Covid-19 era has created 'winners and losers' in terms of accessible learning and teaching in further and higher vocational education as with other sectors of education. Building on the identification of the apparent benefits and gains but also the challenges and losses for diversity and equality, this session explores the implications for pre-service and in-service vocational and workplace learning and well-being for students as well as members of staff.

CLOUD 08 - What happens next? Diversity & equality in vocational education in the post COVID-19 era.
Presenting Author: Anthony Thorpe, University of Roehampton, United Kingdom; **Presenting Author:**Nick Gee, Birmingham City University, United Kingdom; **Presenting Author:**Elke Emmers, UCLL, Belgium

This session aims to raise awareness of crucial issues related to diversity and equality in further and higher vocational education in the post COVID-19 era by asking 'what happens next?'. The Covid-19 era has created 'winners and losers' in terms of accessible learning and teaching in further and higher vocational education as with other sectors of education. Building on the identification of the apparent benefits and gains but also the challenges and losses for diversity and equality, this session explores the implications for pre-service and in-service vocational and workplace learning and well-being for students as well as members of staff.

Sessions F 3

25 November 2021 15:15 - 16:45
Session Room 11
EAPRIL Cloud Spotlight Session
Workplace learning

CLOUD 11 - Practice-based Research Methodology. Dancing with dilemmas.

Keywords: Continuing professional development in Teachers, Inquiry learning, Practice-based research (methodology), Professional Development
Interest group: CLOUD 11 - Practice-based Research Methodology

Since 2018 EAPRIL supports Cloud 11 practice-based research methodology. The Cloud aims to gain knowledge about how to achieve quality in practice-based research (PBR). In our view, the possibilities and dilemmas of PBR become apparent when looked at through an analytical lens in which the practical relevance, methodological rigor and ethics of the study are interconnected. Knowledge on the quality of PBR becomes apparent when studying these possibilities and dilemmas. In the past years we have had several activities in which we had an open dialogue about dilemma's in several cases of practice-based research. Based on these sessions, we developed our inter-connected model of PBR-quality. In the Cloud 11 Spotlight Session of the online conference of 2021 we want to present our current model and the 'dancing with dilemma's' that emerges while working with it. As in earlier sessions, we will invite two or three case contributors to put forward their authentic dilemmas. The invited researchers or practitioners learn how to change perspectives when exploring their dilemmas. Participants can contribute from their perspective and also learn by taking another perspective. As cloud coordinators we reflect on and learn more about our 'dancing with dilemma's' working method.

CLOUD 11 - Practice-based Research Methodology. Dancing with dilemmas.
Presenting Author: Niek van den Berg, Aeres University of Applied Sciences Wageningen, Netherlands; **Presenting Author:**Marco Mazereeuw, NHL Stenden University of Applied Sciences, Netherlands; **Presenting Author:**Lisette Munneke, Utrecht University of Applied Sciences, Netherlands

Since 2018 EAPRIL supports Cloud 11 practice-based research methodology. The Cloud aims to gain knowledge about how to achieve quality in practice-based research (PBR). In our view, the possibilities and dilemmas of PBR become apparent when looked at through an analytical lens in which the practical relevance, methodological rigor and ethics of the study are interconnected. Knowledge on the quality of PBR becomes apparent when studying these possibilities and dilemmas. In the past years we have had several activities in which we had an open dialogue about dilemma's in several cases of practice-based research. Based on these sessions, we developed our inter-connected model of PBR-quality. In the Cloud 11 Spotlight Session of the online conference of 2021 we want to present our current model and the 'dancing with dilemma's' that emerges while working with it. As in earlier sessions, we will invite two or three case contributors to put forward their authentic dilemmas. The invited researchers or practitioners learn how to change perspectives when exploring their dilemmas. Participants can contribute from their perspective and also learn by taking another perspective. As cloud coordinators we reflect on and learn more about our 'dancing with dilemma's' working method.

Sessions F 4

25 November 2021 15:15 - 16:45
Session Room 8
EAPRIL Cloud Spotlight Session
Higher education

CLOUD 04 - Innovation in Education: Answering the Earth's Call to Embrace Education 4.0!

Keywords: 21st century learning, Collaborative Learning, Deep-level and profound learning, Innovations in education
Interest group: CLOUD 04 - Improving learning and well-being

Cloud 4 was created in 2016 in response to a call to evolve for the well-being of all. One way in which this can be done is through education as it indeed touches everyone of all ages the world throughout. In order to achieve this, however, education itself needs to evolve and what better way than through innovation. We have seen with the COVID-19 pandemic that despite resistance to change we are all able to innovate quickly, efficiently and most often in collaboration with others. Today's Spotlight session will explore co-sensing and co-creating with respect to education and will be of interest to all those involved in this sector.

CLOUD 04 - Innovation in Education: Answering the Earth's Call to Embrace Education 4.0!
Presenting Author: Zarina M. Charlesworth, University of Applied Sciences & Arts Western Switzerland // HES-SO, Switzerland; **Co-Author:**Els Laenens, University of Antwerp, Belgium

Cloud 4 was created in 2016 in response to a call to evolve for the well-being of all. One way in which this can be done is through education as it indeed touches everyone of all ages the world throughout. In order to achieve this, however, education itself needs to evolve and what better way than through innovation. We have seen with the COVID-19 pandemic that despite resistance to change we are all able to innovate quickly, efficiently and most often in collaboration with others. Today's Spotlight session will explore co-sensing and co-creating with respect to education and will be of interest to all those involved in this sector.

Sessions F 5

25 November 2021 15:15 - 16:45
Session Room 3
Roundtable

Primary education

Interaction and Discourse in Primary Education

Keywords: Beliefs and conceptions of learning, Interaction and discourse in education, Leadership development, Professional Development, Self-efficacy, Self-regulation and self-regulated learning, Social interaction
Interest group: CLOUD 04 - Improving learning and well-being, CLOUD 12 - Leadership in Education
Chairperson: Ronald Keijzer, Hogeschool iPabo, Netherlands

School leaders and the non-conscious
Keywords: Interaction and discourse in education, Leadership development, Professional Development, Social interaction
Presenting Author: Gerbrand Kloppenburg, Hogeschool Viaa, Netherlands

Leading educational professionals in times of change, whether due to a pandemic or rapidly evolving technology, sets challenges. In the dynamics of these unplanned and unprepared developments school leaders and teachers work and learn together, experiencing frictions between old and newly required ways of thinking and acting. The research focuses on school leaders in Primary and Secondary Education. Most of them can describe interactive situations with groups of teachers in which they sense something is going on, but don't know what it is. The central question is: *how can Primary and Secondary school leaders give meaning to non-conscious processes they experience in interactions within a group of teachers and use them in realizing their professional actions?*In a multiple case study, patterns and mechanisms in such interactions are described and explained from a paradigmatic multivocality: existing perspectives such as (systems) psychodynamics, thinking processes and sensemaking are involved and may be extended. The results of the study provide a basis for developing tools to help school leaders make effective use of experienced frictions in their leadership practice.

A photovoice project on self-regulation: capturing words and images of teenagers and their teachers
Keywords: Beliefs and conceptions of learning, Interaction and discourse in education, Self-efficacy, Self-regulation and self-regulated learning
Presenting Author:tinne van camp, UCLL, Belgium; **Co-Author:**Ilse Aerden, UCLL, Belgium; **Co-Author:**lotte wilms, UCLL, Belgium; **Co-Author:**nadine bongaerts, UCLL, Belgium

This research seeks (1) to gain insight into the words and images used by young teenagers and their teachers to describe the meaning of self-regulation. The design of this research is called Photovoice. It is a participative and arts-based research approach in which the participants are challenged as experts in this theme of self-regulation. They are challenged to capture pictures of how they experience self-regulation in their learning practices during daily (school) life. This valuable input is the starting point for (2) the development of a communication tool between student and teachers. This tool aims to challenge pupils to think about their needs to become more self-regulated learners and to take ownership over their learning. At the same time, the tool challenges teachers to think about the learning environment and how they support self-regulation. The process of Photovoice revealed an interesting perspective on self-regulated learning. For example, the importance of peers, the influence of self-regulated learning in daily life outside of school time and the impact of emotion regulation during learning processes. Consequently, existing concepts and practices of self-regulation in schools can be questioned.

Sessions F 6

25 November 2021 15:15 - 16:45
Session Room 7
Workshop
Higher education

Value creation in pop-up professional networks – the Learning Network Facilitator Compass

Keywords: Collaborative Learning, Higher education, Lifelong Learning, Professional Development
Interest group: CLOUD 05 - HRD & Workplace learning

Optimal facilitation is a success factor for value creation in learning and innovation networks. Yet, the knowledge base on how to facilitate such networks is limited. For many professionals being and becoming a successful facilitator is a professional challenge. What does it take to successfully facilitate a LN? And how can we help (future) facilitators to create successful LN?In this workshop we introduce a model for facilitation of pop-up networks that we call the 'Learning Network Facilitator Compass'. The model was developed in an iterative R&D study, based on empirical research on critical facilitator behaviors in professional networks (*e.g. the 4*4 Pit Stop Model*) and enriched through an expert panel meeting on the knowledge base of facilitation in networks with 30 participants EAPRIL 2019 workshop (*Learnings on learning & innovation networks ? ….. towards a toolbox for facilitators*). Now, the empirical data from the study and expert reflections are assembled and developed into a model, that is in use to guide facilitators' professional behaviors towards value creation.In this workshop, we challenge participants to share and compare their personal mental models and to test & simulate the Facilitator Compass for the initiation of new networks in their professional practices.

Value creation in pop-up professional networks – the Learning Network Facilitator Compass
Presenting Author: Max Aangenendt, The Hague University of Applied Sciences, Netherlands; **Presenting Author:**Christian Wallner, University of Applied Sciences Leiden, Netherlands

Optimal facilitation is a success factor for value creation in learning and innovation networks. Yet, the knowledge base on how to facilitate such networks is limited. For many professionals being and becoming a successful facilitator is a professional challenge. What does it take to successfully facilitate a LN? And how can we help (future) facilitators to create successful LN?In this workshop we introduce a model for facilitation of pop-up networks that we call the 'Learning Network Facilitator Compass'. The model was developed in an iterative R&D study, based on empirical research on critical facilitator behaviors in professional networks (*e.g. the 4*4 Pit Stop Model*) and enriched through an expert panel meeting on the knowledge base of facilitation in networks with 30 participants EAPRIL 2019 workshop (*Learnings on learning & innovation networks ? ….. towards a toolbox for facilitators*). Now, the empirical data from the study and expert reflections are assembled and developed into a model, that is in use to guide facilitators' professional behaviors towards value creation.In this workshop, we challenge participants to share and compare their personal mental models and to test & simulate the Facilitator Compass for the initiation of new networks in their professional practices.

Sessions F 7

25 November 2021 15:15 - 16:45
Session Room 2
Workshop
Primary education

Exploring hypothetical question trajectories as support for guiding student questioning

Keywords: 21st century learning, Innovations in education, Inquiry learning, Professionalisation of educators
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

Student questioning is an important self-regulative strategy which has multiple benefits for teaching and learning. Teachers, however, need support to help students to answer their self-raised questions effectively and efficiently. In this workshop participants will be introduced to the Question Compass, a visual representation of the concept of Hypothetical Question Trajectories. Hypothetical Question Trajectories were expected to support teachers and students to explore possible questions, by focusing on various research methodologies and learning outcomes. To test the hypothesis, Hypothetical Question Trajectories were tested in primary classrooms by 30 teachers, ranging from Kindergarten to Grade 6. Findings of this research-based design study show that Hypothetical

Question Trajectories can support primary school teachers to guide students to raise relevant, feasible questions with sufficient learning potential. Teachers perceived that Hypothetical Question Trajectories helped them to effectively and efficiently organize their support for student questioning. In this highly interactive workshop participants will be provided with an hands-on experience with the potential of Hypothetical Question Trajectories as a scaffold for teachers and teacher-educators to guide student questioning.

Exploring hypothetical question trajectories as support for guiding student questioning

Presenting Author: Harry Stokhof, HAN University of Applied Sciences, Netherlands; **Co-Author:**Helma Oolbekkink-Marchand, Radboud University, Department of Teacher education & HAN University of Applied Sciences, Netherlands

Student questioning is an important self-regulative strategy which has multiple benefits for teaching and learning. Teachers, however, need support to help students to answer their self-raised questions effectively and efficiently. In this workshop participants will be introduced to the Question Compass, a visual representation of the concept of Hypothetical Question Trajectories. Hypothetical Question Trajectories were expected to support teachers and students to explore possible questions, by focusing on various research methodologies and learning outcomes. To test the hypothesis, Hypothetical Question Trajectories were tested in primary classrooms by 30 teachers, ranging from Kindergarten to Grade 6. Findings of this research-based design study show that Hypothetical Question Trajectories can support primary school teachers to guide students to raise relevant, feasible questions with sufficient learning potential. Teachers perceived that Hypothetical Question Trajectories helped them to effectively and efficiently organize their support for student questioning. In this highly interactive workshop participants will be provided with an hands-on experience with the potential of Hypothetical Question Trajectories as a scaffold for teachers and teacher-educators to guide student questioning.

Sessions F 8

25 November 2021 15:15 - 16:45
Session Room 6
Case study
Higher education

Educational Technology in Higher Education

Keywords: Artificial intelligence, Cognitive Skills & Development, Competence-based education, Educational Technology, Innovations in education, Labour market & formal learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Iris Peeters, KU LEUVEN, Belgium

Training reflection skills with a chatbot

Keywords: Artificial intelligence, Cognitive Skills & Development, Educational Technology, Innovations in education
Presenting Author: Margaux De Vos, Karel De Grote University College, Belgium

For a first year course in the program of Social educational care work we developed a chatbot as a training tool for students to improve their reflection skills. Reflecting is an important skill for students to develop throughout the program. With the chatbot, named Charlie, we provide students with extra practice to improve on their reflection skills. Students, teachers and educational-technological support staff were involved in the process of developing the chatbot. The development of the chatbot consisted of choosing an appropriate software for the chatbot to run on, chatbot personality design, inputting conversations, training the chatbot and implementing the use of the chatbot in lessons throughout the course. Conclusions from the project range from a diverse student experience to the importance of guidance while using the chatbot in a course to the difficulty of developing a chatbot for a skill as complex as reflecting.

Smart Campus - Competence Renewal, RDI and Industry Co-Operation in Higher Education

Keywords: Competence-based education, Educational Technology, Innovations in education, Labour market & formal learning
Presenting Author: Sanna Brauer, Oulu University of Applied Sciences, Finland; **Co-Author:**Ville Isoherranen, Oulu University of Applied Sciences, Finland; **Co-Author:**Jussi Kangasoja, Oulu University of Applied Sciences, Finland; **Co-Author:**Manne Tervaskanto, Oulu University of Applied Sciences, Finland

The Smart Campus program serves as a new kind of platform and partnership model for innovation collaboration with SMEs, accelerating the digitalisation of society. The program is built on principles of open-mindedness and multidisciplinarity, combining visions of future technologies and the educational offerings of higher education (HE). HE needs better capabilities for hybrid teaching to ensure excellent learning experiences also when students are at home or at work. The research gap in developing remote access and use of laboratories, machines and equipment for education and training is evident.
The definition of Smart Campus experience requires thorough exploration of the multifaceted process models of collaboration, co-learning and co-creation. Our aim is to define the essential aspects of the Smart Campus concept, studying interdependencies with a competence-based approach, work-integrated pedagogy and digital twins in a complex system of physical, virtual and hybrid learning environments. Smart Campus solutions will help higher education students, staff and working life RDI-partners to utilize and develop the services of the campus in a timely and ethically sustainable manner. With a competence-based approach we can focus on individual upskilling and successful academic performance to meet the recognised needs of the rapidly changing labour market.

Sessions F 9

25 November 2021 15:15 - 16:45
Session Room 12
Workshop
Higher education

Implications of digital transformation for future design of higher and VET educational studies

Keywords: Higher education, Innovations in education, Professional Development, Vocational education
Interest group: CLOUD 02 - Educators' professional development

The digital transformation of work and the associated competence requirements bring new challenges for educators. The goal of this workshop is to develop learning designs and uncover content related implications for the future development of digital literacy in higher and vocational education. Accordingly, the presented research aims to create benefits for students and educators in both educational fields. We aim to broaden the focus from higher education by enabling group discussions from three perspectives: practical perspective (companies/practitioners), educational perspective (educators from schools and universities) and governance perspective (political stakeholders). For each of the groups we provide a thematic input based on three research projects focusing on the relevant perspectives. These three projects focus on 1. Implications from professional practice in the e-commerce sector for the design of business education courses of study, 2. Core elements of a course in teacher education at the cutting edge of digital technology and teaching techniques and, 3. Permeability between higher education and newly developed programmes in higher vocational education (VET). Each group will be assigned to a single project and ultimately discuss their findings. For a subsequent synopsis of the group work, the participants will present posters that will be reflected in the plenum.

Implications of digital transformation for future design of higher and VET educational studies

Presenting Author: Silvia Annen, Otto-Friedrich-Universität Bamberg, Germany; **Presenting Author:**Bernd Gössling, University of Innsbruck, Austria, Austria; **Co-Author:**Karl-Heinz Gerholz, University of Bamberg, Germany; **Co-Author:**Sabrina Sailer, Otto-Friedrich-University of Bamberg, Germany; **Co-Author:**Philipp Schlottmann, Bamberg Unversity, Germany

The digital transformation of work and the associated competence requirements bring new challenges for educators. The goal of this workshop is to develop

learning designs and uncover content related implications for the future development of digital literacy in higher and vocational education. Accordingly, the presented research aims to create benefits for students and educators in both educational fields. We aim to broaden the focus from higher education by enabling group discussions from three perspectives: practical perspective (companies/practitioners), educational perspective (educators from schools and universities) and governance perspective (political stakeholders). For each of the groups we provide a thematic input based on three research projects focusing on the relevant perspectives. These three projects focus on 1. Implications from professional practice in the e-commerce sector for the design of business education courses of study, 2. Core elements of a course in teacher education at the cutting edge of digital technology and teaching techniques and, 3. Permeability between higher education and newly developed programmes in higher vocational education (VET). Each group will be assigned to a single project and ultimately discuss their findings. For a subsequent synopsis of the group work, the participants will present posters that will be reflected in the plenum.

Sessions F 10

25 November 2021 15:15 - 16:45
Session Room 5
Workshop
Higher education

Research Ethics Compass

Keywords: 21st century learning, Collaborative Learning, Higher education, Knowledge Building and Development
Interest group:

Have you ever felt that even though you have read the relevant codes of conduct for research integrity, you are still insecure about conducting your research ethically or supporting your students to do so? The workshop will help participants raise awareness of central ethical issues during the research process and implement their knowledge of codes of conduct and research ethics guidelines. The workshop will utilise cases and collaboration in an online environment to support group knowledge building. The online research ethics resource relies on pedagogical strategies that have proven to be efficient in developing ethics competencies - namely, cases (Zucchero 2008; Fisher & Kuther 1997; Rissanen & Löfström 2014; Jordan et al 2011) and collaborative group-work (Smith et al 2005; Cavanagh 2011; Biggs 1999). In addition, scaffolding framework gives a possibility to include suitable forms of support to learners of different expertise levels (Wood et al 1976; Van de Pol et al 2010; Azevedo & Hadwin 2005; Reiser 2004, Tammeleht et al, 2020) - in sense-making, process management and articulation and reflection. The focus is becoming aware of the ethical aspects present in various phases of research, making sense in the guidelines and codes of conduct.

Research Ethics Compass
Presenting Author: Anu Tammeleht, University of Helsinki, Estonia

Have you ever felt that even though you have read the relevant codes of conduct for research integrity, you are still insecure about conducting your research ethically or supporting your students to do so? The workshop will help participants raise awareness of central ethical issues during the research process and implement their knowledge of codes of conduct and research ethics guidelines. The workshop will utilise cases and collaboration in an online environment to support group knowledge building. The online research ethics resource relies on pedagogical strategies that have proven to be efficient in developing ethics competencies - namely, cases (Zucchero 2008; Fisher & Kuther 1997; Rissanen & Löfström 2014; Jordan et al 2011) and collaborative group-work (Smith et al 2005; Cavanagh 2011; Biggs 1999). In addition, scaffolding framework gives a possibility to include suitable forms of support to learners of different expertise levels (Wood et al 1976; Van de Pol et al 2010; Azevedo & Hadwin 2005; Reiser 2004, Tammeleht et al, 2020) - in sense-making, process management and articulation and reflection. The focus is becoming aware of the ethical aspects present in various phases of research, making sense in the guidelines and codes of conduct.

Sessions G 1

26 November 2021 09:00 - 10:30
Session Room 13
Workshop
Lifelong learning

CRAFT/ED - Creative Algorithms, Frames and Tools for re/designing educational programs

Keywords: 21st century learning, Creativity, Innovations in education, Instructional Design and Instructional Strategies
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

To cope with the challenges of the world, education always needs new ideas and solutions to non-standard problems. Existing creative methodologies, such as TRIZ, Design Thinking, Lateral Thinking, and CRAFT, help people come up with new ideas and find solutions to problems. However, these methodologies were not created in the context of education. That is why the usage of creative methodologies required additional efforts to adapt them for the educational context. The team of creative experts and instructional designers of School of Innovations and Creative Thinking "IKRA" set adapted the creative methodology "Creative Algorithms, Frames and Tools" (CRAFT) for the field of education. CRAFT methodology inherits the concepts of frame and role model from the works of George Mead (1934) and Erving Goffman (1974). During the workshop teams of educators will redesign the educational programs from several educational fields (secondary education, vocational education, and others) using the CRAFT methodology. The CRAFT experts will facilitate the process and share the creative frameworks. The main goal of the workshop is to teach educators to use basic CRAFT techniques and frameworks for creating new ideas for education.

CRAFT/ED - Creative Algorithms, Frames and Tools for re/designing educational programs
Presenting Author: Daria Ilishkina, School of Innovations and Creative Thinking "IKRA", Russian Federation; **Co-Author:**Vitaliy Mikryukov, School of Innovations and Creative Thinking "IKRA", Russian Federation; **Co-Author:**Vasiliy Lebedev, School of Innovations and Creative Thinking "IKRA", Russian Federation

To cope with the challenges of the world, education always needs new ideas and solutions to non-standard problems. Existing creative methodologies, such as TRIZ, Design Thinking, Lateral Thinking, and CRAFT, help people come up with new ideas and find solutions to problems. However, these methodologies were not created in the context of education. That is why the usage of creative methodologies required additional efforts to adapt them for the educational context. The team of creative experts and instructional designers of School of Innovations and Creative Thinking "IKRA" set adapted the creative methodology "Creative Algorithms, Frames and Tools" (CRAFT) for the field of education. CRAFT methodology inherits the concepts of frame and role model from the works of George Mead (1934) and Erving Goffman (1974). During the workshop teams of educators will redesign the educational programs from several educational fields (secondary education, vocational education, and others) using the CRAFT methodology. The CRAFT experts will facilitate the process and share the creative frameworks. The main goal of the workshop is to teach educators to use basic CRAFT techniques and frameworks for creating new ideas for education.

Sessions G 2

26 November 2021 09:00 - 10:30
Session Room 9
EAPRIL Cloud Spotlight Session
Vocational education

CLOUD 08-Diversity&equality in higher vocational education in the post-COVID-19 era (CANCELLED)

Keywords: Diversity, Equality / Education for All, Inclusivity, Vocational education
Interest group: CLOUD 08 - Diversity & equality in different contexts

This session offers insights into COVID strategies and their impact from the point of view of students. The students, themselves, reflect with us as educational professionals on the changes they perceive as leading in a positive or beneficial direction as well those with negative and detrimental consequences. Students reflect on their experiences, as barriers were broken and accessible formats were created at lightning speed, and how these experiences shaped their well-being in their social isolation. They challenge us to find out together what we should take away from this crisis in order to further promote diversity and equality in higher education as we reconnect.

CLOUD 08-Diversity&equality in higher vocational education in the post-COVID-19 era (CANCELLED)
Presenting Author: Elke Emmers, UCLL, Belgium

This session offers insights into COVID strategies and their impact from the point of view of students. The students, themselves, reflect with us as educational professionals on the changes they perceive as leading in a positive or beneficial direction as well those with negative and detrimental consequences. Students reflect on their experiences, as barriers were broken and accessible formats were created at lightning speed, and how these experiences shaped their well-being in their social isolation. They challenge us to find out together what we should take away from this crisis in order to further promote diversity and equality in higher education as we reconnect.

Sessions G 3

26 November 2021 09:00 - 10:30
Session Room 1
Case study
Higher education

Teacher Education

Keywords: Collaborative Learning, Continuing professional development in Teachers, Distance Education, Educational Technology, Initial Teacher Education (Pre-service), Mathematics Education, Primary school education
Interest group: CLOUD 01 - Teacher education
Chairperson: Karin Diemel, Fontys University of Applied Sciences, Netherlands

Preservice teachers' developing roles in primary mathematics education during the COVID-19 crisis
Keywords: Distance Education, Initial Teacher Education (Pre-service), Mathematics Education, Primary school education
Presenting Author: Michiel Veldhuis, Hogeschool IPABO Amsterdam/Alkmaar, Netherlands; **Co-Author:**Sonja Stuber, Hogeschool IPABO Amsterdam/Alkmaar, Netherlands; **Co-Author:**Ronald Keijzer, Hogeschool IPABO Amsterdam/Alkmaar, Netherlands

During the corona crisis student teachers needed to adapt to following online courses and to cope with closed practice schools. This case study sketches the development of five preservice teachers during the crisis. We thereby chose six perspectives: home situation, activities for the curriculum, activities next to the curriculum, peer group, practice school, and mathematics education. Student teachers' development was reconstructed from repeated interviews held with the student teachers, where the aforementioned perspectives were themes. We used, and are still using, a grounded theory approach in analyzing data from the interviews. Preliminary findings show that both the home situation and the tutor in practice school are crucial for the way student teachers are able to cope with the crisis. This coping stage is a prerequisite for becoming active in their practice primary school. Student teachers more easily continue fulfilling more theoretical tasks in teacher education, as the institute's teaching is online, and tasks can be done from home.

Can disruption lead to positive changes in Teacher Education?
Keywords: Collaborative Learning, Continuing professional development in Teachers, Educational Technology, Initial Teacher Education (Pre-service)
Presenting Author: Vesna Belogaska, IRIS Connect, United Kingdom; **Presenting Author:**Wania Ashena, IRIS Connect, United Kingdom

One of the biggest challenges in Initial Teacher Education is how to support new and early career teachers to develop expertise as effectively as possible. The observation of the teaching practice during trainee teachers' school-based placements for feedback and assessment is a crucial element of that process. However, the traditional in-person observation presents challenges that have been further exacerbated by the restrictions imposed due to the COVID-19 pandemic since spring 2020.
This case study presents how two of the largest ITE providers in the UK deployed video-enabled technology, tailored specifically to the educational needs, in order to address the identified challenges and achieve improved effectiveness and efficiencies.
The result is Teacher Training Programmes that combine traditional teacher training support with a suite of digital learning tools based on a regular cycle of video-based observation, reflection, and instructional coaching.
The expectation is to achieve improvement of the quality and standards of instructional leadership, educational supervision and assessment of trainee teachers while reducing time, environmental impact (CO2 emissions) and cost involved, with the added benefit of creating valuable training resources in the process and fostering sustainable collaboration between the key players in the education eco-system.

Sessions G 4

26 November 2021 09:00 - 10:30
Session Room 2
Case study
Workplace learning

Workplace Learning

Keywords: 21st century learning, Assessment and evaluation, Labour market & formal learning, Practice-based research (methodology), Problem Solving, Training and Development, Workplace learning
Interest group: CLOUD 05 - HRD & Workplace learning
Chairperson: Tijmen Schipper, Windesheim University of Applied Sciences, Netherlands

How to create a tool to improve transfer of training.
Keywords: Labour market & formal learning, Problem Solving, Training and Development, Workplace learning
Presenting Author: Ilse Goedhart, CoThink, Netherlands

This case study is interesting for everyone who wants a training or a course to be more than just a folder on the shelf. Transfer of training remains, even in the age of Industry 4.0, a problem, or a challenge especially for external training organisations. How to assist trainees in the process of transfer of training across the borders of organisations? The aim of this project was to create a new approach to tackle the problem of transfer of training. With the help of clients and using the tacit knowledge of trainers, a transfer tool was created to assist supervisors in supporting their employees in the process of transfer of training.In this case study the process of creating the intervention, the transfertoolbox, will be presented. Participants will have the opportunity to get creative and develop their own transfer enhancing interventions. Furthermore, the physical transfer toolbox for supervisors will be presented and the results of a study conducted in the Netherlands evaluating this transfer toolbox will be shared.

Kickstart Your Soft Skills: user-centred design of a soft skills self-assessment tool for students

Keywords: 21st century learning, Assessment and evaluation, Practice-based research (methodology), Workplace learning
Presenting Author: Amber Hoefkens, AP University College Antwerp, Belgium; **Co-Author:**Peter David, AP University College Antwerp, Belgium

Soft skills have great influence on the proper functioning of employees, both in the workplace itself and in interactions with partners and customers. Kickstart Your Soft Skills (KYSS) aims to encourage and support young adults with their development in the field of soft skills. For young adults and job seekers it delivers an online tool including a self-assessment questionnaire and feedback report to gain insight in their soft skills. For teachers and mentors the project provides a group feedback report and materials to support and coach these young people. With this case, we present the research, design and development of the KYSS-tool. Participants will be able to consult and discuss the instruments during the session. The active involvement of the target groups, initial expertise with feedback reports and scientific foundation of the questionnaire were beneficial to this project. The different language levels of the target groups and the Covid19-crisis were challenging factors. Overall, feedback shows that the KYSS-tool is a useful instrument to encourage and support young adults in strengthening their soft skills.

Sessions G 5

26 November 2021 09:00 - 10:30
Session Room 8
Case study
Higher education

Professional Development in Higher Education

Keywords: Higher education, Initial Teacher Education (Pre-service), Practice-based research (methodology), Professional Development, Teaching approaches
Interest group: CLOUD 01 - Teacher education, CLOUD 03 - Strategies to improve teaching and learning environments
Chairperson: Lionel Alvarez, Switzerland

Research- and user-driven development of the CHAMELEON instruments and dashboard for teachers
Keywords: Higher education, Practice-based research (methodology), Professional Development, Teaching approaches
Presenting Author: Gert Vanthournout, Artesis Plantijn University College, Belgium; **Co-Author:**Astrid Koelman, Artesis Plantijn University College, Belgium; **Co-Author:**David D'Haese, Artesis Plantijn University College, Belgium; **Co-Author:**Pieter Depaessemier, Artesis Plantijn University College, Belgium

The current case describes the design, development, piloting and initial validation of several instruments based on the CHAMELEON-framework for didactic support (author,2018). The case used ideas from sociocracy 3.0 and service-design to develop a self-report questionnaire for students (Q30) and a self-scan for teachers to assess the didactic quality of learning environments according to the CHAMELEON-model. Results are presented to teachers via 2 dashboards on the separate instruments and through a more encompassing 360° dashboard that opposes results from the 2 instruments. An initial small-scale validation study demonstrated good construct-validity and reliability for the Q30-instrument. Correlations between scales and with general appreciation and workload of the course proved to be as theoretically expected. Teacher feedback is positive regarding both the instruments and the (initial versions of) the dashboards. Participants will be able to consult and discuss instruments and dashboards during the session. Stakeholder involvement, early piloting and frequent user-feedback were beneficial to the project. Learning how to disclose data from databases and learning how to use data-visualisation software proved to be the biggest challenges. Overall, results point towards an added value from the developed instruments for attaining more data-informed innovation and professional development.

What happens when a mandatory oral assignment in teacher education (TE) must change its shape?
Keywords: Higher education, Initial Teacher Education (Pre-service), Practice-based research (methodology), Professional Development
Presenting Author: Camilla Bjelland, Institutt for pedagogikk religion og samfunnsfag, Norway; **Presenting Author:**Gunn Tone Iversen, Western University of Applied Sciences, Norway; **Presenting Author:**Marit Kulild, Western Norway University of Applyed Sciences, Norway

This case is related to the subject "pedagogy and pupil-related skills", at the Western Norway University of Applied Sciences and the teacher students' (TS) involved in the project are in their fourth semester. The overall themes are diversity of languages, cultural and social backgrounds and adapted education, and the case describes a classroom situation where we observe a pupil who has trouble following the lesson because of language difficulties. TS explored the educational case about "Jacob" from a fictitious multicultural classroom from different theoretical perspectives. Due to the pandemic and limited time for teaching at campus we had to change the mandatory assignment about adapted education into a digital format. The students were told to solve the assignment by making a powerpoint with sound recording (8 min) and write a self-assessment about their learning process. Based on the data material from the TS' presentations and their written self-assessment, our conclusions are that they managed to solve the assignment in a professional way. In their oral presentations they showed that they had broadened their understandings of the relevant concepts by reflecting upon how to improve teaching and learning for Jacob.

Sessions G 6

26 November 2021 09:00 - 10:30
Session Room 7
Case study
Higher education, Vocational education

Professionalisation of edcuators

Keywords: Continuing professional development in Teachers, Higher education, Practice-based research (methodology), Professional Development, Professionalisation of educators, Research-based learning, Vocational education
Interest group: CLOUD 02 - Educators' professional development, CLOUD 07 - Research impact on school development
Chairperson: Wouter Smets, Belgium

The role and positioning of master educated teachers in vocational educational institutes
Keywords: Practice-based research (methodology), Professionalisation of educators, Research-based learning, Vocational education
Presenting Author: Sara Albone, Aeres Hogeschool Wageningen, Netherlands; **Presenting Author:**Wilbert van der Heul, Skyward Learning Agency, Netherlands; **Co-Author:**Kathinka van Doesum, mboRijnland, Netherlands; **Co-Author:**Liane Driessen, Aeres Group, Netherlands

This case study explores the role and positioning of master educated teachers in vocational educational institutes in the Netherlands. The research project consists of a Dutch consortium of senior researchers, teacher researchers and six master educated teacher leaders (METLs). The consortium is collectively researching which management, organisational and netwerk conditions contribute to the ability of METLs to facilitate sustainable vocational educational improvements. Each METL is responsible, within their own vocational school, for coordinating research teams (consisting of teacher researchers) to tackle complex educational challenges. Of the six METLs involved in this research project, three will be present by the case study: Kathinka van Doesum - College of Economics, mboRijnland.Liane van Driessen - Aeres MBO Almere.Wilbert van der Heul- Albeda Zorgcollege. The METLs are regularly in contact with each other and with the consortium in order to gain and exchange insight into their approaches. The METLs collect data on their research teams using structured self-reports which are regularly compared to that of the other MTL's at the levels of working principles, mechanisms and conditions. The research project has just completed the first year of a three year project, at the point of submission all results are preliminary.

A Framework for Inter-institutional Professional Development: A CHARM European University Case Study
Keywords: Continuing professional development in Teachers, Higher education, Professional Development, Professionalisation of educators

Presenting Author: Sanne van Vugt, Utrecht University, Netherlands; **Co-Author:**Silvia Gallagher, Trinity College Dublin, Ireland; **Co-Author:**Annet van der Riet, Utrecht University, Netherlands; **Co-Author:**Jan Haarhuis, Utrecht University, Netherlands

CHARM-EU is one of 41 European University initiatives seeking to strengthen partnerships between higher education institutions by offering curricula delivered jointly by multiple institutions to promote European identity and improve the quality and competitiveness of European higher education. Part of the CHARM-EU mission is to offer a transdisciplinary, challenge-based Master's programme delivered across university campuses to equip a new generation of students with the skills and knowledge needed to participate in a rapidly changing, digital society, facing major global sustainability challenges.The quality of CHARM-EU teaching and learning practices relies heavily on the knowledge, skills and competences of teachers. However, teachers new to the CHARM-EU project must upskill and incorporate diverse CHARM-EU educational principles and values into their teaching (e.g. Challenge Based Learning, Sustainability in Education, Student-Centred Learning). This case study describes a six-phased approach to designing a professional development programme for teachers from five European universities using different methods. From this approach, a bespoke professional development programme for CHARM-EU teachers was created. This case study provides a useful framework with practical recommendations for institutions seeking to develop inter-institutional professional development programmes, and understand the complexities involved in successful collaboration.

Sessions G 7

26 November 2021 09:00 - 10:30
Session Room 3
Case study
Lifelong learning, Vocational education

In-Service Teacher Training in Teacher Education

Keywords: Assessment and evaluation, Blended learning, Educational Technology, In-service Teacher Training, Lifelong Learning, STEM, Vocational education
Interest group: CLOUD 01 - Teacher education
Chairperson: Rosanne Hebing, Netherlands

Digital Open badges and ePortfolios in Profiling Expertise

Keywords: Assessment and evaluation, Educational Technology, In-service Teacher Training, Lifelong Learning
Presenting Author: Sanna Brauer, Oulu University of Applied Sciences, Finland; **Presenting Author:**Anne-Maria Korhonen, Hamk University of Applied Sciences, Finland

The fundamental changes in the world of work increase the need for effective competence development to meet local challenges and unique professional needs. Creating workspace ePortfolios is relevant for learning and professional growth. When using ePortfolios for career purposes, showcases are used. These two phases of ePortfolios are recognised and the assessment of showcase ePortfolios is discussed in this paper through the digital open badge concept. Both ePortfolios and open badges offer to make competences visible in digital format such as by text, photos, figures, and videos. Thus, open badges have become a modern approach in educational practices as a way to demonstrate and assess competences in authentic contexts. The badge concept gives opportunities also to create so called mini portfolios. The aim is to make individuals' competences visible during the studies, at the moment of employment and in the continuous development of professional expertise. This conference paper summarises the latest research concerning ePortfolios and digital open badges as showcases. We discuss the relationship between ePortfolios and open badges, and the principles for designing thematically organised and retrospective showcase ePortfolios for different purposes.

A blended learning in-service teacher training for integrating experiments in STEM

Keywords: Blended learning, In-service Teacher Training, STEM, Vocational education
Presenting Author: Birgitta Kopp, Ludwig-Maximilians-University, Germany; **Co-Author:**Heinz Mandl, University of Munich (LMU), Germany; **Co-Author:**Angela Clerc, Siemens Foundation, Germany

What was the rationale behind the change?We want to stimulate and foster elementary school teachers to integrate experiments in STEM. We changed the existing in-service training from face-to-face into a blended learning concept because an evaluation study showed that teachers demanded online parts of the training. Furthermore, the realization of the training was very heterogenous depending on the executing trainer. In addition, authentic in-class visualizations of experiments with children could not be realized in presence. Who was involved? The Siemens Foundation decided to change the training together with pedagogical and media professionals of the University of Munich, with design experts, and teachers. How was the project carried out?We conceptualized a blended learning concept with two digital and two face-to-face phases with subject experts in 18 months.What were the main conclusions?The training became more flexible regarding the learning time and place as teachers can work with the digital phases any time at any place. In this context, subject knowledge in STEM context was fostered as well. The quality of the training got more standardized due to the fixed materials. In-class visualizations of experiments could be realized using authentic video sequences of a school class conducting an experiment.

Sessions G 8

26 November 2021 09:00 - 10:30
Session Room 11
EAPRIL Cloud Spotlight Session

CLOUD 13-Jump in! roundtable on research ideas and designs/exploring practice-based researcher roles

Keywords: Organisation of educational research, Practice-based research (methodology), The role of research on learning and instruction in developing education systems, Training of young researchers
Interest group: CLOUD 13 - Starting Researchers

In this Cloud 13 spotlight session (1.5 hours), a series of online round tables will be held. Starting practice-based researchers can 'jump in' and share, test and explore their 1) current research ideas, ambitions and dilemma's with peers as well as their 2) experiences as starting practice-based researchers of learning. The round tables are being supervised or guided by the cloud coordinators and more experienced researchers from the EAPRIL network. The session offers participants a low threshold opportunity to interact, explore, present; deepen their knowledge on practice-based research methodology as well as finding their way into becoming a practice-based researcher.

CLOUD 13-Jump in! roundtable on research ideas and designs/exploring practice-based researcher roles

Presenting Author: Pieter Seuneke, Aeres University of Applied Sciences Wageningen, Netherlands; **Presenting Author:**Ellen Rohaan, Fontys University of Applied Sciences, Netherlands

In this Cloud 13 spotlight session (1.5 hours), a series of online round tables will be held. Starting practice-based researchers can 'jump in' and share, test and explore their 1) current research ideas, ambitions and dilemma's with peers as well as their 2) experiences as starting practice-based researchers of learning. The round tables are being supervised or guided by the cloud coordinators and more experienced researchers from the EAPRIL network. The session offers participants a low threshold opportunity to interact, explore, present; deepen their knowledge on practice-based research methodology as well as finding their way into becoming a practice-based researcher.

Sessions G 9

26 November 2021 09:00 - 10:30

Session Room 12
Symposium
Vocational education

Inquiring interaction on professionalization in vocational education and training

Keywords: Continuing professional development in Teachers, Corporate learning, Inquiry learning, Organisational learning, Practice-based research (methodology), Professional identity, Professionalisation of educators, Vocational education
Interest group: CLOUD 11 - Practice-based Research Methodology
Chairperson: Sirpa Laitinen-Väänänen, JAMK University of Applied Sciences, Finland
Organiser: Niek van den Berg, Aeres University of Applied Sciences Wageningen, Netherlands
Discussant: Jorg Holle, Westfälische Wilhelms-Universität Münster, Germany
Discussant: Alberto Cattaneo, Switzerland

Three research-practice-partnerships (RPP's) work on practice-based research on strengthening the professionalization of teachers and teacher-teams in institutes for vocational education and training (VET) in The Netherlands. Each RPP started from an urgent and complex practical issue, and has its own research question and inquiring interactive methods.Professional actions and learning are context-related (Maandag et al., 2017) and practitioner-researcher interactions are relevant for knowledge building and utilization (Heikkinen et al., 2016; Van den Berg, 2016; Van den Berg & Teurlings, 2019). Despite these available insights, it is still insufficiently clear how and under what conditions these interactions can best be designed and promoted in daily practice.The intended yield of the symposium is a joint 'viewing framework' for interactive collaborations within VET-schools, which work on further quality improvement and professionalization of teachers and teams.The session starts with an introduction by the chair, followed by three parallel poster presentations, focussing on insights into interventions and mechanisms, which can contribute to strengthening the quality of education in VETschools. Special attention is paid to the interactive research methods and forms of cooperation. The presentations will be followed by a critical reflection by the discussants and a collective discussion aiming at the joint framework.

Control or dialogue: working on professional organizations
Presenting Author: Jorrick Beckers, Open University of the Netherlands, Netherlands; **Co-Author:**Vinitha Siebers, Vrije Universiteit Amsterdam, Netherlands; **Co-Author:**José Hermanussen, ecbo, Netherlands; **Co-Author:**Ronald Stevens, Vrije Universiteit, Netherlands; **Co-Author:**Ingrid Van der Pluym-van Eijkeren, Kwaliteitsnetwerk mbo, Netherlands

Educational professionals in senior vocational education often experience institutional audits to be controlling. Moreover, these kinds of audits do not seem to contribute to a quality culture. Presumably, quality culture can profit from an auditing method geared at uncovering blind spots cooperatively in an open dialogue. The current research is focused on developing and implementing a dialogical audit method iteratively. Development and implementation of the aforementioned audit method is based on the influential dialogue model and ultimately aims to measure what lies beneath the surface more accurately, improve quality of culture at all levels of Vocational Education Training organizations (henceforth, VET) and VET at large. Preliminary results from the soft-control questionnaires consistently show issues with perceived accountability. The questionnaires aimed at measuring the conditions surrounding the audit reveals that participants often report little to no preparation for the audit process. Furthermore, they sometimes still perceive the audit to be controlling and instrumental. Regarding yields of the audit, participants in focus groups report that the process helped them to identify relevant topics, but that this has not yet led them to undertake action. Dialogical auditing can help educational practice by identifying topics that need attention in order to further improve education.

Searching for good work together: professionally framing the team task
Presenting Author: Tom van Oeffelt, Aeres University Wageningen, Netherlands

In Dutch secondary vocational education teams are the key actors in quality and innovation. To innovate teams need to learn. In team learning action and reflection are key processes. Reflection requires shared norms. Yet building norms isn't self-evident and requires explicit framing and reframing of the task. The result of these actions we call a professional frame. Our research aims to find answers on how teams can build a professional frame and on how teams can reframe. We conducted timeline interviews with seven teams. Each interview was processed into a learning (hi)story. These stories are now being analyzed based on the idea of 'causation coding'. Preliminary results indicate that unclarity in situations evoke the forming of a norm, that seeking collectivity is a positive factor and that working in line with the norms create ownership and energy. Possible conclusions are that teams that can focus on task and collectivity and not on conditions or old ways are able to build a professional frame, and that being able to swiftly frame the task seems to be a condition to reframe and to realize good work. This contributes to more collective professionalism which can improve practice.

Master-educated teachers: drivers of inquiry on educational quality
Presenting Author: Jeroen Rozendaal, University of Applied Science Rotterdam Hogeschool Rotterdam, Netherlands; **Co-Author:**Erica Wijnands, Rijnland VET, Netherlands; **Co-Author:**Niek van den Berg, Aeres University of Applied Sciences Wageningen, Netherlands

Our consortium investigates how and under which internal and external conditions the collaboration of development teams andmaster educated teacher leaders (METLs) contribute to the educational-, team- and organizational development in VET-contexts. Six METLs and their teams participate in this participatory action research. In each research cycle, we collected data on various team aspects. Each cycle is wrapped up with a case report based on a timeline interview. Preliminary results show valuable insights for the application of this kind of research in complex educational contexts. Future results contribute to the body of knowledge about teacher leadership, the improvement of educational quality, and curricula of educational master training programs.

Sessions G 10

26 November 2021 09:00 - 10:30
Session Room 6
Workshop
Vocational education

Facilitating teacher learning groups with the 'Social Regulation Tool'

Keywords: Collaborative Learning, Continuing professional development in Teachers, Higher education, Initial Teacher Education (Pre-service)
Interest group: CLOUD 01 - Teacher education

In this workshop, the Social Regulation Tool (SRT) is discussed. This tool aims to provide insight in the social configuration and value creation of Teacher Learning Groups (TLGs). The social configuration is based on the Dimensions of Social Learning Questionnaire (DSLQ, Vrieling-Teunter et al., submitted). The value creation stems upon the Value Creation Questionnaire (VCQ), based on the Framework of Wenger et al. (2011). Both frameworks are explained during the workshop, as they form the SRT's foundation. The SRT consists of 1) the DSLQ and VCQ to fill out individually, 2) a format which visualises questionnaire data, and 3) a conversation guideline on how to discuss the visualisation. Workshop participants will be given the opportunity to follow this protocol and experience how the SRT works. The first tentative findings (piloted at three Dutch universities of applied sciences) will also be presented. Finally, possibilities to further develop the SRT will be discussed, in which workshop participants can share thoughts. The workshop aims are threefold: 1) to inform educational practitioners who work in a TLG about the tool's purpose and availability; 2) to acquire participants' input to further improve the tool; 3) to receive insight about the tool as an educational intervention.

Facilitating teacher learning groups with the 'Social Regulation Tool'
Presenting Author: Emmy Vrieling-Teunter, Open University of the Netherlands, Netherlands; **Co-Author:**Lars de Vreugd, UMC Utrecht, Netherlands; **Co-Author:**Anouke Bakx, Fontys University, Radboud University, Netherlands; **Co-Author:**Liesbeth Baartman, Utrecht University of Applied Sciences, Netherlands

In this workshop, the Social Regulation Tool (SRT) is discussed. This tool aims to provide insight in the social configuration and value creation of Teacher

Learning Groups (TLGs). The social configuration is based on the Dimensions of Social Learning Questionnaire (DSLQ, Vrieling-Teunter et al., submitted). The value creation stems upon the Value Creation Questionnaire (VCQ), based on the Framework of Wenger et al. (2011). Both frameworks are explained during the workshop, as they form the SRT's foundation. The SRT consists of 1) the DSLQ and VCQ to fill out individually, 2) a format which visualises questionnaire data, and 3) a conversation guideline on how to discuss the visualisation. Workshop participants will be given the opportunity to follow this protocol and experience how the SRT works. The first tentative findings (piloted at three Dutch universities of applied sciences) will also be presented. Finally, possibilities to further develop the SRT will be discussed, in which workshop participants can share thoughts. The workshop aims are threefold: 1) to inform educational practitioners who work in a TLG about the tool's purpose and availability; 2) to acquire participants' input to further improve the tool; 3) to receive insight about the tool as an educational intervention.

Sessions G 11

26 November 2021 09:00 - 10:30
Session Room 4
EAPRIL Cloud Spotlight Session
Higher education

CLOUD 02-Training primary school student teachers to stimulate pupils' academic language development

Keywords: Educational Effectiveness and quality of education, Higher education, Initial Teacher Education (Pre-service), Language Education
Interest group: CLOUD 02 - Educators' professional development

Primary school student teachers should learn how to support pupils when developing academic language (AL). As the AL register differs from home language, pupils need help of teachers in developing it. Mastering the AL register is important for school success, especially in mathematics, where pupils need to decontextualize and solve complex problems (Mercer & Sams, 2006). To develop an effective training for student teachers, practice-based research was conducted, investigating AL input and stimulating strategies of 27 primary school teachers in grade 1/2 during 52 mathematical instructions. Correlations between the teachers' knowledge, attitudes and skills about AL and their used input and strategies were not found. Based on these insights and the interconnected model of professional growth (Clarke & Hollingsworth, 2002), a training on AL stimulating strategies was developed with reflection and enactment as central concepts. It was conducted and evaluated in a group student teachers (year 2, N=37). A control group (also year 2, N=37) was trained in a similar way, but without explicit instruction on AL stimulating strategies. The effects of the training were investigated, using a pre- and posttest design. The outline, implementation and effects of the training will be presented and discussed.

CLOUD 02-Training primary school student teachers to stimulate pupils' academic language development

Presenting Author: Nanke Dokter, Fontys University of Applied Sciences, Netherlands; **Co-Author:**Michel van Ingen, Fontys University of Applied Science, Netherlands

Primary school student teachers should learn how to support pupils when developing academic language (AL). As the AL register differs from home language, pupils need help of teachers in developing it. Mastering the AL register is important for school success, especially in mathematics, where pupils need to decontextualize and solve complex problems (Mercer & Sams, 2006). To develop an effective training for student teachers, practice-based research was conducted, investigating AL input and stimulating strategies of 27 primary school teachers in grade 1/2 during 52 mathematical instructions. Correlations between the teachers' knowledge, attitudes and skills about AL and their used input and strategies were not found. Based on these insights and the interconnected model of professional growth (Clarke & Hollingsworth, 2002), a training on AL stimulating strategies was developed with reflection and enactment as central concepts. It was conducted and evaluated in a group student teachers (year 2, N=37). A control group (also year 2, N=37) was trained in a similar way, but without explicit instruction on AL stimulating strategies. The effects of the training were investigated, using a pre- and posttest design. The outline, implementation and effects of the training will be presented and discussed.

Sessions G 12

26 November 2021 09:00 - 10:30
Session Room 5
Workshop
Higher education

Complex Tool: designing effective student teachers' innovation teams

Keywords: 21st century learning, Collaborative Learning, Innovations in education, Workplace learning
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

Higher Education Institutes are increasingly engaged with society in order to develop innovative solutions and support a knowledge economy (OECD-IMHE, 2012). In the Netherlands, Fontys University of Applied Science focuses on developing hybrid learning environments as a means to engage both educators as well as students and professionals in working collaboratively on complex problems. Hybrid learning environments support collaborative learning using authentic and urgent problems with a level of complexity related to a specific work context, e.g. nursing or teaching (Zitter and Hoeve, 2012). Not much is known yet about the specific level of complexity that is needed for participants to learn collaboratively while working on the problem at hand. In order to determine the level of complexity, the "Complex Tool" was developed (Ros, Heldens & Swennenhuis, 2021). In this workshop participants explore the Complex Tool and engage in a collaborative process, following the steps of a method for hybrid innovation teams in schools (Ros, Heldens, Dokter & Rongen, 2021). Aim is to collaboratively explore both the Complex Tool and the method for hybrid innovation teams in schools in order discuss possible use in hybrid teacher education practise.

Complex Tool: designing effective student teachers' innovation teams

Presenting Author: Henderijn Heldens, Fontys University of Applied Science, Netherlands; **Presenting Author:**Anje Ros, Fontys University of Applied Sciences, Netherlands; **Co-Author:**Petra Swennenhuis, Fontys University of Applied Sciences, Netherlands

Higher Education Institutes are increasingly engaged with society in order to develop innovative solutions and support a knowledge economy (OECD-IMHE, 2012). In the Netherlands, Fontys University of Applied Science focuses on developing hybrid learning environments as a means to engage both educators as well as students and professionals in working collaboratively on complex problems. Hybrid learning environments support collaborative learning using authentic and urgent problems with a level of complexity related to a specific work context, e.g. nursing or teaching (Zitter and Hoeve, 2012). Not much is known yet about the specific level of complexity that is needed for participants to learn collaboratively while working on the problem at hand. In order to determine the level of complexity, the "Complex Tool" was developed (Ros, Heldens & Swennenhuis, 2021). In this workshop participants explore the Complex Tool and engage in a collaborative process, following the steps of a method for hybrid innovation teams in schools (Ros, Heldens, Dokter & Rongen, 2021). Aim is to collaboratively explore both the Complex Tool and the method for hybrid innovation teams in schools in order discuss possible use in hybrid teacher education practise.

Sessions H 1

26 November 2021 11:00 - 12:30
Session Room 8
Present & Discuss
Higher education, Secondary education
Improving learning and well-being

Keywords: 21st century learning, Creativity, Distance Education, Higher education, Innovations in education, Mentoring, Project-based learning, School Development, Secondary school education, Well-being and engagement
Interest group: CLOUD 04 - Improving learning and well-being
Chairperson: Pieter Seuneke, Aeres University of Applied Sciences Wageningen, Netherlands

Can students benefit from projected uncertainty in school-based challenges? An empirical exploration
Keywords: Innovations in education, Project-based learning, School Development, Secondary school education
Presenting Author: Kerstin Helker, Eindhoven University of Technology, Netherlands; **Co-Author:**Sarah Poersch, Universität Koblenz-Landau, Campus Landau, Germany; **Co-Author:**Matthias Ruerup, University of Wuppertal, School of Education, Germany

The conditions of students' success in their educational, professional, and personal future seem a moving target and many have called for education that more strongly focuses on students' responsibility as well as sustainable education and learning, such as self-regulated and challenge-based learning in classrooms. In a hope to foster these skills in students and help them deal with the uncertainty future holds, an increasing number of secondary schools have implemented outdoor adventure projects called "Challenges" in their school programs, in which students work on a self-chosen, extra-curricular challenge.This research explores whether "Challenges" can be successful in raising students' ability to deal with uncertainty and whether students with a stronger future orientation and ability to deal with uncertainty at the outset will benefit more from the project and experience stronger effects on personal competences as well as their evaluation of the learning experience.Findings reveal a relatively high tolerance of uncertainty at the outset which correlates with student perseverance and students (positive) considerations of the future. Nevertheless, tolerance of uncertainty decreased over the "Challenge", which some data suggest to be linked to students' sense of responsibility and ownership. Implications for practices shall be discussed at the conference.

Exploring student learning gains in challenge-based learning through students' reflections
Keywords: 21st century learning, Higher education, Innovations in education, Project-based learning
Presenting Author: Kerstin Helker, Eindhoven University of Technology, Netherlands; **Co-Author:**Isabelle Reymen, Eindhoven University of Technology, Netherlands; **Co-Author:**Miguel Bruns, Eindhoven University of Technology, Netherlands; **Co-Author:**Jasmina Lazendic-Galloway, Eindhoven University of Technology, Netherlands; **Co-Author:**Jan Vermunt, Eindhoven University of Technology, Netherlands

As recent societal and economic changes pose increasingly complex and ill-defined challenges to today's students, many educators call for learning environments that allow for distributed and co-operative learning through social interactions in representative authentic, real life contexts. One such approach is challenge-based learning (CBL), which involves open-ended challenges or problems from real world practice that require students to work in interdisciplinary teams. Apart from fostering students' self-regulation and motivation, educators hope for students to acquire real-world knowledge and develop skills they can use to solve complex problems for the rest of their lives, such as self-awareness, self-leadership, teamwork, and an entrepreneurial mindset. As students' prerequisites and learning goals for CBL may differ, it is important studying end-of-semester reflections to understand students' learning gains. Written reflections from 19 Masters-degree students regarding the approach, analysis, synthesis, interdisciplinarity, skills and behaviour, as well as personal and team development were content-analysed for students' learning gains. 47 categories emerged, that showed students' focus to lie on group work, project management and problem-solving skills. While since these learnings were newer and more intense for students, further practice should also guide students to relate learning in CBL to subject-specific content knowledge.

The impact of co-creative learning environments on self-efficacy, motivation&student... (CANCELLED)
Keywords: 21st century learning, Creativity, Innovations in education, Well-being and engagement
Presenting Author: Els Laenens, University of Antwerp, Belgium; **Co-Author:**Ellen Vandervieren, University of Antwerp, Belgium; **Co-Author:**Alexandra Verbuyst, University of Antwerp, Belgium

The aim of this practice-based research is to see if co-creation has an impact on the motivation and the self-efficacy of pupils in a math class. Moreover, we want to know how pupils experience co-creative learning in a math class. The concept of co-creation is one of the main characteristics of Education 4.0 (Sharmer & Kaufer, 2013) and is related to Theory U (Sharmer & Kaufer, 2013). Co-creation refers to a learning style that engages students in the creation of their learning environment. It gives students more freedom to make subject-matter choices (within the curricular framework), encourages them to take responsibility for their own learning and to collaborate with peers. Twelve pupils of Sint-Ursula Instituut (Antwerp, Belgium) with study fields Science-Mathematics and Economics-Modern Languages participated in this research. They completed questionnaires (pre- posttest design) and assignments (for document analysis), and were observed (video- and audiotaped) during a series of lessons to survey their opinions and experiences as well as preferences for future lessons. Wilcoxon signed-rank tests and descriptive statistics show that controlled motivation is significantly lower after the implementation of co-creation than before, whereas for autonomous motivation and self-efficacy the observed increase is not statistically significant.

Engagement at distance: Engaging first-year students through buddy groups guided by senior students
Keywords: Distance Education, Higher education, Mentoring, Well-being and engagement
Presenting Author: Kariene Woudt-Mittendorff, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Chantal Velthuis, Saxion University of Applied Sciences, Netherlands; **Co-Author:**Kris Holkenborg, Saxion University of Applied Sciences, Netherlands

A sense of belonging of students (socially and academically) is important for study success. As a result of the COVID-19 pandemic, engaging first-year students appeared to be a profound challenge in online education. In order to help students to feel more connected with their peers and their study program, Saxion University of Applied Sciences introduced so called 'buddy groups' for first-year students. Buddy groups are peer groups of eight to ten first-year students, who are guided by a senior student, a 'student coach'. The research presented here evaluated the use of buddy groups in three study programs: Public Management, Security Management and Law. A questionnaire was taken from students (N=407) to measure their sense of belonging and interactive learning. Also, within each study program, student coaches and students were interviewed about their experiences with the buddy groups and their outcomes. Based on this research, it can be concluded that the use of student coaches is certainly of added value to quickly familiarise students with the study program. The question, however, is when we return to physical education in what way we can use the insights gained from using buddy groups in a broader improvement of student guidance and counselling.

Sessions H 2

26 November 2021 11:00 - 12:30
Session Room 1
Thematic Track
Higher education, Workplace learning

Learning and Innovating in Field Labs

Keywords: 21st century learning, Collaborative Learning, Competence-based education, Higher education, Labour market & formal learning, Lifelong Learning, Organisational learning, Workplace learning
Interest group: CLOUD 14 - Learning in Organisations

Learning communities as drivers of learning and innovation in the age of Industry 4.0
Keywords: Collaborative Learning, Lifelong Learning, Organisational learning, Workplace learning
Presenting Author: Tijmen Schipper, Windesheim University of Applied Sciences, Netherlands; **Co-Author:**Jan Waalkens, Stenden hogeschool, Netherlands; **Co-Author:**Jacqueline Rietveld, NHL Stenden University of applied sciences, Netherlands

This research project is centred around the major challenges the logistics sector is facing in terms of the upcoming fourth industrial revolution. These challenges,

and the wicked problems these challenges generate, can be met by proper HR management and close collaboration between logistics companies and knowledge institutions. A promising way to address this is through the use of Public-Private Learning Communities in which participants share a common goal on the intersection of work, learning and innovation. In this research project Public-Private Learning Communities are defined and conceptualised on the one hand, and implemented in logistics companies as drivers of learning and innovation on the other hand. Combining both a conceptual and practical focus this research project yields valuable insights, models and hands on instruments that can be applied in logistics companies and translated to university curricula in order to prepare students for the future of work in the logistics sector.

Engaging Stakeholders in the design of Higher Education Critical Thinking Apprenticeships Curricula
Keywords: 21st century learning, Competence-based education, Higher education, Labour market & formal learning
Presenting Author: Panagiota Christodoulou, University of Western Macedonia, Greece; **Co-Author:**Dimitrios Pnevmatikos, University of Western Macedonia, Greece; **Co-Author:**Angeliki Lithoxoidou, University of Western Macedonia, Greece; **Co-Author:**Triantafyllia Georgiadou, University of Western Macedonia, Greece

Recent findings highlight that graduates are lacking in skills and dispositions, which can enhance their employability and simultaneously render them equipped to deal with work-based problems. Critical Thinking (CT) is considered among the soft skills associated with higher levels of employment. The Critical Thinking for Successful Jobs (Thinks4Jobs) project, currently in progress, aims at strengthening the collaboration between Universities and Businesses to design, develop, implement and evaluate CT blended apprenticeships' curricula in four disciplines fostering graduates' CT development and improving their employability in the long term. The curricula will be implemented in apprenticeships as the latter are deemed a relative interface that link Universities and Businesses in establishing a sustainable collaboration and eventually providing a work-based context for the development of students' CT as end-users. To this end, the project employs elements of the living labs approach. Specifically, a participatory co-design approach is followed, engaging end-users, such as Higher Education Instructors and Students as well as stakeholders from the Private, Public Sector and Academia for designing CT blended apprenticeships curricula tailor made to the end-users' needs. In addition, various methodological approaches will be employed during the phases of exploration, experimentation and evaluation enhancing stakeholders' engagement.

Sessions H 3

26 November 2021 11:00 - 12:30
Session Room 5
Meet-up
Secondary education

Case studies: Improving self-regulation through Hybrid Learning Environments in secondary education

Keywords: Blended learning, Professionalisation of educators, Secondary school education, Self-regulation and self-regulated learning
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

While benefits of integrating Hybrid Learning Environments (HLE's) have been observed in higher education, little can be found in relation to secondary education: (1) scarce research can be retrieved (2) students seem poorly equipped with self-regulation skills to take full advantage of HLE's. The present research intends to contribute not only to the literature, but also aims to find ways to improve secondary school students' self-regulation skills through HLE's. This rationale starts from constructivist and sociocultural theories which claim that students' existing knowledge and skills are relevant to build new ones. Researchers will work together with secondary school teachers from five schools in Flanders. They will be united in Teacher Design Teams (TDT's) in order to redesign parts of their curriculum into an HLE. At an early stage, the conceptual framework of TPACK will be employed in the professionalization of the TDT's, then each TDT will redesign a part of their curriculum using the instructional 4CID design model and the HLE's characteristics to improve self-regulation. The HLE will be implemented, and students' self-regulation skills will be tested with a pre- and post-test. Finally, each of the cases will be analyzed. Based on the results, HLE design guidelines will be proposed.

Case studies: Improving self-regulation through Hybrid Learning Environments in secondary education
Presenting Author: David Stienaers, UCLL, Belgium; **Co-Author:**Katrien Dewaele, UCLL, Belgium; **Co-Author:**Mieke Achtergaele, UCLL, Belgium; **Co-Author:**Norma Juárez Collazo, UCLL, Belgium; **Co-Author:**Bart Boelen, UCLL, Belgium

While benefits of integrating Hybrid Learning Environments (HLE's) have been observed in higher education, little can be found in relation to secondary education: (1) scarce research can be retrieved (2) students seem poorly equipped with self-regulation skills to take full advantage of HLE's. The present research intends to contribute not only to the literature, but also aims to find ways to improve secondary school students' self-regulation skills through HLE's. This rationale starts from constructivist and sociocultural theories which claim that students' existing knowledge and skills are relevant to build new ones. Researchers will work together with secondary school teachers from five schools in Flanders. They will be united in Teacher Design Teams (TDT's) in order to redesign parts of their curriculum into an HLE. At an early stage, the conceptual framework of TPACK will be employed in the professionalization of the TDT's, then each TDT will redesign a part of their curriculum using the instructional 4CID design model and the HLE's characteristics to improve self-regulation. The HLE will be implemented, and students' self-regulation skills will be tested with a pre- and post-test. Finally, each of the cases will be analyzed. Based on the results, HLE design guidelines will be proposed.

Sessions H 4

26 November 2021 11:00 - 12:30
Session Room 10
Symposium
Primary education, Secondary education, Vocational education

Leadership for sustainable educational innovation: research insights and practical tools

Keywords: Collaborative Learning, Leadership development, Primary school education, Professional Development, School Development, Secondary school education, Vocational education
Interest group: CLOUD 12 - Leadership in Education
Chairperson: Cindy Poortman, University of Twente, Netherlands
Discussant: Bregje de Vries, VU University, Netherlands

1. Main theme and aims of the symposiumThe hardest part of educational innovation is making it sustainable. We define sustainability as the process of integrating and scaling the intervention's core aspects in organizational routines, which are adaptive to ongoing work. This means the core aspects of an innovation are important to maintain and should become part of schools' organizational routines, whereas at the same time local adaptability is important. The literature shows that leadership is key in sustainable innovation. But practical and concrete guidelines to support leadership for sustainable innovation are lacking. In this symposium we present three studies on leadership for sustainable educational innovation, in primary, secondary, and vocational education. We also discuss the resulting practical tools with the audience to detect shared principles and mechanisms and to consider their transfer-value to other contexts.2. Interactivity in the symposiumWe explain how the tools were based on our studies and illustrate their use in educational practices. Subsequently, we invite the audience to discuss these tools' functioning and expected outcomes in supporting leadership for sustainable innovation in their context. Their feedback is collected digitally for further discussion in the final part of the symposium, led by the discussant.

How collaboration contributes to sustainable educational innovation
Presenting Author: Hilde Wierda-Boer, HAN University of Applied Sciences (UAS), Netherlands; **Presenting Author:**Marloes de Lange, HAN University of

Applied Sciences, Netherlands

In the Netherlands, many initiatives exist to innovate secondary vocational education and training (VET; in Dutch: mbo). However, attempts often fail. According to the literature, collaboration is key to innovation. But how does collaboration, internal and external, contribute to making educational innovations more sustainable? Thus far little attention has been paid to innovation as a *process*. Within this practice-orientated study, this issue was addressed by carrying out five case studies on educational innovations in VET colleges previously considered as sustainably successful in a national subsidy program. In 32 semi-structured interviews a total of 63 stakeholders were interviewed: teachers; managers; directors; educational professionals; and professional partners. In a cross-case analysis, common themes and crucial mechanisms explaining the role of collaboration were searched for. In three successive workshops, findings were interpreted and deepened together with the stakeholders. Nine core principles were identified: connecting; a strong basis; just doing it together; not giving up; the people who do it; the power of the relationship; keeping track; an HRM strategy; and providing space. These core principles were translated into a tool that stimulates reflection and discussion in educational teams, in order to optimize collaboration to make their innovations more sustainable.

School leadership for sustainable educational innovation
Presenting Author: Cindy Poortman, University of Twente, Netherlands; **Co-Author:**Anne Tappel, Carmelcollege School Board, Netherlands

Leadership is key for integrating innovation in schools' organizational routines, hence for sustainability. For this study, we focused on a data use intervention for educators. Although this innovation appeared effective, schools found it challenging to make it a sustainable part of their practice after external support had been withdrawn. This study was therefore focused on developing leadership guidelines to support the sustainability of the data use intervention. The main question concerned *The role of school leadership in supporting sustainability of the data use intervention* We used a questionnaire (administered to 39 schools) about factors influencing sustainability, based on a systematic review study from previous research. Mainly school organizational factors showed to be important, of which leadership is a key aspect. An innovation such as the data use intervention needs to connect to school vision and goals – that should be communicated interactively. Teachers' commitment and innovation effectiveness are also important. Leadership is not only about facilitation, e.g., time and resources, but also about support, knowledgeable school leaders, and vision. Distributed leadership and coherence of leadership activities is essential. We developed (pilot) tools based on the study results and discussed their usability with practitioners in workshops, also for other innovation contexts.

Distributed leadership by primary school leaders
Presenting Author: Bregje de Vries, VU University, Netherlands; **Co-Author:**Wim Folker, SKPCPO Delta, Netherlands

Leading sustainable innovation raises questions to school leaders, who often invent their own ways of doing things in their own schools. School leaders could learn from and with each other in how to lead educational renewal. In the school board Delta in the Netherlands (uniting 25 primary schools), three research questions were raised: (1) how can we realize distributed leadership in the schools, (2) how can we implement flexible leadership acknowledging differences between team members, and (3) how can we learn with and from each other about distributed flexible leadership in a professional learning community? A multiple case study was conducted, in which we collected data on the schools' educational innovations, and school leaders' ideas and practices on distributed and flexible leadership. Apart from many instances of distributed and flexible leadership, findings show that a clear and shared role and task division is crucial for realizing a feedback culture in which teams can give rise to truly distributed leadership. A tool for team analysis in innovation phases was developed to support this.

Sessions H 5

26 November 2021 11:00 - 12:30
Session Room 13
Meet-up
Higher education

Digital poverty during the Pandemic

Keywords: Culture and Education, Distance Education, Equality / Education for All, Inclusivity
Interest group: CLOUD 08 - Diversity & equality in different contexts

As the world is increasingly interconnected, so the risks people face increase, as in the case of the COVID-19 pandemic. Due to the COVID-19 outbreak, nearly 1.5 billion students worldwide were affected by the urgent school closures. Although the world was already at the brink of digitalisation, the pandemic accelerated the process. During the pandemic, technology has increased existing inequalities in access and quality of education. While some students have a good chance of benefiting from technology, some education systems have difficulty reaching disadvantaged students. This situation brought many problems with itself. Digital poverty is one of these problems. My aim is to discuss digital poverty due to COVID-19 on experienced by teachers and students in higher education.

Digital poverty during the Pandemic
Presenting Author: Sibel Inci, Kocaeli university, Turkey

As the world is increasingly interconnected, so the risks people face increase, as in the case of the COVID-19 pandemic. Due to the COVID-19 outbreak, nearly 1.5 billion students worldwide were affected by the urgent school closures. Although the world was already at the brink of digitalisation, the pandemic accelerated the process. During the pandemic, technology has increased existing inequalities in access and quality of education. While some students have a good chance of benefiting from technology, some education systems have difficulty reaching disadvantaged students. This situation brought many problems with itself. Digital poverty is one of these problems. My aim is to discuss digital poverty due to COVID-19 on experienced by teachers and students in higher education.

Sessions H 6

26 November 2021 11:00 - 12:30
Session Room 3
Workshop
Higher education

The magic of value creation: How does value creation in networked contexts work?

Keywords: Higher education, Organisational learning, Professional Development, Workplace learning
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments

This workshop addresses the question how values are created in networked contexts. It builds on a qualitative study aimed to clarify and identify various processes of value creation in (learning) networks. That study investigated value creation stories and especially how values (deliverables, outcomes) are constructed and what we can we learn from value creation stories that participants share. In this workshop we introduce the concept of "value verbs", give examples obtained from value creation stories of participants in two learning networks and facilitate exchange and reflection of participants on their own experiences with value creation in learning networks and the way they try to make sense of it. With this workshop we want to reach two goals: 1. Participants learn to explicate "value verbs" when articulating their own value creation stories from learning networks; 2. Participants help in enriching the database of "value verbs" by describing valuable moments in their own words.Keywords: Learning Network, Learning Community, value creation, social learning

The magic of value creation: How does value creation in networked contexts work?
Presenting Author: Tim Hoppen, The Hague University of Applied Sciences, Netherlands; **Presenting Author:**Christian Wallner, University of Applied Sciences Leiden, Netherlands; **Presenting Author:**Max Aangenendt, The Hague University of Applied Sciences, Netherlands

This workshop addresses the question how values are created in networked contexts. It builds on a qualitative study aimed to clarify and identify various processes of value creation in (learning) networks. That study investigated value creation stories and especially how values (deliverables, outcomes) are constructed and what we can we learn from value creation stories that participants share. In this workshop we introduce the concept of "value verbs", give examples obtained from value creation stories of participants in two learning networks and facilitate exchange and reflection of participants on their own experiences with value creation in learning networks and the way they try to make sense of it. With this workshop we want to reach two goals: 1. Participants learn to explicate "value verbs" when articulating their own value creation stories from learning networks; 2. Participants help in enriching the database of "value verbs" by describing valuable moments in their own words.Keywords: Learning Network, Learning Community, value creation, social learning

Sessions H 7

26 November 2021 11:00 - 12:30
Session Room 7
Meet-up
Workplace learning

Experiment-based learning in professional development

Keywords: Practice-based research (methodology), Professional Development, Training and Development, Workplace learning
Interest group: CLOUD 05 - HRD & Workplace learning

I am starting practice-based research in continued professional development with focus on transfer. Although transfer of training has been investigated for decades, it remains an issue. To this end, we are setting up a learning lab at our department, where we will develop approaches for capacity building and competence development in collaboration with public institutions. One approach is to take problem-based learning a step further, to something that could be called 'experiment-based learning', with experiments in practice as central for teaching and learning. The intension is to move competence development from the classroom to the professionals' practice but keeping the possibilities for new perspectives and a critical stance that elbow learning may not cater for. My role is to develop, evaluate and research teaching and learning in this context. We plan to evaluate the projects using theory-based evaluation. This implies evaluation of the process to identify signs that indicate whether the activities lead to the desired capacity building and transfer. The projects will be designed in collaboration with public institutions and the evaluation will be based on their success criteria. Participants will be co-researchers, and data will be collected through their experiments, reflection, and interviews.

Experiment-based learning in professional development
Presenting Author: Sofie Kobayashi, University College Copenhagen, Denmark

I am starting practice-based research in continued professional development with focus on transfer. Although transfer of training has been investigated for decades, it remains an issue. To this end, we are setting up a learning lab at our department, where we will develop approaches for capacity building and competence development in collaboration with public institutions. One approach is to take problem-based learning a step further, to something that could be called 'experiment-based learning', with experiments in practice as central for teaching and learning. The intension is to move competence development from the classroom to the professionals' practice but keeping the possibilities for new perspectives and a critical stance that elbow learning may not cater for. My role is to develop, evaluate and research teaching and learning in this context. We plan to evaluate the projects using theory-based evaluation. This implies evaluation of the process to identify signs that indicate whether the activities lead to the desired capacity building and transfer. The projects will be designed in collaboration with public institutions and the evaluation will be based on their success criteria. Participants will be co-researchers, and data will be collected through their experiments, reflection, and interviews.

Sessions H 8

26 November 2021 11:00 - 12:30
Session Room 2
Meet-up

Application processes of upcoming teacher students

Keywords: Assessment and evaluation, Culture and Education, Equality / Education for All, Training and Development
Interest group: CLOUD 01 - Teacher education

A lot of research in teacher education focuses on the professionalisation of teacher students: how to better prepare them, how to give them more information, how to form them into reflective practitioners etc. My concern is rather: How are teacher students becoming teacher students – internationally speaking? Are studies open for everyone, is there an aptitude test, are they nominated…? How is this done in different countries? While this may sound like very simple questions since your surely are able to answer it for your country (or one or two others), it might be very different around the world. Please note that this is not about the content of the studies nor should this become a comparison which country does it best but rather a collection of similarities and differences of how pupils become teacher students.

Application processes of upcoming teacher students
Presenting Author: Jorg Holle, Westfälische Wilhelms-Universität Münster, Germany

A lot of research in teacher education focuses on the professionalisation of teacher students: how to better prepare them, how to give them more information, how to form them into reflective practitioners etc. My concern is rather: How are teacher students becoming teacher students – internationally speaking? Are studies open for everyone, is there an aptitude test, are they nominated…? How is this done in different countries? While this may sound like very simple questions since your surely are able to answer it for your country (or one or two others), it might be very different around the world. Please note that this is not about the content of the studies nor should this become a comparison which country does it best but rather a collection of similarities and differences of how pupils become teacher students.

Sessions H 9

26 November 2021 11:00 - 12:30
Session Room 4
Case study
Early childhood education, Higher education

Higher Education & Early Childhood Education

Keywords: 21st century learning, Collaborative Learning, Early childhood education, Higher education, Practice-based research (methodology), Pre-school education / kindergarten, STEM, Team Learning
Interest group:
Chairperson: Essi Ryymin, Häme University of Applied Sciences, Finland

From shredded learning to shared learning:innovation&development of teams in ICT domain (CANCELLED)
Keywords: Collaborative Learning, Higher education, Practice-based research (methodology), Team Learning
Presenting Author: Tanja Stover, Fontys University of Applied Science, Netherlands

A *shared learning team* (SL team) is a temporary team, containing students, lecturers and work field partners who create an innovative product together, and in which the learning and development of the team members plays a central role. Previous research found that learning in a SL team needs to be stimulated by enabling team processes. Creating a safe environment for team members is necessary, sharing expertise's is important in order to create more innovative products and exchange of objectives and perspectives is necessary in order to learn individually. In this case study, teams started their process under the guidance of a process supervisor, who guided a three hour meeting called the *"KickStart",* containing several interventions based on the boundary crossing learning mechanisms of Akkermans & Bakker (2011). Components of the *KickStart* focused on creating a safe environment, identification of expertise's and objectives of team members and coordination of the collaboration. Throughout the process, this supervisor remained in the background, providing guidance as needed. The SL team worked with results provided in the *KickStart* throughout these weeks. Revenues were clear: team processes were accelerated, individual learning was increased and the team felt that their product was more innovative.

Promoting early childhood STEM in the digital era: A framework to support the supporters
Keywords: 21st century learning, Early childhood education, Pre-school education / kindergarten, STEM
Presenting Author: Esther Chong, Yew Chung College Early Childhood, Hong Kong; **Co-Author:**Yoyo Kwan, Yew Chung College of Early Childhood Education, Hong Kong; **Co-Author:**Mona Wong, Yew Chung College of Early Childhood Education, Hong Kong; **Co-Author:**Brad Chan, Yew Chung College of Early Childhood Education, Hong Kong

Online learning is important for students learning in the age of industry 4.0. It is now a 'new normal' in the formal education system, in particular under the pandemic. Nevertheless, young children have limited literacy skills and they would be able to learn with technology only if they receive appropriate assistance from their parents/ caregivers. Yet, parents might fail to provide suitable support as they do not have adequate knowledge and skills themselves. While supports to students learning are abundant in the market, supports to parents are overlooked. The team developed a series of online parent-child workshop with part of the aim to foster parent engagement in students' learning. Parents and teachers feedback were deem positive. In the conference, the author will present about the design rationale, activity design, highlights of teaching characteristics, workshop structure and feedback results.

Sessions H 10

26 November 2021 11:00 - 12:30
Session Room 9
Case study
Higher education, Lifelong learning

Creativity in 21st century Learning

Keywords: 21st century learning, Creativity, Educational Technology, Initial Teacher Education (Pre-service), Innovations in education, Instructional Design and Instructional Strategies
Interest group: CLOUD 03 - Strategies to improve teaching and learning environments, CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning
Chairperson: Marcelle Moor, Switzerland

CRAFT/ED – adaptation of creative methodology CRAFT for educational context
Keywords: 21st century learning, Creativity, Innovations in education, Instructional Design and Instructional Strategies
Presenting Author: Daria Ilishkina, School of Innovations and Creative Thinking "IKRA", Russian Federation; **Co-Author:**Vasiliy Lebedev, School of Innovations and Creative Thinking "IKRA", Russian Federation; **Co-Author:**Vitaliy Mikryukov, School of Innovations and Creative Thinking "IKRA", Russian Federation

To cope with the challenges of the world, education always needs new ideas and solutions to non-standard problems. Existing creative methodologies, such as TRIZ, Design Thinking, Lateral Thinking, and CRAFT, help people come up with new ideas and find solutions to problems. However, these methodologies were not created in the context of education. The team of creative experts and instructional designers of the school of innovations and creative thinking "IKRA" set a goal to adapt the creative methodology "Creative Algorithms, Frames and Tools" (CRAFT) for the field of education. First, the experts of the CRAFT methodology, together with instructional designers, adapted the CRAFT for the field of education. Then, ten online workshops were held, in which teams of Russian educators came up with ideas for their educational systems. Educators shared their feelings and thoughts about the process of using adapted CRAFT techniques to come up with new ideas and solutions. It turned out that the main obstacles to the use of the methodology were doubts related to the novelty of the ideas, and lack of understanding of how to implement a new idea into the old system. Educators also noted the benefits of working in a team with creative experts.

Digital Storytelling in teacher education: From uncertainty to joy
Keywords: 21st century learning, Creativity, Educational Technology, Initial Teacher Education (Pre-service)
Presenting Author: Mary Ann Isaacs, Vrije Universiteit Brussel (VUB), Belgium; **Co-Author:**Jo Tondeur, Vrije Universiteit Brussel, Belgium

This presentation shows a case study analysis of the reported experiences of pre-service teachers that participate in a digital storytelling activity during the "Teaching method" course. Through interviews with 13 students after implementing the digital storytelling project, the present talk analysed the perceptions and experiences of the pre-service teachers regarding the process of creating a digital story (coming up with the ideas for the digital story, scripting the story, collaborating with their peers and editing the video). The results revealed that the participant pre-service teachers initially felt reluctant and sceptical of the benefits of creating a digital story when presented with the task. However, most of the student ended up with a positive perception and experience that manifested in different milestones during the creation and after completing the project. Their reflections and experiences are significant because they give understanding and guidance about the key elements to implement a project like digital storytelling with successful outcomes.

Sessions H 11

26 November 2021 11:00 - 12:30
Session Room 6
Present & Discuss
Higher education, Lifelong learning

Assessment and evaluation in Distance Education

Keywords: 21st century learning, Assessment and evaluation, Distance Education, Educational Technology, Higher education, Innovations in education
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning, CLOUD 10 - Assessment & Evaluation
Chairperson: Veerle Verschoren, Odisee University College, Belgium

Variation of evaluation choices in a BA programme simultaneously run in face-to-face and on-line
Keywords: Assessment and evaluation, Distance Education, Higher education, Innovations in education
Presenting Author: Barbara Class, University of Geneva, Switzerland; **Co-Author:**Sonia Halimi, University of Geneva, Switzerland

Evaluation is a critical question: what should be evaluated and how? With which goal? The predominating orientation of the Bologna reform is to prepare students for the job market in a knowledge economy and materialises in two lines of action. The first one is related to the goal: students must be directly operational on the market. The second consists in equipping students to provide them with concrete tools for lifelong professional development. This is particularly important due to digital disruption and changing occupations. Regarding assessment modalities, training institutions practice certain norms to guarantee the quality of the diploma issued. For instance, an exam can be taken on-line if only the physical location meets required standards. The present

study documents the variation in the design of exams of a Bachelor programme. It relies on a framework developed for e-assessment (Halbherr, Reuter, Schneider, Schlienger, & Piendl, 2014) together with a framework assessing creativity (Ellis, 2009). Pertaining to a design-based research, data consists of minutes of meetings between the director of the programme and the distance learning coordinator and exam samples from the January 2020 exam session. Findings show a variation of designs, from multiple choice questions to forms tending to resource-rich exams.

Investigating students' e-learning readiness in the science classroom
Keywords: 21st century learning, Assessment and evaluation, Distance Education, Educational Technology
Presenting Author: Soeharto Soeharto, University of Szeged, Doctoral School of Education, Indonesia; **Co-Author:**Benö Csapó, University of Szeged, Hungary

This study aims to develop e-learning readiness in science classroom questionnaire (ELRSC), and to identify students' e-learning readiness ability in the science classroom. The quantitative approach with the cross-sectional survey method was used in this study. Data were drawn from 1488 students (34.7% males and 65.3% females) randomly using an online form in Indonesia. Participants consist of 7th grader to 12th grader and undergraduate students. Rasch Measurement was used for data analysis. The result showed that the item reliability was acceptable ranging from 0.99 to 1.00. Cronbach alpha was also acceptable ranging from 0.77 to 0.89. For validity, the infit and outfit mean square indicating item fit and validity also acceptable ranging from 0.99 to 1.02. For assessing students' e-learning readiness in the science classroom, the mean logit of subscales was calculated. The individual student e-learning readiness logit was ranging from -4.25 logit to 4.30 logit. The mean logit of subscales was ranging from -0.06 logits to 1.17 logits. This study had provided a reliable and valid instrument for measuring e-learning readiness in the science classroom. We also identified that the mean logit is moderate level for Indonesian student, except for the independent learner subscale with negative logit.

Home-based exams at a distance university: obstacles, opportunities and empirical results
Keywords: 21st century learning, Assessment and evaluation, Distance Education, Higher education
Presenting Author: Markus Dormann, Fernfachhochschule Schweiz, Switzerland

In our design-based research, we developed, used, and improved a system to enable students to take exams from their homes with their own devices (BYOD), allowing us to administer exams while complying with social-distancing rules imposed during the coronavirus pandemic. Our aim is to develop a valid homebased exam framework (e.g., fraud detection, automated ID check) that is easy to use by the examinees. We examined whether continued improvement of the system and our information provided to the students, as well as repeated usage of the system by the students, increased their acceptance of the procedure. We used qualitative and quantitative interviews to survey the examinees' level of satisfaction with our home-based exam framework and to detect critical aspects of the system. Based on our realized empirical surveys, the results indicate that a valid homebased-exam framework has been developed. Finally, recommendations for possible improvements of homebased-exam frameworks can be deduced from the results.

Sessions H 12

26 November 2021 11:00 - 12:30
Session Room 11
Workshop
Higher education

Evidence-informed template for good practices of educational innovation with technology

Keywords: Educational Technology, Higher education, Innovations in education, Research-based learning
Interest group: CLOUD 06 - Learning in Digital Era: Technology Enhanced Learning

To improve our practice of delivering innovative learning designs with educational technologies, it is important to work in an evidence-informed manner. Research has shown that the use of good or best practices can be instrumental when trying to support innovations in practice. For knowledge to be informative in a different context, and for the outcomes to be scaled up to support a broader field of application, the knowledge output needs to be both transferable and generic. Good and best practices presenting knowledge about innovations appeal to practitioners and support the transfer of practice-based research into practice. Still, research into the use of best practices shows that often times important information is left out in the presentation of the example, making them less effective. The use of a template can remedy this problem. In this hands-on workshop, we present an evidence-informed template to describe good practices, we facilitate experimenting with this template and we will discuss the experiences with the participants.

Evidence-informed template for good practices of educational innovation with technology
Presenting Author: Esther van der Stappen, Avans University of Applied Sciences, Netherlands; **Co-Author:**Fleur Prinsen, Rotterdam University of Applied Sciences, Netherlands

To improve our practice of delivering innovative learning designs with educational technologies, it is important to work in an evidence-informed manner. Research has shown that the use of good or best practices can be instrumental when trying to support innovations in practice. For knowledge to be informative in a different context, and for the outcomes to be scaled up to support a broader field of application, the knowledge output needs to be both transferable and generic. Good and best practices presenting knowledge about innovations appeal to practitioners and support the transfer of practice-based research into practice. Still, research into the use of best practices shows that often times important information is left out in the presentation of the example, making them less effective. The use of a template can remedy this problem. In this hands-on workshop, we present an evidence-informed template to describe good practices, we facilitate experimenting with this template and we will discuss the experiences with the participants.

Keynote speech by Assoc. Prof. Anastasia Sergeeva 1

26 November 2021 13:30 - 14:30
Auditorium
EAPRIL Keynote
Workplace learning

Workplace learning in the digital age: insights from ethnographies in organizations

Keywords: Artificial intelligence, Labour market & formal learning, Training and Development, Workplace learning
Interest group:
Chairperson: Martijn Willemse, Windesheim University of Applied Sciences, Netherlands

Digital technologies, such as artificial intelligence and robotics, are often said to create dramatic transformation of our work, skills and ways of learning on the job. Some macro-economic scenarios predict, for example, that within two decades digitalization will lead to 46% of occupations becoming obsolete; with creative jobs being least susceptible to automation. In this talk, I will discuss these technological developments, their consequences for skill acquisition and on-the-job training. After sketching the mainstream perspective, I will then provide an alternative view to common macro-economic scenarios. Based on several ethnographic cases, I will show how and why many current images of digitalization differ from everyday organizational realities. I will thereby debunk common misconceptions around what consequences digitalization holds for learning at work and discuss how such grounded ethnographies can help in designing the workplace learning of the future.

Workplace learning in the digital age: insights from ethnographies in organizations
Presenting Author: Anastasia Sergeeva, Vrije Universiteit Amsterdam, Netherlands

Digital technologies, such as artificial intelligence and robotics, are often said to create dramatic transformation of our work, skills and ways of learning on the job. Some macro-economic scenarios predict, for example, that within two decades digitalization will lead to 46% of occupations becoming obsolete; with creative jobs being least susceptible to automation. In this talk, I will discuss these technological developments, their consequences for skill acquisition and on-the-job training. After sketching the mainstream perspective, I will then provide an alternative view to common macro-economic scenarios. Based on several ethnographic cases, I will show how and why many current images of digitalization differ from everyday organizational realities. I will thereby debunk common misconceptions around what consequences digitalization holds for learning at work and discuss how such grounded ethnographies can help in designing the workplace learning of the future.