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International Seminar for STEAM Doctoral Students in the SciCar project

**Helsinki, Faculty of Educational Sciences, Siltavuorenpenger 10
August 25th – 26th 2022, + workshops and personal consulting August 24th**

Foreword

This “Call for proposals” introduces a PhD seminar program, organised 25th-26th August in Helsinki, and activities for students before the seminar. As a joint activity, there will be two workshops August 24th. The seminar and workshops are free and open for doctoral students in Finland, Estonia and Israel and are part of the Horizon 2020 SciCar project. The seminar is also an autumn LUMAT research seminar (tutkimusseminaari). The seminar is appropriate also for students, participating in Maker@STEAM Creative collective seminar in Helsinki. The credit points earned at the seminar should be agreed with the main supervisor. The seminar and the work beforehand correspond about 2 – 3 credit points.

To apply the seminar, students are required to write a short paper in English, about 1500 words or 3 – 4 pages (cf. guidelines for short papers below). The paper could introduce a “draft”, which is aimed to publish later in a journal. It could be a description of analysis of one data set together with an introduction and discussion. The draft could also be a modified or elaborated previous proposal to a conference. It is not necessary to organize proofreading to the paper, because it is a draft by its nature.

The short papers should be sent before May, 15th. The registration to the seminar will be opened at the same time. The paper will be reviewed by one doctoral student from the respective other groups (cf. guideline for review below). Reviews are due four weeks later, on June 15th. The reviews will be sent to the author of a short paper for helping him/her to prepare the final presentation. The abstracts and reviews should be sent to Jari Lavonen (jari.lavonen@helsinki.fi).

Presentations are grouped into sessions. There are two presentations per session, which leaves ample opportunities for discussion. It is these discussions that are supposed make the meetings an interesting and informative happening for the presenters as well as their audience. In the case we got more presentations than there are places in the preliminary program, we will organize parallel sessions.

There will be 45 minutes for each presentation, which are roughly divided into a 20-minute talk (the talk will be stopped if 25 minutes are exceeded) and a 10 minute evaluation/discussion led by the opponent or the person who made the review. The rest of the 45 min time will be allocated for open discussion and feedback.

The workshop day in August 24th consists of two workshops. The first workshop focuses to a design of a cognitive test, such as validity and reliability issues related to the test. The second workshop focuses to the analysis of nested data, such as ESM data.

Welcome to Helsinki!

Jari Lavonen & Miia Rannikame



August 23, 2022

Tuesday 23th August, voluntary based small group visits to downtown museums will be organised. Please select the museum from the list below. The Finnish students come to Töölö Tower at 3 PM (15:00) (Pohjoinen Hesperiankatu 23 a, 00260 Helsinki, <https://unihome.fi/en/properties/toolo-towers>) and pick up the students and supervisors, who are willing to participate this event. No pre-registration is needed, the groups are formed before the visits. The visit is organised by own cost.

The museums and student guides are following (the emails of Finnish students' e-mails are firstname.lastname@helsinki.fi):

1. Design Museum (<https://www.designmuseum.fi/en/>) Salla Veijonaho and Inka Ronkainen
2. Natural Science Museum (<https://www.luomus.fi/en/natural-history-museum>) Anna Lager
3. The Finnish National Museum (<https://www.kansallismuseo.fi/en/kansallismuseo>) Miikka Turkkila

There is also possibility to visit Heureka Science Center by own cost and own time (<https://www.heureka.fi/exhibition/katastrofienkeskella/?lang=en>)

After the museum visits on August 23rd, there will be a joint social event at about 6 PM in Töölö Tower A Building on the 11th-floor terrace. Pizzas and drinks available. Please, select your pizza from the web page <https://elomake.helsinki.fi/lomakkeet/118900/lomake.html>, before August 22nd.



Detailed Programme

August 24, 2022 Workshop-day <i>Location: Minerva, Seminar room K113; University of Helsinki, faculty of Educational Sciences</i>	
09.00 - 12.00	Workshop I <i>Dr. Irene Neuman, IPN, Kiel, Germany: Design of a cognitive test: validity and reliability issues related to the test.</i>
12.30 - 13.30	Lunch at Cafeteria Olivia (ground floor)
13.30 - 17.00	Workshop II <i>Prof. Joseph Krajcik, Michigan State University, USA. Research based design of teaching/learning modules: Examples of the modules, designed during the PIRE project.</i>
17.00 - 17.30	Reflection
17.30 - 19.00	<i>Reception by the Faculty of Educational Sciences, Vice-Dean Arto Kallioniemi, Faculty building, Cafeteria Olivia (ground floor), Siltavuorenpenger 5</i>



<p>August 25, 2022</p> <p>Plenary and Doctoral Presentations</p> <p><i>Location: Minerva, Seminar room K113; University of Helsinki, faculty of Educational Sciences</i></p>			
09.00 – 09.10	<i>Opening Jari Lavonen & Miia Rannikame</i>		
09.10 – 10.00	<i>Plenary 1: Prof. Barbara Schneider, Michigan State University, USA: <i>Investigating Optimal learning moments</i></i>		
10.00 – 10.30	<i>Plenary 2: Dr. Yael Feldman-Maggor, Weizman Institute, Israel: <i>Organizing learning and teaching in online information-rich environment: Higher education chemistry courses for teachers and students</i></i>		
10.30 – 11.00	<i>Coffee break</i>		
11.00 – 11.45	Place: Minerva tori K226 Chair: Ron Blonder Itsik Aroch, Weizmann institute of Science, Israel: Revealing new modes of integrating technology in chemistry teaching based on teachers' experiences	Place: Minerva tori K222C Chair: Yael Feldman-Maggor Lauri Kõlamets, University of Tartu, Estonia: Lower Secondary School Science Syllabus Energy Concept Learning Outcome Analysis in Estonia	Place: Minerva tori K222B Chair: Shelley Rap Doris Kristina Raave, University of Tartu, Estonia: Teachers' practices regarding classroom digital technology integration
11.45 – 12.30	Place: Minerva tori K226 Chair: Shelley Rap Opponent: Ella Yonai, Weizmann institute of Science, Israel: Uncovering the Emotional Dimensions in a SEM Learning Environment	Place: Minerva tori K222C Chair: Katrin Vaino Tapio Rasa, University of Helsinki, Finland: Opponent: Doris Raave Agency and transformative potential of technology in upper-secondary students' images of the future: Role of futures thinking in scientific literacy	
12.30 – 13.30	<i>Lunch, Cafeteria Olivia (ground floor) (during the lunch discussions with the presenters and the opponents, chaired by the session chair)</i>		



13.30 – 14.15	Place: Minerva tori K226 Chair: Regina Soobard Opponent: Ehud Aviran, Weizmann Institute of Science, Israel: How the experience of learning chemistry with a personalized online environment effected students' outcomes	Place: Minerva tori K222C Chair: Rachel Mamlok-Naaman Eric Roldan Roa, University of Tartu, Estonia: Using animated pedagogical agent to assist teachers in delivering formative assessment at a classroom level	Place: Minerva tori K222B Chair: Anne Laius Tapashi Binte Mahmud Chowdhury, University of Tartu, Estonia: Establishing trans-contextual science education in promoting active informed citizenry for societal development
14.15 – 15.00	Place: Minerva tori K226 Chair: Jack Holbrook Inga Ploomipuu, University of Tartu, Estonia: Developing and Piloting a Remedial Course for Promoting Health-care Students' Scientific Literacy	Place: Minerva tori K222C Chair: Shelley Rap Triin Rosin, University of Tartu, Estonia: Understanding teacher beliefs about teaching and assessment in the context of Estonian national science e-testing and scientific competences highlighted by the test	
15.00 – 15.30	<i>Coffee break (during the coffee discussions with the presenters and the opponents, chaired by the session chair)</i>		
15.30 – 16.00	<i>Plenary 3, Minerva tori K226, Chaired by Jari Lavonen, Dr. Anni Loukomies: Becoming familiar with science careers through industry site-visit</i>		
16.00 – 17.00	<i>Poster session and reflections, Minerva tori K226, Chair: Jack Holbrook</i> <ul style="list-style-type: none"> • <i>Ayshi, Sindiani- Bsoul, Weizmann Institute of Science, Israel: Attitudes and behavior of science students regarding SDG: An intervention study</i> • <i>Tal Hirsh Sameach, Weizmann Institute of Science, Israel: The impact of personalized context through different careers on students' interest in chemistry</i> • <i>Rauno Neito, University of Tartu, Estonia: Situational interest and engagement in meaningful learning</i> 		



	<ul style="list-style-type: none"> • <i>Janina Taurinen, INAR, University of Helsinki, Finland: Climate competencies of the Finnish youth</i> • <i>Erika Perttuli-Borobio, Finland: Fostering the Development of Computational Thinking Skills in STEAM Education Through a Reflective Portfolio Process</i> • <i>Aleksi Markkanen, Kulosaari secondary school, Finland: Fostering the Development of Computational Thinking Skills in STEAM Education Through a Reflective Portfolio Process</i>
17.00 – 18.00	<i>Light Reception, Minerva tori K226, while looking at the posters, offered by the SciCar project, Faculty building, Siltavuorenpenger 5</i>



<p style="text-align: center;">August 26, 2022 Plenary and Doctoral Presentations <i>Location: Minerva, Seminar room K113; University of Helsinki, faculty of Educational Sciences</i></p>		
09.00 – 09.30	<i>Plenary 4: Associate Professor Regina Soobaard, Tartu University: Determining levels of scientific competence using context-based test instrument</i>	
09.30 – 10.00	<i>Plenary 5: Associate Professor Mirac AYDIN, Trabzon University: Use of augmented reality in science education</i>	
10.30 – 10.30	<i>Coffee break</i>	
10.30 – 11.15	Place: Minerva tori K226 Chair: Heili Kasuk Anna Lager, University of Helsinki: Using scientific practices in a digital learning environment: contexts of perceived challenges	Place: Minerva tori K222C Chair: Yael Feldman-Maggor Moonika Teppo, University of Tartu, Estonia: Lower secondary school students' intrinsic motivation in science learning: student differences between science subjects and grade levels
11.15 – 12.00	Place: Minerva tori K226 Chair: Rachel Mamlok-Naaman Ergi Bufasi, University of Latvia, Latvia A preliminary study on spatial ability for primary school teachers' professional development	Place: Minerva tori K222C Chair: Kaido Reivelt Helen Semilarski, University of Tartu, Estonia: Student-led Expansion of Disciplinary and Interdisciplinary Core Idea Maps to Promote Student Perceived Self-efficacy in Science
12.00 – 13.00	<i>Lunch, Cafeteria Olivia (ground floor) (during the lunch discussions with the presenters and the opponnets, chaired by the session chair)</i>	
13.00 – 13.30	<i>Plenary 6: Post-Doctoral Researcher YURDAGÜL BOĞAR, University of Helsinki, Finland: Computational thinking in the context of STEM education</i>	



<p>13.30 - 14.15</p>	<p>Place: Minerva tori K226 Chair: Regina Soobard Miikka Turkkila, University ofHelsinki, Finland: Roles and importance of human and non-human actors during active knowledge construction</p>	<p>Place: Minerva tori K222C Chair: Heili Kasuk Helin Semilarski, Universityof Tartu, Estonia: Content analysis of grade 12 students' conceptual understanding of core concepts in biology</p>
<p>14.15 - 15.45 <i>Summing up and closing, coffee and Karelia pie. (+ discussions with the presenters and the opponents, chaired by the session cahir)</i></p>		

