LEARNING FUTURES – FUTURES OF LEARNING

8–9 JUNE 2021

Online │ Turku, Finland

BOOK OF ABSTRACTS

Edited by

Jonathon Murphy
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CONFERENCE PROGRAMME

TUESDAY 8th JUNE

11:00	**Registration to the conference and Virtual Lounges**

12:00   **Opening of the conference**
Vice Director *Dr. Katriina Siivonen*
Finland Futures Research Centre, University of Turku,

Dr. Linda Mannila, Digismart, Finland

12:20   **Critical Factors in Futures of (Un)Equal Education: Access, Content, Application**
Professor, *Dr. Njeri Mwagiru*, Institute for Futures Research,
University of Stellenbosch Business School, South Africa

Chaired discussion by Professor Emerita *Dr. Sirkka Heinonen*
Finland Futures Research Centre, University of Turku

13:00   **How Can Education Systems Empower Youth for the Future?**
Director General, *Olli-Pekka Heinonen*
International Baccalaureate Organization

13:30   Break and Virtual Lounges

13:45   **Futures Literacy – Ideas for the 21st Century Literacy**
Professor, UNESCO Chair, *Dr. Roberto Poli*
University of Trento, Italy

14:30   Lunch Break and Virtual Lounges

15:10   **Workshop session I**

16:50   **Workshop session II**

18:30   **Workshop session III**

20:15   Conference Get-together

WEDNESDAY 9th JUNE

12:00   **Opening of the Second Conference Day**
Dr. Linda Mannila, Digismart, Finland

12:10   **Workshop session IV**

13:40   **Workshop Session V**

15:00   Lunch Break and Virtual Lounges

15.30   **Workshop Session VI**

17:15   **Virtual Poster Session**

18:15   Break and Virtual Lounges

18:30   **Co-evolution of Human Capabilities and Intelligent Technologies for Future Competences**
Professor, *Dr. Sanna Järvelä*
University of Oulu, Finland

Chaired discussion by Professor, *Dr. Toni Ahlqvist*
Finland Futures Research Centre, University of Turku

19:10   Break and Virtual Lounges

19:20   **Planetary Futures: Learning from Transformation, for Transformation beyond Pandemic**
Professor, UNESCO Chair *Dr. Markku Wilenius*
UNESCO Co-Chair *Nicolas Balcom-Raleigh*
Finland Futures Research Centre, University of Turku

20:00   **Closing of the conference**
Director *Dr. Juha Kaskinen*, Finland Futures Research Centre, University of Turku
Dr. Linda Mannila, Digismart, Finland

Conference programme is subject to change.

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KEYNOTE SPEAKERS AND ABSTRACTS

Critical Factors in Futures of (Un)Equal Education: Access, Content, Application

Dr. Njeri Mwagiru
Institute for Futures Research, University of Stellenbosch Business School, South Africa

The issues of access, content and application are critical factors influencing futures of learning and education, which may possibly lead to increased equity in a best case scenario, or to heightened disparities in a worst case scenario.

A narrow approach to promoting expanded educational access, relevant content and practical application of education and learning, can overshadow the ways in which this agenda could also result in worsened inequality in education delivery, learning and outcomes.

From a gendered lens and African vantage point, towards best case education and learning futures, it is valuable to examine underlying assumptions informing prevalent approaches, and to expand possibilities of educational access, content relevance, and systems and support mechanisms for application.

The necessity to legitimise different forms of knowing and knowledge systems, to broaden sites and sources of learning and education, as well as to ensure contextual relevance, value and applicability, is emphasised for futures of more, not less, equal education.

Areas for further consideration with reference to futures literacy, futures studies and futures learning are suggested.

How Can Education Systems Empower Youth for the Future?

Olli-Pekka Heinonen
Director General, International Baccalaureate Organisation

The Covid-19 crisis has magnified the paradigmatic changes that have been happening in the field of learning and education. They touch the roots of curriculum: what should be taught and learned in order to help the new generations to live a flourishing life? Where and when during a lifetime should they be taught and learned? Who should be responsible for teaching and learning? How should societies organize their learning systems to strengthen the resilience and inclusivity of the society?

Growing global interconnections increase the complexity of our societies. Our ability to predict the future gets weaker and context becomes more sensitive to change. In that kind of an environment, and in those conditions, the human ability to learn constantly becomes more essential. Our ability to make ethically sound decisions, based on the best available knowledge in a changing context, becomes important not only as a way of life, but also as a way of survival for our species.

Futures Literacy – Ideas for the 21st Century Literacy

Professor Roberto Poli
University of Trento, Italy

Futures literacy refers to the ability to actively use the future in the present. While the skills that have characterized traditional forms of literacy remain essential today, the question is whether they are sufficient to face the challenges of the 21st century. The complexity of this particular historical moment seems to require the development of further skills, which put people in a position to orient themselves within increasingly uncertain contexts, characterized by incessant changes, and marked by surprising technologies and novelties. The information of the past and the experience developed to this point are no longer able to show us the way. We need to broaden the information base on which we make decisions. But where can we go to find new directions? If the past is no longer enough, what remains is looking to the future. The future is precisely the source of the wider information base we need. Futures literacy, like former kinds of literacy, implies the acquisition of certain skills, such as those necessary to classify and use the future in an appropriate way. By knowing how to use the future, everyone is able to develop a point of view; to collect information and to express and defend her dignity. That is, futures literacy is valuable because it is a fundamental tool of freedom for everybody.

Co-evolution of Human Capabilities and Intelligent Technologies for Future Competences

Professor Sanna Järvelä
University of Oulu, Finland

In this talk I will discuss how to educate and train in an uncertain and complex world for a future we can't predict. 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 the role of technology in understanding and supporting socially shared regulation and conclude with future perspectives how co-evolution of human capabilities and technologies can be enhanced for future learning and education.

Planetary Futures: Learning from Transformation, for Transformation beyond Pandemic

Professor Markku Wilenius & Nick Balcom Raleigh
Finland Futures Research Centre, University of Turku, Finland

Earth's many planetary epochs have led to today's enabling conditions for the existence of trillions of unique species. However, one of these species, humans, are producing precarious conditions for ourselves and other lifeforms. Our planet is transforming in profound ways because of human activity. How can we learn *from* this transformation? How can we learn *for* transformation – to enable changes that will allow life on Earth to thrive today and in the long-term future (e.g. 300 years from now)? We offer Planetary Futures as a concept for learning about transformation. Planetary Futures are frames through which we can sense and interpret large-scale transformation. Imagining and discussing planetary futures help people see new opportunities, try new things, and learn by doing. Action and reflection help people make sense of complexity and what to do next; to make sense of our changing world, one step at a time. When more people are expressing, discussing, and re-imagining planetary futures, collectively intuitive choice-making can arise in support of the long-term viability of our home. An increasingly hotter planet is harming Earth's biosphere. Planetary Futures can help us mitigate, adapt, and become ecologically resilient as climate change impacts continue to arise and cascade.

CHAIRED POSTER SESSION

AI for all: Accessible and Inclusive AI in Future Educational Contexts

Tero Avellan
Tampere University, Finland

As Artificial Intelligence (AI) is changing the world being part of our everyday lives, there has been a growing awareness of its inherent biases, limitations, and the challenges in overcoming them. The benefits of AI have also been acknowledged in education, especially in the field of learning analytics. AI applications have evolved from personalized teaching systems to collaborative learning environments, taking into account the social environment, educational data, analytics and learning context. As AI is integrated into all things technical, there is a valid concern over its diversity, inclusiveness, and accessibility. Choices based on AI must be ethically sustainable and promote accessible learning. Questions such as what it means for AI to be accessible and inclusive, why is inclusive AI required, and how can it be achieved still exists. Every member of society has the right to education and to have the right to learn and to participate fully and equally. This work addresses these issues and defines what it means for AI to be inclusive, and what it means in future educational contexts, especially in special needs education and inclusive education.

Keywords: Artificial Intelligence, Inclusive AI, Accessible AI, Diversity in AI, Inclusive Education, Accessibility

Middle School Futures Club: Serious-minded fun to build students' futures literacy, critical thinking, and collaboration skills

Bes Baldwin
University of Houston Foresight, USA

For students of color and those from immigrant families, news of targeted violence, political unrest, an increase in public activity of organizations espousing hate against racial, ethnic, and religious groups, and aggressive enforcement of federal immigration policy against undocumented residents can create fear and hopelessness in their daily lives - limiting their view of the future.

During spring terms of 2020 and 2021 (anticipated), middle school students from an independent school for boys from financially-disadvantaged families in Durham, North Carolina (USA) participated in a weekly extracurricular school-based Futures Club. Students explored futures ideas, wrote stories of the future, and engaged in improvisation games to build futures literacy and improve their communication, collaboration, and critical thinking skills. Our overarching objective is to help students imagine a positive future for themselves and their community, engender hope for their futures, and reinforce understanding of their agency in creating better futures.

This interim report describes the pedagogical methods used to deliver content for thinking about and influencing the future, along with a critical evaluation of students' learning and engagement throughout the semester. Due to the coronavirus lockdown, the goal of measuring student attitudes at the beginning and end of the Futures Club program to assess any change in perception of their agency in influencing

positive futures and their ability to identify potential pathways to achieve these preferred futures will be postponed to future semesters.

Keywords: Futures Literacy, Student Activities

Circular economy needs more comprehensive and inclusive status at Finnish universities of applied sciences

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[a]Seinäjoki University of Applied Sciences, Finland
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[d]Lapland University of Applied Sciences, Finland
[e]Metropolia University of Applied Sciences, Finland

Circular economy is an alternative for fossil resource based, "take-make-use-dispose", linear economy. The shift from traditional unsustainable economy towards circular economy is an inter- and multidisciplinary process which requires wide cooperation with several actors. Transformation towards circular economy additionally requires reformation and adaptation in all levels of education. Due to the close relationship with work life, the role of Finnish universities of applied sciences (UAS) have been recognized as a crucial player in the development of circular economy education.

The status of circular economy at 18 Finnish UAS's was studied in 2018 using a questionnaire for the staff members. The aim was to find out how circular economy education is implemented at the UAS's. The data was studied qualitatively and quantitatively, e.g. the statistical differences were studied by Spearman's correlation coefficiency. The results were used for the development of novel circular economy education, consisting of new methods, such as learning environments and e-learning platforms.

According to the results, circular economy is moderately known amongst the staff members. Majority of the courses handling circular economy are available in the field of civil engineering, natural resources and business administrative, since most of the respondents were working on these fields. Most of the courses and programs were provided at bachelor level and average credits (ECTS) varied between 3-15. It was observed, that the fields of humanities and education were lacking of responses. However, significant statistical differences between variables were not observed in this study.

Keywords: Circular Economy, Systemic Change, Education, Higher Education, UAS, Survey

SESSION I: TUESDAY 8TH JUNE, 15:10 – 16:40

Rethinking Learning in Societal Transformations

Tuesday 8th June, 15:10 – 16:40
Chair: Dr. Juha Kaskinen

The Learning Process in a Foresight Perspective

Tamás Gáspár
Budapest Business School, Hungary

Learning and the learning process are increasingly important elements of all activities in a world of complexity and uncertainty. They are fundamental concepts of pedagogy; however, hardly interpreted from a foresight perspective. This paper seeks to give a foresight interpretation as well as embed the learning process in a foresight framework while link both to nurture theory. Hence, rather than adaptation, learning appears as extending consciousness in order to achieve autotelic, social-minded individuals and their society. The paper also discusses the historically emerged concepts of learning in a foresight interpretation and comes to the conclusion that learning must reflect identity, self-reflection, values, life skills and should meet a wide range of needs too in the future. Learning is always an education process at the same time, either directly or indirectly. A further conclusion of the discussed model is that education should resemble much more to foresight activities than it does in the today practice.

Keywords: Learning Process, Foresight

Liquid Education

Fabienne Goux-Baudiment
ProGective, France

We are living a special macrohistorical period characterized by three major landmarks: one of the Great Transitions of human history; a transitory, VUCA period between a dying millennial world and a yet-to-be-born world; and an 'Alien Generation'. Better adapted to the situation – with a different worldview, gender-free, disinhibited, intuitive – these 'liquid people' overcome the usual classifications and freely flow from one place/situation/work/etc. to another.

This three-level situation (history, world, individuals) generates the corresponding new educational needs: how to deal with this macrohistorical context and help the Alien Gen to develop their own capabilities to face it; how to address a VUCA world; and how to teach and learn the knowledge that will allow the Alien Gen to strengthen their special abilities while getting rid of the backward-looking formatting that plagues them?

The disruptive revolution that every educational system must undertake targets their structures, governance, and qualification system, but above all, their mindset: How to consider human beings no longer like substitutable players on the job chessboard but each of them as a unique set of aptitudes and abilities? How to move beyond the toxic pair teaching/learning toward a more Socratic 'eduning', a liquid education?

Keywords: Great Transition, VUCA, Alien Generation, Eduning, Aptitudes, Education

A personal reflection on learning and teaching futures studies

Christoph Keller
Aveniture GmbH, Germany

The author will give a personal account on how he learned futures studies, started teaching 'the future' and how his teaching evolved over the years and is set to evolve further. The speech revolves around the outcomes of learning: Knowledge - Skills - Attitudes - Personality.

I was already a skilled 'Futurist', before I studied Futures Studies in the sense, that I e.g. could 'do scenarios', but soon after starting with the MPhil programme from Stellenbosch I had to recognise that Futures Studies is not so much about skills (methods). I received knowledge and with this knowledge came the discipline's deeper believes and attitudes. Being one of the (many) initiators of the 'Master Zukunftsforschung' at FU-Berlin and lecturing at three universities for over 10 years, I continued teaching the knowledge-heavy way as it had worked for me.

After including reflections in the students' assignments, I found out that most stayed at litany-level, showing little if any understanding of deeper layers or critical thinking. If skills don't make a 'Futurist' and knowledge is not well received, what can I do to get not the word, but 'the attitude out'? Futures Studies should maybe be taught as an art rather than as a science i.e. as we would teach to play the piano? I decided to re-focus my teaching on the attitude and personality aspects. My current approach centres on case-action-learning.

Keywords: Knowledge, Skills, Attitudes, Teaching FS, Case-action-learning

Futures Research in Learning and Education

Tuesday 8th June, 15:10 – 16:40
Chair: Dr. Maija Mäki

The Future of Wellbeing in Education

Lana Hiasat[a] & Leilani Radaideh[b]
[a]Higher Colleges of Technology, Dubai
[b]Maastricht University, The Netherlands

What does it mean to live well? Can we expand our imagination to explore how living well would be in 50 years from now? In this talk, the presenter shares the discussion findings of youth in the Emirates as they expanded their imagination, rethought the future of wellbeing, and connected to the focal issue of higher education. In a practical workshop, youth in the Emirates from a variety of disciplines including law, fashion, engineering, and international relations and politics engaged in thinking about the future of wellbeing and their collective intelligence was leveraged to invent new frameworks for resilient futures of wellbeing and happiness. As a result, energised youth were able to invent and have a roadmap for implementing changes, and to capitalise on innovation for achieving shock-resilient wellbeing.

By working together to imagine the future, this workshop provided an opportunity to better understand the origins of what we imagine, why and how we create the images of the future, and crucially the powerful influence such images have on our fears and hopes, perceptions and choices. The presenters will share the opportunities, key concerns of wellbeing in higher education and make several recommendations.

Keywords: Future Foresight, Wellbeing, Higher Education

Education for Desirable Future: Collective Answers

Lidia Kremneva
Metaversity, Russia

As education is basis of personal and collective worldview, lifestyle and modus operandi, the way it affects a student is much more important than the novelty itself. Education should not only become somehow new - it should be transformed in a certain way.

In this case, the question arises, what are the desirable life scenarios for different groups, and how exactly we should transform the education to become "the laboratory, prototyping and preparing for desirable futures of humanity".

Obviously, the answer for this question is a task for the whole community, and should be worked out collectively, involving all participants of the learning process into collective investigation and collective action. That's how the idea of open "Community Learning Labs" appeared.

"Community Learning Labs" is a simple open source technology for collective futures thinking sessions to form intergenerational conscious order for education needed to collectively construct desirable futures. Laboratories on "Education for desirable future" involve all participants of education process into search of best solutions to empower people become constructors of common greater good.

Laboratories have been conducted since 2016. In January-February 2019, the Wave of laboratories swept through about 30 cities in Russia, Belarus, Latvia, Uzbekistan, totally organized by independent teams of volunteers consisting of people who need to make education a platform for co-creation and cooperation of all stakeholders.

One of the key challenges of the Wave of laboratories is the empowerment of social connections and the voluntary intention to make the world a better place.

Keywords: Desirable Futures, Education, Education for the Greater Good

Visions for Early Childhood Education and Care 2040. Foresight Process by Advisory Board on Early Childhood Education and Care

Anne Nieminen & Leena Jokinen
Finland Futures Research Centre, University of Turku

Finland Futures Research Centre at the University of Turku together with The Advisory Board on Early Childhood Education and Care carried out a foresight process in early childhood education and care between autumn 2017 and spring 2019. The purpose of these activities was to envision potential trends in early childhood education and care until 2040. One of the tasks of the Advisory Board is to monitor and review national and international developments in early childhood education and care, and to put forward proposals for the long-term development of the field.

The goal of the foresight process was to think further into the future, and to generate different and unexpected images of Early Childhood Education and Care 2040. The purpose of the future process was to break free from the usual viewpoints and to together find important and strategic development points and raise up a discussion of what kind of development is desirable and undesirable, and what kind of actions must be taken to achieve the desirable future.

In the result of the process was created four different images of the future: virtual and technological, ecological and sustainable, polarized, and early childhood education based on measuring and calculated results. The material for images of the future was created and collected in workshops together with the Advisory Board on Early Childhood Education and Care, and with the Delphi survey, in which participated members of Advisory Board, researchers and experts of education and childcare, and representatives who were working in early childhood education and care. The images of the future were build up together with the Advisory board and experts of Finland Futures Research Centre

Keywords: Delphi, Early Childhood Education and Care, Images of the Future

Food education

Pia Smeds
Natural Resources Institute Finland

Education needs to evolve to be able to answer the questions of today's societal challenges. Many of these challenges are unintentionally caused by ignorance and lack of knowledge, e.g. food waste. This ignorance may be seen as a produce of our culture. The only way to change culture is to address some of the mechanism that replicates it, e.g. education. In my work with food education I have studied sustainability and the route of food and how environmental education can be used to teach and learn about food and its related processes. Food education is as its best a good tool to address even abstract processes as food is a substance that we all can relate to. In my research I have combined environmental education, experiential learning (Kolb) and thoughts of Dewey in experimental interventions. In my presentation I will discuss how route of food supports learning and wellbeing, affects values and attitudes and enables pupils to relate to food on a personal level.

Keywords: Food Education, Environmental Education, Experiential Education, Food Waste

Futures education and learning: pedagogy, skills and competences, forms of learning
Tuesday 8th June, 15:10 – 16:40
Chair: Dr. Sofi Kurki

Design as part of the teaching of Future Studies: The Experience of the Latin American Voluntary Prospective Methodology and Design Schools

Fredy Vargas-Lama[a] & Alessandro Manetti[b]
[a]Center for Strategic Thinking and Foresight / Universidad Externado de Colombia, Colombia
[b]Istituto Europeo di Design, Spain

The Voluntary Prospective, is one of the leading schools of future studies on the planet and has as one of its bases the search for construction of futures. This process incorporates the contextual analysis of present-and-future signals (which involve trends), the selection of change factors and strategic variables, as well as the generation of futuristic scenarios within which we will choose the betting scenario or long-term vision. However, as Michel Godet said, the process will not be complete if we do not take it to action. It is of fundamental importance that the vision of the future is complemented by a strategy that is then materialized through execution, which leads to transformation. However, we cannot structure a real change if we are not able to create efficient alternatives that meet the specific needs of people with

genuinely disruptive options. For this purpose, the methodologies of innovation and design are of singular importance, since they imply an orderly "prefiguration" of viable alternatives to solve real problems (present or future) in any field.

This article presents some of the main touchpoints and interactions between both disciplines, from the perspective of the Latin American Voluntary Prospective Model (MPVLA) and how design can participate in the construction of futures. Finally, we propose a small model for their joint teaching in the context of the outline and construction of long-term alternatives.

Learning from Yesterday's Tomorrows: Extending the Futures Cone for Design Fiction

Anijo Mathew[a], Shilpi Kumar[b], Jessie Lujia Yu[c] & Rachel Huvard[c]
[a]American University of Sharjah, UAE
[b]Khoj Lab, U.S.A.
[c]IIT Institute of Design, U.S.A.

In 1994, Hancock and Bezold published a paper titled "Possible Futures, Preferable Futures," where they present a Futures Cone diagram showing a multitude of futures, each with its timeline of possibilities. Pulling from prior work by Henchey and Taylor, the cone describes different potential possible, plausible, and preferable pathways for speculation of futures scenarios. Since then, this diagram has been adopted and evolved by researchers such as Voros and designers such as Candy to extrapolate Design Fiction scenarios, experiences, and prototypes.

We argue, however, that the Futures Cone is incomplete, especially for Design Fiction scenarios and anticipation. It does not account for key instances in history that led to the current moment in time from which the timelines emanate into the future. To address this, we prototyped a new version of the Futures Cone that extends backward in history as well as forward into the future. We surmise that such an extension will help designers speculate a future "impact horizon" based on historical knowledge from the past as well as trends and convergences of the present. They can learn from the past as they peer into the future and, therefore, craft compelling Design Fiction prototypes and scenarios. In this paper, we will present our extension of Hancock and Bezold's Futures Cone and describe how a student of futures thinking might engage the extended Futures Cone in their research and presentation of new Design Fictions.

Co-creating Possible Futures of Light, beyond Lighting

Marco Bevolo[a] & Tapio Rosenius[b]
[a]Breda University of Applied Sciences, The Netherlands
Lighting Design Collective and SKANDAL Technologies, Finland

This paper aims at reporting key findings and elaborating futures themes concerning natural light and artificial lighting, beyond technology, as based on an event series program, "Think-in-a-Tank" (2014-2016).

Within a constructivist epistemology, based on abduction, a Grounded Theory approach is adopted, in order to systematically analyse qualitative data sets by coding, according to a formalized and repeatable procedure.

Key findings are presented in the form of codes, with Selective Coding as conclusive step and the later generation of thematic storylines, or themes, capturing the synthesis of futures explorations by event participants.

By means of a hybrid, abductive, experiential process, the approach described in this paper might inspire further future-making research practices.

A subsequent phase to the findings and conclusions presented in this paper is to be executed, as Design Research. Consequently, Axial Coding was not performed on presented data. Reflexive insights on the mutual functions of analytical and concepting phases within Design Research might be discussed on the basis of past experience.

This paper will be valuable to both qualitative researchers and designers with a mutual interest in exploratory practices with a future-making intent.

Keywords: Multidisciplinary, Futures Research, Design Research, Co-creation, Constructivism

Workshop: Experiencing Words about Futures

Tuesday 8th June, 15:10 – 16:40
Facilitators: Mikko Dufva[a] & Tomi Slotte Dufva[b]
[a]The Finnish Innovation Fund Sitra, Finland
[b]Aalto University, Finland

Futures are often approached – and taught – verbally and analytically. This may result in descriptions of futures that are abstract and disconnected from everyday life experience. In terms of learning about futures and increasing futures literacy, this often translates to an emphasis on frameworks and methods with the expense of imagination and embodied understanding of alternative futures.

The so-called experiential turn in futures studies tries to remedy this by making futures tangible, immersive, and interactive in the present with the help of art-based and design methods. However, jumping straight from post-its to drama workshops may be too big a leap for some, especially in the current virtual environment. How to increase the capability for thinking about alternative futures and translating them into everyday life?

This workshop demonstrates and explores the process of moving from words to pictures to experiences. The underlying assumption is that futures are made not just by words, but also with images and experiences, which together form strategic objects, around which assumptions and mindsets about futures are challenged and formed. The participants get to discuss alternative futures with various methods designed to invoke alternative ways of knowing. However, rather than methods, the workshop will focus on the learning experience – how are ideas and assumptions about possible futures shaped, reflected an embodied? After the workshop the participants should have an increased understanding of how to incorporate experiential and art-based methods to futures thinking and teaching.

Keywords: Experiential Foresight, Embodied Learning, Art-based Methods, Future Words, Futures Literacy

Workshop: Learning in complexity is walking a fine line: how anticipation for emergence can help us

Tuesday 8th June, 15:10 – 16:40
Facilitators: Loes Damhof, Elles Kazemier & Ramila Khafaji Zadeh
Hanze University of Applied Sciences, The Netherlands

We live in post-normal times. The systems we work, study and live in are complex and so are the challenges that face us. This can either paralyse us or motivate us to accelerate our actions, in other words: to flee or fight. But what if we could nurture a capability that makes us pause; sense and rethink instead?

The capability of Futures Literacy pushes us to imagine different futures in order to break free from the restraining assumptions that are holding us back and make us repeat mistakes made in the past. In his book *Transforming the Future* (2018), Riel Miller identifies the anticipatory systems and assumptions we use for either anticipation for the future, or anticipation for emergence. He encourages us to 'walk on two legs' by developing both ways of anticipation. As educators of Miller's theoretical framework, we at Hanze University often get asked the question: how does one practice this capability persistently? What does it mean to anticipate for emergence and how does it get a recurrent, supporting role in our work and lives?

In this interactive workshop we walk the fine line between looking out for weak signals and being truly open to what is not yet discovered, using the fundamental principles of improvisation, jazz and art. We explore how this different way of being-in-the-world can be of guidance while learning in complexity.

Keywords: Futures Literacy; Anticipation for Emergence; Learning in Complexity

Workshop: Futures start from within

Tuesday 8th June, 15:10 – 16:40
Facilitator: Jussi Hölttä
Interbeing, Finland

We live in an era where humanity wields more power than ever. And with great power comes great responsibility. To co-create a future worth building, we need to get better at being human.

Contrary to popular belief, being human takes practice. In fact, when we look at ourselves deeply, we discover its practice all the way down. Learning is what we are. But sometimes we forget that.

Just to address the known problems we need to learn and build creative solutions. Learning does not happen if your brain is trapped in its own past or distracted by anxiety about its future. Being present here and now also helps us navigate uncertainty and detect emergent issues and opportunities.

Luckily there are exercises we can do to work on this. And we can also practice learning and creativity directly. In this workshop we will do just that and at the end do a small futures thinking task to see the impact of the exercises in practice.

To transform society, we need to act. Here and now.

Keywords: Human, Learning, Mindfulness, Creativity

Rethinking Learning in Societal Transformations

Tuesday 8th June, 16:50 – 18:20
Chair: Dr. Petri Tapio

Rethinking Papert's Learning for Transformative Futures: An Autobiographical Research Approach

Amos Taylor
Finland Futures Research Centre, University of Turku, Finland

The seminal education pioneer Seymour Papert's pursuit for a transformation in education through the radical situation of placing the first computers in the classroom, is reflected upon in this paper in order to explore rethinking futures of learning for transformation. For Papert, the central issues surrounding the arrival of technology can be seen in two ways; one where the student is passively programmed by the computer and the other where the student is actively exploring and programming technology (Papert 1996, 1990). In this respect through education the future is defined in two radically different ways.

I suggest, his observations and approaches of open learning and knowledge can aid to understand learning in a futures context, where climate change, the planet and the concept of Eco -or Biosociety are newly engaged. Additional rethinking of the role of future education that holistically engages human, technology and nature. The ethical issues toward the future require us to consider central questions like: are we envisaging to educate new and better futures? (Bocci et. al. 2014, 364) or are we potentially failing to educate and empower a generation of learners? (Hicks & Gidley 2012, 1-2) To address these new challenges education needs renewal by revisiting the overlooked learning from the ethical situation-setting of the emergence of computers in the classroom in the 70s'- 80's.

The ethical issues associated with emerging technologies' arrival to education, reveal key decisions in which the role of education and learning are redefined toward constructing transformation. These further explore dimensions where learning deals with and has a key role in respect to the unknown, uncertain futures. Papert's approaches allow us to consider transformative education. As an autobiographical research paper, a personal insight is drawn upon to contextualise this within futures studies.

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Keywords: Papert, Learning, Futures, Transformation, Biosociety, Constructionism

Identifying educators as brand ambassadors, designing the approach to mobilize them: a co-creative approach to inspire teachers to act as agents of change for environmental futures

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This paper articulates how educators are ideal candidates to become "brand ambassadors", triggering dormant qualities to influence behavioral change. The study aims at advocating a call for environmental futures by mobilizing pedagogues for changemaking. The research purpose was to deduce insights into real-life experiences when dealing with social influencers.

Qualitative research is based on semi-structured interviews. It sampled educators and students representing two universities of applied sciences. In addition to interviews and coding, an experimental experience was facilitated and observed.

This paper provides empirical insights on how emotional intelligence and beliefs play an integral role in determining a value shift. Findings include a persona profile, and an experimental prototype, designed to test the validity of findings.

The research was conducted locally at a Dutch university of applied sciences, on behalf of a Norwegian commissioner. Therefore, cultural contextual conditions were factored.

An applicable advice is sketched, tested and shared with NGO's, institutions or stakeholders who aspire to mobilize and activate educators, turning them into ambassadors for their cause, namely environmental awareness.

This paper is uniquely based on a highly experiential, Design Thinking process, which was co-created and facilitated in an experimental setting.

Keywords: Transformational Change, Environmental Futures, Pastoral Ambassadorship, Social Impact, Design Research, Constructivist Epistemologies

Transposing Quantum Physics Determinants into Transformative Learning Solutions

Patrick Corsi
IKBM Sprl, Belgium

Mental and notional registration in learning conformably entails direct causalities, conditioning logical and linear directions, doing programs - nonetheless barring intuition. Instead, deepening the learning potential for being educated transforms learners' positioning through regenerative creation.

Applying the Concept-Knowledge theory to modeling ontological learning processes offers a mediating protocol entangling two coupled agents - learner and teacher. C-K demarcates the world of learnable K objects owning logical status (theories, facts, experience, documentation…) from desirable C objects having none (undecidable concepts: can't be registered as true or false by a learner's consciousness).

Learners approach the C space unknowing what they yet don't know. Teachers know what they know and perhaps don't know, always dwelling in K. Being-mode learning goes through the C <—> K membrane by transposing two well-known quantum physics principles:

Non locality. Activating non-local Being modes taps learners' mindfulness and frees learning processes, accruing reverse causalities.

Wave function collapsing. Doing modes abridge dimensionality by condensing single possibilities from full learnable potential.

Learning can amount to perpetual re-creation, transforming ourselves, bringing meaning to living. Doing/Being mechanisms paired in discontinuous spirals, freeing intuition, amplifying knowledge acquisition, helped restoring the thought-action experience in Innovation and Employability Masters curricula.

Keywords: Learning Process, Quantum Physics, C-K Theory

Collaborative Foresight Network for Sustainability Development within Cruise Shipbuilding

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[b]University of Turku, Finland

We discuss how a joint effort for improved sustainability of a cruise shipbuilding is initiated and discussed on inter-organizational network level. We adopt a long-term perspective to the sustainability development in a cruise ship concept designs phase and explore networked collaboration as a form of a mutual learning and absorptive space for ideation. The main interest is on personal and group level in identification of key actors and their roles in a dialog of long-term sustainability development.

The paper introduces results of a collaborative project where sustainability and transparency of a shipbuilder's network was examined. We will present the findings of the social network structure and discuss the social network as a learning space for long-term futures development in this case sustainability enhancement. The main objectives of the research are: firstly, we aim to identify the key actors´ roles and sources of futures ideas, secondly we will explore the social structures and practices, which allow absorption of futures ideas, and thirdly we aim to explore capacities and futures thinking skills of the main actors as well as organizations. The paper will discuss the elements of forward-looking collaboration in a long-term planning process such as a cruise ship concept design processes.

The data of the study was comprised of semi-structured interviews and social network questionnaire conducted in 2018. Social network analysis was applied in order to understand the knowledge transfer between individuals and to explain the social structure of highly-skilled sustainability specialists.

The paper contributes to understanding of the sustainability enhancement, not only on shipbuilding industry, but more generally in project organizations, by allowing us to construct collaborative learning spaces for futures thinking and acting.

Keywords: Futures Thinking, Collaborative Sustainability, Learning Space, Absorptive Capacity, Social Network Analysis, Inter-Organizational Innovation

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Futures Research in Learning and Education

Tuesday 8th June, 16:50 – 18:20
Chair: Dr. Maria Höyssä

Participatory future-creating methods applied in university courses - example of the use of Foresight; Backcasting and Horizon Scanning

Judit Gáspár, Éva Hideg & Alexandra Köves

Corvinus University of Budapest, Hungary

This presentation introduces three examples of the use of three different participatory future-creating methods: (1) foresight, (2) backcasting, (3) horizon scanning, which were used in a higher education practice, at a business school in Hungary. The overarching and common goal of the tutors was to let the student experience real life topics and direct participation in the issues which are up-to-date, relevant to them in order to raise awareness and responsibility for the future in their everyday acts by giving them tools, techniques, concepts and methods to become active and reflective citizens.

The method of (1) foresight was embedded in the so called 'Decision techniques' course where the students are working on a self-chosen problem – a deeply elaborated weak signal – in groups, and by identifying the relevant stakeholders, they are preparing themselves for an action in a co-creative process with community partners/civic organisations.

In the case of (2) backcasting master level students are mutually constructing a 'Sustainable future of sport', by using this participative method they deepen their understanding on the concept of sustainability and are finding their own ways to fulfil this ideal state of art in their everyday practice.

(3) Horizon Scanning was applied in a 'Futures Studies' course as part of a bigger research project, were the young business entrepreneur students participated in the evaluation of the future statements gathered by scientist under the umbrella of the Centre for Ecological Research at the Hungarian Academy of Sciences with the topic of 'Environmental futures: Hungary for 2050'.

Keywords: Participatory, Foresight, Backcasting, Horizon Scanning, Learning, Higher Education

Erasmus project Foresight, five universities working together for a desirable Future of Europe

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The Erasmus project ''FORESIGHT' is about improving the link between higher education and employers, thereby increasing the fit between the skills of students and the needs of employers. The aim of this project is to develop a course based on the method of 'Prototyping for sustainable futures with value'. The 'futures and 'future orientation' of students will be improved by teaching them to connect to the Social Development Goals and to develop skills and competences to carry out foresight. In particularly, a module on foresight is developed, on meaningful innovation, and on how to use foresight in responsible innovation processes. The course will be executed by international and interdisciplinary teams of students. The students will not only learn the methods and tools but also learn how to apply those in practice enabling 'learning by doing'.

The project will result in various (normative) visions of the futures and concepts and business models by the students and teachers of the different involved partners, the tangible visions will be collected and analysed. The partners involved are from Istanbul Turkey, Bilbao Spain, Budapest Hungary, Antwerp Belgium and Tilburg the Netherlands. They all implemented for the first time the module at their own universities The varied ways of working with students on future consciousness across different disciplines with different degrees, with different academic-professional oriented students are being evaluated and

analysed, the do and don'ts are used to revise the module, so in all, very interesting and thereby topic of our workshop.

Foresight Skills for Education – Experiences and Future Prospects

Tarja Meristö & Jukka Laitinen
Laurea University of Applied Sciences / FuturesLab CoFi, Finland

Foresight and futures research skills are important competences in the future. In every business branch multidisciplinary skills and competences to estimate alternative futures paths and ask what if questions are necessary. We will focus on the experiences we have got during last 10 years at Laurea UAS by coaching MBA students for foresight skills and futures research methods.

In practice, our yearly courses have been integrated into the real life projects with various themes. Our pedagogical model called Learning by Developing (LbD) combines research work, regional development and educational activities. While students learn futures research practice and theory, their work will give value added to the real life actors involved the process.

Our course Futures Management consists of four parts: 1) Introduction part to the future trends and change phenomena including a workshop in the form of futures cards, 2) Lectures part of foresight theory, methods and tools with practical exercises, 3) A thematic futures research exercise as a group work according to the action scenario approach process phases and 4) reporting the results and presenting them in an open closing seminar.

In the article, we will evaluate the experiences through several runs, listing the benefits and pitfalls concerning the face-to-face realization, independent small group work and the impact of the various themes in different projects. Finally, we will also open the doors to the future based on the digital pilots in this subject during this year. Desired vision and alternative paths towards it will be presented at the end.

Building a Competence Identity in IT-field

Leena Toivanen & Hanna Lahnalampi
Centria University of Applied Sciences, Finland

Working with self-knowledge at a young age is an important part of life. Important task is to recognize one's interests and skills that they can use to move into worklife. The youth often experience difficulties in this. External pressures can exhaust young people especially in different transition phases. Person might even make unsuitable study plans if they do not know their abilities. Knowing one's competences broadly (skills, competences, qualifications, personal traits, expertise, experiences) and being able to combine them with worklife's demands is a real challenge. Employers are looking for multitalent, which can be hard to fulfil if one has not clarified their potential.

Building a competence identity is based on one's self-reflection skills. Centria UAS's DUDE-project supports youth's professional growth in digitalization field. The participants get to experience practical IT-work together with local companies and project's support. At the same time the participant builds their competence identity and clarifies their role and place in worklife. By strong identity and self-reflection

one can find their path into worklife which can even prevent social exclusion. Strong competence identity will lead to professional success, better relationships and overall wellbeing.

In DUDE-project companies offer digitalization tasks for the participants. While implementing these tasks, the participant works on their portfolio and work application materials. This makes one's skills and competence identity visible for employers. This is only possible if they have gone through the process of knowing their professional identity and combining it with the worklife's demands. DUDE offers tools for successful career path!

Keywords: Competence Identity, Work Life, Information Technology

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Research methods and theoretical approaches in futures studies

Tuesday 8th June, 16:50 – 18:20
Chair: Dr. Burkhard Auffermann

What can be learnt from participatory food systems scenario and vision literature?

Titta Tapiola & Vilja Varho
Natural Resources Institute (LUKE), Finland

Food systems - as any other systems - are facing wicked or systemic problems and it is no longer possible to optimize or solve one single problem at a time. Instead, systemic view has to be used when aiming for sustainability transitions. Scenarios and visions can be seen as methods that build the futures thinking and futures literacy of participants who create them. This paper is based on literature review of food system scenario and visioning works. We analyze materials in order to identify common themes in them and ask what kinds of far-reaching or radical futures views can be found. For example, some scenario papers discuss local/regional vs. global food policy, production or technology; cooperation vs. acting alone; or low vs. high connectivity as main drivers impacting food systems. Elitism, exclusion or concentration vs. inclusion or decentralization as main drivers are also discussed. Visioning work raises the question of how to raise innovations or good practices from local or niche level to a larger scale in order to produce impact. We also discuss the roles of stakeholders in the scenario or visioning processes, what kind of participants have been involved and what kind of participatory methods have been used.

Keywords: Scenarios, Visions, Participatory

Association of common megatrends and business strategies by Finnish dairy farmers

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[b]Finland Futures Research Centre, University of Turku, Finland

Megatrends (urbanization, digitalization, globalization, climate change etc.) are mainstream developments that affect most economic activities. These megatrends have varying incidence and impact on individual entrepreneurs and enterprises, however. An entrepreneur can either ignore or try to adapt to or benefit from the megatrends. This reaction depends on many things: futures orientation, management practice, business strategy, sunk costs, life cycle and type of business, for example.

The study explores the association between 8 common megatrends and business strategies by Finnish dairy producers. The analysis is based on survey data from year 2019 (n=135). The respondents evaluated

the expected impact of the megatrends on their own business within the next 10 years with 5-point Likert-type scale (–2…+2). To uncover few basic settings in the association between megatrends and farmers behaviors, K-Means cluster analysis was utilized. After trying out several numbers of clusters, a final solution was reached that was coherent and logical. The characteristics of each cluster are highlighted. The analysis indicates that dairy farmers differ in their observation of megatrends. The results confirm that part of the farmers more or less ignore the common megatrends whereas another part of the farmers adapt to or benefit from the common megatrends. Reasons and implications of this distinction are discussed.

Keywords: Agriculture, Megatrends, Futures, K-means Clustering, Anticipation, Farm Management

Farmers' futures – a novel Delphi application combining qualitative and quantitative grassroots future views

Jaana Sorvali, Vilja Varho, Janne Kaseva & Pasi Rikkonen
Natural Resources Institute (LUKE), Finland

Agricultural production in Finland faces various challenges, including international competition, new consumer demands, and the renewing European Union Common Agriculture Policy, Paris Agreement climate targets as well as weather variability and other climate change impacts. Futures studies in agriculture have focused on scenario building with expert panels, in most cases leaving farmers outside the process. We present a study using farmers' views on the future of Finnish agriculture. The study builds on disaggregative Delphi method, combining interviews and a representative survey of Finnish farmers. The study is based on a bottom-up process, where the farmer panel of 20 farms defined their future views in a semi-structured thematic interview. The views were turned into statements in a structured survey sent to the second panel that comprised of all Finnish farmers who had received agricultural subsidies in 2016 (n=4401). The results were analysed using quantitative factor analysis, producing five futures images for Finnish agriculture. The images were showed to the original farmer panel for reflection. They considered the probability of the future images and their own role in the possible futures. In our presentation, we describe the process and discuss its benefits and pitfalls.

Keywords: Delphi, Survey, Mixed Method, Farmers, Agriculture

Taming the wild bunch – the role of moderation in mushroomers' peer learning social media group

Minna Santaoja
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Various digital platforms are becoming increasingly important sites for learning, where peer-to-peer informal learning complements formal learning channels. Different digital platforms provide also new opportunities for learning on nature, species and biodiversity. Many specialized groups of amateur naturalists have become very popular in social media. While these groups are seen as accessible places for informal apprenticeship and peer-to-peer learning, their popularity has got the promoters of biodiversity data projects also interested in them. As the number of social media group members increases, so increases the need for group moderation. While in the beginning the groups may have embraced a richness of nature cultures with related jokes etc., with the need for civilized conversations and the interest to gather biodiversity data, the group interactions are increasingly regulated. My claim is that with increasing regulation different ways of relating to nature and different motivations for learning may be side-lined, which may ultimately turn against the purpose of these peer-learning groups. Thus

keeping the platforms manageable but inclusive is an important challenge for the future of informal learning. This paper presents a case study of the Finnish mycologists' Facebook group and discusses the forms of learning taking place there.

Keywords: Social Media, Moderation, Peer-to-peer Learning, Naturalist Groups

Societal Transformation Beyond Learning

Tuesday 8th June, 16:50 – 18:20
Chair: Dr. Katriina Siivonen

Heritage futures as ways towards sustainability

Katriina Siivonen
Finland Futures Research Centre, University of Turku, Finland

Ecological crisis, and global, complex interconnectedness and mobility of people, commodities, and information, is a megatrend which indicates the great global change of the living environment of people everywhere on the Earth. I define culture as a part of nature (e.g. Siivonen 2018; Willamo et al. 2017). The focus is in the aim of a conscious cultural transformation needed for tackling of the ecological crisis. Culture is like an ever-changing stream (Ulf Hannerz 1992) which flows from person to person and from past to future intentionally and unintentionally. In the stream of culture, cultural change and resistance to change are constantly produced by human beings as traditions. Continuity defines traditions partly, and they have also an implicit transformative power. Traditions constructed as cultural heritage make always an impact and promote some changes in everyday life, in the society, and in human-nature interface. Thus, it is important to be conscious about the impacts of heritage and the means to target them.

I suggest a new form of the concept of Heritage Futures, which combines 1) transformative power of culture defined as a process of anthroposemiosis (Siivonen 2008; Deely 1994), 2) human anticipatory understanding (Poli 2017), and 3) cultural heritage as a tool, which tends to engage people in an inspiring, affectual, cognitive and practical way. Heritage Futures is seen as an intentional, anticipatory, cultural tool to co-create different futures. I reflect the ethical aspects of the impacts of and the co-creation process of Heritage Futures through Human-Forest Relationship.

Keywords: Heritage Futures, Ecological Crisis, Cultural Transformation

Total heritage: learning futures of grasping the inherited present

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[a]Kaunas University of technology, Lithuania,
[b]Vytautas Magnus University, Faculty of Catholic Theology, Lithuania

To look into the future we must look back twice as far' (Saffo, 2007) determines concept of the lived future that is 'experienced' in the past. Heritage theorists (Ganiatzas, Rudokas) suggest that the quintessence of any heritage property or other element lie not in its actual forms or direct meaning but rather in its potential to make constructs for future. Thus, heritage when read in hermeneutic manner is able to reveal the exact cultural narrative of places. Hermeneutic perception still remains very subjective

however – with today's computing potential the narrative of place could be measured by using data sciences combined approaches of humanities and social sciences.

Using the approach of narrative the paper seeks to introduce a 'township' (eopolis in Mumford's classification) as a place for World – wide level decision making spots. Looking back to a socio-spatial structure to an early medieval monastic centres as well as selected groups of indigenous people and their integrity into each other's mind (working as I a 'swarm intelligence') and simultaneously analysing the new goals of AI and social issues as well as global warming consequences I suggest that a 'township' as all sustainable living pattern for future societies in all holistic image. Reassembling some ideas of F.L.Wright regarding ancient livestyles combined with technological advancement paper implies teleology-based method for heritage as substance for future making via today's problems solving. The concept of 'total heritage' is introduced to determine a relation between permanent qualities of cultural continuum and in time and place altering perception patterns of that qualities.

Keywords: Decision Making, Heritage, Future, Township, Swarm Intelligence

Emergentist education and the opportunities of radical futurity

Susanna Barrineau, Laila Mendy & Anne-Kathrin Peters
Uppsala University, Sweden

Higher education has been criticised for its instrumental and mechanistic character, which constrains possibilities for meaningful change towards sustainability. We will present a conception of education that we call "emergentist education", integrating literature from future studies, education for sustainable development, and philosophy of education, as well as bring into dialogue experiences and empirical material from three future-facing educational contexts at a Swedish university. We did a thematic analysis, and identified three key areas to conceive of emergentist education and its value in practice. Those areas are disciplinary norms in higher education, convening around anticipatory emotions and processional concepts of sustainability. Through these key areas, we will present how a reorientation of education towards emergentist forms might allow students and staff to contest visions of the future and work in more playful and creative ways with futures in their education. The contribution of this work is a reorientation of education towards radical futurity through an emergentist education approach.

Keywords: Emergentist, Higher Education, Sustainability, Futures, Care, Norms

Futures images - A systematic literature review

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[b]Finland Futures Research Centre, University of Turku, Finland

In general, futures image/future image/image of the future refer to individual or collective conceptualisations or "snapshots" of probable, possible, or preferred future. These are based on certain developments and changes, and on the individual's beliefs, expectations, opinions, values, hopes and fears. Together with its conceptual variations, futures image is widely utilised in the field of futures studies. During the past decades, its use has expanded beyond futures studies literature, which can cause conceptual haziness.

The aim of our paper is to perform a systematic literature review of the use of the concept of futures images. Our review will answer the following research question: How and where has the previous literature used the concept of futures image? In order to answer the research question, a systematic

literature review was performed. The data was collected in two databases: Scopus and Web of Science. The data consists of 325 journal articles in English language, published in 1975-2019. The search was narrowed to articles with search words in either title, keywords, or abstract.

Through quantitative coding of the data, we seek to clarify the different forms as well as the contexts, where the concept has appeared in scientific discussion. The analysis questions include but are not limited to the following ones: which exact formulations of the concept have been most popular; when and where – in which disciplines and journals – the concept has been used; what types of images have been studied, and which methods have been utilised.

Keywords: Futures Images, Image of the Future, Conceptual Analysis, Systematic Literature Review

Workshop: Futures Literacy and Organizational Leadership

Tuesday 8th June at 16:50-18:20
Facilitator: Deborah Schreiber
Brandman University, USA

Today's ever-changing marketplace demands that organizations embrace a futures thinking orientation to survive. Futures thinking begins with the current state and uses foresight to lay down a path to meet estimated, yet unknown, future needs. Organizations often engage in foresight as an independent or isolated strategy however. Minimal understanding exists of foresight as only one component of a broader, more sophisticated process by which to establish an organization's futures thinking orientation. Organizations most effective in responding to rapid change and ensuring future success are those that take a systems approach to futures thinking.

Ensuring futures literacy is a challenge for institutions of higher learning. Workforce skills and demands related to futures thinking are not well understood by most academic departments, especially when presenting futures thinking from a systems approach perspective. Consequently, few colleges or universities provide a full curriculum for literacy and proficiency of futures thinking and anticipation.

The purpose of this workshop is to introduce best practices of futures thinking in organizations from the perspective of a systems approach. Participants will learn unique strategies for observation and interpretation of signals, identify emerging new roles for employees and managers, realign organizational structure to support innovative functions, and utilize internal organizational policy to institutionalize and sustain futures thinking efforts. Participants will also have the opportunity to assess their own company or institution's organizational futures orientation, as well as, organizational maturity for futures thinking.

Keywords: Futures Literacy in Organizations, Future-oriented Leadership

Workshop: Rethinking Futures – An exercise in speculation to (re)gain transformative spaces

Tuesday 8 June at 16:50-18:20
Facilitators: Wenzel Mehnert[a] & Nele Fischer[b]
[a]University of Arts, Berlin, Germany
[b]Berlin Ethics Lab, Technische Universität Berlin, Germany

Images of the future guide current actions and decisions. Undiscussed and unreflected, they tend to extrapolate our present assumptions into the future, thus restricting options for action to the horizon of

current discourses. To foster necessary societal transformations and to (re)gain agency and spaces for shaping futures, it is crucial that we learn how to reflect upon, discuss and reframe our assumptions and also how to rethink 'ready-made' images of the future impacting our own images.

In this session, we invite participants to experience a speculation based learning format that enables us to understand, reflect and reframe the images of the future impacting today's actions and decisions. Those current images of the future are rather 'thin': They implicitly hint towards a possible world which is not laid out explicitly. Speculation, as understood here, enables us to uncover the world implied and to make it accessible for exploration and reflection. Therefore, our workshop framework is based on the process of worldbuilding – taken from narratology – which is the deliberate creation of an estranged world. Through this approach, we will create a 'thick' image of the future. Those are not trying to be predictive but to enable interpretation. The created worlds present rich material to critically reflect on current visions, discourses and imaginaries with the underlying implicit assumptions, biases and culturally shared values. The experience thus combines both the building of worlds based on images of the future and its reflective exploration, e.g. by playing with and reorganising the narrative structures applied.

Keywords: Speculation, World-building, Critical Futures Studies, Reframing Futures, Transformation, Shaping Futures

Workshop: Teach the Future, Update 2020

Tuesday 8 June at 16:50-18:20
Facilitators: Peter Bishop[a] & Lourdes Rodriguez[b]
[a]Teach the Future, USA
[b]Teach the Future, Spain

Teach the Future is an international non-profit whose mission is to introduce futures thinking into secondary schools and colleges around the world. Teach the Future was founded in 2015 and since then has grown to include more than 100 foresight educators and advocates in 25 countries. This session will bring the conference participants up-to-date on how Futures Thinking has become more important than ever departing from a pandemic.

The title of this year's conference is The Futures of Learning. This session supports that theme by discussing how we are teaching students about the future, focusing on a long-term scale and particularly by empowering them to use their talent and energy to influence the future and also by learning skills to navigate uncertainty and face personal and global challenges.

Some key issues to be addressed are:

- How we develop and organize several kinds of activities, services, tool, resources including a Futures Thinking Playbook translated to many languages
- The formation of two groups, Foresight Educators and Teach the Future Global, consisting of educators already teaching the future and advocates who are working to introduce futures thinking in their countries.
- Three members of Teach the Future Global who were selected to the School for International Futures as Young Foresight Professionals.
- Training courses
- What is happening around the world through our futures incubators: our hubs
- How can you be part of accomplishing this mission

Futures is the new hope!

The General Frame of Consistence as learning-based philosophy of scientific futures research

Osmo Kuusi
Finland Futures Research Centre, University of Turku, Finland

The great figure of futures studies Wendell Bell passed away 9.11.2019. He belongs to those few who has carefully discussed the philosophical foundations of futures studies. In his book Foundations of Futures Studies, Bell (1997) suggested that the epistemology of futures studies can be based on Critical Realism or "fallibilistic realism" in the form that Alan Musgrave (1993) introduced it. The paper evaluates the suitability of the fallibilistic realism for that purpose and argues that the General Frame of Consistence GFC (Kuusi 1999,) is a better choice. The GFC has developed to its present form GFC 3.0 (Kuusi 2019, available just in Finnish) during about 50 years. It is based on the basic distinction between genuine learning beings (actors) and not-learning beings. Using this distinction and related other concepts e.g. criteria of sameness of being specific languages, the GFC 3.0 gives interpretations to knowledge concerning probable, possible and preferred futures defined in the frame of futures map (Kuusi et al. 2015).

Mentioned main sources:

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- Kuusi, Osmo (1999) Expertise in the Future Use of Generic Technologies, Government Institute for Economic Research, Research Reports 59, Helsinki School of Economics A-159, Helsinki
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Keywords: Philosophy, Futures Research, Learning, Futures Map

Meta-Cognitive Sensitivity in Disjunctive Reasoning for Intentional Imagery

Peter Österberg
Department of Economics and Management, University of Helsinki, Finland

Prospection is the way we experience the future. There are four types of prospection or future thinking. Planning, which is one type, is dependent on the other three: Prediction, intention, and simulation (imagery). Prediction (estimation the likelihood for a future outcome) is manifested in 'models' of the future, for example, about the climate. According to common media reporting, those models have provided recurrent claims that we are standing on the brink of doom, demanding us to act swiftly. Science, on the other hand, demonstrates that we are in the midst of a process of progress, but that our minds have dissociated due to psychological fallacies, e.g. framing, as well as confirmation and availability bias, leading our thinking astray. Acting swiftly often means relying on heuristics, for example, to avoid a collision with another car. In a longer perspective, finding ways to fend of the fallacies that prevent us

from exploring opportunities forward in time is crucial. I suggest disjunctive reasoning for intentional imagery being a viable option. For example, in his infamous moon-speech, John F Kennedy demonstrated how a challenging symbolic representation about a wanted future evoke peoples' innate capacity for openness in the process of recombining or melding elements of memory into novel representations, like creativity and generative learning, that could be useful for future events. It also calls for the importance of metacognitive sensitivity to transfer factual meanings that lie hidden in the instances of non-declarative memory.

Keywords: Creativity, Disjunctive Reasoning, Future Learning, Meta-cognitive Sensibility

Futures Consciousness increases resilience during crises: Experiences from the UK during the COVID-19 pandemic

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[b]School of Psychology, University of Kent, UK

Futures Consciousness (FC) refers to the capacity that a person has for understanding, anticipating, and preparing for the future. This presentation present results from a study in UK, where the experiences of COVID-19 have been studied together with FC. In many ways, the COVID-19 pandemic has been a challenge for future thinking, it has required implying delay discounting, dealing with uncertainty, accepting self-sacrifice for the benefit of the community at large, and fighting feelings of low control. FC could therefore tap into people's perceptions of and reactions to the pandemic. The results from this longitudinal study that was carried over the course of the summer 2020 found that UK participants (N = 298) who reported higher scores of FC at the first time of measure were more likely to express greater satisfaction and engagement with the COVID-19 government restrictions at the second time of measure. They also reported higher compassion for others, stronger sense of neighbourliness, and greater engagement in different forms of collective action. Furthermore, these experiences resulted in benefit for the self, as these participants also reported greater perceived wellbeing, lesser emotional blunting, and greater feelings of hope about the future. Remarkably, the same participants also reported greater concern about societal issues. It seems that FC generates active and realistic expectations about the future.

Keywords: Future Consciousness, Future Orientation, Time Perspective, Anticipation, Covid-19, Resilience

There was a strange stillness – auditory ambiences for imagining futures

Vera Karina Gebhardt Fearns
Nova School of Business and Economics, Universidade Nova de Lisboa, Portugal

This paper proposes that sonic artistic practices can encourage auditory attentiveness and thus empower the imagination of future environments. Artists can do this through their work both by revealing ways that environments might sound and ways we could listen. Founding the discussion in practices of sound-hunting and the soundscape movement, some case studies will be presented, including installations, soundwalks and own artistic approaches. Based on this, reflections and implications for futures literacy and the field of Future Studies will be discussed.

Keywords: Futures literacy, Sonic Futures, Sound Art, Listening, Acoustic Ecology, Speculative Design

Energizing Collaborative Industry-Academia Learning: A Present Case and Future Visions

Petri Kettunen[a], Janne Järvinen[b], Tommi Mikkonen[a] & Tomi Männistö[a]
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In industry-academia collaborations (IAC) both academic, scientific research results and industrial practitioner findings and experiences are produced. Both types of knowledge should be gathered, codified and disseminated efficiently and effectively. This paper investigates a recent (2014-2017) large-scale IAC R&D&I program case (Need for Speed) from learning perspective. The theoretical bases are in innovation management, knowledge management and higher-education (university) pedagogy. In the future, IAC projects will probably be more and more commonplace since major innovations are hardly ever done in isolation, not even by the largest companies (picture of future). Both intra-organizational and inter-organizational learning networks are increasingly critical success factors. Collaborative learning capabilities will thus be required more often from all the participating parties (scenario path). Efficient and effective knowledge creation and sharing are underpinning future core competencies.

In this paper we present a collaboratively created and publicly shared digital knowledge repository (http://n4s.dimecc.com/en/treasure-chest-for-business/) produced during our case program. The starting point was a jointly created Strategic Research and Innovation Agenda (SRIA), which defined the main research themes and listed motivating research questions to begin with – i.e., intended learning outcomes (ILO). During the 4-year program, our collaborative IA learning process produced a range of theoretical and empirical results, which were iteratively collected and packaged into the shared repository. Outstandingly it contains, in addition to traditional research documents, narratives of the industrial learning experiences and more than 100 actionable knowledge items. In conclusion, our vision of future is that such shared, rich outcome goals are keys to effective networked IA learning.

Keywords: Industry-Academia Collaboration, Learning Networks, Innovation Systems

Futures Literacy for TVET: Activity-Based Learning Model "Open Foresight Laboratory 3.0"

Tatiana Yakubovskaya
Tampere Vocational College Tredu, Finland
National Research Tomsk State University, Russia

The paper discusses an experience of conceptualization in the field of Future-Oriented Vocational Education and Training (FOVET) within the wider Future-Oriented Education (FOE) frameworks.

The experience is based on practice of Tampere Vocational College TREDU (Finland) in the frameworks of regional strategical programs "Smart City" and "Learning City" and highlight the decisive role of lifelong learning and future-oriented education providing skills required for regional development.

Therefore, the futures literacy model and program "Open Foresight Laboratory 3.0" (OFLab) is oriented to the cross-cutting question "How the development of Smart City ecosystem should impact our decisions and quality-of-life over the 20-year time horizon?" The OFLab is designed as an activity-based

model within the idea of integration "Collective Intelligence, Individual Intelligence, and Artificial Intelligence".

In general, the "Open Foresight Laboratory 3.0" consists of the following blocks:

Introduction. Our decisions vs. Smart City trends: timelines + 20 years

A. Smart City Quality-of-Life +20: Key technologies for Smart City

- key technologies and city ecosystem

- trends and stakeholders

B. Smart City Agenda +20: Agendas for sustainable way of life and entrepreneurship

- values and scenarios

- innovations for target groups

C. Smart City Division of Labour +20: Future skills for agendas

- future skills and competences, disappearing jobs

- workforce needs for the futures entrepreneurship

D. Smart City and Decision Making +20: decision makers and versions of decisions

- D1. Project teams' versions: entrepreneurial ideas, agendas, and roadmaps

- D2. Personal versions: educational strategy and pathways for a sustainable way of life.

Keywords: Futures Literacy. Foresight Literacy. Activity-based Learning.

Development of Future Capabilities in Alliances, Acquisitions and Mergers

Risto Sivonen
Turku School of Economics, University of Turku, Finland

Organizations in societies are required to change because of the ongoing and anticipated developments in their increasingly dynamic and internationally connected environments. Taking that competitiveness and sustainability of deployed strategies build upon possessed organizational capabilities, the success of organizations in their environments depends on the ability to develop and maintain capabilities for the future.

This study takes a look at existing theories on developing capabilities in organizations that join together, for example, in strategic alliances, mergers or acquisitions. The topic is momentous from the perspectives of foresight and learning for various reasons. First, collaborative forms of organizing, mergers, and acquisitions are increasingly common tools of strategic management in organizations. Consequently, the ability to transfer shared knowledge, resources, and capabilities is increasingly meaningful in societies in general. Second, processes of organizational integration provide opportunities to observe change within relatively short periods of time. Studies during these periods provide knowledge on learning in ways not easily possible otherwise. Third, the strategicness of organizational integration generates expectations of future landscapes that demand creation of strategic vision and foresight. High importance and future orientation add investment in both focuses and means of learning, and thus add the value of related capabilities to organizations.

The study finds that experienced organizations adopt higher order capabilities, by which it becomes possible to detect and effectively alter experience based lower order capabilities that are stored as organizational routines, heuristics or processes. The higher order capabilities can be developed. Lacking them can lead to poor performance or inadequate learning.

Keywords: Capabilities, Dynamic Capabilities, Mergers and Acquisitions, Alliances, Organizational Learning and Change, Strategic Foresight

Special Session: Futures Education in Finland: Case Studies

Tuesday 8th June, 18:30 – 20:00
Facilitators: Sari Miettinen & Johanna Ollila
Finland Futures Research Centre, University of Turku, Finland

Workshop exhibiting three case studies on futures guidance in educational contexts in Finland including discussion. Futures Guidance combines futures research approach and methods with student and career counselling. Futures Guidance fosters futures skills, helping people imagine their future selves and roles within their communities and environments.

Description/contents:

- Introduction to futures guidance: Johanna Ollila and Sari Miettinen, Finland Futures Research Centre
- Case: Lower secondary school: Ida Kauppinen, Vihti
- Case: Upper secondary school: Maria Jokela, Luostarinvuoren lukio
- Case: University: Henna Ala-Kutsi, University of Turku
- Discussion
- Evaluating the impact of futures education: Minna Halonen, VTT Technical Research Centre of Finland
- Conclusion: Johanna Ollila and Sari Miettinen

Keywords: Futures Guidance, Supplementary Teacher Training in Finland, Case Studies

Workshop: Poetry as a Method for Futures Literacy: Verses of Longtermism

Tuesday 8th June, 18:30 – 20:00

Limited to 12 participants. First come, first seated.

Facilitators: Anna Sacio- Szymańska[a], Nick Balcom Raleigh[b], Amos Taylor[b], Noora Vähäkari[b] & Solveig Zophoniasdottir[c]
[a]4CF Strategic Foresight, Warsaw, Poland
[b]Finland Futures Research Centre, University of Turku, Finland
[c]EIT Climate-KIC, Denmark

In our fast-changing world one may be asking if there is the need (or even the use) to introduce poetry in response to challenges we face? We argue there is. We recognize the limitations of scientific disciplines in dealing with the complexity of the global problematique - and specifically with the limitations of the human mind, or language, in comprehending and encompassing the complexity.

The FLxDeep initiative led by Finland Futures Research Centre at University of Turku and funded by EIT Climate-KIC organised a 1,5 - 2 hours workshop for the UNESCO Global Futures Literacy Design Forum in 2019. Members of the design team will demonstrate this novel poetry-driven futures literacy mini-lab at 2020 Learning Futures - Futures of Learning conference. The workshop simultaneously serves as a research probe into how long-termism can be meaningfully integrated into a futures literacy capacity building processes. After a short discussion of how long-termism – taking long-term impacts into account

when acting in the present – could direct greater resources toward climate action, participants will write poems, share their work, and discuss the insights they've produced. By applying poetry as a participatory method, the conversation will be situated in the lived experiences and meaning-making of the individual writers, enabling a co-equal conversation among the workshop participants. The intention is to discover new potentials for how long-termism as a theme and poetry as a method can be integrated into processes that support personal and collective futures literacy. This is of significant interest to FLxDeep in its role of contributing insights along these same lines to the EIT Climate KIC Deep Demonstrations.

Keywords: Futures Literacy, Long-termism, Poetry Writing, Public Engagement, Participatory Action Research, Climate Change

Workshop: Education for the future: intergenerational collective thinking future labs to improve school strategy

Tuesday 8th June, 18:30 – 20:00
Facilitator: Lidia Kremneva
Metaversity, Russia

I'd like to share a simple open source technology for collective thinking sessions based on "using the futures" principle and aimed to launch the intergenerational dialogue to collectively construct education for a desirable future. Laboratories on "education for a desirable future" called "Futures lab" involve all participants of the education process in search of best solutions to empower people to become constructors of common greater good. Inside a certain school community it serves good to establish equal dialogue between stakeholders, co-create school development strategy and share equally the responsibilities for different innovations implemented in school.

The laboratory's main features and principles are:

1. We go through the "desired future as a pattern" - "needed skills as sources" - "our community as prototyping ground" collective thinking and designing chain.
2. We end up with certain initiatives and groups of responsible people behind them. This helps to start real changes in schools.
3. Labs method, while based on "every point of view has equal value" principle, allows parents to enter schools and to start participating in schools' life, to increase their influence and agency in schools conflict-free. This also allows students to be heard by grown-ups and become real actors inside their learning process and overall school life.
4. As working groups for laboratories are divided according to "social role", and then share their ideas, elders and youngsters receive a solid ground for co-creation based on common ideas. We use the "search for likeness, not for difference" principle, which allows the participants to stop arguing and start cooperation.

During the workshop we will pass through the main stages of the session and at the same time revise the details of conducting each stage, which allows participants to completely adopt the technology and use it in their teaming and strategizing practice.

Workshop: Anticipatory Systems and the Futures of Learning

Tuesday 8th June, 18:30 – 20:00
Facilitator: Riel Miller
UNESCO, France

What is the relationship between the future of learning and learning futures? Does the way we learn about the future today actually obstruct the future of learning? What might it mean to move from push to pull oriented learning? This session will explore the attributes and implications of Futures Literacy and the underlying theory of anticipatory systems and processes.

SESSION IV: WEDNESDAY 9ᵀᴴ JUNE, 12:10 – 13:30

Rethinking learning in societal transformations

Wednesday 9th June, 12:10 – 13:30
Chair: Dr. Sari Puustinen

Four Cities, Four Speculations: Using Design Fiction to imagine New Urban Futures

Anijo Mathew
American University of Sharjah, UAE

This paper presents case studies from a graduate design studio that worked on four speculative scenarios for four global cities. Student teams of designers from different backgrounds picked Chicago, Paris, Copenhagen, and Toronto as the cities for the project. The teams then engaged with consulate officers, residents, and urban planners to learn about trends and convergences that impact these cities. Using Design Fiction, they came up with potential future scenarios for each of their chosen cities.

In this paper, the researcher will show how empowering students to use Design Fiction enabled them to document and analyze experiences from a user's perspective and compile the "story" of a place. By collecting and analyzing many such narratives, the student teams were able to generate patterns to influence the perception and design of future space and urban form. Design Fiction served as an interrogative mechanism for these students to map social, political, technological environmental changes and project placemaking narratives into an imagined and constructed future. Feedback from political leaders, entrepreneurs, consulate officers, architects, and urban planners also elicited interesting insights on how these stakeholders might see Design Fiction as a tool for urban policy. The paper will conclude by showing how design students might engage futures thinking and Design Fiction to support strategic policy and influence urban policy and planning in the future.

Keywords: Design Fiction, Urban Planning, Design Education, Urban Policy, Place Futures.

Teaching Urban Sustainability Transitions and Futures: Pedagogical Hiccups Across Systems of Used-Futures

Idil Gaziulusoy
Aalto University, Finland

Urban Transitions and Futures (UTF) was a course jointly owned by two masters programs in two universities in Helsinki: Creative Sustainability Master's Program of Aalto University and Urban Studies and Planning Master's Program of University of Helsinki. UTF was delivered three consecutive years between 2017-2020. It was designed to provide students with both theoretical understanding of urban transitions as complex and long-term processes shaped by both top-down and bottom-up dynamics and practical experience of planning and running the front-end of a transition project. In each iteration of the course, a different urban context was chosen as the focus of the practical project. The students, who came from a diversity of disciplinary backgrounds, would also reflect on their professional role in processes of urban transitions having worked in groups for the practical component of the course. During the three iterations, several challenges surfaced in executing the course in alignment with the underlying

pedagogical ambitions. Some of these were organisational and stemmed from the structures put in place. Other, pedagogically more relevant challenges stemmed from the more general and overarching institutional structures, mindsets and working methods that are counterproductive for transdisciplinary modes of teaching and learning. To address these challenges, the course is redeveloped as part of Aalto University's new curriculum cycle. The first iteration of the renewed course has taken place and generated insights about the effectiveness of the changes made. The paper will have relevance for those institutions and people who are running practice-based courses on sustainability transitions and futures.

Keywords: Urban Transitions, Sustainability Transformations, Transdisciplinary Education, Futures Pedagogy, Reflective Practice

Landscape Architecture as a Transformative Force for Greener Cities Under Stress

Ana Jones
Finland Futures Research Centre, University of Turku, Finland

The field of landscape architecture (LA) has become increasingly intertwined with other domains particularly with the field of urban planning. The complexity of the field is destined to increase due to multiple forces impacting urban development, the need for urban environments that support public health in addition to the critical need for cities to lower human and carbon footprints. To explore ways in which LA can be understood as a transformative force, this chapter focus on the function of LA through the lens of futures studies by using theoretical concepts of systems-based approaches that aim to explain relationships and add meaning of LA in contemporary development. Systems thinking in this context relates to urban systems that appear to be predictably connected to larger shifts in society as for example the shift from a society of tangible needs towards a society of intangible needs that was introduced by the Penti Malaska in 1999. According to Malaska's interpretation of social transformation, society is at an interim period, shifting from extensive methods of production towards leaner, more intelligent, and scalable methods emphasizing a transformation of people's needs moving into a society of intangible needs and consumption. This futures-related viewpoint helps to explain what cities can anticipate from a development standpoint as societies progress through and beyond today's service-oriented ways of doing.

Keywords: Landscape Architecture, Urban Systems, Social Transformation

Learning to be prepared by imagining the future: the built environment context

Lassi Tähtinen, Anahita Rashidfarokhi & Saija Toivonen
Aalto University, Finland

The future is uncertain and full of different kinds of crisis, forming a tangled and complex network. Real estate is an essential element both when aiming to prevent future crises and in crisis management. This research aims to increase the futures literacy of practitioners in the built environment by identifying future crises and analyse their interconnections and overlaps. Therefore, the causal relationships between different events will be demonstrated in a network that could assist us to gain a holistic understanding of events, for instance how one crisis can lead to another one. Such understanding helps us to learn how to be prepared for future crisis and minimise the risks to be more resilient. We use environmental scanning and support with visual maps to identify different types of future crises and their connection to forces of change. The results of this project contribute to promoting the dynamic resiliency and crisis preparedness of societies by imagining the possible futures. Even though our focus is

on the future, we also investigate lessons from the previous crisis in the past. Using lessons from the previous and current crisis can improve our future responses and preparedness.

Keywords: Futures Literacy, Crisis Preparedness, Resilience, Imagination, The Built Environment

Digitalisation of Learning Environments

Wednesday 9th June, 12:10 – 13:30
Chair: Dr. Juha Kaskinen

Bringing the future of learning into classrooms: Robot-assisted language learning

Liisa Peura, Outi Veivo, Minna Maijala, Maarit Mutta and Marjut Johansson
School of Languages and Translation Studies, University of Turku, Finland

Social robots have only recently (in 2018) been adopted in a few Finnish primary schools in pioneering L2 learning projects, such as those financed by The National Board of Education (NBE), or in pilot projects in bigger Finnish cities. These robots are running on applications specially designed for foreign language learning. In the RoboLang project, we are interested in how 7 – 13 years old children interact with social robots in these novel learning situations.

Social robots have been found to increase motivation, and robot-assisted language learning (RALL) can also extend possibilities for one-to-one learning, encouraging students to speak. Interactive situations involving social robots are multimodal, the robots can be programmed to use both verbal and nonverbal means of communication, such as gestures and gazes. In a language learning situation, a social robot talks with a child or a small group of children. In this way, teachers can act as facilitators without participating in the communication themselves, as in traditional classroom learning. RALL enables pronunciation learning too as an interactive and positive learning method. The robot offers novel type of problem-solving situations for learners who are facing a conversational partner who does not always behave in an expected manner. In addition to being pre-programmed communication partners, social robots can be programmed by the children themselves, thus allowing them to have an even more active role in the communication. As a robot has a toy-like appearance and its behaviour is playful, it presents itself more like a peer to children and it creates familiar and positive affective space for learning.

Keywords: Social Robot, Foreign Language (L2) Learning, Robot-assisted Language Learning, Human-robot Interaction

Analysing digital tools in future learning environments

Signe Juhl-Nørgaard[a] & Thomas Sørensen[b]
[a]University of Helsinki, Finland
[b]Edukat, Denmark

As digital tools gains prevalence in educational settings new ways of analysing digital tools is pertinent. In this presentation we will introduce a cultural-historical approach to theorising on digital tools. First, we will distinguish between two pedagogical perspectives: the Anglo-Saxon curriculum based and the continental European didaktik based. This will lead to a presentation of the main ideas of the cultural-historical school of thinking, with a focus on explorative learners' perspective. The case-based analysis of an implantation of a digital tool, is taken from a research project from the University of Applied Sciences,

Copenhagen (UCC) and a project ship (EDUCAT). Highlighting how an unreflective use of digital tools, have a great risk of inheriting thinking from traditions, which demands and goals, are in direct contradiction to pedagogical demands of the institution and society. This will lead to a discussion on how to approach and resolve these inherent contradictions.

Keywords: Digitalisation, Cultural-historical Approach, Contradictions

Artificial Intelligence Providing New Tools for Learners – a Finnish Case of the Innovation Ecosystem

Hannele Niemi & Päivi Kousa
University of Helsinki, Finland

This presentation discusses how Artificial intelligence (AI) can provide new tools and practices for future learning and how AI-based environments can be developed in multi-partner ecosystems. AI is changing the world, impacting societies, organizations, work, and education, and has become part of everyday life. While AI is providing opportunities to expand education beyond recent boundaries, it is simultaneously requiring rethinking of both machine- and human-learning perspectives. We have an urgent need for better learning concerning not only humans but machines, too. Therefore, deeper understanding about the human-machine interaction is needed for future learning.

According to UNESCO and EU, AI ecosystem should include policymakers, universities, schools and industries and aim together at the common good. In 2019, nearly twenty Finnish researchers, four companies and several potential AI users co-created the AI ecosystem for responding to the needs of future learning. All ecosystem-activities are based on three key elements: interconnectedness, information sharing and diversity. The main aim is to create new knowledge about human-machine interaction and build new AI-related tools. The focus is how different partners including users can influence the learning systems and vice versa. Tools that have been developed in the ecosystem include the following categories: promoting well-being and lifelong learning, modelling simulations and games for decision making, developing skills with AI-tutors for high-quality expertise of demanding work situations and understanding of ethical problems related to AI in learning. The case underlines the importance of collaboration in order to have tools for further development of future skills.

Keywords: Artificial Intelligence, Ecosystem, Learning, Machine Learning, Collaboration, Digitalization

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Nature and Environment in Education: Addressing Sustainability and Ecological Pressures

Wednesday 9th June, 12:10 – 13:30
Chair: Dr. Marileena Mäkelä

Futures literacy for deliberate whole system transformation

Nick Balcom Raleigh[a], Riel Miller[b], Kim Riyong[c], Anna Sacio-Szymańska[d], Amos Taylor[a], Essi Silvonen[a], Noora Vähäkari[a] & Beata Poteralska[e]
[a]Finland Futures Research Centre, University of Turku, Finland
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[e]Łukasiewicz Research Network - Institute for Sustainable Technologies, Poland

Among many organisations and movements trying to tackle climate change by proposing transformative and sustainable solutions, EIT Climate-KIC innovation community and its 2019 – 2022 strategy: "Transformation, in time" is undoubtedly offering a new powerful approach. It aims to "bring together and catalyze large and diverse communities to innovate for systemic changes that trigger climate action at scale (…) by encouraging shifts in mindsets and behaviours, identifying and scaling workable solutions, necessary capabilities and pathways to implementation". Operationally, it is being carried out via Deep Demonstrations, which are programs implemented under the "Transformation, in Time" strategy intended to be inspirational examples of what's possible at regional or local levels to accelerate fundamental transformation to a net-zero emissions, resilient future.

Long Termism is one of such Deep Demonstrations programs or theme areas. In it EIT Climate-KIC together with a group of design partners is exploring the most effective problem owners to work with to forge experiments that help shift attention to longer-term time horizons. Design partners cover various capabilities and skills, in this: Futures Literacy within a project/ innovation experiment entitled: Futures Literacy Across the Deep (FLxDeep) co-ordinated by Finland Futures Research Centre. The FLxDeep initiative overall aims to develop and support Futures Literacy for Climate KIC leadership and staff, as well as the networks of people who will engage in the Deep Demonstrations.

In the paper FLxDeep project team will share methodological and practical aspects, outcomes and lessons learned from the three Futures Literacy Laboratories tackling the topics of Net-Zero Maritime Hubs and Long-termism. The labs took place in Turku, Dublin and Paris in the period of October, November and December 2019. The premise of each lab was that developing futures literacy would make us more resilient and effective in addressing the demands of the climate emergency. Also, each lab aimed to support people in noticing how the way they imagine the future impacts how they see things in the present and help them see potential in what emerges from our complex world.

Keywords: Futures Literacy, Climate Change, System Transformation, Long-termism, Participatory Action Research, Net-zero Maritime Hubs

Subjectification, transformative learning and futures literacy – rethinking education for sustainable development

Erkka Laininen[a] & Otto Tähkäpää[b]
[a]OKKA Foundation for Teaching, Education and Personal Development, Finland
[b]Tulevaisuuskoulu, Finland

Education for sustainable development has been criticized of its inability to make any difference to the existing educational and societal status quo. One reason behind this problem is the fact that ESD presupposes that a sustainable future is achievable through educating people in a certain way. As a subsystem of our current competence-based education, ESD becomes a part of educational idea which considers the future pre-determined and immutable, something which learners should be equipped for with certain competences. Thus, ESD becomes a means of socialization and colonizing the future, hence incapable of questioning the prevailing neoliberal ideal of progress and empowering learners to use the future to innovate the present.

An alternative approach to ESD is to conceive it as a means for subjectification liberating learners to reflect and question the existing societal goals, norms and power relations. We argue that developing learners' sense of coherence can initiate subjectification leading to individual's awareness of the self and one's relation to social and ecological environment. Transformative learning can provide tools for empowering learners to reflect their worldviews, question the existing goals of progress and initiate

societal change. Furthermore, learners' proactive futures orientation is supported with futures literacy enabling them to explore the anticipatory assumptions they use to imagine the future and thus finding novelty in the present. Utopia as a method, on the other hand, provides a tool for imaginary reconstruction of learners' concept of reality allowing them to think differently about possible futures and opening new horizons for emergent solutions.

Keywords: Education for Sustainable Development, Subjectification, Transformative Learning, Futures Literacy, Utopia as a Method

The skills of the 4th industrial revolution at the service of sustainable development: The case of Spain and Latin America

Fredy Vargas-Lama, Francisco Mojica, Francisco López-Segrera & Viviana Villarraga
Center for Strategic Thinking and Foresight, Universidad Externado de Colombia

We are less than ten years before the consolidation of the Fourth Industrial Revolution as a driver of a global transformation. Recently it has been widely discussed regarding the future of work, education 4.0, disruptive technologies, and digital ecosystems for business. However, we have overlooked what is the type of development we want to have? How will we adapt to this systemic change while maintaining our essence? And clearly, how can we improve with this change, the quality of life of our population?

It is necessary to have the basic skills that allow us to prepare for the future. Still, for this, we must first define what we want to achieve in the medium term: Not all regions of the world have to produce the same and nor in the same way. But it is expected that regardless of their level of development, they have a shared vision of sustainability and social, economic, and ecological equity. Each nation's contribution to the new world context will be given by its productive potentials and its base vocations. In this context, Latin America is significant, for example, being one of the largest biosphere reserves on the planet.
In this document, we present a prospective analysis, built with experts from the international academy, determining key variables and possible future scenarios for the preparation of higher education in Latin America and Spain, concerning the generation of skills necessary for the 4th industrial revolution from a sustainable development perspective.

Keywords: Foresight, Prospective, Sustainability, Future-ready, Future of Education

Special Session: The Future of Learning, Skills and Workforce in Finland until 2035

Wednesday 9th June, 12:10 – 13:30
Facilitator: Jukka Vepsäläinen, EDUFI Finnish National Agency for Education

This parallel track deals with the national foresight process concerning future needs for work force, needs for education and needs for skills. This track also includes a presentation of the future oriented, joint development experimentations concerning new methods for learning.

Finnish formal educational values are grounded on equity, trust and autonomy. In the changing future EDUFI, operating under the Ministry of Education and Culture (MoEC), wants to enhance decentralization, bottom-up participation and open transparency. Planning of education must be strongly future orientated and consider systemic, complex and emergent nature of the future. We do not know beforehand what exactly will be crucial for skills needs and learning. That is why multi perspective

approach is important. Everything depends on everything. The Finnish formal education system offers quite an ideal environment for foresight and experimentations because it is relatively compact size and form.

EDUFI's Foresight Team, consisting a dozen of experts, administrates the National Forum for Skills Anticipation (FSA), which serves as a cooperation body for the education administration and business life, or a type of round table for foresight. The FSA consists of some 500 experts from different sectors representing the social partners, companies, service providers, education providers, educational institutions, research and administration.

The Delphi Process of the National Forum for Skills Anticipation
Jukka Vepsäläinen
Senior advisor, FORESIGHT Team, EDUFI Finnish National Agency for Education

We must bring our views of tomorrow's world into a sharper focus. In society this task belongs to all actors – the state, companies, organisations, regions and communities alike – in an open participatory and democratic dialogue. Defining the direction of future changes is particularly important in education and skills development, because of lengthy time delays. We must teach youngsters the future, not present.

In Finland, under the administrative umbrella of EDUFI, the National Forum for Skills Anticipation (FSA) has been set up for four years term to map the future of work force, skills and education. The FSA's foresight work progress step by step in a process which starts from mapping future changes across a broad front and without excluding any themes. The FSA then moves on to examine changes in the labour force and skills and, finally, the need for education and training. In this introduction, I will discuss the initial part of the process, in which future changes were anticipated using the Delphi method.

The FSA's Delphi panel was relatively large in scale. The process consisted of two rounds and a total of ten Delphi panels, many hundreds of panellists, 317 questions, theses and claims and more than 4,600 individual arguments were processed. In cooperation with EDUFI Foresight Team, the Delphi process was facilitated by Metodix Ltd (Mr. Hannu Linturi and Mr. Antti Kauppi) using eDELPHI.org, a digital Delphi tool. Geels & Schot sociotechnical transition model was used as a theoretical framework for future changes and a tool for structuring the Delphi panels. The argumentation on megatrends, drivers, trends and signals finally led to four scenarios describing year 2035, which pointed the way for anticipating labour, education and skills needs in FSA's further work.

Anticipation of the skills needs and educational needs in Finland
Kari Nyyssölä
Head of FORESIGHT Team, EDUFI Finnish National Agency for Education

The presentation investigates changes in the importance of competences and skills and anticipates the most important skills in 2035 based on results produced The National Forum for Skills Anticipation.

A three-level classification of qualifications was used in the anticipation of skills needs: generic skills, common working life skills and skills specific to vocational fields. In addition, citizens' digital skills were examined (DigComp 2.0).

The results of a survey of skills needs (N=195) and the workshop activities implemented on the basis on the survey were used as material for the anticipation work. A total of 148 experts participated in the workshops. In the future, generic skills including problem solving skills, self-regulation, controlling the wholeness, creativity and ability to learn will be increasingly important. The importance of skills related

to digitalisation, such as the ability to utilise digital solutions and platforms and information evaluation skills will also increase.

The examination of the most important skills was based on the listings drawn up by 30 sector groups. In these listings, two skills in particular were highlighted: skills in customeroriented development of services and knowledge of sustainable development.

In addition, educational needs were also anticipated in the process. It was based on the forecasts of the need of the labour in different industries and wastage of the workforce by 2035. The results indicates, that among the new labour force, 56 % should have higher education and 42% VET qualification in the future.

Finnish schools and education government exploring complexity together
Anneli Rautiainen & Paula Tyrväinen
Innovation and Development, EDUFI Finnish National Agency for Education

Despite excellent results, the education system in Finland has also been facing challenges and new realities that create different pressures. In a complex and uncertain world, a new set of capabilities are needed for students to succeed. There is also a need to understand, how to build more resilience in the school system.

In recent years the Finnish National Agency for Education (EDUFI) has been particularly interested in testing and promoting the development of a new culture of ongoing experimentation and innovation to enhance learning and collaboration among actors of the education system.

In 2017, EDUFI established the Innovation Centre as part of a dedicated government policy program tasked with the mission of looking for new ways to improve teaching and education and reshape learning, with a focus on Basic Education, which is the education for children from 7–16 years old.

The Innovation Centre carried out three Experimentation Labs and a multi-actor evaluation pilot, which were the first national scale attempts in Finland to apply adaptive innovation in the rapidly changing operating environment of education sector. The aim of the Experimentation Labs was to support teachers, school leaders and local education administrators to co-create local solutions to address complex challenges of today and tomorrow. Simultaneously it aimed at transforming educational governance and inspiring cultural change to better respond to complex challenges in education.

Based on the work of the Innovation Centre, in this presentation we explore methods and practices which support the system change, and discuss, how we might scale learning instead of innovations to create sustainable change in the education system.

Workshop: Futures Literacy for Learning Regions

Wednesday 9th June, 12:10 – 13:30
Facilitator: Tatiana Yakubovskaya
Tampere Vocational College Tredu, Finland
National Research Tomsk State University, Russia

The workshop "Futures Literacy for Learning Regions" is dedicated to discussing the diverse regional experience and cases (Italy, Finland, Russia) in developing futures literacy programs for vocational education and training (VET) and the key changes in the role of VET for regional development.

The basic cases of FL programs will be presented by experts of the workshop:

- Dr. Rocco Scolozzi (University of Trento, Italy)
- Anna Elashkina (Innovation Company "TechnoSpark", Russia)
- Tatiana Yakubovskaya (Tampere Vocational College TREDU, Finland. National Research Tomsk State University, Russia)
- Helena Koskinen (Tampere Vocational College TREDU, Finland)
- Johanna Ollila (University of Turku, Finland)

The discussion has two aspects (the two-sided preliminary hypothesis) which will be considered based on some conceptual models (and their correlations) reflecting the understanding of regional development processes and a new role of education. The main idea and long-term purpose are to focus on the conceptualization of multidisciplinary knowledge and practices in the field of Future-Oriented Vocational Education and Training (FOVET) within the wider Future-Oriented Education (FOE) framework.

One side of the preliminary hypothesis is that the concept of Smart City directly connected with the issues within the concept "Learning Region". The "smart city" strategical programs as a megatrend highlight the decisive role of lifelong learning and future-oriented education providing various types of New Literacies and Futures Skills required for regional development and primarily aimed towards:

- Technologically more intelligent future.
- Sustainable way of life.
- Future entrepreneurship.

Another side of the hypothesis about the FOVET conception is focused on the initiated by UNESCO and globally discussed theoretical and practical content of the concept, known as "Future Literacy" (FL). The FL concept is expected to be discussed within a minimum of four frameworks and based on mindsets regarding the integration of "Collective Intelligence, Individual Intelligence, and Artificial Intelligence":

- FL as a kind of New Literacies within Lifelong Learning
- FL based on Foresight for Decision Making
- FL for Collective Activity within Complex Problem Solving
- FL for Futures Consciousness

Keywords: Futures Literacy, Learning Regions, Future-Oriented Vocational Education

Workshop: Learning Futures and the Role of the University in 2040

Wednesday 9th June, 12:10 – 13:30
Facilitator: Maree Conway
Foresight Futures, Australia

The university's traditional role as the generator, preserver and transmitter of knowledge and as the primary site of learning continues to be under challenge. Assumptions about the university's social purpose and role can no longer be taken for granted as the value of universities is being questioned to the degree where possible futures for learning are being imagined without a university as we understand it today. If a future without a university is possible, how and where might the 'higher order' learning that universities now provide take place in the future?

This interactive and collaborative workshop will engage participants in the creation of images of possible futures of learning and the role the university might play in those futures. Participants are first asked to define the future of learning from their individual perspectives. They will then be introduced to four contested worldviews that co-exist in the university of today, and that shape our acceptance – and rejection – of possible futures. These worldviews will underpin group work to define how and where

learning might occur in 2040. A final reflective session asks participants to consider how their assumptions about the future of learning – both individual and collective – may have changed during the workshop.

The aim of the session is to demonstrate how unchallenged assumptions about learning and the university in the present can constrain possible futures from emerging and therefore constrain action and decisions taken in the present.

Keywords: Learning Futures, University Futures, Futures Literacy

Workshop: A 'new normal'? Applying a participatory CLA approach to examine metaphors and myths

Wednesday 9th June, 12:10 – 13:30
Facilitator: Joni Karjalainen
Finland Futures Research Centre, University of Turku, Finland

The purpose of the session is to apply a participatory Causal Layered Analysis (CLA) approach to grow our understanding of how diverse standpoints engage with futures learning, knowledge and futures building. As the Covid-19 pandemic prolongs, the session aims to highlight how different ways of engaging with futures in practice, impacts approaches to shaping and reframing a new normal. In particular, the aim is to examine the role and influence of underlying metaphors and myths. The intention is to open a discussion and learn with the participants on the different mindsets and various lenses we apply to make sense and derive meaning from the crises and opportunities we face; our myriad ways of adjusting to change; and the diverse criteria applied in pursuit of preferred futures. By exploring these, we can perhaps generate more nuanced understanding about futures learning, knowledge and practice, and engage even more creatively on the different contextual responses to how we are interpreting and creating a new normal.

Keywords: Diversity, Foresight, Futures Knowledge, Learning, Metaphor, Myth

SESSION V: WEDNESDAY 9TH JUNE, 13:40 – 15:00

> ## Futures education and learning: pedagogy, skills and competences, forms of learning
>
> **Wednesday 9th June, 13:40-15:00**
> Chair: Dr. Katriina Siivonen

Learning futures thinking via flipped learning – experiences with international forest science students

Teppo Hujala
School of Forest Sciences, University of Eastern Finland, Finland

Primer to futures thinking within higher education represents a challenge of transformative learning. The students are invited to revisit their ontological, epistemological, and moral presumptions. To overcome the potential confusion and to proceed towards solid futures literacy and anticipation capabilities, pedagogical choices require profound attention and co-reflection within the academic community. The present case example with an international group of forest science students adds the challenge layer of students' varying backgrounds and learning cultures. The bachelor-level course on foresight methods and processes in the forest sector at the University of Eastern Finland has approached the learning task with the principles of flipped learning. In this approach the learning tasks, although framed by senior mentors, i.e., teachers, are more student-driven and more interactive than in traditional instruction.

During the course at hand, the student groups (3-6 people in each group) have familiarized themselves with contemporary foresight problems and futures research methods, compiled research plans, and presented those to each other in interactive learning sessions including peer feedback. The presentation uses qualitative oral and written student feedback from three most recent years (~90 students) as well as three teachers' experiences to critically analyze the intersection of futures literacy and flipped learning. It appears that transformative learning can only take place in a self-directive manner if the very basics of futures thinking (e.g., plural futures; possible, probable, and preferable futures; 'using-the-future') are first problematized and hands-on exercised collaboratively. Conclusions suggest paying attention to facilitating students' self-direction, organizing thought-evoking exercises, and cultivating group dynamics.

Keywords: Anticipation, Flipped Learning, Futures Literacy, Transformative Learning

Science education for developing students' futures thinking and agency

Antti Laherto & Tapio Rasa
University of Helsinki, Finland

Science education has a special role in fostering students' agency. This aim evidently connects to futures thinking: our hopes and thoughts about future opportunities influence our actions in the present. Yet, due to global crises and accelerating socio-technological change, young people have shown difficulties in projecting themselves in the future. Their deterministic fears as well as hopes for sustainable futures are both deeply influenced by science and technology. Despite the apparent reasons to elaborate the concept of future in school science, futures pedagogies have not been adapted in science education until

a few initiatives in the past decade. We report on two EU-funded projects developing novel courses for upper secondary school. During the courses students practice, e.g., scenario development and backcasting in the contexts of socio-scientific topics such as climate change and quantum computing.

To understand students' futures thinking and how it was developed, qualitative content analyses were carried out on their essays and interviews. Essays written prior to the course showed a variety of ways students talk about future, and perceive their own role and the roles of science and technology in the future. Interviews after the course showed that students developed broader and more positive future images, adopted new ways of thinking, reached more active and confident take on the future, and were able to imagine how science and technology could help solving global challenges. The findings affirm earlier claims to 'futurize' science education and inform further development of pedagogies to that end.

Keywords: Agency, Futures Thinking, Science Education, Technology Education, Secondary School, Socio-scientific Issues

It's all a game - Ready to play on the campus of the future?

Thomas Mengel
University of New Brunswick, Canada

Based on Ernest Cline's Sci Fi novel "Ready Player One" - also made into a very successful movie by Steven Spielberg - I introduce "Ludus" as world of learning and games as a blueprint for the campus of the future. The campus of the future is envisioned first imagining a world of education embodying play as the major component of human interaction, disrupting traditional approaches to education, and combining human and artificial intelligence in traditional and virtual spaces and realities. Finally, the campus of the future is brought to life through a fictional piece suggesting how the campus of the future could be presented to an academic audience within higher education.

In particular, the proposed presentation structure consists of three main parts: 1) Gaming (introducing "Ludus", the world of learning), 2) Campus of the future (describing the key components of an higher education institution in the future), and 3) Buckle up - How it all might play out (2040 - 2020 -2040).

Through the combination of building on existing (futures-oriented) components, visioning, and fiction, I suggest and describe play as the major component of human interaction, present innovative approaches to education disrupting more traditional ones, and suggest how human and artificial intelligence can be combined and integrated in traditional and virtual spaces and realities.

Keywords: Higher Education, Play, Games, Campus of the Future, Virtual Learning, Science Fiction

The future of personalized education - The philosophical and practical problems to be solved

Hanna Willman-Iivarinen
Häme University of Applied Sciences, Finland

The strength of the Finnish education system is the ability to successfully combine high-quality education with efficiency and equity. However, the current system needs to be transformed in our rapidly changing world, in which we do not know exactly what skills today's students need in their future working lives. Instead of transferring information we need to equip students with skills for anything they might face in the future and teach them, for example, problem-solving, information-searching and collaboration. Personalization of education would provide future society a wealth of talented people to solve a wide

range of problems which we cannot even imagine. There are challenges related to personalized education; how to teach the right skills, how to maintain the efficiency of teaching in a new environment and how to solve the question of equality. (The idea of equal opportunities is at the core of Finnish society).

The aim of this study is to deliberate the consequences of personalization in education (or lack of it) from the perspective of students, society, education providers and employers. The used methodology is the Futures table. The risks and opportunities are discussed in the light of different scenarios considering especially problems of teaching the right skills, efficiency and equality. The related fields of study are future studies, pedagogics, cognition sciences, philosophy and economics of education. The results show that organizing the personalization of education needs to be carefully planned since while it opens opportunities, it also contains risks. Implications for the policymakers are discussed.

Keywords: Finland, Personalization, Equality, Future Skills, Society

Special Session: Beyond Industry 4.0 Curriculum: Challenges of Multi-contextual Learning World

Wednesday 9 June, 13:40-15:00
Facilitators: Jari Kaivo-oja, Mikkel Stein Knudsen & Theresa Lauraeus
Finland Futures Research Centre, University of Turku

We are in the age of the Fourth Industrial Revolution. Discussions about Industry 5.0 have been started, and some visionary authors have already defined Industry 7.-8.0 stages. The main challenges are related to the exponential growth of digital tools including robots, cobots, AR/VR technologies, connected objects, communication systems, data centres, cloud university platforms, AI 4.0, digital twins, associated energy consumption, and new ecological innovations.

The future industrial sectors must find new technologies, new designs, new business models, technological innovations, new architectures, new communication systems, and data and cloud storage concepts, in order to increase the performances of the digital world and, at the same time, to minimize the related energy consumption. Replan, Reuse and Recycle thinking are together creating grand challenges of service-oriented industries. Specifically, Europe needs highly skilled, flexible, emotionally, and socially intelligent manufacturing professionals to solve tomorrow's problems already today.

While skill requirements are changing rapidly, enterprises, especially SMEs, struggle to find the talent pool they need. For modern industries, it is crucial to support the upskilling of their workforce towards new and higher-skilled roles. Also, competence competition for talent will become even fiercer in the coming years. There are extreme needs to take personal responsibility for their learning trajectory for workers and embrace the concept of lifelong or continuous learning. The idea of dynamic capabilities is more and more relevant. How can education and training providers keep pace with this unprecedented level of change? Is it possible? How does a future-proof curriculum of Industry 4.0 or Industry 5.0 look like?

While there are already examples of effective approaches towards adapting engineering training to the needs of Industry 4.0, numerous education and training providers only now begin to consider the necessary development of digital learning programs. Reshaping Industry 4.0 or 5.0 curricula is a considerable challenge, implying complex decision-making processes and various administrative obstacles. Many departments and faculties are still dominated by traditional approaches and subject-related 'silo thinking.' At the same time, the new industrial age requires fundamentally new mindsets and visionary leadership with out of box thinking.

The European Commission has addressed the abovementioned challenges by developing the Curriculum Guidelines 4.0, offering education and training providers a systemized overview of the new ways of organizing learning experiences of individuals and groups for Industry 4.0. The guidelines aim to provide key stakeholders with an analytical base for developing curricula for the new industrial age. The objective is to offer a source of inspiration, conceptual guidance, and good practice examples. The guidelines aim to be applicable for both designing fundamentally new educational offers and advancing existing curricula, depending on the level of the required change.

The challenge of the Special Session "Beyond Industry 4.0 Curriculum: Challenges of Multi-contextual Learning" is to discuss futures of learning and learning of futures in this European Industry 4.0 context and guide us to deeper learning of futures challenges.

Background reading: Skills for industry curriculum guidelines 4.0. Future-proof education and training for manufacturing in Europe: Final report
https://op.europa.eu/fi/publication-detail/-/publication/845051d4-4ed8-11ea-aece-01aa75ed71a1

Educating for futures of work with direct human-robot interaction: Insights on future skills needs based on a literature review of cobot literature

Mikkel Stein Knudsen, Jari Kaivo-oja & Theresa Lauraeus
Finland Futures Research Centre, University of Turku, Finland

A major signal from the ongoing transformation of industrial manufacturing is the emergence of collaborative robots – 'cobots'. Collaborative robots enables direct collaboration between humans and robots without safety-conditioned physical separation of the two types of workers. This, in theory, allows for the optimal combination of the strengths of humans with the strengths of automated machines.

The introduction of cobots onto factory floors exemplifies new man-machine collaborations and presents plausible signals concerning future developments of human-robot relationships. With rapid technological advances, cobots are likely to play increasing roles across many sectors in the futures of work as well as within other areas of human lives. Using technology foresight signals, we can assess some of these potential future impacts, for which the educational system of today should help prepare.

This paper provides a literature review on the fast emerging literature on collaborative robots in order to I) describe the concept of cobots within the paradigm of Industry 4.0 and new automated manufacturing, II) identify types of jobs which, according to the literature, will be affected or created by the emergence of cobots, III) identify new or changed types of future human work skills implied by cobot literature, and IV) identify potential challenges which human workers may be faced with in the future.

Scanning the literature for future skill needs help us identify future challenges and develop needed adaptations. This is important to help our educational system address the consequences of technical advancements, reap potential benefits, and minimise potential negative social impacts.

Tuesday 8ᵗʰ June, 18:30 – 20:00
Chair: Dr. Sanna Ketonen-Oksi
Laurea University of Applied Sciences, Finland

Introduction to Theme

Sanna Ketonen-Oksi
Laurea University of Applied Sciences, Finland

Foresight in entrepreneurial opportunity

Ksenija Djuricic
EM Strasbourg Business School, France
Finland Futures Research Centre, University of Turku, Finland

Entrepreneurial opportunity is at the heart of entrepreneurial activity. Despite a consensual agreement in the entrepreneurship literature that entrepreneurial opportunity is a result of both entrepreneurs' prior knowledge and imaginative capacity, it still remains unclear how these two elements combined together produce entrepreneurial opportunity. By its nature, entrepreneurial opportunity always bears some elements of the future, thus being difficult for researchers to capture. In this study, we explore the dynamics of the emergence of entrepreneurial opportunity by relying on the Critical Decision Method. This method allows us to capture the knowledge and cognitive mechanisms the participants use at specific points in time in their activity domains. Through structured interviews supported with probe questions, we dive retrospectively into the process of opportunity generation of twenty-six international entrepreneurs with various entrepreneurial experience operating in different sectors. The main findings reveal that entrepreneurial opportunity emerges through a combination of not only prior knowledge, as the literature suggests, but also through entrepreneurs' general and future-oriented knowledge. This combined knowledge allows entrepreneurs to perceive the future potential of an opportunity that serves as a decision-making point to exploit such opportunity further. This perception of potential represents the entrepreneurs' individual foresight capacity, which allows opportunity generation. This article complements entrepreneurial opportunity research by revealing different types of knowledge that underlie the phenomenon of foresight capacity. Our study also reveals that individual foresight capacity is not an innate ability but can be learned.

Keywords: Entrepreneurial Opportunity, Knowledge, Foresight Capacity

Teaching future-oriented entrepreneurship in the age of digitization

Anna Sacio-Szymańska[a], Stefanie Ollenburg[b], Leonello Trivelli[c], Anna Kononiuk[d], Ibon Zugasti[e] & Anna Pająk[f]
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[e]Prospektiker, Spain
[f]Łukasiewicz Research Network - Institute for Susatainable Technologies, Poland

Research questions:

- What competences would help academics, entrepreneurs and students of various educational backgrounds to build sustainable futures?
- What topics and didactical methods can convey such competences and abstract concepts to these target groups?

In order to answer these critical questions, theoretical and empirical research has been undertaken within the project entitled "Becoming Future - Oriented Entrepreneurs in universities and companies – beFORE" under the Erasmus+ programme Knowledge Alliance scheme.

The methodology of research consisted of:

Phase 1: Specifying future-oriented learning needs and competences by:

- Reviewing and synthetizing studies, university curricula, courses and case studies to extract foresight and entrepreneurial competences,
- Processing and validating competences through a survey among university students, academics and business representatives,
- Delineating the thematic scope of the online educational offer.

Phase 2: Producing online educational offer by:

- Developing the recommendations concerning pedagogical strategies, didactic approaches and technical characteristics of the e-learning courses,
- Developing the basic e-learning course, and tailored modules for academics, students and business representatives.

Phase 3: Validating the online educational offer by:

- Developing a unified methodology of testing and verifying the e-learning modules, Piloting the e-learning offer in Germany, Italy, Poland, and Spain among target groups.

The paper will present the methodology and the main outcome of this project that is the online course in Futures Literacy accessible at futureoriented.eu and dedicated for academics, students and entrepreneurs (SMEs owners and representatives). By sharing the results of our research journey we wish to set a good educational practice example that would guide our community into allowing other disciplines to absorb our methods, toolkits and – most of all – futures literacy mindset and competences.

Keywords: Future-orientation, Futures Studies, Futures Literacy, Entrepreneurship, Competences, eLearning

Developing organisational futures orientation – a process of continuous learning and transforming

Sanna Ketonen-Oksi
Laurea University of Applied Sciences, Finland

In a few decades, the average age of companies has dramatically decreased. The cumulative profits generated over their life span have declined at an even sharper rate. (Reeves et Puschel, 2015). However, according to recent studies, building systematic foresight practices can help companies to significantly improve both their profitability and longevity (Rohrbeck et al, 2018). Reducing deficiencies in an organisation´s abilities to sustain its long-term vitality is particularly important at times of crisis (Reeves et al, 2020).

Built on the grounds of the six-pillar approach to futures thinking for transforming (Inayatullah, 1998), a six-step model for developing organisational futures orientation is developed to explore and conceptualise the process of building up the needed foresight practices. Developed as part of an action research in a small privately owned company in the field of strategic consulting and training, the model calls for novel structures and operational models to support both diversity in thinking and collective knowledge creation. Besides highlighting the importance of foresight as an integral part of companies´ everyday operational models, the model brings forth the necessity to also challenge and transform the employees´ underlying assumptions and thinking patterns about the future – thus significantly improving the use and applicability of the chosen foresight tools and methods.

The model was first introduced in IEEE Transactions on Engineering Management (Ketonen-Oksi, 2020) in December 2020. Now, we will discuss its applicability and potential impacts in other organisational contexts. What are the key takeaways from this experimental case study? How to arouse the companies´ interests and to engage them in slow transformative change while providing fast, hands-on sprints to support their everyday work? What is needed to support the continuous organisational learning and transformation with foresight?

Keywords: Futures Thinking, Strategic Foresight, Organisational Transformation, Capability Building

Workshop: Changing Thinking Hats for Brain-based Problem Solving

Wednesday 9th June, 13:40-15:00
Facilitator: Vindhya Sathya Singh
Centre for Preparatory Studies, Sultan Qaboos University, Oman

The twelve principles of Brain-based learning (Jensen, 2000) and the six thinking hats (de Bono, 1994) can be used to develop cognitive thinking pathways in learners. New ways of interconnecting learning experiences can help learners have a fresh perspective on taking decisions and solving problems. This session will be an interactive session where the audience will be given problems to solve. Their critical, lateral and parallel thinking abilities will be utilized to demonstrate that group work and synergetic participation will help students in classroom to have similar ways of interaction and problem solving experiences. Examples from classroom experiences will be shared to shed light on how this can be achieved. The workshop will give insight into classroom group dynamics, management and cognitive skills stimulation which is needed in the future of education.

Workshop: Facilitating Identity Work in Futures Literacy training programs

Wednesday 9th June, 13:40-15:00
Facilitators: Petra H.M. Cremers & Jitske Gulmans
Hanze University of Applied Sciences, the Netherlands

Professionals are increasingly confronted with complexity and diversity in their work contexts. Dealing with this requires learning to embrace uncertainty and discover the unprecedented, emerging novelties not imagined yet. One way to achieve this, is by developing Futures Literacy (1), the capability to imagine futures in different ways and for different reasons in different contexts. This capability to 'use-the-future' in order to innovate the present, encompasses enhanced perception, embracing complexity and a new sense of agency, thereby expanding what one can see and might do in the present.

However, being open for complexity and emergence challenges one's assumptions, values and beliefs. Therefore, we hypothesize that the capability of Futures Literacy needs to be incorporated in one's Professional Identity (2): a unique 'fingerprint' that connects who you are, what you do and where you work. As a strong professional identity is associated with increased self-regulation, resilience, wisdom and excellence (2), it enables participants to cope with complexity and uncertainty without losing themselves in the process.

For that reason we incorporated Identity Work (3) and reflection exercises in our training programs on Futures Literacy. In a practice-based research project we explored two research questions: "What is the participants' perceived value of Identity Work in relation to Futures Literacy?" and "In which ways can we facilitate Identity Work with participants in Futures Literacy training programs?" In this workshop participants will engage in some exercises on Identity Work and we will share preliminary results of our research.

(1) Miller, R. (Ed.). (2018) Transforming the Future. Anticipation in the 21st century. (Open Access). London: Routledge, https://doi.org/10.4324/9781351048002

(2) Van Oeffelt, T. P. A., Ruijters, M. C. P., Van Hees, A. A. J. C., & Simons, R. J. P. (2017) Professional identity, a neglected core concept of professional development. In: Identity as a Foundation for Human Resource Development (pp. 237-252). Taylor and Francis AS. https://doi.org/10.4324/9781315671482

(3) Caza, BB, Vough, H, Puranik, H. (2018) Identity work in organizations and occupations: Definitions, theories, and pathways forward. Journal of Organizational Behavior; 39: 889– 910. https://doi.org/10.1002/job.2318

Keywords: Futures Literacy, Professional Identity, Identity Work, Higher Education

This workshop will first be introduced by a spoken paper:

Mastering Futures Literacy: Rethinking teaching in societal transformations

Elles Kazemier, Loes Damhof, Jitske Gulmans & Petra Cremers
Hanze University of Applied Science, The Netherlands

Embedding complex societal challenges in European Higher Education brings forth new roles and responsibilities for faculty. Since students need to build the capability to embrace complexity and to explore new avenues to respond to the 21st century challenges, their teachers need to build this capability. The Hanze UAS Unesco Chair on Futures Literacy therefor offers teachers the learning course Mastering Futures Literacy. This three-module hybrid program supports them in becoming more futures literate and in designing and implementing learning activities that foster futures literacy in their students as well. To gain an insight into the teachers' development of FL and to what extent the program design and facilitation heuristics contributed to their learning processes, each module was evaluated. Analysis of participants' reflections during the program, questionnaires and group interviews indicates that all participants developed FL, showing individual variation in what they learned and to which degree. Learning results included more appreciation for uncertainty and complexity, enhancement of curiosity, awareness and responsibility, and community building. The program design and facilitation heuristics seemed to enhance this, among others, through a learning-by-doing approach, collaborative learning and reflectional exercises. Taking ample time for thinking, reflecting and experimenting in particular seemed to enhance the participants' transformative learning processes.

Workshop: Innovation Labs as Learning Platforms: Designing Future-oriented Strategies and Interventions for Accelerated Learning

Wednesday 9th June, 13:40-15:00
Facilitators: Riikka Manninen & Heljä Franssila
Senate Properties, Finland

There is a dire need to find ways to accelerate learning on one-planet solutions in order to reach our global goals and stop the climate crisis. We need to learn faster and smarter, and apply new solutions on all levels of our daily lives.

The combination of futures research and design studies withholds several possibilities to accelerate this learning process. These fields and their methodologies can assist in making future options more concrete and in finding innovative ways to learn and co-create.

One promising approach to bring people together to work on current issues is innovation labs. They have a several decade-long history, and nowadays, there exists a global network of innovation labs. The newest governmental innovation lab in Finland, Työ2.0Lab, opened in Helsinki in 2019. A diverse group of governmental and non-governmental actors use this lab as an innovation platform, and it was created through a co-creation process. During the corona pandemic, the physical lab has been closed, and new digital services and collaboration models have been developed.

In this workshop, the theme of designing strategies and interventions for accelerated network learning will be explored. The workshop will focus on the future possibilities of innovation labs and their service offerings as accelerated learning platforms. The workshop outcomes will be applicable to a variety of contexts and the methods utilised will combine futures research and design methods. In addition, Työ2.0Lab will be presented as a case.

Keywords: Design, Innovation Labs, Accelerated Learning, Sustainability

SESSION VI: WEDNESDAY 9TH JUNE, 15:30 – 17:00

Learning as systemic capability: Learning regions and innovation systems

Wednesday 9th June, 15:30 – 17:00
Chair: Dr. Jarmo Vehmas

Learning with off-grid solar energy in the Global South – market leapfrogging or strengthening the base?

Joni Karjalainen
Finland Futures Research Centre, University of Turku, Finland

The off-grid solar photovoltaics sector caters for energy access with novel energy products and services in the Global South. In principle, actors in the decentralized renewable energy (DRE) sector may acquire knowledge and skills through interactive learning. Private sector learning, as continuous processes, may develop in sequences, so that firms and industries gradually evolve from elementary and intermediate to advanced levels. In the East African pioneering off-grid solar photovoltaics (PV) markets, niche-building efforts over a 30-year period accumulated a range of foundational capabilities, akin to a 'pre-latecomer stage' of economic development. The aim of the paper is to explore recent dynamics where the emphasis has shifted to entrepreneurial learning. Internationally leading firms, as market pioneers, interpret their customers and harness data to operate sophisticated technologies. With advanced capabilities, they attract seed finance and venture capital from international actor-networks. Scenario-testing, pioneer analysis and horizon scanning for emerging issues are complemented with a firm-level database. The analysis explores the role of learning for sustainable and transformative outcomes, illustrated with images of the future, in the face of the post-pandemic recovery and the Fourth Industrial Revolution.

Keywords: Capabilities, Ecosystem, Image of the Future, Innovation, Pioneer Analysis, Transformation

Tourism and Futures: A "greensight" perspective into microentrepreneurship-based tourism in environmentally-sensitive areas: the case of Dota County in Costa Rica

Ana Jones[a] & Daniel L. Avendaño[b]
[a]Finland Futures Research Centre, University of Turku, Finland
[b]Universidad Nacional, Costa Rica

Nature-rich areas are prompt to become sensitive hotspots where the economic benefit of the participating agents, the conservation of natural resources, and the understanding of environmental impacts often result in disparities. The development of microentrepreneurship-based tourism in Dota County-Costa Rica is particularly attractive for its potential to boost socio-economic development. However less obvious is whether this approach could result on a short-term solution to long-term environmental problems particularly since more than 80 percent of the Dota County is under a certain level of environmental protection. Futures studies concerns developments that may have a particular future; therefore, by focusing on the tourism activities and the Costa Rica example, this paper uses cross-disciplinary methods combining futures studies and territorial geography to explore elements that may inform whether activities like experiential tourism specifically in green sensitive areas can be of key significance for the future. Special emphasis is given the approach applied in the identification and classification of microentrepreneurship associated with tourism activity in the county of Dota and its

patterns of spatial behavior. Using a conceptual framework called "greensight" this paper explores relational tangible, intangible and human elements and the possible futures they may open.

Data literacy as a systemic capability for European growth corridors

Ira Ahokas[a], Helka Kalliomäki[b] & Nick Balcom Raleigh[a]
[a]Finland Futures Research Centre, University of Turku, Finland
[b]School of Management, University of Vaasa, Finland

Several ongoing trends such as digitalisation, rapid development of new data analytic tools, and increased opening and sharing of data combine to make big data a significant source of new insights for territorial development. Especially the rapid increase in new data sources related to sensor and customer data, as well as their temporal depth, have introduced new potentials for spatial analytics. Utilising these new data sources could offer numerous benefits for environmentally, economically and socially sustainable territorial policy-making. However, to access this potential, wider data literacy and new kinds of data capacities across all private and public sectors are needed.

Using big data for evidence-based decision-making requires new technical and interpretive skills at individual and organisational levels. Furthermore, functional regions and related governance networks crossing various administrative boundaries and scales need to operate as an ecosystem to enable data-driven governance. Overall, territorial administrations at various scales need to improve their readiness and capabilities to recognize potentials in new data sources and generate actionable insights from them. This also means integrating various data sources, which in turn necessitates solid structures for integrated data management. Within this data literacy, awareness of the differentiating characteristics of datasets can be helpful in ascertaining the relevance, applicability, and combinability of them to specific data-driven inquiries.

This paper highlights our learning experiences from why data literacy is important for territorial policy development, especially in the context of functional regions such as European growth corridors crossing various administrative boundaries and thus requiring new tools for data-driven governance. The paper describes how to increase systemic capacities of growth corridor actors for big data utilisation. In addition, it points out how data-driven corridor governance require ecosystem development for comprehensive data utilisation. The experiences are based on the findings of the project Potentials of Big Data for Integrated Territorial Policy Development in the European Growth Corridors funded by the ESPON 2020 Cooperation Programme.

Foresight model for understanding South Savo future skills needs

Antti Rajala & Hanna Kautiainen
South Savo Regional Council, Finland

Esavoennakoi 360°-Foresight project is an ESF-funded project arranged by Regional Council of South Savo. One of the goals of the project is to create Foresight model for understanding region´s future skills needs.

As a preliminary study the project has conducted a skills needs survey sent to Foresight network, different education and research institutes in the region. Goals of the survey in context of the region are

as follows: 1. To understand essential networks; 2. To understand information generation and determine channels through which it is produced; 3. To understand information shortages; 4. Idea of what kind of new information about skills needs should be produced for region´s Foresight Website.

Region has a lot of willing participants and established networks, especially among education institutions. In the future it is important to involve private enterprises as well.

There is a lot of information available. However, this information is fragmented and sometimes only accessible via individual agreements between a company and an education institution. In the future platform for conversation with a shared vision is required.

Requirements for information vary among organizations and individuals. Producing information especially in a certain industry or profession can be challenging. At least in a context that makes information acquirement possible equally. In the future information must be collected and constructed in a way that suits many needs instead of just few.

Foresight website ideally includes different sources about future of work as well as interpretation of them. Website´s skills needs section must be connected to existing content.

Keywords: Foresight; Skills Needs; Future of Work; Future Skills; Regional Development; Foresight Model

Special Session: Sources and Risks of Digital Transformation

Wednesday 9th June, 15:30-17:00
Chair: Dr. Osmo Kuusi

Introduction to theme of the Session

Dr. Osmo Kuusi
Finland Futures Research Centre, University of Turku, Finland

The Transition from Artificial Narrow Intelligence to Artificial General intelligence will change Learning and Education

Jerome C. Glenn
The Millennium Project, USA

There are three kinds of AI: 1) Artificial Narrow Intelligence, single purpose, what we have now. ANI that drives a car cannot diagnosis cancer; 2) Artificial General Intelligence, human-like/level intelligence, not available now, and might not for some time, but if created, it would draw on many sources (IoT, etc.) to solve novel problems in novel environments: Artificial Super Intelligence, AGI that sets its own goals independent of humans, could emerge fast from AGI - what many are worried about and shown in some science fiction movies.

Today teachers and students use ANI in Google searches, tutoring systems like wyzant, and support massive individual remote learning with IBM's Jill Watson. Future AGI will be far more integrated into the learning process then ANI. If the initial conditions of AGI are not "right," then it could evolve into an Artificial Super Intelligence (ASI) that many have warned could threaten the future of humanity. Some AGI experts believe it is possible to have AGI as soon as ten to fifteen years. It is likely to take ten to fifteen years to: 1) develop ANI to AGI international or global agreements; 2) design the governance

system; and 3) begin implementation, then it would be wise to begin exploring potential governance approaches and their potential effectiveness now. Educators as well as AI professionals, international lawyers, and politicians should get involved in this process of governing potential AGI development.

Keywords: Artificial Intelligence, AGI, Future Learning, Future Education

How can we learn from Nature to proactively procure the built environment as resilient against crises? Bio-economy driving digital meanings society

Sirkka Heinonen
Finland Futures Research Centre, University of Turku, Finland

The conundrum of megachallenges such as climate change, depletion of natural resources, population growth explosion, rising unemployment and conflicts in geo-politics are forcing governments, cities and businesses to seriously and systematically anticipate future developments and draw alternative action plans in order to reach futures resilience. In this effort, production and consumption practices as well as lifestyles and the energy system have to go through deep transformation. In the aftermath of the information society new options arise. Will the bio-economy be a key element in generating digital meanings society? Will we create bio-society? How can we learn from nature in order to rethink our activities so that the planet will remain a habitable place? How can we learn from nature to proactively procure the built environment as resilient against crises? Surprises are the new normal. Futures resilience in the VUCA world (volatility, uncertainty, complexity, ambiguity) requires increasingly robust crisis readiness (anticipation, proactive preparation, response and recovery). Four scenarios of renewable energy world in a peer-to-peer mode are presented, and their interconnections to bio-economy and crises readiness are addressed. What role do land use, space, and built environment play in urban crisis management?

Keywords: Bioeconomy, Digital Meanings Society, Futures Resilience, Crisis Management, Scenarios

Technology Acceleration and the Future of Humanity in The Fourth Industrial Revolution

Felipe Arocena
Universidad de la República, Uruguay

In the last few years, attention from the scientific community regarding changes in the new concept of "the fourth industrial revolution" increased considerably (Klaus Schwab 2016). This fourth industrial revolution can be characterized by the interphase between digital technologies in social, physical and biological processes and it reaches phenomena such as genetic engineering, nanotechnologies, and the new level of computers that can learn to learn. The Director of the Institute for the Future of Humanity, Nick Bostrom (2014), synthetized the opinion of experts in artificial intelligence, showing that 90% of them think an A.I. "that can carry out most human professions at least as well as a typical human" will be ready by 2075 and 50% stated that it will be available by 2040. Bostrom, together with Stephen Hawking and other leading researchers, signed an open letter where they alert of the chance that a complex superintelligence, very superior to humans in all aspects could be produced; because of the ambivalent consequences for humanity if this occurs they asked to the mega business implied in its development (such as Google, Microsoft, Facebook) to comply with specific ethical regulations as they fund research. What are the chances that ethical or political protocols of the type that Bostrom and Hawking put forward, will be successful in the long run, be it prohibiting, limiting or orienting technological acceleration in the fourth industrial revolution? This is the main question we will discuss.

Workshop: Introducing Futures Consciousness and testing the Futures Consciousness Profile Database

Wednesday 9th June, 15:30-17:00
Facilitators: Sanna Ahvenharju, Matti Minkkinen & Martyn Richards
Finland Futures Research Centre, University of Turku, Finland

Futures Consciousness is the human capacity to understand, anticipate, prepare for, and embrace the future. The five-dimensional Futures Consciousness (FC) model integrates theoretical thinking from futures studies with related psychological literature and constructs. The five dimensions are a) time perspective, b) agency beliefs, c) openness to alternatives, d) systems perception and e) concern for others. Based on the model, a 20-item psychometric measure, the Futures Consciousness Scale has been developed. The scale is currently available in English, Finnish and French, and it is being translated into Russian and Portuguese. A version for teenagers is currently being tested in English, Italian, Dutch and Turkish.

In this interactive workshop, participants will be introduced to the basic concepts of Futures Consciousness, they have an opportunity to test the scale themselves and see how it can be used in practical work or research. After an introductory presentation, participants are able to try the Futures Consciousness Profile Database by testing themselves and studying the resulting profile reports. This database is an easy-to-manage survey tool for researchers, educators, practitioners and students interested in making use of Futures Consciousness. The researchers will guide the participants and answer their questions while testing the database. The session includes a discussion part for sharing ideas about utilizing the Futures Consciousness Profile Database in different fields.

Sanna Ahvenharju and Matti Minkkinen have published several articles together with colleagues on Futures Consciousness and together with Martyn Richards, they have developed the Futures Consciousness Profile Database and the related website https://futuresconsciousness.utu.fi/.

Keywords: Futures Consciousness, Measurement scale, Future orientation, Anticipation

Workshop: Wabi Sabi Game - Experience to understand the transformation era

Wednesday 9th June, 15:30-17:00
Facilitators: Martijn Derksen, Harm van den Wijngaard & Anne Nabuurs
Fontys University of Applied Sciences, The Netherlands

There's a lot coming at us nowadays: disruptive technologies, transformation of organizations and dizzying ways to collaborate and co-create. Which are also converging into and almost endless stream of new possibilities. That we are entering an unknown future is an understatement.

To grasp this and gain insights in the simultaneously exciting and frightening potential the future holds the WABI SABI GAME has been developed. In this game you'll sequentially pass through three different era's in which you'll experience how learning itself changes and what becomes possible. The game requires you to adapt to new circumstances that calls for different behaviour from its players. By reflecting on this afterwards you'll become aware of the implications for you, your organisation and society.

In this regard we are inspired by the Wabi Sabi philosophy: nothing is eternal, nothing is perfect, nothing is finished. By looking through that lens it becomes clear that society is a dynamic whole. Learning to let go is therefore a natural part of the process. However it is not something we do easily. When the rules of the game change we (unconsciously) take them with us to a new era. That's where we want to help people out and to step into their own power. It is the conscious choices that you and I make that allow us to shape our future. This is how we look at innovation, as a way to help people in some way: to enlarge their awareness as an individual. More? http://www.wabisabigame.org/

Keywords: Gameplay, Transformation, Learning, Experience,

Workshop: Riddle of the Spirit: Imaginative and multimodal pedagogy for young children's climate change education

Wednesday 9th June, 15:30-17:00
Facilitators: Chin-Chin Wong, Jenny Byman & Jenny Renlund
University of Helsinki, Finland

Designing and implementing pedagogical activities for young children's climate change education are found challenging due to the complexity of topics, teachers' lack of time, knowledge and skills, and the emergence of young children's eco-anxiety. In this experiential workshop, we will introduce a novel story-based multimodal pedagogy that has been purposefully designed in our research team to engage young children to explore climate issues through the imaginative world of 'natural spirits'. The journey begins with a story inspired by old Finnish myths on the thunderstorm spirit Ukko who is sad and unwell. Starting with this riddle, the pedagogy frames the learning activities into three different phases: 'Find', 'Think' and 'Make'. Children are encouraged to 'find' information across multimodal media, such as linguistic, visual, tactile and spatial, and to 'think' about and critically discuss the connections between the found information and the imaginative story about Ukko and the other spirits. Lastly, children are invited to be creative and 'make' a happy ending to solve the riddle. Each phase encourages children to explore various dimensions of the topic of climate change.

This workshop includes a storytelling introduction, playful activities with learning props and multimodal materials, and an ending discussion. It aims to provide insights and inspire participants to rethink the use of the pedagogy in engaging children in climate change education through imaginative stories and multimodality.

Keywords: Climate Change Education, Pedagogy, Multimodality, Imagination

Workshop: Educating designers in designing futures – a workshop on teaching futures

Wednesday 9th June, 15:30-17:00
Facilitator: Stefanie Ollenburg
Freie Universitaet Berlin, Germany

With their ideas and constructions communication, industry or urban development designers are playing an integral role in shaping the future. Thus, it is a logical development that universities have started to integrate the concepts of alternative futures and strategic foresight into their design education programs (to name but a few: Arizona State Uni, CMU Pittsburgh, HBK Braunschweig, FH Potsdam, OCAD Canada,).

As a trained designer and futurist the author introduced the field of Futures Studies to students of design and architecture in Germany. The students were keen to learn how to shape a more sustainable tomorrow by using the concept of futures and to utilize foresight methodologies.

In her teaching the author used an anticipatory framework, the Futures-Design-Process Model (Ollenburg, 2019) to introduce the concept of futures to students. It combines a generic design process consisting of analysis, projection and synthesis (Jonas, 2007) with the concept of futures. It intends to complement a designer's perspective from one future to thinking in various futures, while remaining close to their design reality.

In this session the author wants to initiate a debate with an interactive online workshop on didactics and methodologies in the curriculum for designers (& other field e.g., engineering). It is an anticipatory exercise based on the Futures-Design-Process. In teams, the participants can briefly experience the three phases of the framework to develop scenarios on the topic of higher education and design. The workshop is intended to reach lecturers wanting to integrate the concept of futures. Therefore, the aim is to conclude with a discussion on the approach and other teaching realities.

Jonas, W. (2007). Research through DESIGN through research; A cybernetic model of designing design foundations. Kybernetes, 36(9/10), 1362-1380. doi: 10.1108/03684920710827355

Ollenburg, Stefanie (2019) A Futures-Design-Process Model for Participatory Futures In: Journal of Futures Studies Vol.23 / Special Issue: Design and Futures (No.4 June 2019), pp: 51-62, DOI: 10.6531/JFS.201906_23(4).0006