XAMK BEYOND

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Futures

Irina Kujanpää, Eeva-Maria Suojärvi, & Cai Weaver (eds.)

XAMK
South-Eastern Finland
University of Applied Sciences

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XAMK TUTKII 30

SOUTH-EASTERN FINLAND UNIVERSITY OF APPLIED SCIENCES

KOTKA 2024

Cover picture: Adobe Stock
Layout and printing: Grano Oy
ISBN 978-952-344-574-1 (print)
ISBN 978-952-344-575-8 (PDF)
ISSN 2489-2459 (print)
ISSN 2489-4575 (ebook)
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1 INTRODUCTION: FUTURES

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1.1 Beyond Futures

We have named this issue of Xamk Beyond: *Futures* as we want to bring attention to the means we all have to make informed decisions and affect what lies ahead of us. Already conceptualizing the idea of time that is real for us and expanding the concept of future to futures in the plural empowers us to make choices rather than take chances and react to events around us. We refrain from using the term "the future" in the singular as it could even be seen as a reflection of Western approaches of seeking a "right future" as opposed to reframing the present with imagined futures (Conway, 2023: 17). For futurists, the aim is to seek something new by looking into a variety of possibilities instead of simply envisioning a continuum of the present.

At this time, as understood in our society, we all, as individuals, groups, and organizations, influence what is to come. At the University of Applied Sciences, we can impact the directions we take through research, education, and applying foresight, thus creating new thinking by looking beyond the present and past. By owning our agency, we can stand up to the values we share as a Finnish research and educational institution with our mission set in legislation:

The mission of universities of applied sciences is to provide higher education for professional expert tasks and duties based on the requirements of the world of work and its development and on the premises of academic research and academic and artistic education and to support the professional growth of students. The mission of universities of applied sciences is also to carry out applied research, development and innovation activities, and artistic activities that serve education in universities of applied sciences, promote industry, business and regional development and regenerate the industrial structure of the region. In carrying out their mission, universities of applied sciences shall provide opportunities for continuous learning.

(Universities of Applied Sciences Act, 932/2014)

The mission can only be served with a clear enough understanding of relevant futures and the possible consequences of different actions and decisions. The tasks mentioned above and the requirements for higher education for professionals are also reflected in the articles of the Xamk Beyond: Futures issue. To be able to choose actively, we first need to start thinking about futures. Are futures ahead of us, or is it just a reaction to our past? Are the futures set already, or what kind of choices do we still have to make? What are the principles and values based on which we choose? Do we all share the same ideals of futures, or how do they differ? How can we bring about the desired futures for the common good?

1.2 Thinking about futures

Thinking about futures begins with understanding the concept of time and how we interpret the past, the now, and futures. If we understand the values behind our choices, the individual differences of perspectives on the same futures, and what parts of the present should be preserved. In that case, we will have a solid basis on which to build our visions of the desired futures.

In her article 'Real time and futures research,' Eeva-Maria Suojärvi explores how our notion of futures is changing due to our transition to the digital age, facilitated by the real-time nature of the Internet. Suojärvi examines how we conceive of time in futures research, opening the concepts of the polarity of time, poly chronology, rhythm, and time perspectives and metaphors. She broadens our understanding of time from being a singular linear measurement from moment A to moment B to a multiplicity of subjective time grounded

in different cultural and individual realities. Broadening our understanding of time is key to responding to different societal challenges in the future and illuminating how we think about possible futures.

The decentralization of media directly into the hands of anyone with unfiltered internet access has led to an unparalleled decline in the public's media literacy and the growth of so-called 'fake news.' Anne Hytönen's article on 'Science communication as a tool for information resilience' addresses the current challenging environment for the dissemination of knowledge and research-based information to the general public. Hytönen sees a two-pronged approach as a necessary solution to fighting against false information by simultaneously developing the skills of information resilience, our ability to have reliable information for decision-making, and science communication, sharing research methods, theories, findings, results, and conclusions. The latter is especially important for being able to share knowledge and research-based information, and the former is needed for the public to be able to tell disinformation from information. The current environment is particularly challenging as people tend to rate their media literacy skills as higher than they are. However, she argues that developing information resilience and science communication can combat the decline of trust in media and improve the public's ability to make well-informed decisions grounded in fact and research.

1.3 Researching futures

To increase our understanding of various aspects of futures, we need research. Research provides a good basis for making the futures. However, future plans cannot only be based on the past and something we already know to be working. We also need information about the futures. When we want to know what would work in the future, or what kind of new innovations we might need, it's time to think from new perspectives. To be able to catch up with the future, we need to find out the directions of recent developments, challenge current models, understand the challenges people face, envision different futures, and try new ways of working or expand the use of current solutions to new areas. Researching futures gives us more agency over our chosen futures. It helps us better understand the effects of our actions and decisions and makes our plans more suitable for our chosen futures. If our decisions are based on researched knowledge of futures, not only past events, we are also able to widen the horizons of possible futures.

In their article on 'Enhancing digital competence and readiness of healthcare personnel for technology, robotics, and digital services', Holmèn and Härkönen present the results of their research project, which investigates how robotization and digitalization are transforming

the healthcare sector and the level of digital competence within different organizations to be able to leverage different digital solutions effectively. They explore the use of different robotics solutions: Paro the Seal robot, Nao, a humanoid bipedal robot, and Moto tiles, which are tools for physical play within two elderly care units, services for people with intellectual disabilities, and a physical rehabilitation facility. Their results are promising but also highlighted a need to develop the digital competences of healthcare staff and allocate sufficient resources to these facilities so that the tools can be deployed effectively to enhance the residents' or patients' quality of life.

Justiina Halonen's article on 'Future challenges in spill response preparedness: how the green transition is changing marine pollution risks' explores some of the unforeseen side effects of the transition to greener and low-carbon fuels in the maritime industry. While oil spills are an ecological disaster, how oil behaves is a known factor, and spill responses have improved with decades of hands-on experience and research. The diversity of new alternative fuels replacing fossil fuels requires additional research on spill response and operational response activities. Furthermore, current response facilities need to be reequipped to respond effectively to a heterogeneous range of modern hazards. She argues that this is possible by changing from a behaviour-based mindset to a hazard-driven approach in order to make the transition away from fossil fuels a truly green and sustainable transition.

Sirkka Komulainen's article, 'Populations of the future: a shift from numbers to rights' challenges our conception of the current debate on the declining demographic situation in the global north. Komulainen argues that in population debates, women are first seen as child bearers and as a solution to the so-called demographic crisis; however, the declining birth rate can also be seen in a positive light, as women have the right to exercise control over their reproductive lives and this is one example of them regaining control over their own bodies. Shifting our thinking in such a way allows us to create a positive environment for justice and rights to flourish, which decouples women from their childbearing capacity and sees them instead as holistic entities. Komulainen's article is a necessary, thought-provoking read.

1.4 Educating futures

When we want to build futures, we choose to strengthen their realization possibilities; we need as many people as possible to help build them. We need to spread the word about the different futures and opportunities, but we also need to educate people to understand the threats to our futures and help them find ways to overcome them. We all need faith in our decisions to realize our futures, and it is easier to maintain that faith with some futureproof tools, skills, and knowledge in your pocket. Education gives us the tools, skills,

and knowledge we need for our eminent future within the workforce and even more. With future-proof education also comes the courage to take on challenges, resilience to cope with difficult situations, networks to support career and life choices, and the desire to develop oneself and continue learning throughout life. Development never ends, so staying curious is the only way to be truly future proof.

In 'Towards a future-driven understanding of the multicultural student and RDI expertise in Finland,' Mikhail Nemilentsev tackles the issue of international graduate retention in Finland. Focusing on the life stories of international students, he explores some of the challenges of integrating into Finnish society, which is made all the more difficult by learning the Finnish language alongside full-time studies, high level of English skills among Finns, and difficulties in finding employment. These issues are compounded by the segregation of international and Finnish-speaking students and the lack of preparatory courses for international students. Nemilentsev sets out key points that any higher education institution seeking to recruit international students and retain them after graduation should consider.

In her article, 'Developing courage and creativity for an alternative future' Kirsi Soulamo takes up the mantle of developing education that fosters creativity and courage in business students to build resilience and hope in a possible positive futures. She presents how she designed the coaching with key insights from her students to support her findings. Her research is inspiring, and the lessons learned should be adapted into broader educational provisions, including courage coaching and positive psychological interventions. Our common future demands it.

Maisa Kantanen's article on 'Future of entrepreneurship education in higher education institutions' is a fascinating glimpse into the current state of entrepreneurial education. She explores how the current trends in the field are leading to the homogenization of education, which is directly at odds with the spirit of entrepreneurial activities. Kantanen's research is valuable for anyone planning or teaching business education as she identifies promising future trends to return heterogeneity to the field.

1.5 Exploring futures

Futures are constantly changing and always unreachable. No matter how well we make plans, they only work for a while, and we are always in the present. When we have a chosen vision of a desired future, sometimes we need to evaluate if futures are still relevant or if we have gained knowledge of something that may lead us to reevaluate our decision. Even every step we take ourselves towards the chosen future changes the field. There are no

readymade or stable maps to the futures. Even if our futures hold up infinite possibilities and we unfortunately cannot predict which future will come, we can still proceed towards the one we want. We just take the step and then look around to see where we ended up and decide the next step from there.

Forecasting lets us explore different futures and makes our road a little less hazy. With well-chosen foresight methods, we can see what kind of issues we may face on our journey or where suitable opportunities might be opening. Foresight methods are also helpful for assessing the responsibility of our operations.

Traditional futures forecasting methods are slow, labour-intensive, and require sifting through vast amounts of data. In her article, Irina Kujanpää developed a one-hour foresight method as a promising rapid way of conducting foresight to identify ongoing and future changes within regions. As the tool yields quick results, it is complementary to slower traditional foresight and forecasting methodologies. The approach could be particularly useful as it can quickly gather insight into the current impact of regional development policies during their implementation or adjusting course as a result of immediate and sudden changes, such as a global pandemic or war.

Kati Viljakainen's article, 'Navigating the future together– an overview of Kymenlaakso's future workshops 2021–2023,' provides a comparative analysis of the results of regional futures foresight workshops. This reflective work showcases the importance of looking back and highlighting recurring themes from year to year. Within her analysis, it is possible to see the emergence of a common shared vision for the region as it tackles demographics and sustainability challenges and attempts to adapt to difficult realities. The role of the futures workshop in this process is undeniably beneficial.

1.6 Creating futures

By thinking, researching, educating, and forecasting futures, we can see where we are most likely heading and which skills we need. With suitable methods, we can predict changes and react accordingly. (Amara, 1981). In our concluding remarks, we reflect upon how we can create desired futures through the empowerment of individual agency. This gives us the power to affect the direction of the future, but to choose our futures, just thinking about, looking to, or reacting to what might be coming is not enough. Without a shared vision, we are not able to understand where we, as a society, want to go (Bell, 1997).

So, what kind of future are we choosing together?

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Universities of Applied Sciences Act: 932/2014 English - Translations of Finnish acts and decrees - FINLEX

2 REAL-TIME AND FUTURES RESEARCH

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ABSTRACT

The virtual real-time nature of the internet is ephemeral, in which meanings are no longer formed based on the temporal, local, or content distances between events. Time perspective can be thought of as being actor-specific, and the rhythm of different actors can be very individual. As the concept of time multiplies, new kinds of needs are encountered to consider time across disciplines. The perception of time as a linear continuum is changing even in the Western world as the industrial age has been transformed into the information age and is further transformed into a digital society of meaning. Thus, this article investigates the concept of real-time from the perspective of futures research, where the concept of time is a central system. The impact of the concept of time is explored through some of the key interpretations, contexts, and systems of real-time. The article specifically focuses on the plurality of time, poly chronology, rhythm, time perspective, and time metaphors, which are inextricably linked to timing and distance – the intensity of change. The concept of time, including real-time, must evolve so that we can understand and impact other systems also in the future.

Keywords: futures research, time, concepts of time, philosophy of science, values (conceptions)

TIIVISTELMÄ

Internetin virtuaalisen reaaliajan luonne on hetkellistä, jolloin merkityksiä ei enää muodostu tapahtumien välisten ajallisten, paikallisten tai sisältöetäisyyksien perusteella. Aikaperspektiivin voidaan ajatella olevan toimijakohtaista, ja eri toimijoiden rytmi voi olla hyvin yksilöllinen. Ajan käsitteen monimuotoistuessa kohdataan uudenlaisia tarpeita tarkastella aikaa eri tieteenaloilla. Käsitys ajasta lineaarisena jatkumona on muuttumassa myös länsimaissa, kun teollinen aikakausi on muuntautunut tietoyhteiskunnan aikakaudeksi ja muuntuu edelleen digitaalisen merkitysyhteiskunnan aikakaudeksi. Tässä artikkelissa tarkastellaan reaaliajan käsitettä tulevaisuudentutkimuksen näkökulmasta, jossa ajan käsite on keskeinen systeemi. Reaaliajan käsitteen merkityksien vaikutusta tulevaisuudentutkimukseen käsitellään joidenkin reaaliajan keskeisten tulkintojen, kontekstien ja systeemien avulla. Artikkeli keskittyy erityisesti ajan monimuotoisuuteen, polykronologiaan, rytmiin, aikaperspektiiviin ja ajan metaforiin, jotka liittyvät erottamattomasti ajoitukseen ja etäisyyteen – muutoksen intensiteettiin. Ajan käsitteen, mukaan lukien reaaliaika, täytyy kehittyä, jotta voimme ymmärtää muita systeemeitä ja vaikuttaa niihin myös tulevaisuudessa.

Avainsanat: tulevaisuudentutkimus, aika, aikakäsitykset, tieteenfilosofia, arvot (käsitykset)

2.1 Introduction

Time is the fundamental concept of understanding that shapes our reality (Kamppinen, 1999: 15). Time can be considered a human construct and, on the other hand, a natural system that we seek to understand through definitions (Suomi, 2022: 84). Immanuel Kant defined the concept of time as a linear continuum from one moment to the next, and the same assumption formed the basis of Isaac Newton's classical mechanics. However, chaos theory and the theory of relativity challenged this view as an exclusive truth. Even today, the conceptions of time within human and natural sciences are inconsistent. (Leong et al., 2009: 1269–1271). Moreover, as Jim Dator (2019: 78–79) explains in his research on alternative futures, the linear and progressive view of time is by no means predominant in all cultures.

In futures research, the concept of time is a central system that can be used to understand other systems (Suomi, 2022: 80–81, 84). It is noteworthy that modern futures research adopted the Western linear concept of time as a given after World War II. Although futures research has developed and diversified over decades as a scientific field, the view of time

as a linear continuum between the past, the present, and the future has often not been questioned by futures researchers. (Dator, 2019: 77–79).

What is interesting is how the concept of time as a system will affect and be viewed within the field in years to come. Futures researcher Anita Rubin (n.d.) has described modern reality as living in a real-time world, where the importance of real-time and momentariness is increasing while the significance of time is diminishing, and the depth-oriented concept of time is deteriorating. Thus, knowledge reaches us more and more in parallel, and the distances between events in time, location, and content lose their importance.

Real-time presents numerous starting points and angles for exploring possible futures. The impact of the concept of real-time on the scientific field is demonstrated through different interpretations, contexts, and systems. In this article, I will investigate the impact of the concept of real-time on futures research by exploring the concepts of the plurality of time, poly chronology, rhythm, time perspective, and time metaphors, which are inextricably linked to timing and distance – the intensity of change. The article aims to depict the varied stances that these views on real-time entail and how they complement each other. Ultimately, the central idea of futures studies is that the future can be influenced (Ruotsalainen et al., 2016: 9; Suomi, 2022: 84). Understanding the multitude of views on the nature of time enables a more holistic outlook and tools for the evolving field of futures research.

2.2 Plurality of time

The development of communication technologies and the internet have created new possibilities, which have reshaped our relationship with time. The concept of time has evolved into a flexible and usable system. Time can be understood as plural, relative, and bound to experience. (Dator, 2019: 90–91).

Susan Leong et al. (2009: 1272) elaborate on Gilles Deleuz's idea of real-time and its implications for futures studies. Deleuze has proposed that the conception of cyclic time, based on natural cycles, can be viewed as being behind the formation of customs and impact our understanding of real-time. On the other hand, the linear conception of time is based on memories – moments that do not repeat themselves. However, the fact that different moments or differences are repeated explains our view of the future. Reality is indeterminately structured as a repetition of the past as a form of the present in a different time outside a linear continuum. Reality is a parallel or multiplicity of differences.

From the viewpoint of futures research, the plurality of time is an interesting interpretation of real-time. It brings to research the habits defined by the cyclic perception of time and the linear progression of different memories, on the basis of which it is possible to predict the future.

2.3 Poly chronology

A certain perception of the plurality of time is also expressed by the poly chronology of the ubiquitous society, which takes a stand on meanings, human needs, and social issues (Mannermaa, 2008: 7). Mika Mannermaa, who specialized in societal development, wrote about the poly-chronological time of the ubiquitous society in his 2008 book Jokuveli: elämä ja vaikuttaminen ubiikkiyhteiskunnassa [Some Brother: Life and Participation in the Ubiquitous Society]. He argued that in a ubiquitous society networked by information technology, the mono-chronological time has been transformed into poly chronology, allowing several things to be done simultaneously and in parallel. At the same time, the sequential succession of things has receded. A culture of instantism has become prevalent, and all opportunities have always become available. The description from Jokuveli does not sound very foreign because the internet has already made all this possible in our time. Multitasking, doing many different things simultaneously – albeit inefficiently – has been part of daily life in the office and knowledge work for a long time (Pinola, 2017).

The poly-chronological concept of time in the ubiquitous information society described by Mannermaa creates an individual time experience when the use of time is no longer synchronized (2008: 61, 69). The individual poly chronology depicted is quite close to the present reality and offers us freedom in our being and doing. At the same time, it creates a sense of inadequacy when the depth-oriented concept of time fades, as mentioned by Rubin.

Thus, we have started to talk about time skills. Yet, the question arises whether it is even possible to follow Sirkka Heinonen's recommendation to learn to experience time as a seamless continuum of the past, present, and future (Heinonen quoted in Pinola, 2017). After all, our world is also made up of parallel real-time moments described by Rubin, with the distances between them blurred. Setting a rhythm is certainly humanly necessary, but would it be possible to do so in a way other than along a linear continuum?

2.4 Rhythm

According to Matti Kamppinen (1999), the concept of culture, in essence, means a set of actions and thinking by patterns and rules, following a certain rhythm. Culture is, therefore, based on rhythms that become stronger as people follow them. In addition to the social and natural rhythms, there is a combination of human biological rhythms. As Kamppinen (1999: 16) states, the respective processes of nature, culture, and humans form a multi-voiced symphony of rhythms on which cosmologies must take a stand.

The described rhythms resemble Deleuze's view of the multiple repetitions of cyclic and linear time described by Leong et al. (2009). However, has unified culture and, at the same time, our shared cultural conception of time loosened as the real-time rhythm has become individualized and cosmologies have been dispersed? Does the concept of time as a system follow the change?

Manuel Castells has used the concepts of timeless time and space of flows to highlight the disappearance of traditional rhythms in society reflected upon by Leong et al. in their study on time (2009: 1277). Kamppinen (1999: 18–19) also refers to Castells when describing the disappearance or change of successions of events when their rhythms are accelerated, synchronized, or, on the other hand, faded in the information society. After all, the temporal order has no order, resulting in the space of processes. However, it should be noted that in everyday human life, one cannot survive in the long term without some rhythm and predictability.

Heinonen suggests that the solution is to follow the cyclic concept of time alongside the application of linear time. However, she does not believe that this will be realizable in the planning routines of modern working life very soon. According to Heinonen, only when the digital society of meaning that is foreseen to follow the information society becomes reality will time and time skills be deeply valued. (Pinola, 2017).

One of the key ideas of the digital meaning society is that individuals' own time is valued as highly as collective time. (Pinola, 2017). New work is founded on organic networks of communities, and people swapping between them. Open networks promote diversity and freedom of choice allowing working "where, when, how, and with whom one wants," as described by Heinonen and her co-researchers (Ruotsalainen et al., 2016: 7). This shift of values could reduce the earlier-mentioned sense of inadequacy while promoting the time skills proposed by Heinonen.

Although the digital transformation of working culture has speeded up during and post the pandemic era, along with robotization and the development of artificial general intelligence, it seems that a profound change in the valuation of time has yet to take place. The digital meaning society, based on the production of shared cultural meanings and meaningfulness, is still to be fully realized.

2.5 Time perspective

Could time perspective provide a different angle on consistency for futures research? As time becomes an increasingly personal experience, it is necessary to explore many futures instead of one to a greater extent. At the same time, it is difficult to determine a mutually intelligible time perspective. Time as a flexible and usable human-made measuring system has become fragmented. Nor is there a uniform practice among futures researchers or others applying the field of science regarding a time scale that describes the future or futures. The future can be understood as being but a short time away or indeterminately far away. (Nordlund, 2012). So, has the time perspective from the present to the future also been fragmented in futures research?

The concept of time included in the Futures Consciousness concept presented by Sanna Ahvenharju (2022; 2023) could, in any case, be a useful measuring tool. Futures Consciousness is an ability or attribute and, as such, individual. As a concept of empirical research, Futures Consciousness consists of five interrelated dimensions: time perspective, agency beliefs, openness to alternatives, systems perception, and concern for others. The concept of time forms the basis of Futures Consciousness and is subjective in nature depending on, for example, an individual's age, circumstances, or anticipatory capacities. Interestingly, the relation between individuals and time varies when time is linked to the perception of one's possibilities to influence the future.

Although the time concept of Futures Consciousness relies on systemic thinking that the past, present, and future are a continuum following one another, Futures Consciousness, in its holistic nature, nevertheless brings to the forefront an individual's time-independent ability to perceive alternative consequences. It is linked to associations with the past, present, and future, as well as value choices or emphases of foresight. The concept of time is related to future orientation and the ability to imagine future outcomes. The past, present, and future are mirrored in real-time and holistically based on the experiences and values of an actor. In futures research, these choices can also be examined through metaphors.

2.6 Metaphors of time

The simultaneity or poly chronology of differences is an idea difficult to grasp in its abstraction. However, metaphors can be used to form an understanding of actors as part of the system. For example, the previously mentioned Kantian concept of time as a metaphor still defines the conception of time in Western society and some disciplines as self-evident. Today, futures research seeks, among other things, to form perceptions of existing metaphors and the limitations created by them and to examine alternative metaphors. (Leong et al., 2009: 1272–1273).

The concept of time can, therefore, also be questioned. Metaphors acquire their meaning through communication. Cultural metaphors of time can be ubiquitous, such as the flow of time. However, the metaphors of time in different cultures are still often diverse. The internet has created a new kind of space for them, as cultural, social, and political values are reflected in various metaphors of time; in the virtual world, they all meet in real time. From the perspective of futures research, it is interesting how the metaphors are then renewed. The strongest collective metaphors of time also impact the alternatives and future perceptions, among other things conceptualized by actors. (Leong et al., 2009: 1273–1275, 1277).

Virtually re-emerging and rapidly spreading metaphors embody the accelerating social change described by Castells (referred to by Leong et al. 2009: 1277 and Kamppinen 1999: 18–19). In terms of futures research, the metaphors of time that develop in real-time in the virtual world are always eloping.

2.7 Conclusions

In this article, I have explored the concepts of the plurality of time, poly chronology, rhythm, time perspective, and time metaphors. They are all inextricably linked to timing and distance – the intensity of change. The real-time nature of the internet, enabled by technological development, exhibits the plurality of time created by the relations between various determinants. Moments in time are, therefore, constantly reformed as the sum of the intensities of their contributory factors. (Leong et al., 2009: 1279–1281).

The virtual real-time nature of the internet is ephemeral, as described by Rubin (n.d.), in which meanings are no longer formed based on the temporal, local, or content distances between events. The time perspective can be thought of as being actor-specific, and the rhythm of different actors can be very individual. The perception of time as a linear con-

tinuum is changing even in the Western world as the industrial age has been transformed into the information age and is further transformed into a digital society of meaning.

The intensity of the change created by encounters between the metaphors of time is accelerating on the internet. In the reality we live in in real-time, various conceptions of time also exist in parallel. As the concept of time multiplies, new kinds of needs are encountered to consider time across disciplines. Surfacing cultural, as well as individual, values also have a great effect on our views of time. In futures research, the changes must be recognized. The concept of time – including real-time – needs to evolve as a system so that the field can develop, and we can keep understanding and impacting the futures of other systems.

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3 SCIENCE COMMUNICATION AS A TOOL FOR INFORMATION RESILIENCE

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ABSTRACT

The media environment has been rapidly changing in recent decades. Technological development and digitalization have challenged both media content creators and audiences with the rise of decentralised media and the growth of unreliable or inaccurate material presented as truth in an accessible package. This article explores media consumption from information resilience and science communication perspectives, focusing specifically on social media and reliability and how audiences perceive dependable sources. The concepts of informational resilience and science communication are used as a frame to investigate the recent changes in the communicational environment and media consumption paradigms. With the recent statistics presenting media consumers´ trust in the information published on social media, the research questions are: What is the role of science communication as a tool for information resilience? What does this mean to scientists, experts, communication professionals and audiences? In the future, there is a growing demand for reliable, knowledge-based information, and science communication can be an important tool for information resilience against false information. Therefore, it is important to enhance scientists´ communication skills as well as the media literacy skills of audiences to ensure citizens can access evidence-based information and identify so-called fake news to combat influencers in different communication channels.

Keywords: science communication, information resilience, media consumption, communication competences

TIIVISTELMÄ

Mediaympäristö on muuttunut nopeasti viime vuosikymmenten aikana. Teknologinen kehitys ja digitalisaatio haastavat sekä mediasisältöjen tuottajia että yleisöjä. Tämä artikkeli tarkastelee mediakulutuksen muutosta erityisesti sosiaalisessa mediassa tiedon huoltovarmuuden ja tiedeviestinnän näkökulmista. Miten tiedeviestintä voi toimia tiedon huoltovarmuuden edistäjänä? Mitä tämä tarkoittaa tutkijoille, asiantuntijoille, viestintäammattilaisille ja yleisöille? Tulevaisuudessa luotettavan, tutkimukseen perustuvan tiedon merkitys kasvaa esimerkiksi valeuutisia ja vaikuttamisyrityksiä vastaan. Tiedon huoltovarmuuden parantamiseksi on tärkeää edistää paitsi tiedeviestintää, myös eri yleisöjen medialukutaitoa.

Asiasanat: tiedeviestintä, tiedon huoltovarmuus, mediakulutus, viestintätaidot

3.1 Introduction

The communicational environment has changed rapidly during recent decades. Science communication, as well as communication in general, is facing the challenge of new, evolving communication channels. The media industry is in transition as digital platforms challenge print media. Alongside this, the ownership of media channels continues centralizing. Local and provincial newspapers, TV and radio channels, and other media channels are owned by a few media groups. This centralization of ownership changes the content production methods and can also narrow down the versatility of the content (Herkman 2024).

Multiple social media channels give the floor to numerous content producers, from media groups to ordinary citizens. Most likely, most of these content creators are driven by the desire for attention, to make a profit, or both. This may lead to a situation where economic and social drivers may override the reliability of content. Further, the development of AI-based solutions is not just behind the corner, and it is still unclear how they will influence content-creation practices as well as regulation and legislation in the communications industry in general, social media included.

This paper examines this phenomenon with the framework of information resilience and science communication. After presenting changes in the communicational environment and media consumption paradigms, the notions of information resilience and science communication are introduced shortly. Following the statistics presenting media consumers´ trust in the information published on social media, the role of science communication as a

tool for information resilience is explored. Can science communication answer the growing demand for knowledge-based information? Are researchers, communication experts, and media professionals able to use science communication as a tool to counter false information?

The growth of the Internet and social media has been changing media consumption habits. In 2010, ninety percent of Finns were using the internet, and forty percent were registered on social media platforms such as Facebook. (Liikenne- ja viestintäministeriö 2011, 5–6.) These numbers have continued to increase.

The transition in the communications industry and media consumption habits are presented in more detail in Table 1. In the traditional paradigm, communication professionals such as journalists are responsible for choosing and producing the media content, usually for one certain media, such as a newspaper. Typically, these media have limited content, such as the number of pages or the length of the television program. In the current new paradigm, the consumer has the choice of different content from multiple media sources, and communication professionals and officials no longer make the choice. In addition, web-based media do not usually have restrictions on content length. (Liikenne- ja viestintäministeriö 2011, 57, 58.)

Thus, the new paradigm can be considered as a positive change, where individuals consume media content based on their own selection or preferences. This can, in turn, empower the consumer with individual choice and democratic freedom. However, this is true only if the information is factual, accurate, and unbiased.

Table 1. Change paradigms. Source: Liikenne- ja viestintäministeriö 2011, 57.

Traditional Paradigm	Object of change	New Paradigm
Everything for everyone	Content offering/ packaging	Everything from something
Journalist evaluates and chooses	Choosing the content	Individual/community choice
Great volumes and cash flows	Sales and turnover	Small units and cash flows
One dominant actor in the field	Business model	Numerous different actors
One-way	Information flow	Multi-directional
Ownership	Relation to content	Using
One dominant actor in the field	Media formats	Numerous different ones
Local/National	Competition	Global

Social networking services enable consumers to get more targeted content, but the media industry can no longer guide these selections. This also changes the relationship to the reliability of the media source. For example, the reliability of the news shared on social media channels often depends on the person who has shared the link, not the original media source. (Liikenne- ja viestintäministeriö 2011, 58.)

The paradigm change in media consumption models holds true more than ten years after this report was published, but the question remains: "Do we have the same ability to predict the circumstances regarding information resilience and science communication?"

3.2 Information resiliance

Information resilience is a relatively new notion that is already quite well known. It is mainly defined as a process of having reliable information for decision-making, especially in a crisis or other vulnerable situations in society. For example, information resilience "can be defined as the process of reducing the vulnerability of information to threats during its lifespan" (Blay, n.d.). Further, information resilience can be seen as a societal ability that creates possibilities for information-based decision-making. It can emerge in interactions when understanding the information resilience needs of these situational interactions. (Jalonen et al., 2021, 2.)

Information resilience is linked to knowledge-based decision-making, especially in a crisis. Reliable knowledge is understandably needed to inform and guide citizens. Information and different ideas travel fast on social media and it is relatively easy to spread false information or biased opinions. Therefore, both society and citizens need information resilience to manage and cope with different situations. Information resilience competences could be useful not only at the societal level in a crisis, but also at the individual level in everyday life.

Jalonen (2022) explains that from a resilience perspective, information is not just an entity that can be transferred from one person to another. Instead, it is an interpretation of the current event arising from the interaction between different actors. The knowledge behind these interpretations should be reliable and trustworthy. Information created in academia according to scientific practices and principles is more reliable than experiential knowledge. (Jalonen, 2022.) This connects information resilience closely to science communication.

3.3 Science Communication

At its simplest, science communication is communicating about science. This could include discussing research methods, theories, results, findings, and conclusions. Science communication is one of the fundamental tasks, even responsibilities, of higher education institutions such as universities, research institutes, and universities of applied sciences. With science communication activities, research-based knowledge should reach versatile audiences, from other experts, decision-makers, entrepreneurs, and the public.

According to Massimiliano Bucchi (1998), science communication can be seen as a continuum of four levels, starting from the intraspecialistic level to the popular level (figure 1). At the intraspesialistic and interspecialistic levels, researchers communicate mainly through scientific journals or conference presentations, and the audience is comprised of other researchers and experts. The pedagogical level uses scientific knowledge in education, and at the popular level, this knowledge has broader audiences, such as the general public. (Bucchi 1998; Karvonen 2011.)

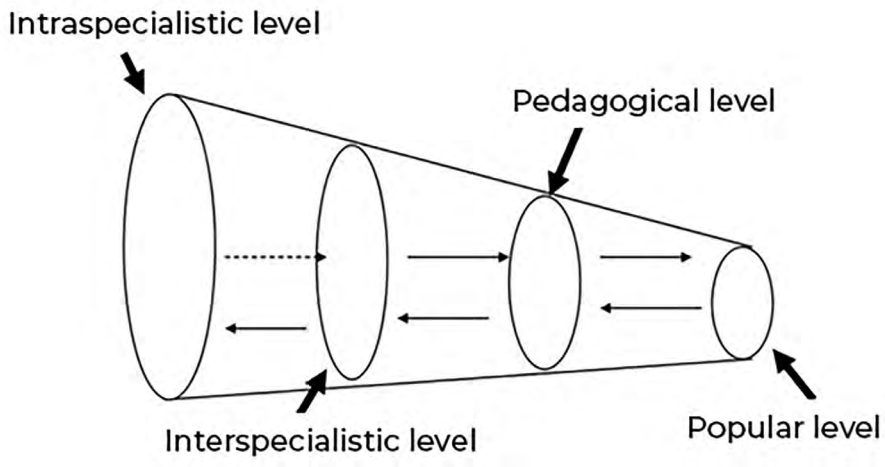

Figure 1. Continuity model of science communication. Source: Bucchi 1998.

The communication environment, channels, and processes have evolved over time. Thus, it is not surprising that the continuum model has faced criticism. One such critique is that there is no place for interactive communication between researchers and audiences. However, the model is still relevant in explaining the versatile communication products and audiences in the arena of scientific knowledge (Väliverronen 2015). In addition, the model has no place for interactive communication between researchers and audiences.

In his survey, Väliverronen (2015) found four different ways to understand science communication through the continuity model. Firstly, science communication is targeted to other experts, secondly to authorities and decision-makers, and thirdly to the public through media. However, the fourth way is actually outside the continuity model itself and is seen as a task to be done by the commercial research partners since the respondents viewed science communication as an important task. In this survey, social media was not seen as an important media for science communication, which can be explained by the survey's target time (research made between 2006–2010). (Väliverronen 2015.)

Science communication is nowadays more interactive, and researchers are expected to communicate their work and results to versatile audiences (see, for example, Väliverronen et al., 2010). With this change, social media is now an important communication arena in science communication. However, in direct contradiction to Bucchi´s model, where the researchers are primarily the actors communicating on social media channels, there is a wide range of diverse voices.

The more interactive understanding of science communication supports Finland's open science and research policy. The declaration for open science and research sets the national vision, mission and strategic goals for open science. The purpose of open science and research, among others, is to strengthen the societal knowledge base and improve the quality of scientific research outputs and the impact of research outputs on society. The declaration remarks that "an independent and open research community is strongly connected with other areas of society, influencing them and being influenced by them." (Open Science Coordination in Finland, 2020.)

Hence, science communication skills are one crucial aspect of researchers' work, which has also led to the growth of communication training in higher education and research organisations. Communication experts are there to enhance researchers´ communication competences, but how about the audiences? In the next section, I will examine this through social media statistics.

3.4 Social media audiences and media literacy skills

Recent statistics show the predicted development in media consumption and communication paradigms (see Liikenne- ja viestintäministeriö 2011) continues a trend that has been ongoing over the past decade. According to the statistics (figure 2), the Internet and social media are now Finns' main news sources, especially for young adults (Media-alan

tutkimussäätiö 2023, 11). The same report shows that social media has increased its popularity as a news source. One-third of respondents now get their news from social media, and a quarter of the respondents use search engines to find certain news sites. (Media-alan tutkimussäätiö 2023, 16).

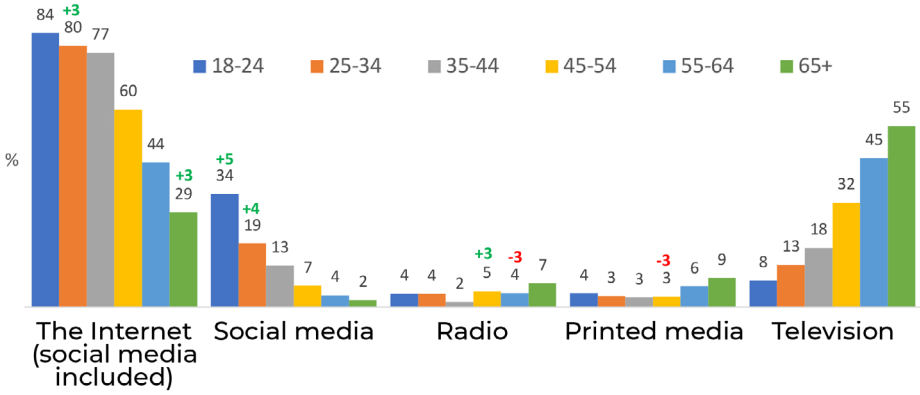

Figure 2. The main news sources in Finland by different age groups. Source: Media-alan tutkimussäätiö 2023.

As previously discussed, the new media consumption paradigm sees audiences choosing the media content themselves. These choices are suggested nowadays and even made beforehand for the audiences. For example, different algorithm-based selection methods in network services make these choices for the individual consumer instead of journalists. (Media-alan tutkimussäätiö 2023, 20.)

What if these algorithms disseminate false information? Research has recently been conducted on Finns' understanding of their ability to identify misleading information and its sources and separate external influence attempts. According to the results, 75 % of Finns (18 years or over) believe that the amount of false information increased in 2022 and 2023. (News Media Finland 2022.)

Regarding information resilience, only 38 % of respondents believe that Finns can recognize false information and external influences. Interestingly, their trust in their own abilities is much stronger: 67 % of adults (18 years or over) believe that they recognize false information and external influence, and every fourth respondent says they recognize such information or attempt to mislead very well. (News Media Finland 2022.)

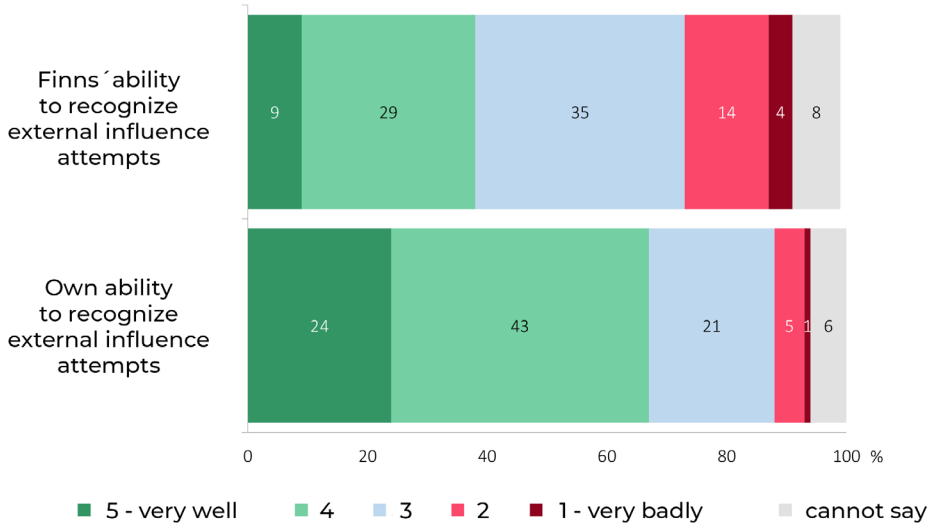

Figure 3. Finns trust their own abilities to recognize attempts to exert external influence. Source: News Media Finland & IRO Research 2022.

How, then, do we fight against false information? The respondents were asked to name the best ways to prevent attempts to influence with false information. Critical thinking, media literacy competences, using several information sources, following reliable media sources, free and independent media, fact-checking, openness, and education were mentioned (News Media Finland 2022). Therefore, it is good to recognize and acknowledge the importance of media literacy classes for Finnish children and young people, where they learn to combat misinformation and question the reliability of information sources. These skills will be needed more and more in the future.

3.5 AI and information resilience

AI (artificial intelligence) solutions for communication have increased dramatically in the past couple of years. This is especially visible on social media channels, where there are even more suggestions to use AI as a communication tool (see Funk 2023). In communication activities, AI applications, such as ChatGPT, can be used to produce content from press release drafts to social media posts. This trend has stimulated discussions about the advantages and disadvantages of using AI to produce content.

ChatGPT is an application based on interaction between the user (human) and the Chatbot (AI). The program is designed to offer information through questions and interaction. ChatGPT uses existing (taught) information, learns from previous discussions, and uses

this information to offer new, improved answers. This can help the user to create drafts or collect new ideas on almost any imaginable subject. (Koulutus.fi 2023.)

The operating model and learning process of ChatGPT can also be disadvantageous. It can formulate incorrect answers based on the interactions and the information available. Hence, it is not a reliable source of information, and the facts should always be checked. (Koulutus.fi 2023.) Further, as Anderson (2023) notices, texts created with AI are not immune to including bias or misinformation. Therefore, the content should always be checked by experienced humans. (Anderson 2023.)

Could there be a danger that social media content, algorithms in web-based networks and communication channels, and even the content from external influence attempts will teach and guide AI instead of research-based knowledge? If the user accepts the suggested text without fact-checking, false information can be distributed when the content is shared, for example, on social media. If the reader lacks media literacy skills, the false information can spread even further. This naturally applies to any text, not just AI-generated. As in any communication activity, the author is always responsible for fact-checking as well as creating and writing the text, separate from the communication channel they are using.

When used correctly, AI solutions can be useful against false information alongside science communication. If a researcher uses ChatGPT or other AI solutions to draft ideas for a popularized article, the chatbot can help formulate the core idea and research-based information for different audiences. This may enhance interaction and active discussions, for example, on social media.

The future will most likely show us more advanced AI solutions; alongside this, the pros and cons will naturally increase. Although AI will surely be a solid part of communication activities, it is paramount to identify and understand the existing or forthcoming threats. This is where the use of AI is closely connected to information resilience, media literacy skills, and science communication.

3.6 Future implications

What does all this mean for information resilience and science communication? Statistics show that social media is one of the main news sources for Finns. In addition to journalists and other communication professionals, social media channels include versatile actors who may distribute false or even biased information—either on purpose or not.

Although Finns recognize the importance of media literary competences and reliable sources, even fact-checking, one cannot emphasize the meaning of educating media literacy and reliable science communication too much. There is a need to popularise scientific knowledge for different audiences in versatile communication environments, including social media. Scientific articles should be acknowledged as sources of communication in different mediums: articles in professional magazines, opinion pieces, newspapers, and magazines.

Information resilience challenges both researchers and audiences to update and develop their communication skills. On the one hand, researchers should address broader audiences with scientific-based knowledge. On the other hand, these audiences, from younger to older individuals, should have sufficient media literacy competence to evaluate the source of information, its reliability – and even the hidden motives.

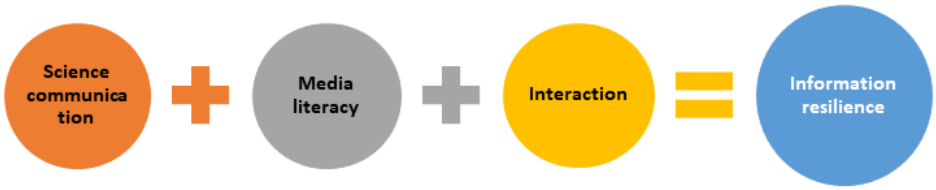

Figure 4. Science communication, media literacy skills, and interaction between versatile actors are tools for information resilience (Hytönen 2023).

Thus, the responsibility is not just on the shoulders of people consuming media. Researchers and communication experts should act as mediators, even as knowledge brokers, in the changing and challenging communication environments. This creates a growing demand for professional science communication in the future. The more there are poor, biased, or deliberately sensational reporting, interactive communication arenas, and texts produced by others than journalists, even AI, the more there is a need for accurate, science-based knowledge.

Scientific articles should be an important source of information in critical times and debates, even on social media. Therefore, it is more important that scientists and science communication experts participate in societal discussions, share knowledge, and provide science-based facts to replace false information and biased opinions. Thus, information resilience is cooperation with science communication professionals, versatile audiences, and skills needed to achieve successful outcomes, as presented in Figure 4.

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4 ENHANCING DIGITAL COMPETENCE AND READINESS OF HEALTHCARE PERSONNEL FOR TECHNOLOGY, ROBOTICS, AND DIGITAL SERVICES

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ABSTRACT

In order to keep up with the increasing technological skills required in the healthcare sector, personnel need to be adequately trained. In this paper, we investigate the transformative impact of robotics and digitalization in healthcare, and we develop a comprehensive training model to empower healthcare professionals with the necessary skills and competencies to embrace and leverage these technological advancements. Throughout this paper, we will present findings from the Robota project's pilot phases and discuss the crucial role of training and ongoing education in facilitating the successful integration of robotics and digital solutions in healthcare. The Robota - project investigates how robotization and digitalization are transforming traditional work culture. The project provides an overview of the latest actors in robotics, intelligent technology, service, and software robotics in the social and healthcare sector. It examines the current level of digital skills of healthcare personnel and the use of robotics. The pilots carried out by Laurea and Xamk allow for the adaptation of different technological solutions to social and healthcare work environments, seeking alternatives that can be utilized in current and future work. The results reveal that robots cannot completely replace human interaction and empathy, which are needed to support patients' well-being.

Keywords: robotics, technology, social and healthcare sector, digitalization, education

TIIVISTELMÄ

Teknologia on nykyisin kiinteä osa myös sosiaali-ja terveysalaa, ja henkilöstöltä edellytetään ajantasaisia teknologiataitoja. Tässä artikkelissa esittelemme robotiikan ja digitalisaation vaikutuksia sosiaali- ja terveysalalla sekä esittelemme koulutusmallin, joka edistää teknologian hyväksymistä ja käyttöönottoa. Esittelemme artikkelissamme Robota-hanketta ja siinä toteutettuja pilottikokeiluja, sekä pohdimme jatkuvan koulutuksen roolia robotiikan ja digitaalisten ratkaisujen käyttöönottamisessa. Laurea ammattikorkeakoulun ja Xamkin yhteistyönä toteutetussa Robota-hankkeessa (2022-2023) kehitettiin sosiaali- ja terveysalan henkilöstön digitaalisia taitoja, sekä vahvistettiin henkilöstön kykyä hyödyntää digitalisaatiota, älykästä teknologiaa sekä mm. robotiikkaa. Hankkeen toteuttamat pilottikokeilut mahdollistivat erilaisten teknologisten ratkaisujen testaamisen aidossa ympäristössä, ja tarjosivat vaihtoehtoja, joita voidaan hyödyntää nyt ja tulevaisuudessa. Hankkeen tulokset kertovat, että robotit eivät voi täysin korvata ihmisten vuorovaikutusta ja empatiaa, joita tarvitaan potilaiden hyvinvoinnin tukemiseen.

Asiasanat: robotiikka, teknologia, sosiaali- ja terveysala, digitalisaatio, koulutus

4.1 Introduction

Robotics and technology have become a permanent feature in healthcare, and this trend is expected to continue. WHO (2020) has stated in its global strategy that health can be improved everywhere in the world by providing digital health solutions that are accessible to all. Robots cannot completely replace human interaction and empathy, which are needed to support the patient's well-being. The use of robots and intelligent technology in healthcare is expected to improve and facilitate the work of personnel. However, the question arises as to whether healthcare personnel can keep up with these developments.

This article explores the results of pilots implemented in the Robota project, which aims to increase competence in robotics and digital services in the health and welfare sector. The Robota project was launched in the spring of 2022 as a collaboration between Laurea University of Applied Sciences and the South-Eastern Finland University of Applied Sciences. The project serves as a case study, as its purpose is to respond to the urgent need to increase and improve healthcare personnel's digital competence and readiness for the rapidly evolving digital transition. We investigate how robotization and digitalization are transforming traditional work culture, including how different healthcare units can utilize social robots

in their daily work and which promotes and hinders usage. In the project, we provide an overview of the latest actors in robotics, intelligent technology, service, and software robotics in the social and healthcare sector. We also examine the current level of digital skills of healthcare personnel and the use of robotics. The pilots carried out by Laurea and Xamk allow for the adaptation of different technological solutions to social and healthcare work environments, seeking alternatives that can be utilized in current and future work.

In this article, we explore the evolving role of robotics and technology in healthcare, addressing the challenge of ensuring healthcare personnel keep pace with these advancements. Beginning with a literature review, it discusses how robots are assuming traditional and newer societal roles, emphasizing the importance of maintaining employee motivation during technological shifts. The integration of social and service robots in healthcare is examined, considering public perception and the dual nature of these technologies as both competitors and assistants. Practical experiences with different technologies and robots underscore the need for training and prompt the unresolved question of whether these will complement human caregivers. Ethical considerations, ranging from autonomy to safety, are discussed with perspectives from professionals, patients, and relatives. The paper details its objectives in enhancing digital competence among healthcare personnel and transforming work culture through robotization and digitalization. The project also includes practical activities such as exploring social robot usage and assessing the current digital skills of healthcare personnel. The paper concludes by highlighting the project's contribution to navigating the digital transition in healthcare, providing solutions for current challenges, and preparing for future advancements.

4.3 Literature review

Robots are taking over roles and functions traditionally filled by humans, and are becoming a growing part of our society. For decades robots have been assigned dirty, dull, or dangerous tasks considered inconvenient and unpleasant for humans. But now there has been a shift, as pleasant, interesting, and inspiring work, such as duties in social and healthcare sector, are delegated also to robots (Turja, Minkkinen & Mauno, 2021). To maintain employee motivation during periods of rapid technological or transformative industrial change, there is a need for open and genuine consultation with the staff. It is needed especially when planning the robotization of pleasant or inspiring work. Different levels of employees should be invited in planning and co-designing workplace robotization. (Turja et al., 2021.) Service robots and social robots are an excellent example of technological dominant reality adopted by healthcare service providers to achieve well-being outcomes. They have potential to assist healthcare professionals and interact with healthcare consumers, providing customized

health and delivering emotional-social and cognitive resources that can enhance well-being. They can provide meaningful human-technology experiences if they are perceived as human-like. (Dodds, Russell-Bennett, Chen, Oertzen, Salvador-Carulla & Hung, 2021.)

There are two prominent prospects for social robots: one feared and one desired. On the one hand, social robots are considered as competitors, people are concerned about autonomous robots and loss of control. This fear is often accompanied by a worry that humans will be either replaced or dominated by robots. On the other hand, there is a positive image of social robots functioning as assistants, either in domestic, public, or work environments. (Horstmann & Krämer, 2020). The evaluation and acceptance of social robots depends on several factors: the robot´s appearance, its nonverbal behavior, other behavioral aspects, cooperativeness, and media portrayal. How social robots behave while interacting with others play a vital role in our evaluation of robots. (Horstmann & Krämer, 2020).

In one such case, where the robot Zora was deployed in a care facility, the personnel mentioned that Zora would not replace them in their work. They also noted that they would need more time to learn how to use Zora to realize its full potential. (Tuisku, Pekkarinen, Hennala & Melkas, 2019). In a healthcare environment, the question of whether robots will take assistive and complementary roles or whether they will make human caregivers redundant and completely replace them remains unanswered. Involved healthcare personnel should realize that elderly people often perceive robotic technology as a threat or a challenge, so they need to strive to facilitate the development of more positive feelings and increase positive perceptions of the usefulness of the innovation. (Caic, Odekerker-Schröder & Mahr, 2018).

However, there are also several ethical risks and requirements that have been defined which pertain robots in healthcare. These are risks regarding autonomy, privacy, human relationships, and safety. Ethical concerns are especially relevant in situations where a robot simulates emotion, partnership and understanding (Turja et al., 2021). Nielsen, Langensiepen, Madi, Ellisen, Stephen, and Meyer (2022) founded that professional nurses most feared the risks related to safety and that the robot would lead to more workload instead of relief, whereas the patients and relatives more often raised the issue of the staffing ratio. Tuisku, Pekkarinen, Hennala & Melkas (2019) studied the publicity around robotic innovation in elderly care and they came to conclusion that the use of robots may not be viewed entirely negatively, but the context of their use in elderly care is the factor of greatest concern.

4.3 Case Study: Robota Project Pilot

The integration of robotics and technology in healthcare has become increasingly prevalent, with a continuing upward trend projected for the future. However, the ability of healthcare personnel to keep up with these advancements remains a crucial question. The Robota Project Pilot, a collaboration between Laurea University of Applied Sciences and Xamk South-Eastern Finland University of Applied Sciences, addresses the pressing need to augment the digital skills and preparedness of healthcare personnel for the ongoing digital transition. By investigating the transformative impact of robotization and digitalization on traditional work culture, we offer insights into the current state of digital skills among healthcare personnel and the utilization of robotics in the field.

There is great potential for robots and intelligent technology to enhance and streamline healthcare practices while acknowledging the indispensable role of human interaction and empathy in patient care. Ensuring data security and privacy is also paramount in leveraging technology effectively. The World Health Organization (WHO, 2020) has emphasized the significance of accessible digital health solutions in improving global health outcomes. In response to this call, the Robota project endeavors to increase competence in robotics and digital services, enabling healthcare personnel to embrace and leverage these new technologies for the benefit of patients. Thus, we have designed a training program and a roadmap for implementing services to increase the use of digital solutions and intelligent technology in the sector and lower the threshold for their introduction. The training aims to realistically address actual needs and highlight challenges that can be addressed using robotics and intelligent technology.

We piloted two types of social robots, Nao, and Paro. The third piloted technology were **Moto tiles**, a tool for physical play. It combines robotics with play, and in that way creates fun and motivational exercise. A Moto tiles set consists of tablet loaded with Moto tiles games and ten Moto tiles, each tile can sense pressure. It helps with balance and strength training. Moto tiles are a Danish invention, and they are designed like Lego bricks, as they can be put together in different shapes. (Moto tiles, 2023).

Picture 1. Moto tiles system.

Nao is a humanoid bipedal robot. It is 0.58 meters in height and it weighs about 4.5 kilograms. It has been designed purposely to look approachable, with the warm appearance of a human toddler (Shamsuddin, Ismail, Yussof, Zahari, Bahari, Hashim & Jaffir, 2011). With help of touch sensors, Nao can locate himself in a space and with the help of 2D cameras it recognizes shapes, objectives and people. It also has speech recognition and is capable of dialogue in Finnish. Nao is a fully open and programmable platform. Nao can, for example walk, dance, play different games and instruct physical exercises. (Aldebaran, 2023).

Paro the baby harp seal is an interactive therapeutic robot. It allows the benefits of animal therapy to be offered to patients in environments such as hospitals and extended care facilities where live animals would present treatment or logistical difficulties. Paro has five kinds of sensors and with help of them, Paro can identify light and dark, he feels when he is being held as well as the sensations of being stroked or beaten, and recognizes his name, greetings, and can locate the direction that sound is coming from. (Parorobots 2023).

4.3.1 Methods

The Robota project collaboratively conducted several pilots, aiming to assess the feasibility and impact of introducing robotics and intelligent technology in healthcare settings. The project team, comprising representatives from Laurea University of Applied Sciences and Xamk South-Eastern Finland University of Applied Sciences, conducted interviews and feedback surveys after each pilot to gather insights from healthcare personnel and patients.

These interviews aimed to explore the experiences, challenges, and perceived benefits of utilizing technologies. The data collected during the pilot phase served as the foundation for evaluating the potential of each technology in transforming healthcare practices.

The project utilized service design tools to build up the concept of how to choose the most suitable technology for each pilot. Service design is a holistic and pragmatic method which aims to solve challenges in organizations (Stickdorn et al., 2018). The aim of service design is not to provide solutions where to choose from, rather the ideology seeks to identify where the difficulties exist first, which will then naturally lead to developing the solution after (Daigneau, R. 2012). Service design aims to anticipate the customers or user's real needs and efforts to identify the hidden needs. If Henry Ford would have asked what people would have needed for better mobility, they would have answered "faster horses" (Tuulaniemi, 2011).

The Robota project started the research process, by conducting surveys to identify the technological readiness of the health and social care organizations where robots could be deployed. The research assessed the current state of organizations from the top management, middle management, and operational levels. Subsequently, on-site inspections were conducted. The purpose of the current state analysis was to determine the organization's present status and its digital capabilities for technology adoption.

4.3.2 Pilot units

The following units were chosen based on their favorable disposition towards new technology, previous successful experiences with mobile applications and mobile games, and the enthusiasm of their personnel to participate in the Robota project. The pilot units, located in Kymenlaakso and Central Uusimaa, covered various healthcare environments, including elderly care, hospitals, rehabilitation units, home care for the elderly, and day-to-day activities for individuals with intellectual disabilities.

The pilot phase concept within the context involved a structured and controlled testing period aimed at evaluating the feasibility, effectiveness, and potential benefits of integrating technologies into various healthcare settings. The pilot serves as a preliminary step before broader implementation, allowing for the exploration of how these technologies can enhance patient care, improve well-being, and support healthcare personnel in their daily tasks. (Robota 2023). The pilot phase process typically follows a series of well-defined steps:

1. The process begins with a comprehensive analysis of the current state of healthcare units or facilities that are potential candidates for integrating robotic technologies.

This analysis assesses factors such as their openness to innovation, previous successful experiences with technology, and the enthusiasm of their personnel to embrace change. Units that demonstrate a favorable disposition towards modern technology are carefully chosen for participation in the pilot phase.

2. Prior to introducing the robotic devices, a short training session is being conducted for the healthcare personnel who will be using the technology. This training aims to familiarize the caretakers with the capabilities, functionalities, and operation of robots. This step ensures that the personnel are adequately prepared to interact with and utilize the technology effectively.

3. Following the training, the chosen robotic devices (Nao-robot, Paro therapeutic robot seal and Moto tiles) are introduced to the selected units. These devices are strategically chosen to cater to a diverse range of patients and healthcare scenarios.

4. During the pilot phase, healthcare personnel closely observe the interactions between patients and the robotic devices. Feedback is collected regarding the patients' emotional responses, engagement levels, and any positive or adverse effects observed. The personnel also provide insights into the ease of use, challenges encountered, and any technical issues that arise.

5. Data is systematically collected during the pilot phase, including observations, patient feedback, and any relevant quantitative measurements. This data is then analyzed to assess the impact of robotic technologies on patient well-being, healthcare delivery, and personnel workload.

The pilot phase helped to identify the potential benefits of using robotic devices, such as emotional well-being improvement, patient engagement, and potential workload reduction. It also highlights challenges, such as technical issues, time management, and the need for prolonged exposure to the technology for optimal results.

Healthcare personnel engage in discussions and assessments of the pilot phase outcomes. This involves evaluating the extent to which the robotic devices fulfilled their intended purposes and addressing any shortcomings. The insights gained guide further refinements and improvements in the technology's implementation.

The findings from the pilot phase contribute to a comprehensive understanding of how robotics can be integrated into healthcare settings. The conclusion of the pilot phase involves summarizing the observed benefits, challenges, and recommendations for future imple-

mentation. The insights gained also inform potential adjustments to the devices, training protocols, and strategies for maximizing the benefits in the long term.

The pilot phase concept and process provide a controlled environment for testing and evaluating the potential impact of robotic technologies on patient care and healthcare delivery. It helps gather valuable insights, refine implementation strategies, and lay the groundwork for the successful integration of innovative technologies in healthcare settings.

4.3.3 Pilot unit 1: Koskenrinne Elderly Care

Koskenrinne is an elderly care unit located in Kotka. They piloted Paro robotic seal and Moto tiles. The feedback survey conducted during the pilot phase at Koskenrinne provided valuable insights into the experiences of healthcare personnel regarding the use of technology. The results indicated a positive reception of the Paro robotic seal, which garnered significant popularity among patients. The lifelike qualities of the Paro robot, particularly its ability to engage individuals affected by memory disorders, were highlighted. Participants noted positive emotional responses, with observations of smiles and improved emotional well-being among patients. The challenges encountered during the implementation phase included ensuring patient safety and addressing technical issues with specific devices.

Picture 2. Paro seal robot at Koskenrinne elderly care unit.

The Paro seal robot was found to be particularly useful among clients with memory problems. Those clients were very touched by Paro and noted its big brown eyes. Paro was found to reduce their feelings of stress, and provided a sense of calm and comfort. It even helped some clients to start talking again. The robotic seal was so popular that it proved difficult for the clients to share. The personnel found Paro easy and reliable to use, and felt that this robot would really help them in their daily work.

The pilot phase of the Robota project revealed promising results regarding the acceptance and perceived benefits of utilizing robotics in healthcare settings. The positive impact on patients' emotional well-being and the potential for reducing the workload of healthcare personnel were notable outcomes. However, challenges such as device affordability, optimizing game experiences, and securing support from governmental institutions for training and education were identified as areas for improvement. The experiences shared by healthcare personnel highlight the importance of ongoing research and development efforts to refine the implementation of robotics and digital solutions in healthcare.

The Robota project's pilot phase demonstrates the potential of robotics and digital services to enhance healthcare practices while underlining the indispensable role of human interaction and empathy in patient care. The experiences gathered from healthcare personnel at Koskenrinne provide valuable insights into the acceptance, challenges, and potential benefits of incorporating robotics into care delivery. These findings contribute to the broader understanding of how healthcare personnel can be better equipped to navigate the digital transition and leverage technological advancements for improved patient outcomes. Future research and collaborations are crucial for further exploration and refinement of robotics and digital solutions in health care.

4.3.4 Pilot Unit 2: Sotek Foundation

The Sotek Foundation offers work services (subsidized work, supported work and training), rehabilitation services, productive work, day-to-day activities for people with intellectual disabilities people and people under threat of social exclusion. It has several units in the Kymenlaakso and East Uusimaa regions. The Sotek foundation piloted Nao, Paro, and Moto tiles. The feedback survey conducted during the pilot phase at Sotek Foundations unit Sunila, provided insights into the experiences of the participating healthcare personnel regarding the use of robotics in care delivery. The survey included 11 instructors working in the organization for 0.5 to 18 years. The respondents had diverse professional backgrounds, including nursing, social work, cooking, and health center assistance.

Picture 3. Zora robot performing a dance demonstration at Sotek.

When asked to describe the pilot phase, the participants characterized it as short but interesting, providing new and different experiences. However, some expressed that the absence of staff members due to illness disrupted the implementation process. It was suggested that a month would be a suitable duration for a longer pilot.

Feedback from the pilot highlighted the emotional impact of Paro, the robotic seal. Participants observed that Paro evoked feelings of attachment and even elicited positive responses from clients who had a fear of dogs. It was noted that prolonged exposure and gradual familiarization with the technology would be necessary for effective utilization. The feedback did not reveal any significant differences based on gender or age. Some participants found the movement of Paro unsettling, while others did not respond visibly but maintained eye contact, indicating a connection with the robot. Overall, Paro was considered easy to use. The motion-sensitive tiles (MotoTiles) were user-friendly. However, the usage of the tiles was limited, and it was suggested that they could be employed to engage and challenge diverse groups given sufficient time for implementation.

Challenges encountered during the adoption of technology included time management, with the robot requiring dedicated attention. Ideally, it was suggested that one staff member should rotate among different groups with the robot, ensuring its optimal utilization.

The experiences shared by healthcare personnel during the pilot phase demonstrated several benefits of using piloted solutions in care settings. Paro served as an additional stimulus, facilitating the expression of affection and emotions among patients. It acted as a unifying

element, fostering connections between patients and healthcare personnel. However, challenges related to operational effectiveness, time constraints, and improved interaction were identified as areas requiring further development. Unfortunately, there were not enough personnel for someone to solely focus on Nao robot and its usage during the recreational activities for the people with disabilities. To get the best out of Nao, it would require a dedicated caretaker who would plan its usage and program Nao.

The feedback gathered during the pilot phase at Sotek Foundation's unit Sunila emphasized the potential benefits and challenges of utilizing technology in care delivery. Paro, the robotic seal, was well-received, positively impacting emotional well-being and fostering connections between patients and staff members. The findings highlight the importance of considering prolonged exposure and gradual familiarization with technology to maximize its effectiveness. Despite the challenges encountered, healthcare personnel could envision continued use of Paro in their future work. The insights gained from this pilot phase contribute to the ongoing exploration and development of robotics in healthcare, emphasizing the significance of ongoing research and training to optimize the implementation of technology in care settings. The personnel thought that a two-week pilot period was too short. They said that a month-long pilot period would have been better. The pilot period was remarkably interesting, and it brought something new to their daily work.

4.3.5 Pilot units 3 & 4: Wellbeing services in the county of Kymenlaakso

We conducted pilots in two units of the wellbeing services in the county of Kymenlaakso. The first unit was the elderly care facility Kotkansaaren City-koti, which piloted Paro. The second unit was the rehabilitation facility Kymen Hoito- ja Kuntoutuskeskus Hoiku, which piloted Nao and Moto tiles.

At Kotkansaaren City-Koti, Paro the robotic seal brought about both positive and negative emotions for many elderly people. Most of them were touched by Paro's appearance, it's big brown eyes and soft fur, however some were afraid that Paro will bite, and they did not want to hold it. Some sang to Paro, embraced it, and lulled it to sleep like a baby. Paro the robotic seal reminded some of the Saimaa ringed seal and sparked a discussion about Saimaa ringed seals more broadly. The seal robot also brought back memories of many people's own pets, and as they reminisced about their own dogs and cats. Paro also raised many questions, such as how old it is, where it lives, and what it eats. For some, the robot seal resembled children's toys, and they commented, "I'm sure kids will really like this." According to the staff, Paro is easy to use and reliable. It was seen as a tool to facilitate conversation and evoke emotions in clients.

Moto tiles were piloted in two groups, including rehabilitating individuals such as neurological patients and amputee patients. They proved to be excellent tools, and their use received positive feedback from both the professionals who guided the groups and participants in rehabilitation activities. Moto tiles were found to be reliable in use, and the games were easy to play and motivating for the rehabilitating individuals. Moto tiles brought variety to the rehabilitation sessions.

The Nao robot was utilized in day activities. Before the pilot began, a workshop was organized to gather the needs and wishes of the group leaders in day activities regarding how they intended to use the Nao robot for recreational purposes. Information and requests were also collected on the desired features of Nao robot programs. Based on these requests, the robot was pre-programmed with exercise routines and music programs, such as group singing and a jukebox. Group leaders were also encouraged to design and program additional activities for the robot themselves.

The music programs proved to be highly effective and worked well. The introductory presentation already included in the Nao robot was useful and served as a stimulus activity on its own. The robot generated interest among the clients, received a positive reception, and sparked general discussions about technology and technological advancements. However, as a tool, the Nao robot was still challenging. It was not always clear how to use or operate the device; there were challenges with the user interface, and the programs did not always start correctly. The goal was to make the work of group leaders easier, but due to several operational issues, it was perceived as a complication rather than facilitating their work.

4.4 Findings

Social robots bring numerous complementary benefits to the daily work of elderly care. Paro, the robotic seal, was found to be a very functional tool in everyday use, benefiting both customers and staff. It is very effective in calming customers, and it stimulates the ability to speak, discussions, as well as movement and interaction between customers and nursing staff. It is easy to use and reliable, which could facilitate it's usage as daily tool. There are still some challenges concerning utilizing Nao-robot as daily tool, but it can be utilized as stimulus in recreational purposes among elderly people. According to our findings, Moto tiles are a very promising tool to use in rehabilitation, as they served as a motivating mechanism for clients and brought variety to their rehabilitation sessions.

The open and positive attitude of the organizations and staff who participated in these pilots towards technology is central to the success in adopting robotics and other modern technol-

ogies. Technologies should be user-friendly, reliable, and easy to use. These factors increase the implementation and utilization possibilities of technology in different environments. Our results from the pilots reveal that personnel who use technologies must see the benefits in their work and the value that their customers get from technologies.

When management is committed to adopting robots and other innovative technologies, it encourages the adoption of technology among staff. It is important that personnel get the chance to use robots in their daily work so they get an idea of how robots can help them and what benefits they might bring to them and their clients. Prejudices, a fear of losing one's job, high costs, for example, create a negative attitude towards modern technology and prevent the adoption of robots and other new technology. Robots do not replace human workers. However, robots can help make daily work easier and bring new content to health and social care work.

4.5 Conclusion: Embracing the Future of Healthcare

As we conclude our exploration of the findings from the Robota project, it becomes evident that the successful integration of technology, particularly robotics, into the healthcare sector is a multifaceted endeavor. Key takeaways from our research provide valuable insights for healthcare organizations and professionals as they navigate the ever-evolving landscape of technology in healthcare.

The future of healthcare is poised for significant transformation driven by emerging technologies. Telemedicine and remote monitoring, coupled with wearable devices, will enable remote access to medical services and real-time health data. Artificial Intelligence (AI) and machine learning will play a central role in diagnostics and personalized treatment plans, while augmented reality (AR) and virtual reality (VR) are set to revolutionize medical training and therapeutic applications. Genomic medicine will lead to personalized healthcare, and blockchain technology promises enhanced data security and interoperability. Robotics, 3D printing, and quantum computing are anticipated to reshape surgical procedures, personalized medical devices, and healthcare analytics, respectively. As these technologies advance, ethical considerations and governance will be crucial, ensuring responsible deployment. Patient empowerment and health literacy will be emphasized, fostering increased engagement and participation in healthcare decisions. (Healthtech Finland 2024.)

In summary, the future healthcare landscape will be characterized by interconnected technologies, from advanced robotics to quantum computing. Striking a balance between innovation and ethical considerations is paramount, with a focus on improving accessibility,

patient engagement, and overall healthcare outcomes. The most crucial factor in technology adoption is the attitude and mindset of healthcare personnel and organizations. A positive and open attitude toward technological advancements paves the way for successful implementation. To foster this mindset, healthcare institutions should prioritize ongoing technology training and education to demystify new tools and demonstrate their benefits. User-friendly, reliable, and easy-to-use technologies are more likely to gain acceptance and utilization among healthcare staff. Organizations should invest in technologies that enhance workflow and patient care while minimizing disruptions.

Healthcare personnel must perceive the utility of technology in their work and understand the benefits it offers to both them and their patients. Clear communication about the advantages of technology can help dispel fears and misconceptions. Strong leadership commitment to the adoption of technology sets the tone for the entire organization. When leadership is committed to embracing modern technologies, it encourages staff to follow suit. This commitment should manifest in both words and actions. Offering healthcare personnel the opportunity to interact with and use robots in their daily work is instrumental in fostering understanding and acceptance. Hands-on experience allows staff to witness firsthand how technology can augment their roles and improve patient care. Addressing prejudices and fears, such as the fear of job loss to robots, is crucial. It is essential to emphasize that robots are not intended to replace human workers but rather to support them, enhance their efficiency, and provide more time for essential caregiving.

4.6 Future Directions

Our findings suggest several avenues for future research and development in the healthcare sector. Firstly, integrating robotics into healthcare education and training programs can ensure that future healthcare professionals are well-prepared for the use of these technologies in their careers. Secondly, involving healthcare professionals in the development phase of healthcare technologies can result in more user-friendly and effective solutions.

In conclusion, the Robota project's research highlights that the successful adoption of robotics and technology in healthcare is not solely about the capabilities of the technology itself but also about the readiness and willingness of healthcare personnel and organizations to embrace these innovations. As we move forward, nurturing a culture of openness, continuous learning, and collaboration will be pivotal in shaping the future of healthcare, where technology is a tool that empowers, not replaces, the caring touch of healthcare professionals.

Robota project (S22760) was partly funded by the European Social Fund 1.1.2022–31.8.2023.

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5 FUTURE CHALLENGES IN SPILL RESPONSE PREPAREDNESS: HOW THE GREEN TRANSITION IS CHANGING MARINE POLLUTION RISKS

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ABSTRACT

The Green Transition is a shift towards a sustainable and carbon-neutral economy. To achieve this, fossil fuels are being replaced with renewable and low-carbon alternatives. The introduction of new products changes the risk profile of potential spills. Some next-generation products are equivalent to their fossil counterparts, and some are more hazardous than conventional products. There can be significant differences between oils and other harmful substances in terms of their spill behaviour, related risks, and the applicable response methods. The heterogeneity of the substances requires a broader scope of expertise in emergency situations but also poses challenges for spill response research. New fuels and products should be tested to determine their spill behaviour and safe operating procedures and to develop new or adapt existing spill response and recovery techniques accordingly. The safe conduct of the tests and equipment trials requires modification of the research environment. A change in mindset from a behaviour-based to a hazard-driven approach is thus needed across the whole sector, from spill response research to operational response activities. Re-orienting research methods and infrastructure is a high-value and long-term investment, as holistic marine pollution response research covering incidents involving hazardous and noxious substances (HNS) is becoming increasingly important.

Keywords: marine pollution, oil spill response, green transition, fossil fuel, hazardous and noxious substances, alternative fuels, preparedness

TIIVISTELMÄ

Vihreän siirtymän kestävyystavoitteiden saavuttamiseksi fossiiliset polttoaineet pyritään korvaamaan uusiutuvilla ja vähähiilisillä vaihtoehdoilla. Uusien tuotteiden käyttöönotto muuttaa mahdollisten ympäristövahinkojen riskikuvaa. Osa uusista polttoaineista eivät eroa vahingontorjunnan näkökulmasta fossiilisista vastineistaan, mutta osalla vaaraominaisuudet poikkeavat. Öljyjen ja muiden haitallisten aineiden käyttäytymisen, terveys- ja turvallisuusriskien ja niille soveltuvien torjuntamenetelmien välillä saattaa olla huomattavia eroja. Aineiden kasvava heterogeenisuus edellyttää torjunnasta vastaavilta viranomaisilta laajempaa asiantuntemusta vahinkotilanteissa ja haastaa myös torjuntatutkimuksen. Uusia tuotteita tulee testata niiden vuotokäyttäytymisen ja turvallisten toimintamallien määrittämiseksi sekä torjunta- ja talteenottotekniikoiden kehittämiseksi. Testien suorittaminen turvallisesti edellyttää kuitenkin tutkimusympäristön mukauttamista. Koko alalla, aina ympäristövahinkojen torjunnan tutkimuksesta operatiivisiin torjuntatoimiin, tarvitaan ajattelutavan muutosta vahinkoaineen käyttäytymiseen perustuvasta lähestymistavasta vaaroihin perustuvaan lähestymistapaan. Tutkimusmenetelmien ja -infrastruktuurin kehittäminen on merkittävä ja kauaskantoinen investointi, sillä kokonaisvaltaisesti vaaralliset ja haitalliset aineet (HNS) kattava merellisten ympäristövahinkojen torjuntatutkimus tulee nousemaan yhä tärkeämpään rooliin.

Avainsanat: merelliset ympäristövahingot, öljyntorjunta, vihreä siirtymä, fossiiliset polttoaineet, vaaralliset ja haitalliset aineet, uusiutuvat polttoaineet, vaihtoehtoiset polttoaineet, varautuminen

5.1 Introduction

Oil and chemical spills occur despite the enhanced safety measures to prevent accidental spills. Spills can seriously impact health and safety, the environment and socio-economic resources. So-called greener products can also have adverse effects. Alternatives to fossil fuels, although preferable due to their lower climate impact, can still be harmful or toxic to aquatic organisms or bioaccumulative. Even non-hazardous products, when released into the environment, can significantly pollute nature and cause fouling and smothering, harming biota and the economic and recreational use of the resources affected.

To minimise these impacts, measures need to be in place to respond to spills, including means to control the spill's spread and remove it from the environment. The appropriate

response measures for a given spill depend primarily on the characteristics of the substance spilt and secondly on the ambient conditions and the operating environment. Thus, introducing a range of alternative products – renewable, recycled, bio-based, or otherwise less carbon-intensive – with varying characteristics imposes new competence requirements on responders and, to achieve these, calls research institutions to provide the knowledge on which to build response capability. New products also question the rationale of maintaining separate response systems for oil and chemical spills. The new-generation fuels are mostly classified as chemicals rather than oils, and as the use of conventional oils is expected to decrease gradually, future incidents are likely to involve pollutants for which the differences between individual substances may be greater than between the accustomed substance groups.

This paper investigates how responding to spills of new-generation products differs from traditional, fossil-based spills and how this affects the spill response field. First, the article sets the background to the differentiated response systems, which have influenced the orientation of both operational and research resources to oils and chemicals separately. Secondly, the article describes how the changing risk profile calls for system integration. Third, this more holistic policy would benefit from a shift in focus from a behaviour-based to a hazard-based approach. The importance of this shift is illustrated by describing the likely consequences of spills of some alternatives to fossil fuels. Finally, the article examines what adaptations are needed to better prepare for the increasing risk of spills involving new products.

5.2 Marine pollution response framework builds on oil and chemical spill response systems

Oil and chemical spill responses have been conceptually and operationally distinct entities. This is due to the different nature of the substance groups, their spill behaviour, and the requirements they place on equipment. This distinction has been even more pronounced in Finland because of the separate funding sources to establish and maintain response preparedness; the Finnish Oil Pollution Compensation Fund has financed the cost of developing and deploying response resources only for spills of persistent oils. This has led to a situation where response capacities, operational models, contingency plans and training have been separately practised for oils and chemicals. The abolition of the Fund will alleviate the financial separation of these response systems. The Fund will be replaced in 2025 by the Environmental Damage Fund, which does not distinguish between substances spilt (Ministry of the Environment, n.d.). Closer integration of response systems is justified not only by the benefits of shared use of resources but also by the increasing prevalence of new fuels and other petroleum substitutes that do not meet the definition of persistent oil.

While this integration applies to the domestic funding regime, international conventions will continue to distinguish between pollution damages caused by persistent oils and other harmful substances until the HNS Convention[1] enters into force (Figure 1). In the meantime, the costs of oil spills are compensated in accordance with the Civil Liability Convention governing the liability of the shipowner for oil pollution damage caused by the spills of persistent mineral oil from tanker vessels or the International Convention on Civil Liability for Bunker Oil Pollution Damage (The Bunkers Convention), which applies to bunker oil spills regardless of the type of ship. (International Group of P&I Clubs, IOPC Funds & ITOPF, 2021: 14, 20.)

Figure 1. International conventions on ship-source pollution and the coverage of national compensation regime, by pollutant type.

It is noteworthy that implementing the HNS Convention will not address the issue regarding next-generation marine fuels. The forthcoming convention will apply to chemicals and persistent and non-persistent oils when carried as cargo but will not cover bunker fuels used for the ship's propulsion. The Bunker Convention, on the other hand, applies only to fuels of mineral oil origin. Consequently, pollution incidents involving alternative fuels such as biofuels, synthetic fuels, Liquified Natural Gas (LNG), hydrogen or ammonia are covered only when transported as cargo. (International Group of P&I Clubs, IOPC Funds & ITOPF, 2021: 11, 21.)

Although the conventions principally regulate the compensation of losses, damages, and costs of resulting response actions and do not directly address the establishment of specific capability or the allocation of response resources, it would be important to include alternative fuels in the legislative framework. This would clarify the issue of liability for pollution damage and contribute to a robust response. In general, this recognition would also provide a more solid basis to fully support the implementation of the sustainability objectives of the Green Transition in the maritime sector.

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[1] International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea.

While waiting for legislative amendments, the responsible authorities, supported by other stakeholders, can contribute to an adequate response capacity through their own actions. A more holistic approach is proposed to facilitate this, bringing together the previous oil and chemical response systems under one umbrella. In Finland, the ongoing regulatory reform could be an opportune moment to adopt more comprehensive preparedness, as discussed later in this paper. Accelerating this integration is also supported by the indicative shift in incident statistics, described in the next section, which implies that the situation that has remained the same for a long time is about to change.

5.3 The changing risk profile of marine pollution incidents

The majority of liquid bulk cargoes transported through the Gulf of Finland has long consisted of crude oil and other petroleum products. Additionally, the majority of marine pollution incidents reported in the Baltic Sea have involved oils. For the period 2014–2019, mineral oils accounted on average for 77% of identified substances spilt, while other substances accounted for 23% (HELCOM, 2015: 4–5; 2016: 6–7; 2017: 6–7; 2018: 6–7; 2019: 8–9; 2020: 6–7). However, in 2020, other substances than oils represented 52% of all identified pollutants (HELCOM, 2021: 7). This change is mainly explained by the increase in the proportion of pollutants that could have been identified (Figure 2). It may also reflect how substances spilt have diversified over the years. The Green Transition is expected to accelerate this diversification further as new products are introduced to replace fossil fuels and petroleum-based raw materials. Although it is difficult to accurately estimate the rate of growth of the next-generation products used and transported, as they are not yet recorded separately in statistics (Vähätalo, 2023), there is a consensus that the risk matrix will look different in the future as it does today (Russell, 2022; Simola, 2023: 11, 12, 13; Haapasaari & Erkkola, 2023: 10).

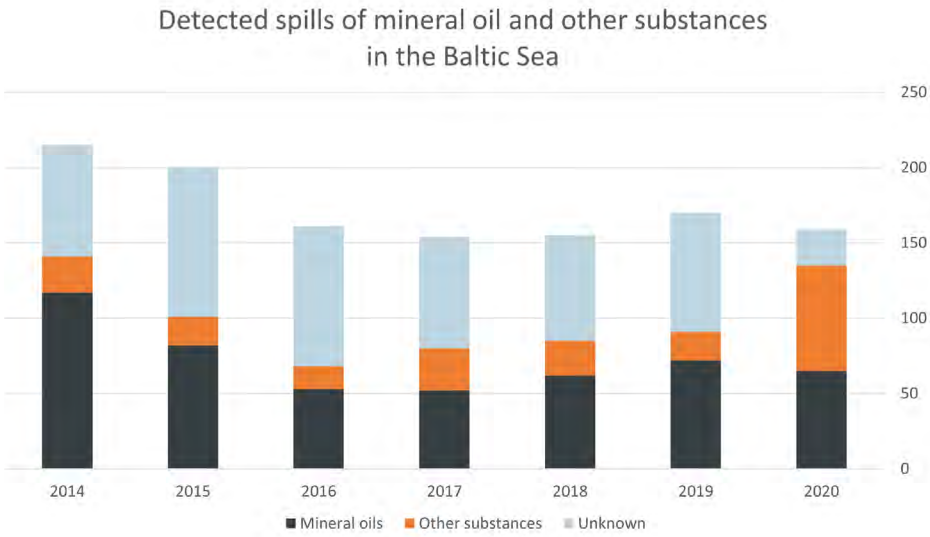


Figure 2. The number of detected spills during aerial surveillance activity in the Baltic Sea in 2014–2020. In 2020, more than half of the spill incidents where a pollutant was identified involved a substance other than mineral oil (HELCOM, 2015; 2016; 2017; 2018; 2019; 2020; 2021).

The risk landscape is expected to become more diverse in the future. Up to now, spill response contingency planning has focused on the most likely pollutants, oils, whose spill behaviour is relatively straightforward. However, the diversification of substances will lead to an abundance of behavioural variations and in some cases, hazard potentials. To illustrate this, the following section provides an overview of some alternative products and their spill characteristics.

5.4 Examples of the spill characteristics of alternatives to fossil fuels

Fossil fuels are still the main fuel used in maritime transport, but as the industry strives to reduce exhaust emissions and the carbon footprint of ships, new fuels are becoming increasingly prevalent. In this section, the consequences of some of the new products when spilt in water are presented - as examples and in light of the information available. The description is, therefore, not exhaustive. It should be noted that information on products with hazardous properties may have been more readily available, which may have shaped the perception of these products. In other words, to clarify, not all fossil fuel substitutes necessarily pose safety risks.

5.4.1 Future marine fuels

Of the most potential future marine fuels, ammonia and methanol are soluble in water. In addition, their high volatility and partition coefficients will lead to quick evaporation and spreading to the environment, precluding the use of all conventional spill containment and recovery techniques. (Kass, Sluder & Kaul, 2021: 4, 6.) Ammonia is also highly corrosive which must be considered when selecting means of recovery, transfer and storage as well as personal protective equipment (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 22). Ammonia gas is highly toxic, and a release can have serious consequences for the responders, vessel's crew, nearby residents and marine ecosystem. Spilt ammonia also reacts with water, producing heat and forming toxic ammonium hydroxide, which will diffuse into the surrounding water. (Kass, Sluder & Kaul, 2021: 17–18.)

Spill behaviours of methanol and ethanol are almost similar, but methanol, being more volatile, is likely to evaporate faster than ethanol. Although the vapour cloud is expected to disperse quickly, the surrounding atmosphere remains highly flammable during the spillage. Most of the spilt methanol quickly dissolves into the water column. In practice, methanol spills will dissipate faster than they can be contained. As with ethanol, the greatest risk is a fire or explosion during or immediately after a spill. (Kass, Sluder & Kaul, 2021: 8–9.)

In the case of hydrogen and natural gas, the release rate is very fast, and the liquid phase immediately boils to vapour. Both Liquified Natural Gas (LNG) and hydrogen form visible, white and highly flammable clouds. Hydrogen behaves similarly to natural gas but can displace oxygen and cause suffocation. The main concern related to a hydrogen spill is its explosiveness and flammability; it is easily ignited by hot surfaces or a spark, including static electricity. (Kass, Sluder & Kaul, 2021: 13–16.) This poses a particular risk to response vessels or other vehicles approaching and operating at the incident site.

In the examples above, little can be done to mitigate a spill itself, at least with existing equipment and operational procedures established for petroleum spills. Some techniques, although perhaps not so familiar in the context of oil spill response, might be applicable. These include methods to reduce and control vapours using water curtains and foams. A water curtain is a barrier preventing the spread of a vapour cloud or protecting surroundings from radiation in case of a fire. (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 72, 230.) Foam is used to coat the substance to limit its evaporation and control the risk of an explosive, flammable or toxic atmosphere. This method can only be applied to small spill volumes in calm weather conditions. (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 234; Koops & Zeinstra, 2014: 96.)

One method used to restrict the spread of water-soluble substances is bubble-barriers (Halonen & Malk, 2017: 249). This refers to perforated pipes or tubes on the seabed where compressed air is injected to produce an upward bubble flow that creates a barrier. However, strong currents, waves or winds can reduce the effectiveness of this method (Lo, 1997: 645).

5.4.2 Renewable, bio-based and bio-blend fuels

Only limited research has been conducted on spills of renewable and bio-based fuels, with most studies focusing on road transportation fuels or heating fuels. Based on the demonstrations carried out at Xamk's oil spill response test basin, both animal fat and wood based renewable diesel were found to be equivalent to their fossil counterparts in terms of spill behaviour and recoverability, with only minor differences in emulsion formation and resurfacing rate (Halonen, Myrén & Kettunen, 2023: 35–36; Kettunen & Halonen, 2023: 54).

On the other hand, bio-ethanol blended gasoline E85 and pyrolysis oil, also known as bio-oil, behave very differently from conventional oils. Xamk's laboratory-scale tests showed that E85 forms two phases in water: a completely miscible lower layer and a thin upper layer of undissolved gasoline on the surface (Malk & Zhaurova, 2017: 216; Ryndov, 2017: 16). Traditional recovery skimmers or absorption products might be capable of capturing surfaced hydrocarbons, but this has not been validated by tests. Existing literature of past spill events and investigations suggest that aeration would accelerate the degradation of the remaining fraction. (Halonen & Malk, 2017: 249–250.)

When pyrolysis oil was released into water, it partly dissolved in the water and partly sank to the bottom. The sedimented oil formed a very dense, stable tarry layer that did not dissolve even when stirred or shaken. (Malk & Zhaurova, 2017: 222; Ryndov, 2017: 9, 18–19.) A pyrolysis oil spill can cause an explosion when vaporised (Ryndov, 2017: 18–19). In addition, pyrolysis oil is highly acidic, which places demands on the material compatibility (Halonen & Malk, 2017: 251–253). It is difficult to prevent the spread of pyrolysis oil once it has reached a water body. Traditional oil booms floating on the water's surface are not effective in containing water-soluble or sinking pollutants. Suction dredgers and other methods of recovering submerged oils may be used to recover the sinking and sedimented fraction. (Halonen & Malk, 2017: 251.)

5.4.3 Vegetable oils

Vegetable oils, which are mainly transported by sea as cargo, not as fuel, are also considered harmful substances, even though they do not pose significant health or safety risks or are not acutely toxic. However, they can cause long-term environmental contamination especially if spilled in high volumes. Oil coating animals or plants can lead to suffocation due to a lack of oxygen and a loss of thermal insulation for birds. (Purnell, 2009: 15.) In terms of response and recovery, vegetable oils are quite comparable to fossil oils of similar viscosities; they are mainly stable and non-volatile, with the possibility to solidify (Cedre, 2004: 22, 27).

5.5 Adopting a broader response approach

As can be seen from the examples above, emergent substances differ from each other. Not only does the variability of substances make precautionary measures complex, but products can have hazardous properties that complicate the response measures even further. This places new demands on the response capability, the most significant of which is the requirement to strengthen the mindset from a behaviour-based approach to a hazard-based approach. This involves supplementing the Oil Spill Response (OSR) concept with practices for the management of Hazardous and Noxious Substances (HNS).

Oil spills, except for fresh crude oil spills, are usually governed by the spill behaviour throughout the entire response operation. This means that the response method is chosen to reflect, e.g., how the oil floats or sinks, solidifies, or evaporates. For HNS spills, potential hazards such as explosivity, flammability, oxidation, corrosivity, reactivity, and toxicity dictate the response measures. (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 15.)

A hazard-driven reasoning determines the actions to be taken, particularly in the initial stages of a response operation (Figure 3). In fact, a hazard-based approach must be applied already during the contingency planning stage, when defining the safety requirements for the equipment to be purchased and formulating instructions for logistical arrangements or reconnaissance.

Sometimes the risks prevent interfering with the substance itself. In such cases, it might be preferable to reorient from a pollutant-centred to a source-centred intervention, i.e., instead of trying to contain the spreading of the spill on water, try to limit primary discharges from a vessel in distress. Actions onboard include, e.g., fuel and cargo transfers or trimming the vessel to stop or reduce the release. (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 57, 71–72.) In the most severe scenarios, the focus may be on monitoring and preventing further damage.

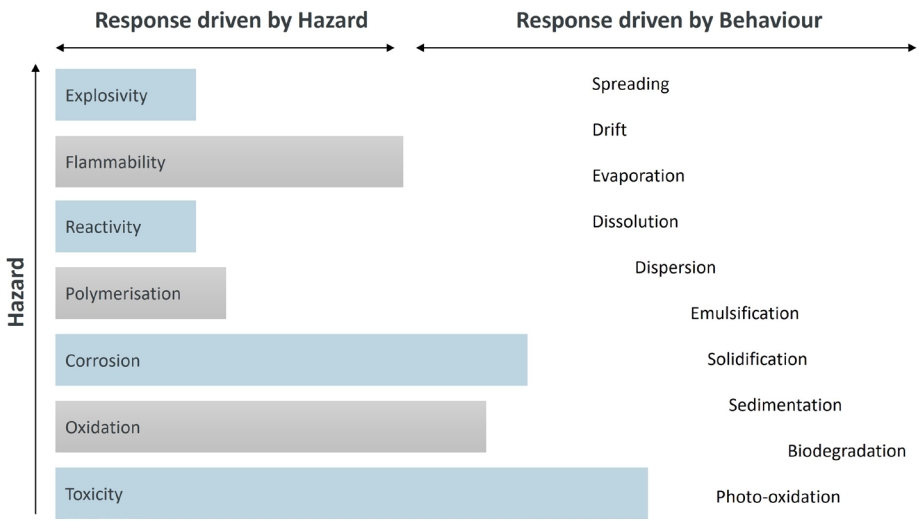


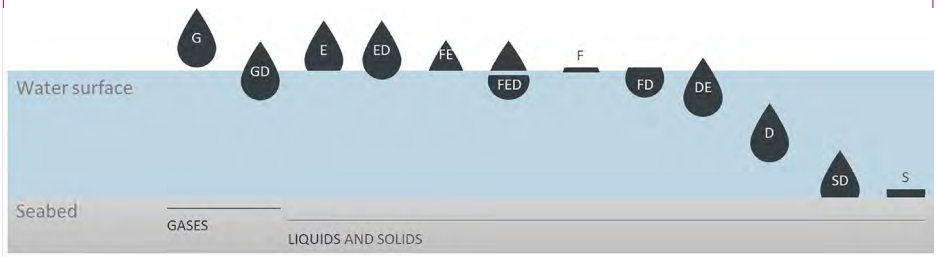
Figure 3. Response actions in the initial stages of operation are driven by hazards and later by behaviour, given that the properties of the pollutant change over time. Figure adapted from ITOPF (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 15) and IMO (International Maritime Organisation, 2005: 11).

In later stages, the longer-term response strategy may, in some cases, be determined by the spill behaviour (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 15). Even then, the likely behaviour of HNS spills varies more than that of oils.

The Standard European Behaviour Classification (SEBC) defines five main behavioural patterns for HNS, namely gases, evaporators, floaters, dissolvers, and sinkers (Table 1). Since a substance might show not one but several behavioural patterns, these main categories are further divided into 12 sub-categories. (Bonn Agreement; ITOPF, 2012: 2, 5; Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 15–16.)

Table 1. Behaviour categories for spilt substances as defined in the Standard European Behaviour Classification System (Bonn Agreement).

MAIN GROUP	SUBGROUP	
Gases	G	Gas
	GD	Gas that dissolves
Evaporators	E	Evaporator
	ED	Evaporator that dissolves
Floaters	FE	Floater that evaporates
	FED	Floater that evaporates and dissolves
	F	Floater
	FD	Floater that dissolves
Dissolvers	DE	Dissolver that evaporates
	D	Dissolver
Sinkers	SD	Sinker that dissolves
	S	Sinker



As can be seen in Table 1, the behavioural categories also cover oil-like products. Oils are usually classified as floaters (F) or floaters that evaporate (FE). These behaviours are typical in the early stages of an oil spill, but the weathering of oil often poses a risk of sinking. However, responding to submerged oil is rarely, if ever, addressed in regular OSR plans. Thus, the application of the SEBC would better prepare for behavioural variations also in the context of oil spills.

5.6 Future integration of oil and chemical response systems

It is proposed to integrate the response systems into a more comprehensive one to improve the ability to respond to a changing risk profile. In concrete terms, this would mean combining the Oil Spill Response (OSR) Contingency Plans and the response guidelines for spills of Hazardous and Noxious Substances (HNS).

As described, OSR plans usually target only one type of substance, whereas HNS guidelines define countermeasures based on several behavioural patterns. However, in other respects, OSR plans tend to be broader and more nuanced than HNS plans, including detailed specifications for logistics and waste management. Thus, the integration would leverage the strengths of both.

While integration brings immediate synergies, it does not in itself solve development needs. The competence gap shared by stakeholders at both operational and management levels needs to be addressed systematically. The first step is to ensure that, despite the high heterogeneity of new substances, there is a capability to effectively address spill incidents: as authorities need to be able to deal with an increasing number of potential contaminants that behave differently in the event of a spill, skills beyond a few generic response techniques and tactics need to be acquired and maintained. However, creating and targeting substance specific response strategies requires more in-depth knowledge than is currently available.

Resolving the competence gap requires a scientific basis and direct application and dissemination mechanisms for operative response. Although the European Standard of Behaviour (SEBC) provides an enhanced tool to prepare for different types of spills, it constitutes just a theoretical basis. As the SEBC is developed based on the physical and chemical properties of substances and laboratory tests under standard conditions, it has its limitations (Cedre, n.d.). The behaviour of a spill is always influenced by ambient conditions and exposure time (Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 16), which underlines the importance of experimental tests that consider environmental parameters (Cedre, n.d.). Thus, universities and other research institutions have an important role in providing the necessary information to support the achievement of adequate preparedness and enable well-informed response decisions in an emergency.

The Xamk Oil Spill Response Research and Testing Facility can be used to some extent for this purpose. However, to ensure the safe conduct of tests, the research facility must evolve from a behavioural to a hazard-based approach – like the rest of the industry. In practice, this would mean developing the expertise of the personnel and concrete modifications to the testing environment, such as improving fire safety with compatible extinguishers and detectors. Alongside explosion-proof equipment, the range of response equipment should be extended, as current recovery systems are designed for oils or oil-like floaters. Further, some chemical compatibility issues need to be addressed. New procedures for subsequent decontamination need to be developed and waste management policy reviewed, as the existing treatment system is designed for the separation of water and insoluble hydrocarbons.

Following these modifications, the facility would enable tests needed to obtain information on the behaviour of spills under different environmental conditions, as well as full-scale equipment trials to find appropriate respond measures for selected substances. The launch of more intensive technological and methodological development is of paramount importance. Most of the existing techniques and methods for detecting, containing, and mitigating spills are primarily developed for crude oils and have appeared unsuitable for other substances (Kass, Sluder & Kaul, 2021: 4). In short, the main principle of boom containment and removal of material from the water surface designed for oil-like products, i.e., non-soluble floaters, no longer applies to HNS spills involving sinkers, dissolvers, or evaporators. The effectiveness of traditional response and recovery methods requires that the pollutant is somewhat visible - in the case of colourless or water-soluble substances, targeting measures would be a considerable challenge. (Koops & Zeinstra, 2014: 42.)

In addition to serving as a testing platform, the modified facility could be used for training and exercises. This could contribute to improve the current situation where training is available for responding to HNS spills on land, but not many courses are available on marine spills. There is a lack of training courses that provide a level of competency to implement response actions, as the required skills can only be attained through practical exercises, which require prior investment in response equipment. (Purnell, 2009: 12.) To effectively develop operational capabilities, exercises should be conducted using real substances under conditions that mimic true response situations to a reasonable level. Hands-on experiments or live demonstrations are needed to fully comprehend the wide range of behavioural patterns of substances, the impact of environmental factors, and the limitations imposed by hazardous properties.

The training also needs to be regular. In addition to being complex, HNS spills are rare (oil spills occur more frequently) which means there are few opportunities to refresh skills in practice. Additionally, with large number of various products, the risk for a particular substance being released is much lower than for oils (Koops & Zeinstra, 2014: 42). The heterogeneity of over 2,000 individual harmful substances regularly shipped (ITOPF, IOPC Funds & IMO, 2018: 2; Alcaro, Brandt, Giraud, Mannozzi, & Nicolas-Kopec, 2021: 1; Russell, 2022; Valtavaara, 2023: 15) combined with the difficulty of achieving high level of routine, make it challenging to maintain adequate response capability without investing sufficiently in training.

5.7 Conclusions

The introduction of renewable, recyclable, and other low-carbon alternatives to support a more sustainable economy requires the adaptation of new competencies and the development of response technologies. The high heterogeneity of HNS leads to an increasing variety of potential incident scenarios which challenges the ability to effectively address spills. A particular challenge is to establish a high level of preparedness when data on the characteristics of new products is relatively limited. Preparedness for HNS spills require extensive knowledge and mastery of a wide range of response options, although there appear to be few directly applicable containment and recovery techniques.

Marine pollution incidents need to be addressed in a more holistic way, with closer integration of spill response resources and sharing of cross-sectoral expertise. As a concrete step towards this, it is proposed to integrate HNS practices into well-established oil spill response contingency plans. In addition to developing a more comprehensive approach to marine pollution incidents, it would be important to recognise alternative fuels in the legislative framework. Further research on spill behaviour and the performance of response equipment is needed to improve response preparedness and provide an adequate basis for sound and informed response decisions at the time of an incident. To serve as a platform for this development, the Xamk Oil Spill Response Research and Testing Facility will need to be modified and adapted to the requirements of new substances. Expanding research will also require the adoption of a hazard-driven approach to reflect the characteristics of future pollutants.

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6 POPULATIONS OF THE FUTURE: A SHIFT FROM NUMBERS TO RIGHTS

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ABSTRACT

In recent years, there has been an upsurge of debates concerning declining birth rates around the globe. Alarmist accounts can be found in scientific literature, newsprint and social media alike. A picture of the future is painted with a "looming crisis of empty schools and ageing populations, a depleted workforce and ghost towns" (UN, 2021). What is rather more alarming in such debates – it is argued in this paper – is their gendered nature. The population debates, whether concerning overpopulation and climate change or declining birth rates of the first world countries, are focused on reducing women as child bearers. References are often made to women's sexual and reproductive rights, even though the issues have been on the UN agenda and scholarly feminist debates for decades. This paper closely examines these population debates with a view toward the future. A sustainable future is imagined where the declining birth rates alongside increasing voluntary childlessness are not seen as a problem but a blessing.

Keywords: Birth rates, women, sexual and reproductive health rights, pronatalism, voluntary childlessness

TIIVISTELMÄ

Viime vuosina puhe syntyvyyden laskusta on lisääntynyt globaalilla tasolla. Huolipuheita löytyy niin tieteellisestä kirjallisuudesta, uutisjutuista kuin sosiaalisesta mediasta. Tulevaisuudesta piirretään kriisikuva, jossa ”koulut tyhjenevät, väestö vanhenee, työikäinen väestö vähenee, ja kaupungit autioituvat” (YK, 2021). Mikä tällaisissa keskusteluissa on huolestuttavaa – tämän artikkelin mukaan – on niiden sukupuolittunut luonne. Väestöön liittyvät keskustelut, jotka koskevat ylikansoittumista ja ilmastonmuutosta tai syntyvyyden laskua ensimmäisessä maailmassa, kutistavat naiset pelkästään lapsentekijöiksi. Usein viitataan naisten seksuaali- ja lisääntymisoikeuksiin, vaikka asia on ollut Yhdistyneiden Kansakuntien agendalla sekä akateemisten feministien keskusteluissa vuosikausia. Tässä artikkelissa kyseisiä keskusteluja tutkitaan tarkemmin tulevaisuuden kannalta. Tällöin nähdään tulevaisuus, jossa syntyvyyden lasku vapaaehtoisen lapsettomuuden kasvun rinnalla nähdään siunauksena, eikä ongelmana.

Avainsanat: Syntyvyys, naiset, seksuaali- ja lisääntymisterveysoikeudet, pronatalismi, vapaaehtoinen lapsettomuus

6.1 Introduction

Currently, at least two major strands frequently appear in popular and political discourses about the world population. The ‘overpopulation crisis’ discourse has been ongoing for decades and mostly concerns countries in the Global South. Meanwhile, in the Global North, fears of an ‘underpopulation crisis’ are frequently expressed. The latter is the case even though the world’s population has more than doubled in just fifty years, and the global fertility rate remains above the so-called ‘replacement level’ of 2.1 births per woman (UNFPA, 2023).

The underpopulation crisis discourse raises public and nation-state-bound fears about birth rates, mostly in high-income countries. Not only are such fears exacerbated in the media. The crisis talk can also be found in population studies and the statistical information gathered about populations (e.g., Statistics Finland, 2023). In Finland, for instance, discussions are held around how to help (presumably hesitant) young people have more children at an earlier age. Aspiring education and career developments, uncertainties around personal finances or climate change, among other reasons, are often blamed for the delay in having children or deciding not to reproduce at all (Sorsa et al., 2022). Often, all childless individuals – including those intentionally and unintentionally – are grouped together as a seemingly homogeneous group ‘lacking’ children.

Women's rights activists have long acknowledged the need to shift from numbers to rights (UNFPA, 2023). Perhaps more than ever, the phrase 'personal is political' still matters (Ling, 2007). The battles for gender equality are not won. Recent events on the world stage, particularly in the United States, demonstrate that when one step is taken forward, two steps are taken back regarding control over women's personal or reproductive choices.

Currently, the message from the UN (2021) is to change the narrative from numbers to rights to improve the quality – not the quantity – of life. This paper explores a number of issues involved in making such a change, ranging from global issues to some local concerns in Finland, inspired by contemporary critical social scientific and feminist perspectives.

The paper starts from the premise that more holistic views of sexual and reproductive health rights (hereafter SRHRs) are needed globally. Second, this paper begins to deconstruct a certain global 'numbers game' of demographics. Third, a critical analysis by Patrizio Lainà (2020) on lowering birth rates is presented. Finally, to conclude, it is expected that in a more equal future, those who are childfree – as a matter of choice or personal attribute – will not be subject to pronatalist social pressures (e.g., Lalonde, 2018).

6.2 More holistic views of sexual and reproductive health rights are needed

The World Health Organization states that:

> *Reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so2.*

For some time, the UN has maintained that SRHRs are fundamental to people's health and survival, economic development, and the wellbeing of humanity. Decades of research have shown the profound and measurable benefits of investment in sexual and reproductive health (Starrs et al., 2018). Health and development initiatives, including the 2030 Agenda for Sustainable Development, typically focus on particular components of SRHR: contraception, maternal and newborn health, and HIV/AIDS.

However, it is argued that accelerating progress in much of the world would require adopting a more holistic view of SRHR and addressing neglected issues. The latter would include adolescent sexuality, gender-based violence, abortion, diversity, sexual orientation and gender identities (ibid).

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2 Reproductive health (who.int), author's emphasis.

The rights that are often currently overlooked include the right to control one's own body, define one's sexuality, choose one's partner, and receive confidential, respectful, and high-quality SRHRs. Everyone has the right to make decisions that govern their bodies, free of stigma, discrimination, and coercion. Countries must take actions beyond the health sector to change social norms, laws, and policies to uphold human rights. It is imperative to promote gender equality and give women greater control over their bodies and lives (Starrs et al., 2018: 2642) while sanctioning harmful culture-based customs.

It seems that in the mainstream population discourses, attention might be paid to the wrong issues, whereas there should be more awareness of SRHRs. This would pave the way for a more equal future worldwide. The shift from numbers to rights is not only about gender but also about race and harmful cultural practices in both the Global North and the South.

6.3 The problem with numbers talk

In mainstream discourses on populations, the focus is predominantly on numbers and figures rather than SRHRs. Overpopulation is often associated with ecological degradation, increased conflicts, and a higher risk of large-scale disasters like pandemics (UNFPA, 2023), a potential global risk. Fears are expressed that the Global South will eventually outnumber the Global North.

The numbers talk has been around for a long time. For example, statistical information is often presented as neutral, as if the numbers simply speak for themselves. However, the various purposes behind statistics can and have been debated. Decades ago, in Michel Foucault's thought there was a concern with population management through scientific methods that ultimately aimed to control (female) bodies. For Foucault, as a feature of modernity, the invention of new statistical tools and metrics such as birth rates, death rates, populations and subjects were created to serve certain political interests. In the 19th and 20th centuries, such statistical categories were immediately associated with claims by medical experts, racial taxonomies, colonialism, genocide, warfare, and eugenics (Means, 2022; Deutscher, 2012).

As a result of these population management techniques, in modern industrial societies, certain identities and attributes were designated as desirable or mainstreamed by science. While often having no basis in scientific reality, categories of race, sexuality, and parenthood were raised as the only legitimate societal model. In the case of minority populations who do not share mainstream attributes, persons are still discriminated against or stigmatized (e.g., Blendon & Casey, 2019; Ashburn-Nardo, 2017).

Balanced, alternative ways for describing global developments are seldom presented. For Bish (2020), the ethical problems with the numbers talk persist:

> *"...many population experts worry discussions around overpopulation will be abused by small-minded people to suggest some are the "right people" to be on the planet (like themselves), and some people are "the wrong people" (usually people in poverty, people of color, foreigners, and so on). But there are no "right" or "wrong" people on the planet, and discussing the problems of global overpopulation can never be an excuse, or in any way provide a platform, for having that type of conversation [...] Falling mortality rates are certainly nothing to complain about either, but widespread longevity does contribute to the mathematics of increasing population numbers.*

The problem here does not lie with the population but with the argument itself. Regarding global figures, it might not be easy to understand the differences between demographic trends and population-related environmental issues in different regions of the world. World regions cannot be compared in such simplistic ways (Lähde, 2017).

In the Global North, it may be easy to shift the blame of overpopulation (e.g., in causing climate change) to the Global South. For example, less-developed nations are portrayed as having higher population growth rates when, in reality, their citizens contribute the least to global carbon emissions on a per capita basis while still bearing a disproportionate burden of the impact of climate change. Many experts agree that overconsumption by wealthy countries is among the leading causes of climate change (Starrs et al., 2018, 2649).

In parallel with economic matters, many social changes affect population counts. There are ongoing changes in how people perceive social norms and their 'adherence' to them. Importantly, most societies have traditionally sanctioned women's sexual activity and childbearing within marriage only. However, as young people increasingly stay in school longer and marry later (including in countries in the Global South), the SRHR information and services needed are changing. Ultimately, gender norms exert a powerful influence on individual SRHR (Starrs et al., 2018, 2650; also Buser, 2022), but they too can be resisted and changed. Further, the reasons for social changes may be multiple and multi-faceted.

6.4 Lower birth rates – problem or not?

Concerns about social changes and lowering birth rates are currently being expressed in high-income countries. The decline of the dependency ratio is one of the key concerns of the birth rate debate. The dependency ratio is the number of "dependents" in the country relative to the "guardians. " Traditionally, this is measured **by the demographic dependency ratio**, the number of those not working age relative to those of working age (Lainà, 2020).

However, it is useful to look at demographic scientific debates and concepts from several angles to assess the impact of lower birth rates in the future. In the Finnish context, Lainà (2020) presents a post-Keynesian economist analysis of the future. For Lainà, there is no need to panic about lower birth rates as the 'pension bomb' is already here.

First, things might balance out over time. The working-age population refers to persons aged 15 to 64. As the birth rate falls, the demographic dependency ratio initially improves because there are fewer children aged under 15. In turn, it weakens when there is less of a working-age population. As a result of the lower birth rate, the dependency ratio improves again after decades when the age accumulates over 65 years. In time, the effect of lower birth rates will disappear completely as the population regenerates (ibid).

The weakening of the demographic dependency ratio due to the ageing of the baby boomer generation has already occurred in Finland. The demographic dependency ratio will remain more or less on level for the next two decades, helped by the lower-than-expected birth rate. The demographic dependency ratio is indeed misleading if the aim is to describe the impact of the birth rate on the financing of the welfare state.

Second, Lainà also calls for understanding social changes regarding age categories involved in demographic interpretations of numbers. He argues that the age group delimitation is behind the times. In agrarian Finland after the Second World War, 15-year-olds could move from "dependents" to "guardians," which is no longer realistic in modern Finland. Respectively, a career does not always end at the age of 65 but is desired to continue further on in the future.

In addition, the demographic dependency ratio says nothing about the population's labour market status as it observes the unemployed and the employed together. This will not give a realistic picture of the assumed "guardianship". For Lainà, a better indicator from the perspective of welfare state funding is indeed the economic dependency ratio, as, for example, students and the unemployed are not included in the "guardians". **In the future, the key issue according to Lainà is to increase employment rates** (ibid) of the working age population.

A conclusion from Lainà's analysis may be drawn that the lower birth rates are not really a problem in themselves but in what they may be associated with. This idea has implications for population counts as well as those individuals expected to bear children. Lainà's analysis, among others, raises questions about the ideological bases of demographic accounts and their political ends. It turns our attention to what (scientific) questions should be asked instead of those that are most often asked and have achieved a hegemonic status.

6.5 Fewer children in the future

There have always been childfree people on the planet. However, more common is the number of people who have not had choices regarding childbearing, i.e., power over their own bodies. Today, for a growing number of advocates, the better availability of contraception, sterilization and abortion that will bring about genuine reproductive choice.

One of the major obstacles to realizing women's reproductive choices globally is pronatalism, which has particular associations with women. Although the power of the "motherhood mandate" (coined by Russo, 1976) may have weakened in high-income countries, women's social identity has remained strongly linked to their status as mothers.

6.5.1 The motherhood mandate and the childfree

For McCutcheon, the association of motherhood with womanhood problematizes the existence of non-mothers and positions them as targets of negativity from those who perceive them as rejecting a biologically mandated role. Traditional conceptions of womanhood still carry the implication that women who remain childless are somehow untrue to their destiny (Dykstra & Hagsted, 2007, 1285) or simply unaware of the joys of motherhood.

For Moore (2014, 159–160), the childfree identity is historically and culturally situated in resistance to pronatalism, resulting in stigma and stereotyping. It is an identity that requires ongoing discursive management by individuals who must continue to communicate and justify their choice to remain childless. The childfree are frequently seen by others as *unfortunate or psychologically flawed, selfish, and deviant, in the unnatural, unhealthy, and unfeminine* (Gillespie, 2000, 124).

Many studies have confirmed that women who are not mothers perceive themselves to be targets of prejudice and criticism because of their non-parental status. Women who are voluntarily childfree also report experiencing coercive attempts to alter their childbearing decisions (McCutcheon, 2020, 489).

The Nordic countries are often thought of as being advanced when it comes to gender and equality matters. However, being childfree might still be the last bastion of conservative hegemony in the North as well. In a Swedish qualitative study, childfree women had been aware that becoming a parent has gendered consequences and influences the freedom of women and men differently, even in countries like Sweden, which has a reputation for being 'liberal'. For example, the discourse about disliking children, being uninterested in children or just not good with children, is less provocative for a man than for a woman (Peterson, 2015, 187–9; Terry & Brown, 2012).

6.5.2 Advocacy for reproductive justice and the childfree

The notion of *reproductive justice* challenges a particular hetero-gendered order with a pro-creation imperative (Morison, 2016, 196). The childfree social movement is today one of the ways in which reproductive justice is being promoted. Not only is it understood that the world population needs not to rise any further, but also that it is not imperative or desired for every woman to bear children.

A lot of what is known as the contemporary, global *childfree social movement* can be traced back to the US. In the 1970s, childfree activists Ellen Peck and Shirley Radl founded the National Organization for Non-Parents (NON), the first organization dedicated to defending the rights of the "childless by choice." The organization promoted childfree living as both a socially respectable and politically responsible reproductive choice. Beyond arguments about the urgency of population control, the organization offered a sophisticated critique of the marginalization of childless citizens in a pronatalist society.

Currently, similar advocacy groups operate all over the world[3]. However, there is still work to be done. From a legal rights point of view, Waisberg (ibid, 187) discussed the **illiberal** premises of family planning vis-a-vis the lack of recognition of the childfree choice as a legitimate tool for reducing local and global inequalities (186). The child free option still remains marginal in women's rights, even in feminist debates, and inexistent in public health guidelines (in the US and elsewhere too). For Waisberg (190), this underlines widespread prejudice in regard to the childfree option, especially for heterosexual couples. In countries such as the US, it is not uncommon for the social pressure to reproduce to be translated into a freedom to reproduce, strictly tied to religious beliefs.

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[3] E.g. Finnish Childfree Association, webpages currently only in Finnish Tervetuloa Vapaaehtoisesti Lapsettomat ry:n verkkosivuille! | Vapaaehtoisesti Lapsettomat ry

Further, for Waisberg, the same societies that have advanced human rights for all, happen to be the same societies that exploited other societies to profit from their human and natural resources. Therefore, it cannot be argued that the overpopulation problems of the Global South could be simply disconnected from the Global North. Waisberg draws connections between the rich societies, colonialism, the global elite and the violation of women's reproductive rights: *"…there must be some continuity, the reliance on the same rules of the game"* (ibid, 194), where the personal, for women, is political. There are global responsibilities at stake here.

6.6 Discussion

Finnish researchers, among others, have discussed population matters at length noting that there are no simple or easy solutions to the global problem. Whether the perceived problem is over or under population, the marginalized parts of the population appear to suffer. It is a matter of gendered inequality. However, many agree that should those in powerful positions in the world of business and politics have the will, there would be a way (e.g., Säävälä, 2017).

Being childfree is a separate but – as this paper has attempted to show - a related matter to the under and over population debates, especially regarding the former. The constant bombarding in the media about the concern over low birth rates often distorts and simplifies issues that are quite multifaceted in the lived realities of women (and other genders). The childfree literature indicates that the relentless insistence on motherhood, at worst, continues to disturb and discriminate against women with a childfree identity throughout their lifespan. This is a continuing example of the controlling of women's bodies. Perhaps discussing the margins – the childfree – might bring us to the core: the problems of pronatalism.

However, things are due to change. A couple of decades ago, leading sociologists Beck and Beck-Gernsheim (cited in Dykstra & Hagestad, 2007) forecasted that the news of falling birthrates would be the stuff of everyday lives in highly industrialised and individualised societies. More societies will be built on structures other than those relying on women's childbearing and (unpaid or underpaid) care work; a way in which a welfare state should operate around its population.

The NON-movement was able to bring voluntary childlessness into the mainstream of American thought at the time (Healey, 2016). For Waisberg (2017, 200), the consequences of the childfree choice to women's empowerment are overwhelming. In the future it is bound to liberate the next generation of women from motherhood as a necessary tool for inclusion and social transformation. Yet more work is needed in the Global North, calling upon the leaders to take more global responsibility to increase the childfree phenomenon's visibility, if not the volume.

6.7 Conclusion: imaginings for the future

What would a shift from numbers to rights regarding populations mean in the future? First, for those sympathetic to progress, falling birth rates are absolutely a welcomed trend of today and the more sustainable future. They are, at best, an indication of the increasing control that individuals – particularly women – are able to exercise over their reproductive lives (UNFPA, 2023; McCauley et al., 2018). Second, adopting a more holistic view of SRHR and tackling adolescent sexuality, gender-based violence, abortion, and diversity in sexual orientations and gender identities will be the normal state of things in the future.

Third, the childfree choice on its part represents a welcomed, liberating shift from numbers to rights globally. The **language of justice** shifts accountability from individuals as it points to broader structural arrangements, relations of power, and norms that affiliate with pro-natalism (Morison, 2016, 196). Fourth, creating positive language and identities for adult women other than mothers is important. Increasing rates of child freedom make it likely that the meanings of childlessness and motherhood will continue to change (McQuillan et al., 2012), giving room for diversity.

Finally, simplistic interpretations of the dependency ratio appear to do more harm than good. As Lainà has insightfully suggested, one key issue for sustainability is to increase employment rates of the working age population. Alarmist talks about lowering birth rates in this light represent gender-based discriminatory ideology. Demographic statistics with implicit or explicit pronatalist purposes – that only ask certain questions and not others – may skew understandings of the world. More imperative questions to ask in the future are how to better tackle societal inequalities.

This paper has touched upon some of the matters involved in population debates. The aim here has been to stimulate further discussion, research, and advocacy. It is hard to see how meeting women's SRHRs and self-determination rights better would be anything but necessary on the planet.

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7 TOWARDS A FUTURE-DRIVEN UNDERSTANDING OF THE MULTICULTURAL STUDENT AND RDI EXPERTISE IN FINLAND

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ABSTRACT

Finland is a country that provides an excellent opportunity to form an international expert mindset with its principle of continuous non-discriminative learning. High-quality education and excellent industry-education interactions characterize the Finnish national innovation ecosystem. At the same time, the future of Finland, like that of other EU countries, depends highly on attracting foreign multicultural expertise. This paper explores the opinions of international students and RDI professionals regarding culture, future expertise, and their international learning and work experiences. Multiple semi-structured interviews were conducted with representatives of Bangladesh, Iraq, Poland, Nigeria, and India. The interview data were supplemented by project team meetings, work events, and the author's observation with the representatives of Finnish, CIS, and Sri Lankan cultures. The research findings indicated certain intercultural similarities in terms of experienced difficulties in work integration in Finland with individual differences in cultural adaptation and personal development.

Keywords: Finland; Finnish culture; culture; future; international expertise; RDI; student expertise; work integration

TIIVISTELMÄ

Suomessa vallitseva jatkuvan, syrjimättömän koulutuksen periaate tarjoaa erinomaisen mahdollisuuden toteuttaa kansainvälistä asiantuntija-ajattelua. Suomen kansalliselle innovaatioekosysteemille on tyypillistä laadukas koulutus sekä työelämän ja koulutuksen väliset erinomaiset suhteet. Suomen sekä muiden EU-maiden tulevaisuuteen vaikuttaa kuitenkin merkittävästi se, kuinka houkuttelevia ne ovat ulkomaisen monikulttuurisen osaamisen näkökulmasta. Tässä artikkelissa tarkastellaan kansainvälisten opiskelijoiden ja TKI-ammattilaisten näkemyksiä kulttuurista ja tulevaisuuden osaamisesta sekä käsitellään heidän kansainvälisiä oppimis- ja työkokemuksiaan. Useita teemahaastatteluja järjestettiin Bangladeshista, Irakista, Puolasta, Nigeriasta ja Intiasta kotoisin olevien henkilöiden kanssa. Haastatteluaineistoa täydennettiin projektitiimitapaamisilla, työtilaisuuksilla sekä kirjoittajan havainnoilla Suomen, IVY:n ja Sri Lankan kulttuurin edustajista. Tutkimustuloksista löydettiin joitakin kulttuurien välisiä yhtäläisyyksiä liittyen Suomen työelämään integroitumisessa koettuihin vaikeuksiin, ja yksilöllisiä eroja havaittiin kulttuurisessa sopeutumisessa ja henkilökohtaisessa kehittymisessä.

Avainsanat: Suomi; Suomen kulttuuri; kulttuuri; tulevaisuus; kansainvälinen osaaminen; TKI; opiskelijaosaaminen; työelämäintegraatio

7.1 Introduction

Students with a foreign background often have enormous difficulties finding an internship and, more importantly, a first job upon completion of their studies in Finland (Edunation 2023). Despite certain demographic challenges, international students and young experts experience problems of cultural integration and multiple culture-specific biases. This applies at undergraduate, graduate, and even postgraduate levels. Despite high standards of English-language education, especially in business and social sciences, young professionals experience significant problems finding employment (Beech 2022). A lack of Finnish language skills, insufficient connections to Finnish companies, poor networking capabilities, and sometimes scarce assistance from the university personnel, as well as the reluctance of local companies to take the time to integrate foreign graduates into the Finnish business environment, make the work path-building process for international graduates largely inefficient and potentially ineffective.

This paper aims to deeply analyze the identified problems with international students and graduates in Finland and explore the needs of local and international businesses. Interviewing multicultural students and experts provides a new way to examine challenges in cultural integration and foreign-based employment from an outside-the-box perspective, as international opinions count much in constructing national policies in Finland. Continuously developing international student competences, future-driven needs of Finnish businesses in recruiting, and internationalization practices as a co-creation of the work-life path represent the conceptual framework. This paper's methodology is a case study with qualitative methods, including observation and semi-structured interviews, to provide a deeper intake of the joint student and company perspectives (Elman et al. 2016). The structure of the paper is as follows: the method and case study are presented first, followed by the future-based learning aspects and presentation of interview results, and finally, the discussion and concluding remarks are provided.

7.2 Case Study

This article is a part of the two-and-a-half-year ESR+ project "Work life path – international experts to work," which explores the international student perspective on building an integrative path to work and networking in the Finnish business setting in the Kymenlaakso region. Empirical reflections are strengthened by the author's multicultural background and continuous learning experience between EU and CIS cultures. The project team has expertise in innovation and entrepreneurship RDI work, export-oriented businesses, higher education, and extensive business networks in Finland and includes both student and expert perspectives.

The project involves building a continuous action-based dialogue with Kymenlaakso regional companies with international operations and with multiple young international experts where multicultural mindsets were fostered during their studies, practical training, and work paths (Kymenlaakso Chamber of Commerce 2023). All the interviewed multi-cultural and multi-lingual experts are united by high motivation and long-standing efforts in building their life and work paths in Finland. Both students and workers, representatives of young and older generations, are given equal importance in this research. At this initial stage of the ongoing ESR+ project, the primary focus is the observation of the international students' work-related challenges. Although digitalization is not the central meaning of this article, both digital and offline solutions to developing international students' competences and networking are studied (Mikhaylov 2014).

This case study is framed within the broader context of Finnish culture and its impact on the work path for international experts (both students and workers). Issues of multi-culturalism (cultural diversity), adaptation and culture shock are analysed throughout the interview process (Huff et al. 2021). All interviews were recorded either in video or audio format during online Teams meetings. Certain comments were handwritten by the author or recorded with the help of an audio recorder device. Due to the sensitive nature of the topics and GDPR guidelines, transcripts of the interviews were saved and secured privately by the author. All accounts of the interviews and interviewees are presented anonymously. Four interviews were conducted following the semi-structured format with 8 to 10 main questions adapted to the experience of interviewees. Another four interviews included themes rather than open questions to enable the gathering of deeper reflections from the younger-generation interviewees and let them express their opinions freely. The analysis and reflections are framed with regard to the discussed topics or questions. However, the primary focus was on the continuous processes of the interviewees' integration into Finnish culture, cross-cultural experience, obstacles, and enabling factors in the ongoing cultural development toward a professional and work path in Finland.

7.3 Multi-cultural Aspects of Learning and Integration in Finland

Attention and sincere interest in the problems students face are two of the key initial solutions to their professional development. This can come in many different forms, for example, interest in finding short-term work during the summer, internships outside of university studies, or compulsory practical training with subsequent employment. At the same time, it is practically impossible to provide a monosyllabic answer to the question about the separation (or singling out) of international students from local Finnish students in the implementation of international paid diplomas or their respective study programmes (Eurydice Unit Finland 2023). On the one hand, foreign students require additional attention during their admission to higher education institutions and subsequent orientation to their degree studies in a new country. On the other hand, if one separates and provides special attention to the young and skillful international students from the very beginning and at the same time builds completely independent study and orientation weeks for local students, then no meaningful cultural integration of foreigners will ever happen (Han et al. 2022).

Action-based learning is a proven method to grow professionally and solve difficult problems. However, without a proper plan and interest from all stakeholders - management, teaching staff, and the students themselves - it is impossible to construct a curriculum or any individual course effectively. Elaboration requires an approach that prepares and opens

educational programs focused on teaching international students. The opinion of students already studying, local or regional companies employing these foreign specialists, as well as the opinion of native Finnish students and Finnish associations and support societies, is needed. Such a dialogue is consonant with the innovative Finnish educational system with a world-class reputation and flexible opportunities for student self-growth and knowledge-driven community development (Finnish Education System 2023).

However, it is the way of thinking – in other words, the mindset and holistic approach to discussing the work and learning of international students that needs to be modernized. It is not enough to simply translate the modules already being taught into English and have the same teachers teach those topics in English. Nor is it sufficient to schedule classes and conduct training sessions with international groups under the same conditions. It should also be noted that the Finnish culture of behaviour, work, and life in general becomes clear to some extent to some international students as some choose to stay in the country. Attracting talented students who can quickly master the basics of the Finnish "international" culture is possible only if educators and members of the Finnish educational ecosystem ethically and honestly discuss Finland and the Finnish education system and sufficiently advertise the Finnish educational product.

The process of integration into Finnish society should begin long before arriving in Finland for study, work, or family relations. The modern generation lives online, and the adaptation to life during the pandemic has already proven that through the Internet and open data we can not only communicate but also fully self-develop, work, and study. Returning to the educational process of international student groups, educational institutions are responsible for marketing their educational programs and for preliminary familiarization with the ecosystem of their regions.

7.3.1 Learning Finnish culture in advance – beginning intercultural integration

Language is an essential part of culture. Without understanding the language at a sufficiently high level, it is impossible to fully understand Finnish culture. This language is quite difficult to learn without constant practice. For many, the complexity of language training is compounded by differences in climate and not understanding the cultural codes and practices. Further, there is often an underestimation of the diversity of the Finnish mindset. New international applicants and their families could perhaps be told more about Finnish culture and society through short videos, accessible interviews with international students, and communication with representatives of Finnish culture through webinars or cultural

events. In addition, much can be revealed by comparing one's own culture, because we take our cultural experience in our native lands for granted without proper introspection. There are various ways to compare cultures with each other, for example, using the Hofstede, Trompenaars, Schwartz criteria, or the GLOBE report (Hofstede Insights 2023; Tocar 2019).

7.3.2 Key advantages and disadvantages of Finnish culture from multicultural viewpoints

Respondents noted the high working culture in Finland, the rule of law, and the great value placed on free time in people's lives. In addition, the school and vocational education system is among the world leaders in education. In Finland, there is a significant level of freedom and gender equality. Several interviewees noted the importance of all cultures: cultures are simply different from each other, but this does not mean that one culture has disadvantages compared to others.

A rather interesting opinion was expressed regarding the shortcomings of Finnish culture. The breadth of opportunities for a foreigner to study and be understood in Finland exclusively in English makes it difficult to master the Finnish language, which is often necessary when applying for a job. However, culture is mastered not only along the axis of "knowledge" but also along the axis of "feelings." A person should experience the culture, which is difficult without at least basic conversational knowledge of the Finnish language. International students must face culture shock and the ensuing problems to "get a feel" for Finnish culture, and, perhaps even occasionally, get into trouble.

Despite gender and age equality, a foreign first and last name can be a hindrance (or at least a difficulty) when searching for a job. Further, as Finland has an individualistic culture (according to Hofstede), it may not be fully understandable to those from collectivist cultures, where communication and interaction are built on different principles. Accordingly, a narrow nuclear understanding of family becomes an obstacle for many migrants and foreigners in establishing communication and forming friendships not supported by close or distant family relationships. According to several respondents, a certain form of discrimination based on nationality exists in recruiting for international events, when preference is given to less qualified Finnish candidates, while more experienced foreign candidates are ignored. Finally, harsher weather conditions confuse people from warmer countries, leading to lower overall life satisfaction in Finland.

7.3.3 Skills and values required for a foreigner to succeed in a work life in Finland

According to several respondents, knowledge of the Finnish language and networking (personal branding) are important for the success of an international student and graduate in Finland. One should also be brave, proactive, and not afraid to ask local businesses and people questions. Sometimes such an activity can seem intrusive, but this is, first, due to the different cultural code of Finland. One needs to be open and not be afraid of something new or even something unusual for a foreigner. This may concern a job, a non-standard profession, or an unusual internship, which may subsequently predetermine the successful employment of an international student.

The international positioning of candidates for work or study helps them to integrate into Finnish culture. An international mindset is always positively accepted in almost any culture, although at first it may cause some caution. In addition, such an international approach allows experts to better integrate into a new culture and use the best aspects of their native culture in the right way. Several interviewees immediately noted the importance of time management; it is necessary to be on time, despite their own initial ideas about time and deadlines. Almost everywhere, foreigners are subject to increased requirements, and the criteria for assessing actions in practice are more stringent, despite the principles of inclusiveness and cultural diversity stated in educational policy.

Applying for practical training is often an international student's first job in Finland. It involves a recruitment process, which may be unfamiliar to them. At the first stage of screening, a correctly composed and formatted CV and cover letter are important. According to four respondents, it is worth familiarizing themselves with the rules for writing resumes and cover letters in Finland, and not at the international level, because there are significant differences. Verbosity and praising one's merits one cannot always achieve what is required. Unfortunately, many respondents found that when searching for work, they quickly discovered that employers tend to favour local candidates. However, this is understandable as it happens in almost every corner of the world. In other words, it can be attributed to the policy of so-called protectionism, namely the primacy of the national over the foreign. Finally, a person should become familiar with the Finnish labour market and the business area they are interested in. Finland has much international experience, but the work processes are different compared to many larger European and Asian countries. The issue here is not the Finnish language itself but rather the professional routine and culture of office work.

7.3.4 Main differences and similarities with Finnish culture

Finnish culture is similar to most "cold" countries in the northern hemisphere. However, we should not tar everyone with the same brush. The differences are evident in laws and standards, including medical and social work. The differences are also visible between the Finnish regions, such as Rauma and Joensuu - according to one of the respondents. A more positive attitude and cultural adaptation in Finland is hampered by unrealistic plans, namely high expectations regarding the speed and assistance provided in the first months after arrival in the country. Again, networking and the desire to adapt a person's native values to the changing cultural environment are important.

According to one interviewee, in Finnish culture, what a person knows is important. While in his native culture, it is mainly whom you know, and not what exactly, that matters. A person should not talk too much either; showing your skills in action during the provided training or probationary period is better. Foreign recommendations and endorsements of trust do not play any significant role, since the trainee or new foreign employee is given the opportunity to prove themselves.

Foreigners from more populated countries may be perplexed by the number of people, or their small number. But there are many similarities, such as mutual assistance, life values, and the importance of family and free time in everyone's life. Further, through such hobbies, foreigners can provide new things to the range of services already available in leisure, sports, and personal development in Finland.

7.3.5 Should Finnish culture be more English-minded (for international experts)?

According to several respondents, when answering this question, they must immediately make a mental distinction: English for what – for life, study, or work? English is expected to become a single global language in less than twenty years. In addition, another respondent believed the use of Finnish or English depends on the field and region of work. Medical staff, for example, are required to work in the national languages with rare exceptions. The same thing happens with social workers. Business work may allow the use of English as well as Finnish. In rare exceptions only English is used. In general, education, according to three participants, is how one can learn Finnish well and succeed in finding a job.

One of the interviewees made an important point. Foreigners should submit applications for jobs where there is international work first. The Finnish language will always remain better among native speakers, no matter how well foreigners learn it. But this is the opportunity for visiting specialists abroad to prove their international value. Finnish is never a bad thing, but it is in English that foreign experts can show their best and achieve better results for Finnish companies. Three more interviewees spoke in favour of the need to develop an international mentality using the English language, because this will allow one to position oneself as part of the global market, and not just the Finnish labour market.

7.3.6 Developing Finnish culture for international experts

Finnish higher education does not fully meet the needs of migrants, according to one of the respondents. If secondary school education in Finland helps migrants adapt to the country's culture and system of norms quickly and painlessly, higher education, unfortunately, is still underdeveloped and divides international students from Finns. This hinders the subsequent integration of foreign bachelors and masters into Finnish culture.

The cultural integration of refugees and migrants, even after completing long-term government training programs in Finnish, requires even greater attention. Despite having learned Finnish at an average level, arriving foreigners often lack the cultural skills to continue their education at a higher level or find a better job. According to other respondents, every day, as foreigners, they must prove that they are the best and that they are right for the job.

Working with Finns is not always easy for foreigners. Temperament, pace of life, speed, or quality of completing tasks differs from what they are used to. The youngest foreign specialists among the interviewees noted that there is not enough information about Finland as a country to live in. It is possible, for example, to improve the data provided, like Business Finland, removing the social and informational bias. The more accurate information international talent and students receive, the easier it is for them to get the right first impression of Finland and realize their study and work potential in the right direction.

7.4 Discussion

The image of Finland in the international market is built, first, on the excellent pre-school and school education system. In addition, scientific universities in Finland are known in varying degrees in the international landscape, depending on the research market, the direction of educational programs, and the quality of their researchers' international pub-

lications (Teivanen, 2022). However, the model of applied secondary and higher education is less well-known. Applied universities are not so well known in many countries, including South-East Asia and Southern Europe. Simply selling an educational package and saturating the program with solvent students is half the battle. In practice, upon completion of the programs, most of these international students return to their homeland or seek employment in third countries. Given the impact of the recent pandemic and the restructuring of businesses to hybrid or fully online, this scenario seems to be the most likely.

But what if we want to ensure that paid students benefit our city or at least stay in our region after graduation by creating their own enterprises or finding employment in one of the local companies? Is it even possible in the long run?

Yes and no.

Much depends on the motivation of everyone and each individual stakeholder in the educational process. During practical sessions, workshops on creating innovations, or simply as part of initial recruitment interviews with foreign students, we constantly ask the question, *"What is your story?"*. By doing this, we are trying to motivate students to be sincere, to believe in themselves and their surroundings, to look for professional growth options on their own, and to correctly communicate their plans for employment and skills. But can we, as the links of the educational and professional chain, answer this question? When building an effective system of paid education and subsequent employment of students in our own region, educators should think like international students, and should even partly become international students. At the centre is the formation of a new international mindset, which refers to the university of applied sciences, local business, partner social organization or a single paid diploma. Only in this way, in the eyes of the international training and workforce, they can become a fair partnership (Finnish National Agency for Education 2023).

According to the current project's findings, potential Finnish large employers want to see a desire of foreign students to integrate into Finnish culture, learn the Finnish language and Finnish work principles (Work life path 2023). At the same time, behind every multicultural employee, large employers want to see a cultural ambassador - a global cosmopolitan persona who will connect hitherto disparate cultural realities. Moreover, it is through young international employees that Finland can only build its future. Therefore, aspects of future-oriented learning should be built into the training and education system in Finnish educational institutions, and especially in the structure of applied higher education, in accordance with the Ministry of Education and Culture Strategy 2030 (2019).

Why is it necessary to increase the number and quality of foreign students in the region? Perhaps to fulfill financial obligations and the budget of educational institutions. In addition, it can increase the importance of both the educational institution itself and the city (region). It also improves the region's reputation as an attractive location to do business with the accumulation of international experience. However, rarely will anyone answer that international programs help to build a new international mindset. Thus, change is needed. With the right assistance in their professional development, international students can become key to forming a new regional mentality, heal outdated methods of work and create innovative solutions. This happens precisely when training and educating international students, and not at all when hiring ready-made personnel for work from abroad. As the entire ecosystem of the region is affected, and not only individual tasks of the personnel departments of international companies or the selection committees of international universities.

However, in the pursuit of mass international education and an abundance of corporate tasks, an individual approach and comprehensive attention to the problems of each international student is often lost. This is so necessary for building a new international mindset. As a rule, the constant questions of international students and their requests for help in dealing with everyday affairs in Finland seem rather strange for professionals working in business or the educational field. Strange precisely because they are adult representatives of foreign countries (YLE News 2022). However, the difference between their home cultures and Finnish culture can be so great, and most importantly, the pace of life and the norms of communication can differ so much that it leads them to a dead end. The ability to wait, to be patient, to preserve an equal mind - all these qualities are instilled in young students in business communication or intercultural communication courses. Unfortunately, we ourselves often lose these skills when dealing with groups of international students. It should be remembered that they are our guides to the world and serve as cultural ambassadors, and it is through them that we reach new educational or business partners as part of expanding the range of educational activities and exporting education in general.

In the pursuit of short or medium-term goals, without paying due attention to seemingly insignificant issues and problems of international students, universities and companies lose their credibility, and the students themselves do not become cultural ambassadors. Their stories ("Tell your story!") lose motivation and positive energy, and they can no longer act as protagonists of the Finnish business (or educational) culture. In the long term, therefore, there is a "cultural dissonance", and the reputation of already Finnish educational and business organizations is threatened precisely because of the so-called neglect of foreign students and the expressed inattention to their small problems.

It is possible to say that one must master the language of a host country and familiarise oneself with the basics of local culture, but what is the reality in the eyes of international students and professionals if it is possible to live, study and work in English as it has an equal footing with Finnish and Swedish languages (Laitinen 2022). Only in rare exceptions, when international university applicants studied Finnish or Swedish at school or additional classes, they can succeed in understanding Finnish culture and quickly adapting to the educational and working process immediately upon arrival in Finland.

In most cases, Finnish or Swedish is introduced in a rather playful manner with low requirements and, as a result, the inability to use language skills after passing one or two (depending on the requirements of a particular educational institution) language courses as part of a Bachelor's or Master's program. Thus, despite the positive picture, Finnish or Swedish language training is not progressing well enough, for example, compared to full-fledged daily Finnish or Swedish language courses for migrants, refugees and people coming to the country for family reasons. Of course, assistance in learning languages is actively provided by community colleges and evening classes, but, as a rule, it is difficult for young international students to find these or fit them into their study schedules. Again, there is insufficient marketing of such courses for people who do not speak Finnish or Swedish. Well, why can't life in Finland become completely English-speaking for foreign citizens, including education, employment and the use of all necessary social benefits, if almost every person on the street can clearly answer foreigners' questions in English? This is a rhetorical question.

7.5 Conclusion

The article explored the personal reflections on culture, integration, life and work paths of international experts, and analysed the inter-cultural skills and values required for successful professional development in Finland. During the "Work life path – international experts to work" ESR+ project, the author and all project team aim to change the regional mindset of Kymenlaakso by internationalising the work and study culture of Kouvola and assisting organisational changes in the leading international export-oriented companies by working closely with the international students, cross-cultural experts and all stakeholders of the Finnish regional ecosystem. As areas for future research, it will be interesting to consider the principles of developing an English-language learning and working environment in Finland, as well as issues of future-based internationalization of older generations of employees of large companies - potential recruiters of foreign talent.

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8 DEVELOPING COURAGE AND CREATIVITY FOR AN ALTERNATIVE FUTURE

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ABSTRACT

Many people today suffer from anxiety and are afraid of the future. Feeling helpless and cynical is a global phenomenon – especially among young people. Future scenarios seem hazy, not instilling hope and belief in the future. So how can we keep the hope alive and courageously create alternative futures? How can teachers help the youth become more courageous in tackling complex challenges such as climate change and the rising cost of living? Hope and courage as competencies to solve problems, ideate, and innovate could play an important role in creating alternative futures. This article addresses three questions: why courage is needed, how courage could be defined and developed, and finally, what the outcome of courage intervention is. This article discusses a case study of developing the virtue of courage during a first-year university course through a group coaching process and positive psychology interventions aimed at strengthening student learning in creativity, innovation, and teamwork. Students were encouraged to create alternative futures through developing new products, services, and business ideas. Some of the key learnings of the experiment will be shared. University courses should include courage coaching and positive psychology interventions.

Keywords: courage, courage development, courage intervention, group coaching, hope, future

TIIVISTELMÄ

Monet ihmiset kärsivät nykyään ahdistuksesta ja pelkäävät tulevaisuutta. Avuttomuuden ja kyynisyyden tunteet ovat maailmanlaajuinen ilmiö - erityisesti nuorten keskuudessa. Tulevaisuuden skenaariot näyttävät hämäriltä, eivätkä ne herätä toivoa ja uskoa tulevaisuuteen. Miten voimme pitää toiveikkuutta yllä ja luoda rohkeasti vaihtoehtoisia tulevaisuuksia? Miten opettajat voivat auttaa nuoria suhtautumaan rohkeammin monimutkaisiin haasteisiin kuten ilmastonmuutokseen ja elinkustannusten nousuun?

Toiveikkuudella ja rohkeudella ongelmanratkaisu-, ideointi- ja innovaatiovalmiuksina voisi olla tärkeä rooli vaihtoehtoisten tulevaisuuksien luomisessa. Siksi rohkeusvalmennuksen ja positiivisen psykologian interventioiden pitäisi olla osa korkeakoulujen ja yliopistojen tarjoamaa opetusta. Tässä artikkelissa vastataan kolmeen kysymykseen: miksi rohkeutta tarvitaan, miten rohkeutta voidaan määritellä ja kehittää, ja lopuksi, millaisia erään rohkeusintervention tulokset olivat.

Tämä artikkeli käsittelee rohkeuden kehittämistä ryhmäcoachingprosessin ja positiivisen psykologian interventioiden avulla ammattikorkeakoulun ensimmäisen vuoden opintojaksolla. Tavoitteena oli vahvistaa opiskelijoiden osaamista luovuuden, innovoinnin ja tiimityön osalta. Opiskelijoita kannustettiin luomaan vaihtoehtoisia tulevaisuuksia kehittämällä uusia tuotteita, palveluja ja liikeideoita. Artikkelissa jaetaan kokeilun tärkeimpiä oppeja. Yliopisto- ja ammattikorkeakouluopintoihin tulisi sisällyttää rohkeusvalmennusta ja positiivisen psykologian interventioita.

Avainsanat: rohkeus, rohkeuden kehittäminen, rohkeusinterventio, ryhmäcoaching, toiveikkuus, tulevaisuus

8.1 Introduction

During the last few years, people have seemingly faced one drastic crisis after another, from pandemics to war to the climate crisis and rising costs of living. The visions of the future have become hazier and more uncertain. The mental state of people has shifted, and fear is a constant visitor in our minds. Faith in the future of the world has weakened, and sadly, only half of young people believe in the human desire or ability to solve the biggest global problems. One of the biggest worries of young people is the climate crisis, but lately, the fear of war has grown even bigger. Young women especially view the future significantly more cynically than men. (”Toiveikas ja pelottava” – selvitys nuorten tulevaisuususkosta 2022).

Unfortunately, this is a global phenomenon. According to an extensive international survey of young people's climate feelings, 75 percent of young people were afraid of the future. Moreover, 56 percent believed humanity was doomed to destruction. It is worrying and, at the same time, comforting that young people across all countries were worried about climate change: 59% were very or extremely worried, and 84% were at least moderately worried. More than 50% reported the following emotions: sad, anxious, angry, powerless, helpless, and guilty. Feelings about climate change were seen to affect their daily life and functioning negatively, and many reported many negative thoughts about climate change. For example, 75% of the respondents thought the future was frightening. Moreover, 83% said people have failed to care for the planet. (Hickman et al. 2021).

In Finland, on average 25% of the population recognized some kind of climate anxiety in themselves. Only a quarter estimated that they had experienced encouraging feelings regarding climate change. However, 58% did not experience these kinds of encouraging feelings. The content of teaching in schools or other educational institutions (15%), the IPCC climate report (16%), or politics (19%) resulted in the least encouraging feelings about climate change. The most encouraging feelings about climate change were caused by news (45%), examples of other people's behavior (40%), and discussions on the topic within their inner circles (37%). (Hyry 2019). So, what could be done to foster hope and empower our youth? Inayatullah (2008) stated:

> *"New futures are more often than not driven by a creative minority. They challenge the notion of a used future. Instead of imitating what everyone else is doing, they innovate. This can be social, political, cultural, spiritual, or technological innovation. These change agents imagine a different future and inspire others to work toward it."*

Could our schools, universities, and teachers become doulas for hopeful change agents who courageously tackle problems, innovate, and actively create alternative futures? We should at least foster a desire to solve some of the problems we are facing now and will face in the future. This message should be taken seriously by all those working with young people ("Toiveikas ja pelottava" – selvitys nuorten tulevaisuususkosta 2022).

Courageous people change the world. They find solutions to the wicked and complex problems. Courage is also inspirational. It can be a tool for strengthening our faith in humanity and our ability to solve global, local, and individual problems. However, many lack the courage to take their ideas further and start their innovation or entrepreneurial journeys. Therefore, courage coaching and interventions are needed. Instead of feeding pessimism

within classrooms, teachers should encourage students to ideate and innovate, thus finding ways to combat worry and fear. Creating these safe physical and virtual spaces where we can listen to each other's concerns and look for solutions should be a priority in our schools and universities. Remembering that we can all contribute to creating hope for a better future is essential. Facing our fears and sharing our vulnerability can create a courageous culture where people can flourish and be creative.

This article addresses the question of how we can foster hope and courageously create alternative futures. It explores how teachers could help youth become more courageous in tackling complex challenges such as climate change and the rising cost of living. A case study where students were encouraged to develop their courage and to work towards a brighter future while developing their ideas and teamwork skills further will be discussed. During this university course, courage coaching and positive psychology interventions were used to strengthen people's faith in the future and find courageous strategies to make the future happen instead of letting it happen.

This paper proceeds as follows: in section 2, the importance of courage in futures studies, creative endeavors, entrepreneurship, and innovating will be discussed. Moreover, courage as a process will be explored. Section 3 discusses the implementation of the From Idea to Innovation course during spring 2023, whereas section 4 further explores courage interventions and group coaching. The aim was to develop the personal courage of the students, which could also proactively transfer to creative, innovative, and entrepreneurial activities in the future. Finally, conclusions and suggestions for further research will be presented in section 5.

8.2 Conceptualizing Courage and Fostering Futures Thinking

In this section, I explore the conceptual underpinnings and literature on courage and futures thinking. I discuss the importance of courage in futures studies, creative endeavors, entrepreneurship, and innovation. Moreover, I explain courage as a process. Finally, I present the theoretical underpinnings of group coaching and positive psychology interventions.

When discussing future and future scenarios, we also discuss uncertainty and in the worst case, lack of hope. When we discuss uncertainty and hope, we should also discuss courage. Kadlac (2015) argues that the virtue of hope leads to a more realistic view of the future than dispositions like optimism and pessimism. Moreover, according to Kadlac (ibid. 2015) hope promotes courage. When working with alternative futures, sometimes even gloomy scenarios, one must be vulnerable and face their fears. Future-oriented people, developers, inno-

vators, and entrepreneurs should acknowledge their fears, take risks, tolerate uncertainties, and work courageously toward their goals. Oxford Languages describes entrepreneurship as characterized by taking financial risks in the hope of profit. Bockorny and Youssef-Morgan (2019) explain that positive psychological resources such as courage, confidence, hope, optimism, and resilience are valuable psychological capital for entrepreneurs. But feeling and being courageous instead of frightened, afraid, anxious, extremely worried, sad, angry, or powerless is an asset and a solid ground for the wellbeing of anybody. Therefore, special emphasis should be put on developing these skills.

Inayatullah (2008) describes the identification of alternative futures as a fluid dance of structure (the weights of history) and agency (the capacity to influence the world and create desired futures). Moreover, he states that "*futures thinking does not wish to condemn us to hope alone*." To proactively create desired futures, one needs not only hope but also courage which is dynamic and action oriented. Strengthening agency through the development of courage could be a psychological asset to overcome hopelessness. Further, it could increase the ability to take risks despite the uncertainty. Therefore, it could be argued that courage capital can help influence the world and create desired futures.

In Parts 1 and 2 of the Finnish Government's report on the future (2023) preparedness, the opportunities created by each scenario, living with uncertainties, and the related risks, which require various measures to support preparedness, are discussed. The report proposes actions to enhance future preparedness. When discussing the future, should we also discuss mental preparedness? How could we develop hope and courage to prepare ourselves and our youth for the future and future scenarios? How can we create enthusiasm and faith to tackle our society's and individuals' problems? Developing courage capital could be a solution. Next, courage and courage development will be discussed.

8.3 Courage, courage interventions, and group coaching

Courage has often been praised as one of the key virtues necessary for other virtues to exist (e.g., Johnson quoted in Boswell 1992). For instance, Seligman et al. (2005) include courage as one of the six core virtues fostering an individual optimal development. However, personal courage is not only a virtue of leaders (Havard 2007). It is needed at all levels, in various positions and situations: in solving problems, conflict resolution, innovating, encouraging others, taking action, making positive changes, and, last but not least, adapting to change. Courageous people often become innovative entrepreneurs or act as change agents in the organizations and society driving "Great Leaps Forward". (Soulamo 2023.)

Aristotle described virtue ethics as the middle ground, the so-called golden mean or golden middle way. It is the desirable middle between two extremes, one of excess and the other of deficiency. Based on an Aristotelean view of ethics, courage could be seen as a balancing act between a completely risk-free life and foolish courage (Kylliäinen, 101). On the other hand, in positive psychology research, courage is considered one of the core strengths, which according to research, increases well-being, improves self-esteem, and increases self-efficacy (Peterson & Seligman 2004; Proctor et al. 2011; Proyer et al. 2013).

In line with earlier research on the topic, in this article courage is defined as a combination of trait like character strengths (bravery, honesty, persistence, zest, and hope) and process related psychological factors (meaningful goal, risk evaluation, self-efficacy, intuition, persistence and committed courageous action) in use which lead into human growth and transformation (Pury & Lopez 2009; Pury, Lopez & Key-Roberts 2010; Pury & Saylors 2018; Rate 2010; Soulamo 2023). Therefore, courage is seen as a dynamic cognitive, emotional, and behavioral process in which valuable goals are volitionally transferred to hopeful planning, risk evaluation, acceptance of various feelings and emotions, coping and adaption through self-efficacy, finally leading to committed courageous action (Soulamo 2023). Courage is dynamic in nature; courage becomes real and visible through thoughts, words, or deeds. The combined effect of active use of one's character strengths and psychological factors such as courage and hope will ultimately increase wellbeing and flourishing of an individual. (Soulamo 2023.)

Although interest in courage as a research topic has grown in recent years, the research has mostly concentrated on searching for a scientifically acceptable and generally agreed-on meaning for courage (Peterson & Seligman 2004; Lopez et al. 2010; Rate 2010; Pury & Saylors 2018). Therefore, it is still relatively unclear how courage could be developed and utilized in transforming human behavior. However, courage and courageous behaviors can be learned and taught, as they are skills, not natural endowments (Detert 2018; Detert 2021). In this article well as in my doctoral research, I investigate how personal courage can be developed and if the external and internal courage processes could be supported through group coaching and courage interventions (Peterson & Seligman 2004; Soulamo 2023).

The goal of both group and individual coaching is to unlock an individual's potential, improve resources, and maximize performance (Whitmore 2009, 9-10). Through coaching, a flourishing individual could arise who, in turn, will help themself, organizations, and societies to flourish. However, the evidence-based and theoretical literature supporting group coaching as a successful approach to cultivating courage is scant. Generally, it has been suggested that individual coaching can be an effective method for inspiring change (Grant et al. 2009). Moreover, Pury and Lopez (2009, 381) argue that 'learning about

courageous actions of others may inspire courageous actions in the observer'. Still, only a minority of coaching research concentrates on individual and personal learning during the group coaching process (Peters & Carr 2019; Robinson & Yanagi 2019).

In his article Inayatullah (2008) describes six pillars of futures studies which provide a theory of futures thinking that is linked to methods and tools (mapping, anticipating, timing, deepening, creating alternatives, and transforming). These six pillars seem to have certain similarities with a coaching or group coaching process. The GROW model is also often used during coaching sessions. This model contains four phases: 1) goal, 2) reality, 3) obstacles or options, and 4) way forward or will. Futures studies, and, for example, six pillars, concentrate on transformation and the future in general, whereas coaching or group coaching deals with individual transformation, preparedness, and the future. Developing courage during group coaching is preparing oneself for the uncertain future: mapping, anticipating, timing, creating alternatives and transforming.

8.4 Positive psychology interventions

Positive psychology interventions are activities which aim to increase the positive emotions, well-being and flourishing of an individual or a group (Smirnova & Parks 2018, 277). Shutte and Malouff's (2018) meta-analysis found favorable effects with interventions related to core strengths. There is unfortunately only little research on actual courage interventions compared to, for example, core strengths, interventions related to self-compassion or resilience. Therefore, more research is needed. Moreover, Trom and Burke (2021) provide preliminary evidence that coaching can be used to amplify the effect of positive psychology interventions. Furthermore, Pury and Saylors (2018) argue that a working courage intervention should focus on clarifying and valuing goals, promoting self-efficacy, and reducing both actual risks and the fear response to them. These cornerstones of building effective group coaching interventions on courage were utilized during the From Idea to Innovation course. Next, a case study and experiences from these courage interventions and group coaching during spring 2023 will be discussed. (Soulamo 2023.)

8.5 From Idea to Innovation course and Courage Coaching

In this section, the implementation of the From Idea to Innovation course will be explored, alongside a discussion of the courage coaching principles. Bishop and Hines (2012) argue that teaching students to anticipate, plan, and influence their own future and the future

of their organizations and communities is vital. This is especially true in times of intense change when creativity and innovation are required for competitive success. However, many schools and teachers lack the knowledge of how to anticipate and influence the future. Hines (2007 cited in Bishop & Hines 2012, 12-13) describes activities and benefits of foresight which are present as a hidden curriculum during the implementation of the From Idea to Innovation course. Moreover, the group coaching process running parallel with the actual course implementation is demonstrated in Table 1.

ACTIVITY	BENEFITS	FROM IDEA TO INNOVATION COURSE	COURAGE COACHING PROCESS
Framing Scoping the project	1. Thinking more diverse, open, balanced and non-biased. 2. Focusing on the right questions and problems more clearly 3. Being aware of, and influencing, assumptions and mental models	Finding, evaluating and understanding problems	Establishing courage goal
Scanning Collecting information	4. Understanding the context, in all its complexity, through establishing frameworks 5. Anticipating change and avoiding surprise	Collecting user data and completing problem-based user study	Understanding current situation through assessment and investigation
Forecasting Considering a range of future possibilities	6. Producing more creative, broader, and deeper insights 7. Identifying a wider range of opportunities and options	Ideating, evaluating and choosing three ideas/solutions	Identifying possible alternatives Exploring options
Visioning Choosing a preferred future	8. Prioritizing and making better and more robust desicions	Concentrating on one idea/solution and collecting idea-based user insights	Selecting the best solution Choosing strategy and evaluating it
Planning Organizing to achieve the vision.	9. Construction pathways from the present to the future that enable rehearsing for the future	Value proposition, SWOT and Business Model Canvas	Deciding about following steps
Acting Implementing	10. Catalyzing action and change 11. Building alignment, commitment and confidence 12. Building a learning organization	Prototyping and pitching Planning the post-course implementation	Taking action Following up

Figure 1: Comparison between benefits of foresight, From Idea to Innovation course curriculum and courage coaching process
Sources: Hines (2007 cited in Bishop & Hines 2012, 12–14); Lovely (2019)

Figure 1 loosely illustrates the design thinking framework (Empathize, Define, Ideate, Prototype, Test) of the well-known IDEO D School (Lovely 2019) as an underlying curriculum principle. As Bishop and Hines (2012, 14) propose, organizations need foresight to understand their consumers, develop new products and services, and create thriving learning organizations. But it is just as important for individuals to identify what they need to do today to thrive tomorrow (Bishop & Hines 2012, 14). Therefore, learning about future possibilities and choosing courageous strategies on a more individual and profound level is crucial for organizations and any individual trying to keep the faith and live courageously.

The goal of the From Idea to Innovation course is to develop new products, services, and business ideas within student teams. The course is clearly future oriented, emphasizing encouraging students to improve their creative skills, act and make a change, even a little one, regarding something. During the course, students look for problems and try to solve them. After the course, it is possible to continue developing these product or service con-

cepts and business ideas during other entrepreneurial courses at the South-Eastern Finland University of Applied Sciences - Xamk. Figure 2 describes the implementation, intended learning outcomes and course assessment.

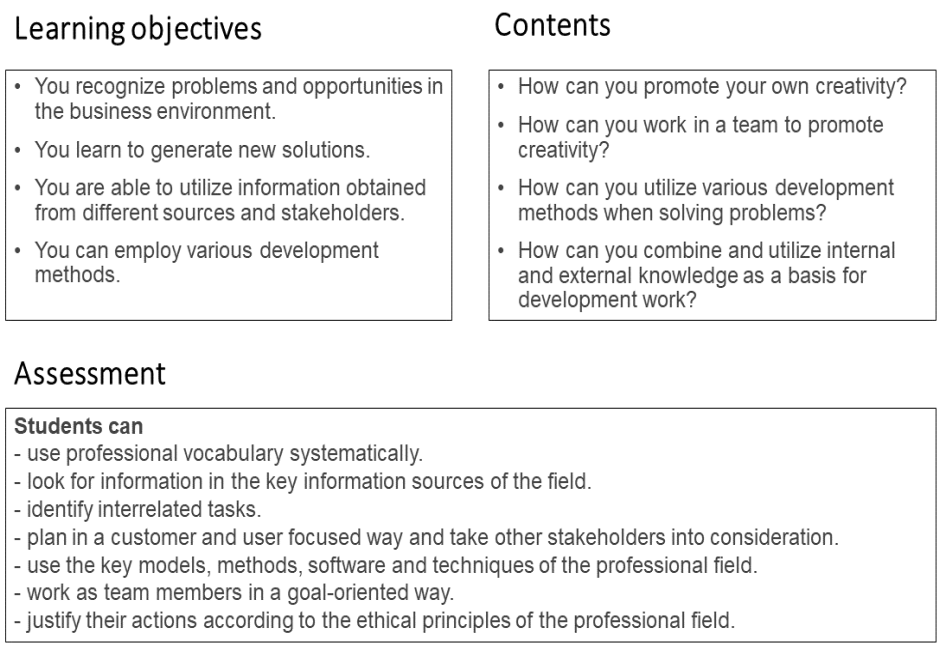

Figure 2: Learning objectives, contents, and assessment of the From Idea to Innovation course (Xamk Peppi 2023)

23 students (6 teams) participated in the online course. Students were advised to enroll in teams of 3-4 students and agree on their joint working hours. A 3x3-hour group coaching process in Teams was incorporated into the obligatory course for first-year business students. The main goal of courage coaching and interventions was to support the students' courage process and develop personal courage. In addition, finding and using their creative potential, ideating, and innovating are important entrepreneurial skills needed in the VUCA (volatile, uncertain, complex, and ambiguous) world (Bennett & Lemoine 2014). The underlying skills in creativity are courage, daring to experiment, and even failure. Courage is an important skill even when learning anything new. Moreover, teamwork skills are highly appreciated by any employer these days. (Soulamo 2023.)

Students themselves were able to book group coaching sessions for April - May 2023 with the coach. In the experiment, the writer of this article acted in the dual role of teacher and coach (Certified Business Coach®, Group & Team Coach® and Positive Psychology Practitioner™). The coaching process intertwined with the actual learning process and assignments of the course. However, the theme of the group coaching process was courage, and during

it, three positive psychology courage interventions (courage breathing, courage drawing and courage letter) were utilized. (Soulamo 2023.)

Normally, these kinds of interventions are not included in the course curriculum although they could offer fast and efficient ways to boost reflective thinking among students. Moreover, group coaching is not part of a regular course implementation as it is quite time consuming and tedious (Soulamo 2023, 150). Additionally, the role of a teacher normally emphasizes sharing knowledge, giving advice, and following guidelines. As a coach, the teacher becomes more involved with asking, listening, and understanding. A teacher using coaching as a method becomes closer to the students, their inner worlds, and mindsets. Hence, coaching is about promoting learning among students but in a more individualized and deeper manner.

Coaching is a goal-oriented and concrete activity, and as such, is well-suited for the purpose of developing courage. At the beginning of the group coaching process, the basic principles of group coaching were discussed with each team. These principles entailed information about asking the right questions in the right way and norms such as listening, respecting and confidentiality. Each student was coached once during the process. They were asked to reflect on their own courage and to pick a courage-related goal with which they would strive to develop themselves and their actions. The courage goals they chose included expressing their opinions and turning on a microphone during a workplace Teams meeting, flying, traveling abroad, driving a car, setting their own boundaries, and saying no. There was no goal too small and no fear too great. There was also no rush, as time and attention were given graciously. Even the small steps and successes were cheered and celebrated together. (Soulamo 2023.)

Group coaching involves sharing and learning from others and their stories. Therefore, each time, only two students were coached by the main coach (the author of this article) together with the team members who were acting as co-coaches. Finally, after each coaching and at the end of each coaching session, thoughts and feelings were discussed and reflected on together. During each session, one courage intervention (courage breathing, courage drawing, and courage letter) took place. These positive psychology interventions gave students an opportunity to reflect on their courage, feel courageous, think courageously, and build their courage "muscles" while going through various stages of the courage process. (Soulamo 2023.)

At the end of the course, each team member, individually, as well as team members together, evaluated and reflected on their learning outcomes as part of the team's learning portfolio. Students were advised to reflect especially on the goals of the course and the evaluation criteria defined independently by the team at the beginning of the course. Courage was not mentioned in the instructions at all, nor was it told to be considered in this context. (Soulamo 2023.)

8.6 Student reflections in the end of From Idea to Innovation course

This section will analyze more thoroughly courage coaching and interventions organized for a student group at South-Eastern Finland University of Applied Sciences (Xamk) in spring 2023. Moreover, student reflections will be discussed, and learning outcomes will be explored. Firstly, according to self-evaluations the course and group coaching were described as practical and inspiring ways of working, learning, and changing the world. One student described this as follows (Soulamo 2023, 147-148):

> *"The course gave me a lot of perspectives on how to start with an idea and take it further. It also highlighted that it really is possible to influence the world yourself. You don't need anything but will and enthusiasm to get things done."*

> *"During our team meetings, we got to know other team members. We worked on respecting the opinions of others. There was good communication among the team members and teamwork flourished, which has enabled us to work effectively together. Development work and innovation process are broad topics, but I think we learned well and now understand the different stages of the innovation process better."*

Secondly, as the previous comment mentioned, the course and group coaching supported students' teamwork, enhanced a confidential and open atmosphere and built team spirit (Soulamo 2023, 147-148).

> *"At first, the atmosphere was a bit nervous, but we quickly found the common ground. As stated at the beginning of the course as our goal, everyone felt safe and dared to say their own opinion. Even those who were a little more careful about expressing their opinions initially started to share their thoughts and ideas more openly. Maybe as a team we could have thrown ourselves into the process even more and gone a little bit crazy, even though we were improving in that all the time. The atmosphere in our group was respectful and we were able to be who we are."*

"It has also been great to be able to be yourself in the team. Working can sometimes be challenging in terms of time, but as everyone was open and honest, the teamwork went well."

"It was wonderful how the women in my team took on the problem and we soon started working together on exactly that. Teamwork as a word worried me at the beginning: I thought about how we could make our timetables fit together, but it was a pointless worry. I think we have succeeded in our goals and for my part I can say that I have taken the project forward as a team worker. As a team, we have managed to complete the required tasks on time and by doing very thorough background work."

Thirdly, the course gave students perspectives on courage and an opportunity to develop their personal courage. The following comments describe these outcomes well (Soulamo 2023, 147-148):

"At first I was a little skeptical about teamwork, but I found out that I get inspiration and courage from others."

"It was challenging to come up with an idea at first, but we nevertheless found an idea that everyone would have some personal experience with. I also think that, as the course progressed, each of us found a little more courage in ourselves to present our own opinions and push ideas forward. At least for me, this course has given a lot. I didn't know that working in a team could be so uncomplicated, even though there is a lot of distance between team members."

The following themes, which one of the teams summarized as the headings in Figure 3, emerged from the learning portfolios as actual learning outcomes from the course:

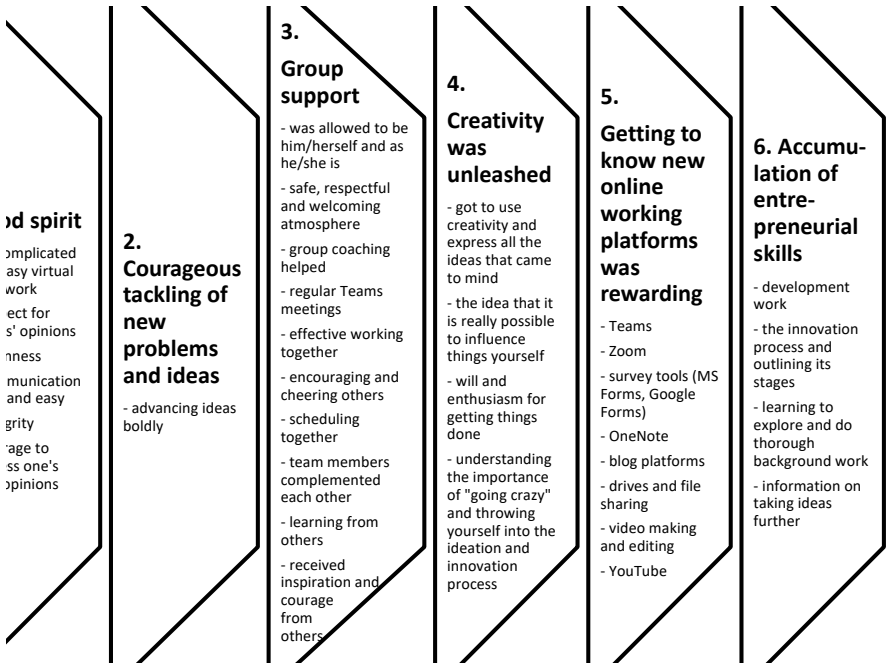

Figure 3: Student reflections on the learning outcomes (Soulamo 2023, 149)

The summary created originally by a student team was enriched with other teams' self-evaluations by the author of this article. In addition, the perspectives connected to entrepreneurial skills that did not belong elsewhere in the summary were added as the 6th learning outcome. In conclusion, the students considered that taking ideas further was a challenging but growing experience and a rewarding process. Student teams specifically reflected and highlighted the team's mutual respect, safety, easy flow of communication, and that the team members could be themselves and express their opinions openly. The team members were perceived as inspiring and encouraging. Moreover, students thought that their courage increased. The author of this article, who was also the teacher and the coach during the course in the spring of 2023, works as a senior lecturer at Xamk but is also currently working on her dissertation at the University of Lapland. Her forthcoming articles will discuss the more detailed results on measuring courage and the effect of courage interventions and group coaching. (Soulamo 2023.)

8.7 Conclusion

This article explored a case study in which the goal of a university course for business students was to strengthen students' ability to act creatively and innovatively as team members and develop their personal courage. This goal alone is significant as a byproduct of this kind of learning process; one could also find the courage to make some radical changes that affect the future greatly - individually or collectively. Instead of passively waiting for another catastrophe or crisis to happen, they could create alternative futures. They can become the creative minority innovating socially, politically, culturally, spiritually, or technologically (Inayatullah 2008).

Based on the results gained from this case, group coaching can be used among students working on their product, service, or business ideas to enhance a safe environment, encourage them to voice their fears, and thus increase students' resources and courage. If one can honestly and more deeply face one's own as well as others' weaknesses and fears within a group coaching session, it may lead to finding new dimensions in oneself, daring more, and even reaching one's full potential. Brown (2015) explains how this kind of place of vulnerability is both the core of difficult emotions like fear, grief, and disappointment, and the birthplace of love, belonging, joy, empathy, innovation, and creativity. In addition, it seems that the effects of group coaching emerge especially as an enhancement of the development process of group dynamics. (Soulamo 2023.)

Moreover, instead of creating alternative futures alone, teams contain more wisdom, power, and energy. The stories, examples and role models can be extremely empowering. The power of encouragement is strong. Often the obstacles, thresholds, difficulties, and problems with the ability to see and create the future are somehow linked not only to fears but also skewed and narrow thinking. Most of the time, breaking down these kinds of personal or collective barriers to creativity and innovation is an internal process related to transforming individual attitudes and thoughts. However, courage coaching and interventions can offer a shared space to cultivate one's cognitive, behavioral, and emotional processes and broaden the scope of transformation through other participants' experiences and views. (Soulamo 2023.)

The courageous journey begins with facing one's fears. Therefore, students should be taught more about learning, which is not supposed to be comfortable. It is about changing, pushing against old ideas, and is therefore challenging (Brown 2016). The teachers' job is to push the students out of their comfort zones. However, teachers should provide a space where students can feel afraid and safe at the same time, experience togetherness, and have the possibility to analyze and overcome failure. Courage can grow in a safe and encouraging environment. Sharing fears and failures, for instance, during group coaching sessions

brings people together, helping them to trust more in themselves, each other, as well as the future. This togetherness and safety can also dissolve anxiety and worries. Moreover, in her work "Fearless Organization" Edmondson (2018) emphasized the importance of creating a psychologically safe atmosphere in workplaces and companies, as it enables learning, innovation, and growth. It does not mean running away from fears and neglecting the lessons one learns from failures. Instead, fears and failures should be treated as a bridge to courage. (Soulamo 2023.)

A limitation of this case study is that analysis was done by the author of the article only, who also acted as both a teacher and a coach. Moreover, due to the limited number of self-assessments, doing more research on the development of courage and group coaching is beneficial. Quantitative and qualitative data and experiment results are needed to draw conclusions. The forthcoming articles by the author of this article aim to describe and measure the effects of group coaching and courage interventions right after the end of group coaching and after a six-month follow-up period.

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9 FUTURE OF ENTREPRENEURSHIP EDUCATION IN HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Entrepreneurship education is booming in higher education institutions, with many practices repeated globally. There is concern over the potential homogenization of entrepreneurship education, even referring to the *McEducation* of its practices. Yet, entrepreneurship education is a complex field with many competing or complementary paradigms. The world is changing rapidly, and uncertainty is part of our lives. Thus, we need to consider how entrepreneurship education can help us better cope with this and rise to current and future challenges. New entrepreneurship education themes include environmental and social justice and instilling hope, the effectiveness of entrepreneurship education, and different pedagogical approaches. This article examines the future possibilities revealed in current entrepreneurship education research and the diverse learning outcomes these might yield for our students. The article draws on a desk-bound analysis of current research articles and discussions with the experts in the field. Based on these sources, I present various perspectives on the potential direction of entrepreneurship education in higher education institutions and anticipate the learning outcomes we can expect in the future. This article can prove valuable at a practical level, when planning future entrepreneurship education practices in higher education institutions.

Keywords: Entrepreneurship education, learning outcomes, higher education, entrepreneurship, pedagogies

TIIVISTELMÄ

Yrittäjyyskasvatus kukoistaa korkeakouluissa ja monet käytännöt toistuvat maailmanlaajuisesti. Huolta herättää yrittäjyyskasvatuksen mahdollinen homogenisoituminen ja on tuotu esiin jopa sen suosituimpien käytäntöjen luonnehtiminen termillä *McEducation*, jossa kaikille tarjotaan samaa käytäntöä. Tästä huolimatta yrittäjyyskasvatus on monimuotoinen toimintakenttä, josta löytyy useita toistensa kanssa kilpailevia tai täydentäviä paradigmoja. Maailma muuttuu nopeasti ja epävarmuus kuuluu elämäämme. Siksi meidän on pohdittava, miten yrittäjyyskasvatus voi auttaa meitä paremmin selviytymään epävarmasta tulevaisuudesta ja vastaamaan nykyisiin ja tuleviin haasteisiin. Uusia yrittäjyyskasvatuksen teemoja ovat lisääntyvät kestävän kehityksen ja sosiaalisen oikeudenmukaisuuden vaatimukset sekä toivon herättäminen, yrittäjyyskasvatuksen vaikuttavuus ja yrittäjyyskasvatuskäytänteiden erilaiset pedagogiset lähestymistavat. Tässä artikkelissa tarkastellaan tulevaisuuden mahdollisuuksia, joita on tuotu esiin tämänhetkisessä yrittäjyyskasvatuksen tutkimuksessa, sekä niiden monimuotoisia oppimistuloksia. Artikkeli perustuu tutkimusartikkeleihin ja keskusteluihin alan asiantuntijoiden kanssa. Tämän perusteella esitän erilaisia näkökulmia yrittäjyyskasvatuksen mahdollisiin suuntiin korkeakouluissa ja ennakoin tulevaisuudessa odotettavia oppimistuloksia. Tämä artikkeli tuo lisää tietoa käytännön työhön suunniteltaessa tulevia yrittäjyyskasvatuksen käytäntöjä korkeakouluissa.

Avainsanat: Yrittäjyyskasvatus, oppimistulokset, korkeakoulutus, yrittäjyys, pedagogiikka

9.1 Introduction

Entrepreneurship education is a complex multifaceted phenomenon. This complexity is inherited from the diverse definitions of entrepreneurship. The narrow definition of entrepreneurship education concentrates on encouraging students to start their own companies or venture creation. Entrepreneurship is often approached as a broader phenomenon emphasizing entrepreneurial behavior (Lackéus 2015; Kuratko 2005) and seen as "a transversal competence, which can be applied by citizens to all spheres of life" (Bacigalupo, Kampylis, Punie & Van Den Brande 2016, 6).

For higher education institutions, entrepreneurship, and consequently entrepreneurship education, are pivotal aspects of education, and entrepreneurship education programs have grown rapidly in past decades across the globe (Kuratko 2005). Since 2021, the Finnish Ministry of Education and Culture has introduced a new form of financing that rewards

higher education institutions based on the percentage of students who become entrepreneurs after graduation (OKM 2019). Despite substantial efforts to promote entrepreneurship, only a small fraction of students choose entrepreneurial courses during their studies or pursue entrepreneurship (Salmijärvi, Siklander, Vuopala & Impiö 2021, 60).

The goal of entrepreneurship education in higher education institutions should not solely aim at pushing students to become founders of their own businesses or concentrating exclusively on business skills. The focus of entrepreneurship education has evolved from a singular emphasis on new venture creation to a broader understanding of entrepreneurial skills that prove beneficial to students, whether they work as entrepreneurs or employees. Equally significant is the cultivation of attitudes and soft skills, such as creativity, problem-solving, risk-taking, and proactiveness. (Cascavilla, Hahn & Minola 2022.) The concept of adding value should be at the core of entrepreneurship education (Lackéus 2014).

Despite this shift to a broader view of entrepreneurship education, the significance of student entrepreneurship has also increased within higher education institutions. In student entrepreneurship, the focus is on creating new businesses either during studies or immediately after. These student-led enterprises are expected to contribute to the economy and employment, as well as the development and commercialization of innovative solutions. Entrepreneurship provides an excellent career opportunity for young people to apply their theoretical knowledge in practice. (Cascavilla et al. 2022.) Higher education institutions are under increasing pressure to develop models that support students' entrepreneurial attitudes and skills and facilitate the establishment of new businesses. Different aspects of the entrepreneurial mindset are assumed to receive even more emphasis in entrepreneurship education in the future.

In this article, I will discuss the challenges of entrepreneurship education, specifically the definitions of entrepreneurship, entrepreneurship education, and critical perspectives. Understanding the current state of the field is important when we foresee where entrepreneurship education is heading in the future. Following that, I will delve into the current discussion about pedagogies of entrepreneurship education in higher education institutions and explore recent research on its learning outcomes and effectiveness. These are essential when planning effective future entrepreneurship education practices. After that, I will describe the new frontiers of entrepreneurship education, specifically addressing sustainability and social justice. This will conclude my contribution to reflecting on the future aspects of entrepreneurship education in higher education institutions.

9.2 The challenges of entrepreneurship education

In entrepreneurship education research, there is an ongoing debate about the essence of entrepreneurship education and the outcomes it aims to achieve. Decker-Lange, Lange, Dhaliwal, and Walmsley (2022) state that "the scope, relevance, and usefulness of entrepreneurship education are still questioned" despite significant investments by higher education institutions in entrepreneurship programs. Entrepreneurship education theories have highlighted various goals, including spreading knowledge about entrepreneurship, fostering positive perceptions of entrepreneurship among students, enhancing entrepreneurial intentions, and fostering entrepreneurial learning (e.g., Fayolle & Gailly 2008; Hytti & O'Gorman 2004).

According to studies, there is not much consensus on how entrepreneurship education should be defined and what it contains when addressing its teaching philosophy and pedagogies (Berglund & Verduijn 2018, 4; Nabi, Liñán, Fayolle, Krueger & Walmsley 2017). Fayolle (2013) explains that it is difficult to compare different entrepreneurship education courses because of the fragmentation in the field itself. On the other hand, global homogenization has been found in entrepreneurship education (Hytti 2018) and researchers have called for the enlargement of the repertoire of entrepreneurship education (Berglund & Verduijn, 2018). Salmijärvi et al. (2021, 73) believe that without shared ideas about entrepreneurship education and its practices in higher education institutions, the implementation of entrepreneurship education practices is scattered and random and depends too much on the will and aims of the teachers and other staff members implementing these practices.

Even if entrepreneurship education could (or even should) be "a factory designed to produce capability of thinking, acting, and making decisions in a wide range of situations and context," Fayolle (2013, 698) saw that entrepreneurship education mainly serves as "a factory producing startups." Salmijärvi et al. (2021) showed in their study of higher education institutions in Finland that entrepreneurship is mainly interpreted as business start-ups and innovations when, in fact, the policies guiding entrepreneurship education in higher education emphasize the development of entrepreneurial studies and strategic management of entrepreneurship. This is also a challenge for entrepreneurship education practitioners working in higher education institutions, who might consider that the number of near-future entrepreneurs is not the key aim of their work but rather a side product of developing capabilities. When adopting the broad definition of entrepreneurship education, the focus is more on student motivation to participate in entrepreneurship education activities and on produced learning.

Blenker, Korsgaard, Neergaard & Thrane (2011) have found four different paradigms of entrepreneurship education: a) educating students to create new ventures; b) educating students to transform ideas and knowledge into initiatives that will create economic growth; c) facilitating entrepreneurial energy for social change; d) facilitating an entrepreneurial mindset in everyday practice. These are all valuable and interesting tasks, but they also differ greatly and will lead to different outcomes. That is why it is sometimes difficult to understand what we want to achieve when we are doing entrepreneurship education, and different stakeholders have different views. At this point, it is worth highlighting that according to the authors, the base of teaching entrepreneurship education is facilitating entrepreneurship as an everyday practice, and it is prior to all other forms of entrepreneurial actions (Blenker et al. 2011).

Given the diverse definitions of entrepreneurship education and its varying content, it is not surprising that understanding what students can gain from entrepreneurship education practices in higher education institutions proves to be challenging. As Decker-Lange et al. (2022) wrote, "it is unclear what effectiveness means in relation to entrepreneurship education because the purpose of entrepreneurship education itself differs." When focusing solely on new ventures or business start-ups, it is relatively easy to assess the impact of entrepreneurship education practices. However, effectiveness may also be linked to achieving soft measures before hard measures are realized. (Decker-Lange et al. 2022; Nabi et al. 2017.)

Critical entrepreneurship education has increased in recent decades. It is about criticizing the basic assumptions of entrepreneurship and keeping entrepreneurship education fresh and broadening its research and practices. So as critical entrepreneurship education challenges traditional perspectives of entrepreneurship, it simultaneously encourages a deeper examination of the societal, economic, and cultural contexts within which entrepreneurship operates. It fosters a critical mindset, prompting students to question established norms, power structures, and assumptions inherent in entrepreneurial practices. (Tedmanson, Verduiyn, Essers, & Garner 2012; Verduijn, Dey, Tedmanson & Essers 2014.) Critical researchers note that entrepreneurship – especially when defined broadly - has grown into a phenomenon portrayed as an aspirational good that should be promoted across all educational levels and within all schools and faculties. This raises justified criticism even though this broad definition of entrepreneurship makes it difficult to question entrepreneurship and its meaning. (Berglund & Verduijn 2018; Farny, Frederiksen, Hannibal & Jones 2016.)

9.3 How to teach entrepreneurship effectively in higher education institutions?

How to teach entrepreneurship is still a valid question despite all the research that has been done in the field (Motta & Calina 2023). At the core of entrepreneurship education is the process of learning and teaching entrepreneurship (Neck & Corbett 2018). Pedagogy serves as the overarching framework that guides educational practices. In the context of learning, pedagogy encompasses the methods, strategies, and techniques employed by educators to facilitate the acquisition of knowledge, skills, and understanding by learners. It involves creating a structured and supportive environment that promotes effective learning experiences.

Further, some researchers and practitioners discuss special entrepreneurship pedagogy (or enterprise education or entrepreneurial pedagogy) which extends beyond traditional classroom methods and emphasizes experiential learning and real-world application (Jones & Iredale 2010). The core of this pedagogy is often "learning by doing" (Fayolle & Gailly 2008). Entrepreneurship pedagogy may involve interactive and participatory activities, such as case studies, simulations, and projects, to actively engage students in the entrepreneurial learning process. By immersing students in practical experiences, entrepreneurial pedagogy aims to develop foundational business skills alongside critical thinking and problem-solving abilities essential for success in entrepreneurship. Some researchers argue against using the term entrepreneurship pedagogy, or pedagogy altogether, preferring andragogy instead (for example, Neck & Greene 2011).

Learning entrepreneurship education is traditionally divided into three forms: "about," "for," and "through" models. There are differences in the priorities, methods, content, and requirements of these different forms of education. Learning about entrepreneurship refers to the increase of knowledge about entrepreneurship at the theoretical level and the basic assumption about the phenomenon. Learning for entrepreneurship refers to cognitive entrepreneurial skills on how to start a business or behave entrepreneurially. (Lackéus 2015; Kakouris & Liargovas 2021.) According to Lackéus (2015) learning about entrepreneurship is a typical learning model in higher education institutions. Morselli (2018) found out that most courses in higher education rely on about and for approaches. Both these models are teacher-centered. The broader view of entrepreneurship is rarely reported in the literature on entrepreneurship pedagogy used in higher education (Berglund & Verduijn 2018, 4).

Learning through entrepreneurship happens when students go through an actual entrepreneurial learning process, which refers to attitudes. (Lackéus 2015.) Learning through entrepreneurship has been found to facilitate the development of entrepreneurial identity (Donnellon, Ollila & Williams Middleton 2014). Sometimes higher education pursues

learning through entrepreneurship as students run their own real enterprises, which educators and coaches support (Decker-Lange et al. 2022). This requires a student-centered approach, and it should be group-based and action-oriented (Morselli 2018).

Another teaching model is the supply, demand, competence model by Béchard and Gregoire (2005). The supply model corresponds to the "about" model, the supply-demand, demand, and demand-competence models align with the "for" model, and the competence model corresponds with the "through" model. The supply model focuses on reproduction methods such as reading and lectures, the demand model is a different kind of personalized and participative method, and the competence model focuses on production, communication, and discussion methods. (Béchard & Gregoire 2005.)

Experiential learning is one of the most highlighted ways of teaching in entrepreneurship education in which students learn actively by doing. It is often compared with traditional "class-based" learning and teaching, which is teacher-centered and uses more basic forms of education, like lectures and written assignments. In experiential learning the important aspects are action and a student-centered view of learning and teaching, and the role of teacher changing to a facilitator. For example, Cooper, Bottomley, and Gordon (2004) describe their experiential learning assignments as designed to stimulate active participation, where class sessions are not traditional lectures but more based on a two-way dialogue between the facilitator and student group. As Motta & Galina (2023) found out, experiential learning activities are usually accomplished in teams, and the team working skills are one essential part of this teaching method.

Mason & Arshed (2013) studied the teaching of entrepreneurship to university students through experiential learning and their study supports the argument for teaching entrepreneurship through experiential learning. The purpose was to expose students to the real world of the entrepreneur, and they addressed that through experiential learning students encountered many learning situations which would have been impossible to create in the classroom. (Mason & Arshed 2013.)

Motta & Galina (2023) classified different kind of experiential activities in their systematic literature review about experiential learning. These were developing a business plan, providing consulting services to companies, business development, and implementation and development of projects and activities. The benefits of experiential learning for entrepreneurship education are the opportunity for the student to directly experience entrepreneurship provided by the learning environment, and develop different skills, competences and entrepreneurial attitudes. (Motta & Galina 2023.)

Experiential learning is not without challenges. Motta & Galina (2023) addressed two issues related to adaptation to experiential teaching and meeting university requirements. It is not always easy for students to use more active and student-centered pedagogies, even in higher education. Students might get frustrated if they feel that they do not receive enough guidance or the instructions are unclear, which is often the case when we use entrepreneurial pedagogy and methods.

Another challenge has to do with how applying experiential activities meets the requirements of higher education institutions. Resistance to the implementation of experiential activities can often be found. Universities might feel that they need to invest financially into developing experiential activities which can also be a burden. Some experiential practices might require investments in teacher training, partnerships with companies, or investments in technological equipment (Motta & Galina 2023.) This is not always the case, and experiential entrepreneurship education activities are an essential part of education in many higher education institutions.

When planning entrepreneurship education practices in higher education institutions, it is crucial to carefully consider several key questions: what are the goals for these practices, who is our target group, how will we teach the practice, what does it include and why have we chosen this particular practice (Fayolle and Gailly 2008). It is essential to assess the starting point with our students. Blenker et al. (2011, 426) ask: "Can we start by teaching them to write a business plan: or do we need first to instill an entrepreneurial mindset?". Further, Larsen (2022, 246) raises the question of "how fruitful it is to promote the entrepreneurial intent of students who are not ready for entrepreneurial behaviour". These are excellent considerations that merit reflection when planning the future entrepreneurship education practices. Often, we attempt to initiate practices from a point beyond where our students currently stand, making it challenging, if not impossible, to achieve our targeted learning outcomes.

9.4 The learning outcomes of entrepreneurship education in higher education institutions

An important question arises: How can we measure entrepreneurship education's value when it is viewed broadly, extending beyond just the increased number of business start-ups or ventures? (Jones & Iredale 2010). An increase in the intent of the student to practice entrepreneurship is a very traditional metric to measure the effectiveness of entrepreneurship education. However, this metric is unsuitable if the practice focus is not on new ventures or business creation. (Decker-Lange et al. 2022; Nabi et al. 2017.) Nabi et al. (2017) identified

six types of outcomes and impact indicators in entrepreneurship education studies. Soft measures include changes in students' attitudes, changes in skills and knowledge, feasibility, and entrepreneurial intentions. Hard impacts are actual business start-ups, business performance, and socio-economic impact. (Nabi et al. 2017.)

Another consideration is that venture creation usually does not occur right away after completing an entrepreneurship education program or studies. Støren (2014) revealed that the proportion of "entrepreneurship graduates" – referring to all students who had some entrepreneurship education during their study period who become self-employed - is very low, with no significant difference compared to students who have not participated in entrepreneurship education practices. Despite this, many other learning outcomes occur. Støren herself found that entrepreneurship graduates are more interested in setting up their own companies in the future. (Støren 2014.) Ilonen, Heinonen & Stenholm (2018, 59) explained that "even if no new business venture is launched, entrepreneurship education can still generate learning outcomes that improve students' understanding of entrepreneurship as well as an understanding of themselves as entrepreneurs".

Different entrepreneurship education practices produce learning outcomes, intended or unintended. Learning outcomes can be defined differently as they can express what students are expected to achieve in their learning (Kennedy, Hyland & Ryan 2007), or what learners can do or what they know at the end of the entrepreneurship education practice, which might be different from what teachers intended to teach (Allan 1996).

The soft measures of entrepreneurship education are sometimes difficult to link with the learning outcomes, but previous research has shown they are important. According to Souitaris, Zerbinati, & Al-Laham (2007), inspiration raises attitude and intention and increases the chances that students will attempt an entrepreneurial career. This implies that if the target is to increase the number of entrepreneurs in students, then the inspirational part of the entrepreneurship education program must be designed purposefully.

When researching how different teaching models (Supply, Supply-Demand, Demand, Demand-Competence, and Competence) enable learning outcomes, it was concluded that the manner in which entrepreneurship is taught does matter with regard to the impact produced by entrepreneurship education. Supply-Demand, Demand, and Demand-Competence models are associated with better entrepreneurial learning outcomes than those based on the Supply model. Practice-oriented studies have a greater effect on entrepreneurial intentions. (Cascavilla et al. 2022.)

Hahn, Minola, Van Gils & Huybrechts (2017) discovered that entrepreneurial learning outcomes are always higher when using a practice-oriented entrepreneurial teaching pedagogy. They argue that to realize entrepreneurial knowledge's "full potential, entrepreneurship education needs to be complemented with the practical experience, acquired by students either during prior entrepreneurial efforts or through practical-oriented entrepreneurship education activities" (Hahn et al. 2017, 966).

Schultz (2022) studied two different types of entrepreneurship education courses. Another was a business plan course (supply-demand model-based); the other was a lean startup camp (competence model-based). He found that students gain very different learning outcomes depending on the course format. The business plan course increased the interest in general entrepreneurial activity of students with initially low entrepreneurial intention. In contrast, the lean startup camp attracted students who were already highly motivated and were effective in fostering their startup projects. (Schultz, 2022.) Kakouris and Liargovas (2021, 415-416) see, that learning "for" entrepreneurship builds upon skills to increase the number of graduate entrepreneurs and the "through" mode aims at transforming the entrepreneurial attitudes of attendees.

One interesting aspect of learning outcomes is the entrepreneurial mindset. As the broad definition of entrepreneurship education suggests, entrepreneurial mindset is an important learning outcome of entrepreneurship education. Again, entrepreneurial mindset is a challenging term to define and is defined in multiple ways. According to Larsen (2022) three dominant understandings of entrepreneurial mindset are 1) the mindset as cognition (specific way of thinking that is characteristic of entrepreneurs) 2) mindset as a frame of mind (specific frame of mind that draws one towards entrepreneurial activities), and 3) mindset as a capability (entrepreneurial knowledge, skills and competencies deemed critical for entrepreneurial success). These different paradigms of mindset again have different objectives for entrepreneurship education practices as they arise from different learning theories and emphases.

Larsen (2022) sees that mindset as cognition is linked to education "about" and "for" entrepreneurship as it tries to increase knowledge and cognitive skills and is linked to problem-based learning. Mindset as capability is linked to education "for" entrepreneurship as it concentrates on knowledge, skills, and competencies relevant to an entrepreneurial career and is linked to experiential learning and learning by doing. This type of learning is often emphasized in entrepreneurship education studies as was described before. Despite that, the most interesting definition of mindset, in my opinion, is a mindset as a frame of mind. The objective of entrepreneurship education practice is to increase positive attitudes towards becoming entrepreneurial and behaving entrepreneurially. This is combined with

education 'through' entrepreneurship and linked to transformative learning. (Larsen 2022.) It is clear that all these typologies of entrepreneurial mindset are connected to different learning outcomes, even though they focus on fostering an entrepreneurial mindset as a learning outcome.

9.5 The question of affective learning outcomes

Traditionally, the main domains of learning are cognitive, psychomotor, and affective learning (Bloom 1956). Affective learning includes students' attitudes, beliefs, desires, feelings, impressions, interests, preferences, and values. (Bloom 1956; Shephard 2007, 88.) Another model of learning is the framework used by Kyrö, Seikkula-Leino & Mylläri (2011), where they differentiate the cognitive, conative, and affective aspects of learning. These models have also been used in studies considering entrepreneurship education's learning outcomes (e.g., Mets, Kozlinzka and Raudsaar 2017; Kozlinzka, Mets & Rõigas 2020).

If we want to create more attractive entrepreneurship education practices, we must consider the learning outcomes of students, especially the affective learning outcomes. Emotions are an important part of the entrepreneurship education process, and Souitaris et al. (2007) called on researchers to explore what kind of emotions are experienced in entrepreneurship programs. Nabi et al. (2017) revealed a lack of research addressing affect or emotion, particularly the related learning outcomes in entrepreneurship education, supported by Ilonen and Heinonen (2018), who state that affective learning outcomes are still under-researched.

Affective learning outcomes are an important part of the entrepreneurship education practices of higher education institutions. These might include entrepreneurial passion and spirit, entrepreneurial identity, self-efficacy for entrepreneurship, or commitment to own a start-up or a business. These outcomes refer not only to the content of learning but also to its nature. (Ilonen & Heinonen 2018.) The impact of entrepreneurship education programs on attitudes as well as behavior is equivocal as studies suggest both positive and negative outcomes (Nabi et al. 2017, 278). The affective learning outcomes of entrepreneurship education are perceived to be stronger by the students with a positive prior attitude towards becoming an entrepreneur, indicating that the students' earlier orientation influences their perceived outcomes (Mets et al. 2017). In the study of Decker-Lange et al. (2021), there was widespread agreement that any efforts in entrepreneurship education should help overcome student anxiety and foster motivation and this was seen as a precondition for skill development. Nabi et al. (2018, 455) explain that "inspiration entails motivation, becoming energized and directing behavior towards a desired target."

9.6 New frontiers: Environmental sustainability and social justice

The field of sustainable entrepreneurship has attracted considerable interest in recent years. Schaltegger & Wagner (2011, 226) state that one definition of sustainable entrepreneurship is "an innovative, market-oriented and personality-driven form of creating economic and societal value using break-through environmentally or socially beneficial market or institutional innovations." According to the literature review of Muñoz & Cohen (2018) the most used model of sustainable entrepreneurship is the triple bottom line (3BL) model, which frames sustainable entrepreneurship within economic theories and assumes entrepreneurs must balance economic, social, and environmental objectives. This model has also been criticized and they suggest a shift towards a broader perspective, which challenges the conventional accounting-based orientation and encourages scholars to embrace the complexity of sustainability entrepreneurship. There is a need for a more nuanced and holistic approach to studying and measuring the impact of sustainable entrepreneurship beyond the constraints of the 3BL paradigm. It proposes moving beyond independently measurable constructs for economic, social, and ecological dimensions, advocating for a more nuanced and interconnected measurement approach that considers the interdependence of these systems. The authors encourage a departure from traditional economic-centric models and call for a more comprehensive understanding of sustainable entrepreneurship considering diverse economies, such as the market, informal economy, and sharing economy. (Muñoz &Cohen 2018.)

The rise of sustainable entrepreneurship has also made its mark on entrepreneurship education. For instance, EntreComp incorporates ethical and sustainable thinking into its conceptual model. Within this framework, there is an emphasis on assessing the consequences of ideas that bring value to the target community, market, society, or the environment. It encourages reflection on how sustainable long-term social, cultural, and economic goals are achieved. (Bacigalupo et al. 2016.) Blenker et al. (2011) highlight the social value, that entrepreneurship education can or should create. They propose a question that entrepreneurship educators should ask: "How do we train students to solve a broad number of societal problems entrepreneurially?". This need to facilitate entrepreneurial energy for societal change is one interesting way to change the dominating paradigms of entrepreneurship education in higher education institutions. (Blenker et al. 2011.)

To reshape entrepreneurship education, Farny et al. (2016) highlight the need for researchers to delve deeper into the values that underpin sustainable, and especially social entrepreneurship. They underscore the diversity of political, social, and economic possibilities and their interconnected nature. (Farny et al. 2016.) Dodd et al. (2022) propose a transformation

in entrepreneurship education to tackle the challenges of sustainability, social justice, and hope amid our confrontations with multiple and complex crises. In addition to addressing sustainability, they emphasize the importance of social justice and urge us to maintain hope in the face of the unknown. The focus should be on facilitating students as ethical change-makers and providing them with space for experimentation. Entrepreneurship should serve as a vehicle for positive and sustainable change (Dodd et al. 2022.) It is essential to shift our focus towards creating economic value and value for a more sustainable and better world (Schaltegger & Wagner, 2011).

The future of entrepreneurship education in higher education institutions

In conclusion, I would like to present my thoughts on the elements that should be considered when planning practices for entrepreneurship education in higher education institutions. I will frame this within a teaching model framework created by Fayolle & Gailly (2008). They emphasize that entrepreneurship education programs should be founded on a clear definition of entrepreneurship education, answering five specific questions: Why (objectives, goals), For whom (targets, audiences), For which results (evaluations, assessments), What (contents, theories) and How (methods, pedagogies).

The first step is to answer the question "why" and define clear goals and objectives. What do we aim to achieve by implementing this particular practice? Are we striving for hard or soft goals? Do we want the students to establish start-ups or business ventures, or do we want to increase the intention of student entrepreneurship? Or do we wish to foster the development of an entrepreneurial mindset? Entrepreneurship education can help attain various objectives and goals, but it is critical first to understand what we are trying to accomplish.

We also need to know who our students are and reflect on their readiness for our entrepreneurship education practices. At the Universities of Applied Sciences, we have younger students pursuing their first degrees and more experienced professionals who might be changing careers. I believe that we need first to instill an entrepreneurial mindset before delving into specific activities related to business creation. This ensures alignment with students' current capabilities and aspirations.

To effectively evaluate and assess entrepreneurship education practices, we must measure learning outcomes comprehensively. We should go beyond traditional metrics such as the amount of created business start-ups and consider more versatile methods. It is essential to understand the learning outcomes of both soft (attitude changes, skills development, feasibility, and intentions) and hard measures (actual start-ups, business performance) and not to forget the value creation element of entrepreneurship education and its socio-economic impact. Staying informed about evolving research in entrepreneurship education is crucial.

The field is dynamic, and the understanding of effectiveness varies, so we should continuously review and adapt our practices based on the latest insights. We must also consider affective learning outcomes, including entrepreneurial passion, identity, self-efficacy, and commitment. In education, we have to understand that emotions play a significant role, and positive affective outcomes contribute to students' motivation and success.

When answering the question about the contents and theories of entrepreneurship education, we need to acknowledge the diverse definitions and models. Different participants – teachers, students, and stakeholders – may have varying views of what entrepreneurship education is, and we need to establish a shared understanding within the institution and our entrepreneurship education practices. Embracing critical perspectives to challenge traditional assumptions and broaden our practices is essential. The cultivation of a critical mindset among students is part of entrepreneurship education. Environmental sustainability and social justice are emerging topics in entrepreneurship education, and we need to integrate them into the curriculum. This involves acknowledging the importance of balancing economic, social, and environmental objectives and considering a broader perspective.

The last question is the "how" - what kind of methods and pedagogies we should use? In higher education institutions, we need to explore various teaching models, particularly the experiential learning approach. Entrepreneurship education research highlights experiential learning as a key pedagogical approach. We need to encourage activities with real-world projects to provide students practical experience and develop essential skills. Importantly, there should be room for failure. However, we must recognize the challenges associated with experiential learning and the shift to active and student-centered pedagogies. Addressing the financial investments required for teacher training, partnerships, and technological equipment is important. Adopting a mix of approaches that align with our goals and the diverse needs of students is necessary. One model cannot fit all in the future of entrepreneurship education in higher education institutions. By incorporating these recommendations, higher education institutions may enhance the effectiveness of their entrepreneurship education practices and better prepare students for diverse entrepreneurial challenges and opportunities in the future.

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10 ONE HOUR FORESIGHT METHOD

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ABSTRACT

The purpose of this article is to assess the value of the new One Hour Foresight Method, which was developed due to the need for a rapid foresight method that could identify the ongoing changes that affect regions. The method was implemented and tested by the Kymenlaakso regional foresight networks. When comparing the results of this method to the results of three other regional foresight methods, it can be observed that the method yields a wider range of changes than others, but does not produce results that would not have been found with other methods as well. As a fast and easy method for the purpose of rapidly identifying ongoing changes, it works well. When used repeatedly, it could work as a tool to tackle the effects of changes even ahead of time. While the method as such has only been used once, it would be fruitful to explore the impact of the method in different cases and the implications for regional development.

Keywords: Future, Foresight methods, Change, Regional development, Rapid forecasting

TIIVISTELMÄ

Artikkelin tarkoituksena on arvioida alueen toimintaan vaikuttavien, käynnissä olevien muutosvoimien tunnistamisen tarpeeseen kehitettyä pikaennakoinnin menetelmää. Menetelmää testattiin Kymenlaakson ennakointiverkoston kanssa. Verrattaessa pikaennakointimenetelmän tuloksia kolmen muun alue-ennakoinnin menetelmän tuloksiin, voidaan todeta pikaennakointimenetelmän tuottavat hieman muita laajemman näkymän käynnissä oleviin muutoksiin. Menetelmä ei kuitenkaan tuota yksilöllisiä tuloksia, vaan samat aihealueet ovat tunnistettavissa myös yhden tai useamman vertaillun menetelmän tuloksista. Nopeana ja helposti toteutettavana Menetelmä toimii kuitenkin hyvin tarkoitukseensa, käynnissä olevien muutosvoimien tunnistamiseen, nopeutensa ja helppoutensa ansiosta. Toistuvasti käytettynä menetelmä voisi toimia työkaluna, jonka avulla muutosvoimien vaikutuksiin voidaan puuttua ennakoivasti. Menetelmää on käytetty artikkelin kirjoittamisen aikaan vasta kerran. Olisi kuitenkin hyödyllistä tarkastella, miten menetelmä soveltuu eri käyttökohteisiin ja millaisia vaikutuksia sillä voisi olla aluekehitykseen.

Avainsanat: Tulevaisuus, ennakointimenetelmät, muutos, aluekehitys, pikaennakointi

10.1 Introduction

Throughout history, from the Oracles of Delphi to the present day, people have felt the need to understand the future. Since the 1950s, when repeated foresight methods were being created, the amount of foresight methods has grown and continues to grow as the methods are being developed faster and faster. (Jermala, 2010.) The more difficult the times, the more important gaining an understanding of the future is perceived to be – and the last few years have not been easy. Understanding the ongoing changes and the direction they might take helps to make assumptions about the future and then make plans and decisions based on these assumptions.

Finland has one of the most developed national foresight systems, which has been proven to have a great impact on decision-making. The construction of foresight systems started in the 1990s, and the national foresight system, which also includes regional actors, has been developed since 2004. The most important aspects of national foresight are anticipations of likely developments, proactive influence on the operating environment, and a systemic examination of phenomena. The most used forecasting method is the monitoring of changes in the operating environment. In addition, commonly used methods include future workshops,

statistics, the preparation of alternative scenarios, and expert surveys (Pouru et al., 2020.) In comparison, in regional and municipal forecasting, statistical analysis and forecasts, collection of changes in the operating environment in different industries, and alternative scenarios are the most used forecasting methods (Jäppinen & Pekola-Sjöblom, 2020).

Regional and municipal actors define foresight as "systematic work mapping future alternatives, possibilities and probabilities ... [and] preparing for different developments and building a common future based on well-founded information or vision" (Jäppinen & Pekola-Sjöblom, 2020). Part of the tasks of regional forecasting are duties based on law. Among other things, the Regional Councils are responsible for long-term forecasting of regional development (Act on the development of regions and the implementation of the regional and structural policy of the European Union 756/2021, s. § 8) and the Centre for Economic Development, Transport and the Environment are responsible for forecasting regional development prospects (Ennakointi, s.a.) and generating information about regional practices for labour force barometers (Labour Force Barometer, s.a.). In addition, many regions also conduct regional foresight in cooperation with a network of organizations. At least all the regional councils state their foresight is done with networks (Jäppinen & Pekola-Sjöblom, 2020), but the operational levels vary significantly. However, the current trend seems to be that most regions have noticed the importance of joint regional forecasting and the need to develop common forecasting processes.

Kymenlaakso is one of the regions at the forefront of forecasting, as its regional forecasting models are well-led and advanced. Since 2018, methods, processes, and cooperation of regional foresight have been developed systematically in cooperation between the public sector, academia, and private sector actors. (Myllylä, 2020) The operating model of regional forecasting is now becoming established as part of the continuous cooperation between organizations. The model is not a static entity. It is continuously developed to meet the region and organizations' needs better. The regional networks are also willing to try new methods, including the new One Hour Foresight Method.

10.1.1 The need for a new foresight method

Around 150 years ago, Kymenlaakso was a booming region when the lumber and paper industry started operating on the banks of the Kymijoki River. These mills brought jobs, people, and prosperity to the region and benefited all of Finland. (Vaino & Lehtinen, 2022.) Over the last few decades, the forest industry is ceasing operations in the region or moved elsewhere. The latest factory that closed its doors was the pride of Kotka: Sunila. This factory

was designed by Alvar Aalto and is said to be the most beautiful factory in the world. The area around the factory (also called Sunila and designed by Aalto) is an architectural gem that arouses interest worldwide. Many local residents feel sad that the old factory is closing but believe something else will replace it. (Palola, 2023.) Perhaps they have seen the same before. Factories are closed, but changes always also bring new opportunities.

Kymenlaakso's current economic situation is challenging. The Russian border has been closed, and the economy is in a downturn. The region is still trying to recover from the COVID-19 pandemic, and previous difficult economic times are still impacting the region. To develop Kymenlaakso and help it stay vibrant and inviting, the local actors need to come together in joint actions to address the changes to achieve positive future possibilities. However, before anyone can tackle anything, the forces of change need to be identified and understood, and opportunities must be identified. This is where foresight methods come to help.

Regional foresight actions in Kymenlaakso are well-managed and produce a lot of future-oriented information. Although there is extensive foresight cooperation in the region, the methods in use are still quite heavy to implement. The information they produce is more useful in long-term planning than in activities requiring a quick response. Further, the regional development strategies and programs are created to support long term regional development, not adapt to sudden changes. The region is able to react to changes, but it would be beneficial to be able to respond in advance. This raises the question: Are regional operators ready for the emerging needs in different industries, or is the probability higher that those might just go unnoticed?

A regional foresight steering group meeting identified the need for a situational overview of the current change forces impacting the area. How could we get a better view of the region's current situation and change forces? Would it be possible to implement a method in a way that would not create extra work for the network participants? Thus, the need for a rapid foresight method was identified.

10.1.2 The One Hour Foresight Method

As part of the Näkymä–future data for policy-making–project, I explored whether one could gain insight into the most important ongoing changes in a region in just one hour. I developed a rapid foresight method in a one-hour workshop to tackle this challenge.

The aim is to

1. Identify the list of changes affecting the region,
2. organize the data based on importance and urgency, and
3. identify the threats, opportunities, and necessary measures related to the most important forces of change.

The method aimed to create a situational picture through a quick review and find practical measures to promote it (Kujanpää, 2023). The foresight method was tested on June 9, 2023, with 17 members of the Kymenlaakso forecasting team. The participants represented 11 different organizations, covering all areas of the triple helix: educational institutions and public and private sector operators. Together, the participants had a deep and broad knowledge of the region and its ongoing and upcoming changes, which ensured a holistic perspective on the factors influencing the Kymenlaakso region (Kujanpää, 2023.)

In the results of the implementation of the new method, the three most significant changes were identified: the green transition, the hydrogen economy, and the future skills gap in the labor market. However, over 40 forces of change were discussed in total. (Kujanpää, 2023.)

10.1.3 The Aim of the Article

In this paper, I aim to investigate what kind of value the One Hour Foresight Method has for regional foresight. The regional foresight networks already have many methods for probing the future. Even with the best methods, one can still glimpse a small part of the future. Most of the possible futures are unknown to us. Even the ones we have identified as weak signals might still pass our future-scoping radars. Could the One Hour Foresight Method widen short-term horizons and probe the changes that might affect the region, complementing other methods used in Kymenlaakso regional foresight?

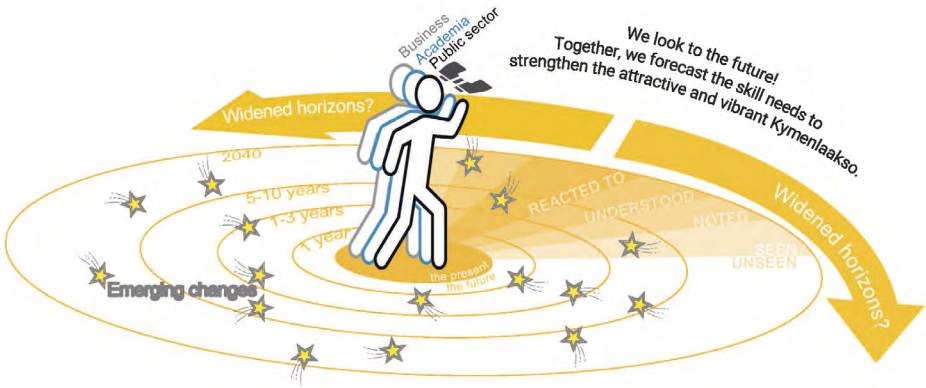

Figure 1. A visual framework of foresight in Kymenlaakso in the context of probing forces of changes. The network's eyes are directed towards the vision of foresight, but the changes are happening also behind their scope of sight.

The main purpose of this article is to compare the results of a new method to the results from other regional foresight methods to see if the method can be seen as a useful addition to the regional foresight toolbox. Through a comparative analysis, we will gain an understanding of how well the One Hour Foresight Method is able to probe the changes. Next, I will present the method and data used, followed by a review of the results. In the Discussion section, I will evaluate the significance and reliability of this report.

10.2 Method and Data Sources

To find out whether the One Hour Foresight Method is able to widen the short-term horizons in probing ongoing changes, I will compare the results from this method to the results of three different foresight methods used in Kymenlaakso regional foresight: long-term scenario analysis for Kymenlaakso (currently until 2040), annual futures workshops (usually 5-10 years ahead), and short term by collecting information on regional development prospects by ELY Centres (Centre for Economic Development, Transport and the Environment) for the Ministry of Economic Affairs and Employment of Finland twice a year. These are currently the most used ways of examining the forces of change in Kymenlaakso regional foresight. Additionally, regional foresight measures include, among other things, short-term examinations focusing on selected industries. However, the forces of change emerging from these will not be covered here since the goal is to examine more generally effective changes that have been identified by the region's foresight actions.

10.3 Comparative Reports

Kymenlaakso scenarios 2040 were originally formed in 2019, but were updated after COVID-19, and again after the Russian war with Ukraine. These large changes had enormous effects on the future landscapes of Kymenlaakso. The latest update was published in Autumn 2022 by The Regional Council of Kymenlaakso and Capful. During the updating process, the previous materials of the scenarios were assessed, with some assessments of experts of the situation and two locally organized analytical workshops. More than 50 people from key regional stakeholders attended the workshops. (Miao & Kivinen, 2022.)

The three scenarios for Kymenlaakso 2040 build alternative images of future directions and upcoming changes. The scenarios are based on eight trends affecting the future of the region: security, green transition, state empowerment, economic shock, maintenance security, logistics challenges, revolution in international politics, and the blocking of the world economy. The report also states necessary measures for the region that should be considered, independent of scenarios, to address upcoming changes. (Miao & Kivinen, 2022.) In this report, I use those measures as comparative material for the analysis. Instead of the more uncertain findings from the scenarios, these measures are the ones that are common to the scenarios, so they are the most probable ones and suit the meaning of this comparison well.

The annual Futures Workshops have been held in Kymenlaakso since 2019. The latest report is from spring 2023. This year's theme in the Futures Workshop was sustainable development. The workshop was built around the three sustainability themes: social, ecological, and economic sustainability. Therefore, the outcomes of the workshop relate strongly to these themes, and some other aspects may be lacking from the results. The aim of the event was to look for perspectives on what aspects can make a region sustainably vibrant and create real opportunities to foster well-being. The workshop was open to all those interested in the future of the region, and a total of 93 participants participated, representing academia, public and private sectors. (Leirimaa & Viljakainen, 2023.)

The workshop was held in three parts. The first task for the participants was to identify ongoing changes by answering the question, "What is new to me but will influence my work in the next 10 years?" In the other tasks, the participants discussed in groups how changes are affecting organizational or regional levels. In the third task, the participants had to think about what should happen in the region so that it would be possible for a sustainable organization to succeed in 2033. (Leirimaa & Viljakainen, 2023.) In this comparison, I used the reported answers from the first two tasks of the workshop. The Regional Development Prospects is a national report, with all the regions providing their own prospects (Nieminen & Tolonen). In Kymenlaakso, a specialized researcher from the local ELY Centre is

responsible for the regional reporting. They interview the regional foresight steering group to assess the region's situation. The latest evaluation of The Regional Development Prospects is from spring 2023 (Nieminen & Tolonen).

The report of Regional Development Prospects (Nieminen & Tolonen, 2023) provides insight into business life and business activities, unemployment, and availability of skilled labor. It examines the current situation compared with the past and evaluates the situation six months and a year into the future. The report is, therefore, a tool for reviewing the current state of the regions and the near-term outlook on ongoing changes. In the Kymenlaakso section, the report focuses on the decreasing population, changes in unemployment and labor demand, an increasing number of layoffs, the threat of major change negotiations for key industries in the region, and the severe skills shortage. Broader perspectives, such as the effects of the Russian war of aggression on the region, the economic situation, diversity in labor, and some aspects of the green transition, are assessed in the report.

10.4 Comparative Analysis

From these four reports, I first identified the forces of change. The different foresight methods are valued only through their reports, since they are the main knowledge source for anyone interested in the ongoing or upcoming changes. The quality of the reports is not addressed, only the identified forces of change. All the reports have slight variations and are produced for different audiences and meanings, so in order to get comparable results, I needed to modify the changes into themes. Thus, I incorporated the energy transition into the theme of the green transition, and labor needs and skills needs are seen as belonging to the same theme.

After identifying all the themes, it was possible to compare which themes had been identified in different reports. This comparison was made in the form of a tabulation (appendix 1) to identify the number of different themes found in the reports and the similarities and differences between them.

10.5 Results

Compared to the other foresight reports, the results of the One Hour Foresight method included the largest number of different change themes. Using this method, 23 different themes were identified, whereas the others found 21 (Futures Workshop), 17 (Scenarios), and 15 (Prospects report).

Even though this new method could identify the most changes, all of the themes were found in at least one of the other reports. The Future Workshops was able to come up with the most unique change themes, as no other report could identify the possible upcoming changes in social benefits, the economic models of the new era, individualism and the rise of soft skills and leadership transformation. Further, the two other comparative reports provided unique themes: only the scenario method identified the upcoming reconstruction of Ukraine, and only the regional prospects could identify the growing investment needs.

In this sense, the One Hour Foresight method can provide a wide scale of results but does not necessarily identify something new. Realistically speaking, the rapid process of ideating forces of change does not leave enough room for new ideas but instead reveals more familiar phenomena. Even though the new method did not provide any unique ideas, it did provide a range of ideas that are comparable to the three other reports. Only six themes were not reviewed in the One Hour Foresight workshop – all of them were the unique ones mentioned above. In this way, the method can be seen as providing the broadest scope when compared to other methods.

When comparing the change themes from all four reports, the most common ones – the ones found in all of them – were changes in the logistical environment, changes in the security environment, digitalization and cyber security, future skills, green transition, internationalization, immigration, diversity and inequality, and skills shortage and educational needs.

Earlier, I asked the question of whether the One Hour Foresight Method would be able to widen short-term horizons to probe the changes that might have an effect on the region and work as an addition to other methods used in Kymenlaakso regional foresight. The answer is probably not regarding the method's ability to widen the horizons. With the short time given to assess ongoing changes, it would be too much to ask that the participants could come up with some new and unique ideas, that are not already identified in some other process. Still, the answer to the second part of the question is yes: this is a valuable method to add to the range of Kymenlaakso regional foresight for two reasons. Firstly, the method could identify a larger range of change themes than the others. Secondly, the method is quick to use and easy to report and provides another kind of insight into short-term foresight than other methods. If done repeatedly, the method could also provide insight into how the changes evolve.

10.6 Discussion

In this paper, I evaluated whether the One Hour Foresight Method can widen the range of short-term horizons to probe changes that might have an effect on the region and work as a complementary method in Kymenlaakso regional foresight. Compared to the kind of changes found through other methods, this new method found most of the same themes as others, and even more themes than others, but it revealed no new or unique ideas. Could the method only find changes that are already known? Even if so, it could easily fit into the regional foresight toolbox as a fast and easy method to scope changes.

One simple reason why the method revealed no unique perspectives within the results could be that the workshop participants are aware of the other reports and have likely gone through them or even participated in drafting them. This might be one reason for the good results in finding more change themes than other reports. However, it does not mean that this method would not be good to use; it serves as a useful situational analysis.

The need to probe situational and ongoing changes is common to all who make strategies, build businesses, or develop something. Even in everyday life, we would like to better know what kind of changes are coming. For this kind of scoping, the method works well if used with a range of people. But here lies one of the restrictions of the method; it relies heavily on the range and the knowledge base of the participants. With a wide range of experts, the results can give a broad perspective on ongoing changes. If the participants were from the same field, the conversation may go deeper but most probably yield nothing new to the field.

In regional foresight, the method could give valuable insight into the range of ongoing changes and identify strategies to address or react to change. One challenge identified in national forecasting is the distance of future information from operations and decision-making (Pouru et al., 2020). This method provides a way to find at least a few, clear action needs to explore or utilize the strongest forces of change.

Even though the method does not provide much time to deep dive into the action needs. Even if only three changes could be issued within the short time given, this is one of the best features of the method. It provides simple and clear solutions. It identifies the most important and urgent changes happening right now and the are the things we should do – right now.

The method could also be well applied to the evaluation of the future effects of decision-making. With the help of the method, the effects resulting from decisions could be examined, even during an ongoing meeting. As a method that can be implemented relatively quickly, it would be used more likely than more demanding methods or surveys. The quality of the

evaluation is, in these situations, strongly influenced by the diversity of the participants' perspectives, or the lack of it, as well as the substantive understanding of the factors influencing effectiveness. Even a cursory evaluation is better than no evaluation at all.

In the National Foresight in Finland 2020 report (Pouru et al., 2020), the greatest challenge of foresight at the national level is the scarcity of allocated resources. At the municipal and regional level, the biggest challenges in implementing foresight are the lack of resources, limited time, systematic foresight, and up-to-date information (Jäppinen & Pekola-Sjöblom, 2020). Perhaps this rapid foresight method could provide one easy tool for implementing continuous forecasting in municipalities, regions or nationwide forecasting. The report National foresight in Finland (Pouru et al. 2020) encourages foresight to be done with clearly understandable concepts, to try new types of operations, and to support various experiments in foresight work.

These results provide perspective to what this rapid foresight method could give as a result compared to other methods but are not telling the sole truth of the matter. All the compared reports are made for different needs. The comparison of how many changes could be found in each of them does not provide valid information on their suitability to other needs than identifying as many different forces of change as possible. The compared reports are not made for this kind of need, so they should not be valued as something more or less than the others. In this paper, the assessment is done to understand better how this new method identifies different forces of change. It seems to be pretty effective, even when the method's limitations are taken into account.

The most surprising thing about the results of this comparison was how changes could be identified on such a large scale in such a short time. The results would improve even more if the method were repeated at certain intervals, like annually or every six months. At its best, the method might offer an effective tool for tackling regional forces of change. In addition to the method, success in this would require good regional cooperation and division of labor, so the actions found will also be taken up. The repeated use of the One Hour Foresight Method could even provide a relatively easy tool for staying ahead of changes.

While the workshop generated valuable insights, there are opportunities for further research and exploration. Future research could assess how different methods have an impact on actions taken based on foresight knowledge. The research should, though, consider which actions should be taken, as foresight knowledge always has a level of uncertainty.

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Appendix 1. Comparative table of the themes of change

Themes of change forces	Regional Development Prospects in Spring 2023 (15)	Updated Kymenlaakso scenarios 2040 (17)	Results from the futures workshop 2023 (21)	Results from the one hour foresight method (23)
Adapting to shortage of energy, goods or funding		x	x	x
A need to improve regional image	x	x		x
Challenging economic situation	x	x	x	x
Changes in social benefits			x	
Changes in the logistical environment	x	x	x	x
Changes in the security environment	x	x	x	x
Changes in tourism	x			x
Community spirit, attitude, resilience, and collaboration		x	x	x
Demographic structure	x		x	x
Digitalization and cyber security	x	x	x	x
Economic models of the new era			x	
Future skills	x	x	x	x
Green transition	x	x	x	x
Growing investment needs	x			
Individualism			x	
Internationalization, immigration, diversity and inequality	x	x	x	x
Location independence			x	x
Maintenance and self-sufficiency		x	x	x
NATO membership	x	x		x
Revolution in international politics		x		x
Rise of soft skills and transformation of leadership			x	
Skills shortage and educational needs	x	x	x	x
State empowerment vs. resident participation		x	x	x
Structural change of industries	x		x	x
Sustainability			x	x
Threat of fast reduction in employment	x			x
Transitions in work life			x	x
Upcoming reconstruction of Ukraine		x		
Vitality of the region		x		x
Wellbeing		x	x	x

11 NAVIGATING THE FUTURE TOGETHER: AN OVERVIEW OF KYMENLAAKSO'S FUTURE WORKSHOPS 2021-2023

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ABSTRACT

This article offers a comparative analysis of Kymenlaakso's Future Workshops 2021, 2022 and 2023. While these workshops have become a yearly tradition, their outcomes have not been previously compared to each other. The decision to undertake this analysis was prompted by observations in the latest result report, which highlighted the partial recurrence of results from year to year. The focus is on recurring change phenomena, emphasizing the role of technology, sustainability, communication, and entrepreneurship across the years. The identified skills and competencies required to adapt to changing environments are also introduced and compared. Furthermore, the article delves into the envisioned futures for Kymenlaakso, highlighting the region's potential in areas like remote work, energy innovation, and well-being services. Despite varying participants in each workshop, commonalities in outcomes are evident, demonstrating the region's ability to envision a sustainable successful future.

Keywords: Kymenlaakso, futures workshop, change phenomena, skills, competences, desired futures

TIIVISTELMÄ

Tämä artikkeli tarjoaa vertailevan analyysin Kymenlaakson Tulevaisuusverstaista vuosina 2021, 2022 ja 2023. Vaikka maakunnan tulevaisuusverstastoiminta on muodostunut jo vuosittaiseksi perinteeksi, tuloksia ei ole aiemmin verrattu toisiinsa. Vertailun tekeminen oli ajankohtaista juuri nyt, koska vuoden 2023 tulevaisuusverstasraportissa nostettiin esiin tulosten osittainen toistuminen vuodesta toiseen. Tässä artikkelissa huomioidaan toistuvat muutosilmiöt ja tarkastellaan erityisesti teknologian, kestävyyden, viestinnän ja yrittäjyyden roolia vuosien varrella. Artikkelissa verrataan myös muuttuvaan toimintaympäristöön sopeutumiseen vaadittavia taitoja ja osaamisia. Esiteltävät Kymenlaakson tulevaisuusvisiot puolestaan toistavat alueen potentiaalia esimerkiksi etätyössä, energiainnovaatioissa ja hyvinvointipalveluissa. Näyttääkin, että vaikka työpajojen osallistujat vaihtelevat, tulosten yhtäläisyydet ovat ilmeisiä. Tämä puolestaan on osoitus alueen yhteisestä kyvykkyydestä visioida kestävä ja menestyksekäs tulevaisuus.

Avainsanat: Kymenlaakso, tulevaisuuspaja, muutosilmiöt, taidot, kyvykkyydet, toivotut tulevaisuudet.

11.1 Introduction

The organisation of Kymenlaakso Future Workshops is a tradition that originally started with a strong focus on developing competence foresight. Altogether, six workshops with different topics have taken place over a five-year period. However, it can now be seen that the direction has been broader than individual skills, and through these workshops, the aim has been to create a future vision that guides decision-making in the region. When organizing the Future Workshop in 2021, it was decided that the central question to be addressed annually is what kind of future we want for Kymenlaakso and how to achieve it (see Kujanpää 2021). Therefore, it is important to have a forum that provides an inclusive space for different stakeholders to collectively envision the future of the region. By bringing together diverse stakeholders, including entrepreneurs, policymakers and educational institutions, the Kymenlaakso Future Workshops can help identify shared problems and lead the conversation towards the creation of a commonly shared understanding of how the future should look. The questions related to the future are collectively contemplated because the visions strongly reflect the values of the community and, therefore, guide decision-making (Mäkelä, Karjalainen, Parkkinen 2022: 299–230).

In 2023, the future workshop report concluded that many of the outcomes are very similar to previous years' results (Leirimaa & Viljakainen, 2023). This shows that the challenges seem to be commonly shared, and the problems are very complex. There are no easy or quick ways to solve them. However, comparing the results and reports from different years has thus far been overlooked. Such comparisons can broaden our understanding of which phenomena are persistent and require ongoing actions. Additionally, the evolving insights into the factors influencing the future over the years reinforce Kymenlaakso's vision of the future. In practice, this information can also be utilised in planning the next Future Workshop in 2024 and beyond.

In this article, I begin by introducing the continuum of future workshops and the issues raised in each workshop. Then, I first examine the result reports, with a focus on comparing the described phenomena of change, which phenomena recur annually, and which are different from each other. Second, I explore the visions of the necessary competences and skills produced in the Future Workshops to respond effectively to changes in the operating environment. Third, I discuss the future visions described in the reports. At the conclusion of the article, the observations regarding the development of annual results are summarized, and these are briefly examined in the context of the theory of envisioned futures related to societal change.

11.2 The Tradition of Kymenlaakso Future Workshops

The tradition of Kymenlaakso Future Workshops was started in 2019. In the first year, two separate workshops were organised. Subsequently, the future workshops have been set to be held once a year, and the main event gathers approximately one hundred participants each spring, which the South-Eastern Finland University of Applied Sciences arranges. The projects, starting with the Etiäinen project and continuing with Etukeno and Future Proof Kymenlaakso, have followed each other and developed the workshop concept further. In the spring of 2024, the Kymistämö project will take over the arrangements. Despite the recent changes in the operating environment in the Kymenlaakso region – and more broadly – over the past few years, the future workshops have been successfully organized. The gathering restrictions imposed during the COVID-19 pandemic prevented physical events, but instead, the workshops were conducted online or in hybrid formats. The 2023 event was the first one where all participants were once again able to meet in person.

The changes have not only affected the ways in which future workshops are organised but are also evident in the names and objectives of each event. While the framework for the

medium and long-term anticipated needs for the workforce and needed skills have remained the same, the focus has shifted towards current phenomena and their impact on the region. The first three future workshops generated insight into weak signals, education, and skills themes, with a particular focus on different industry clusters. However, in this article, the future workshops of the last three years will be examined. These three workshops are considered as a complementary continuum in terms of goals and results. During this period, the surrounding world has undergone changes (starting with the pandemic and following the war in Ukraine) that have affected many things previously considered permanent or slow to change, including behaviour and thoughts. Further, the reports from these future workshops are somewhat comparable in terms of format and scope.

11.3 The themes and objectives of the three future workshops

The three Future Workshops under comparison each had their own approach, and the topics and objectives varied. The following section elucidates these differences as well as similarities between the different workshops. The variety of tasks directly influences the comparison of the result as some aspects can be directly compared, while others require adaption or cannot be compared.

11.3.1 Changing Kymenlaakso – Kymenlaakso's Future Workshop 2021

This workshop asked participants to understand the change in Kymenlaakso and to analyse changes from different perspectives. The theme was quite understandable given the uncertainty brought about by the COVID-19 pandemic. The group activity begun by randomly selected topic areas. Each group used these topics to stimulate discussion about the change with fresh and unexpected outcomes. In the future workshop report, these change phenomena were categorized into themes, and no individual group results are distinguishable. As the group work progressed, each group further developed one change phenomenon using the scenario matrix tool. From the resulting future visions, they selected the most desirable ones for the future of the Kymenlaakso region. The outcome of the three visions was also validated through an online survey after the workshop. (Kujanpää & Viljakainen 2021.)

In the final part of the future workshop, a remarkable 163 action proposals were produced, which were deemed necessary to achieve the future envisioned by the previous tasks. The actions were also prioritized from the perspective of regional vitality in different timeframes.

This resulted in the identification of 8–10 actions that should either be initiated immediately or progressively within the next few years. In total, four actions were considered extremely important. They share common elements such as emphasis on cross-municipal cooperation, highlighting positive narratives and incorporating digitalization into development efforts. (Kujanpää & Viljakainen 2021.)

11.3.2 Toward the New and the Unknown – Kymenlaakso's Future Workshop 2022

In 2022, marked by the years of pandemic and the first weeks of the war in Ukraine, the Kymenlaakso's future workshop focused on new and unknown futures. The workshop begun by mapping out change phenomena and assessing their significance. Among the key themes of change, participants identified digitalization and remote work, security, the region's attractiveness, transportation and logistics, environment, and energy. Other change themes that sparked discussion during the workshops included the global situation, internationalization, societal change and values, education, physical activity and sports, nutrition, and the economy. After examining these phenomena, statements of intent regarding competence and vitality were formulated in group work. These outputs from the workshops were further developed in accordance with Sitra's "Era of Competence" process, resulting in three larger statements of intent. (Kujanpää & Viljakainen 2022.)

11.3.3 Time for Choices: Harnessing the Future – Kymenlaakso's Future Workshop 2023

In the most recent future workshop, the focus was placed on the theme of a sustainable future. Such a clearly defined framework is a new addition to the tradition of Kymenlaakso's future workshops. In this case, the framework was used to generate diverse insights. One of the encouraging stances in this direction was highlighted in Sitras's Megatrends 2023 publication, which stated that the ecological sustainability crisis is not just a future concern; it demands a change in thinking and behaviour right now (Dufva & Rekola 202: 10-11). Furthermore, the pandemic and the war in Ukraine have accelerated change phenomena, such as digitalization and energy transition, which require active measures when considering local futures.

The work progressed according to Sohail Inayatullah's Future Triangle method. The first perspective, 'Present Push', generated a set of observed change phenomena in workplaces. Competence, collaboration, location independence, AI, and several other phenomena gained

support at the individual level. The future workshop process progressed to an organisational level and concluded with a regional examination. Following the Future Triangle model, the discussions in the groups addressed both the legacy of the past and the elements that are drawing us toward the future. The materials produced by different groups were thematically summarised in the analysis phase, resulting in five theses that chart the path toward a sustainable, prosperous future for the region. (Leirimaa & Viljakainen 2023.)

11.3.4 Observation on the Change Phenomena Highlighted in Future Workshops

While this article only explores the outcomes of each of these futures workshops, more detailed listings and descriptions of change phenomena for different years can be found in the report from each year's event. The annual reports also provide in-depth analysis of change phenomena and the skills discussed later in the article, complemented by external data produced outside the workshops. The comparison has been conducted with the assistance of AI using the ChatGPT 4. The goal was to utilize an affinity diagram approach to both discover recurring results and identify differing outcomes. However, the verification of the results was carried out without the assistance of AI to ensure that any potential discrepancies in the text-based analysis could be detected and resolved. The burden of analysis rested primarily with the author.

Although the future workshops discussed in this article were organized in different years, with different themes and working methods, there are similarities in the change phenomena produced. The shared change phenomena demonstrate that many challenges and possibilities are linked to the same key themes. The three common change phenomena across all workshop reports are:

- **The Green Transition.** This phenomenon is evident in all the reports. Mitigating climate changes and using sustainable energy sources are important themes in environmental changes, technological development, and community aspects.
- **Continuous Change** is another common theme. It relates to both rapid technological advancements and changes in working life, influencing how communities adapt to changing circumstances.
- **Community and Collaboration** are the third shared theme. They are crucial from both environmental and sustainability perspectives and in people's adaption to technological change and societal challenges.

The prevalence of change phenomena can also be examined through their frequency, meaning that the phenomena are not exactly the same in different years, but the underlying trends and factors are mentioned frequently across reports. **Technological development** and **digitalization** are frequently mentioned in every report, because they have a wide-ranging impact on various areas, including the workplace, the environment, and communities. **Continuous learning** and **self-development** are related to ever-changing conditions and new technologies.

However, there are also variations from year to year, and some phenomena are only addressed once and the first year focused more on **everyday practices** and **consumer choices** (changes in dietary choices and eating habits, etc.), while the second year emphasizes more on **societal and security-related challenges**. For instance, "War in Europe" and "New Refugee Flows" are specific themes in 2022. This shows very clearly the impact of current global political and security issues (the war in Ukraine) on regional discussions related to the future. In 2023, the change phenomena will highlight the **well-being of individuals and communities**. "Well-being", "Power of Imagination", and "Meaningfulness" particularly correspond to the dimension of social sustainability posed in the question in the future workshop.

11.3.5 Examination of Competencies and Skills Required for the Future

As part of the concept of Kymenlaakso's future workshops, change phenomena and the desired future are also approached through the examination of skills in the workshop. This creates an understanding of what aspects should be considered in future-orientated education to ensure that a competent and demand-responsive workforce will remain available. However, the direct examination and competences from the reports of the past three years cannot be made because in 2021, a list corresponding to the subsequent years was not created. Nevertheless, this is possible for the other two future workshops. The results of the first year have been taken into account by briefly commenting on the main points of the listings in the reports of the two subsequent years.

Common themes in both reports, include:

- **Technology skills** reflect the importance of technology in modern work environments and society in general.
- **Sustainability and Responsibility Skills**, highlighting their significance in organisational operations.
- **Communication and Interpersonal Skills** are crucial in various contexts.
- **Entrepreneurship and Business Skills**, reflecting the importance of business acumen.

As the observation of the change phenomena highlighted, the perspective of answers in the latest future workshop seems to be broader and more diverse than in 2022. It encompasses empathy, cultural well-being, history, and pedagogical skills, among others. This may be emphasised because the task specifically aimed to generate perspectives through three different sustainability dimensions. The 2022 report places more emphasis on competences related to technology, innovation, and ecological sustainability, with less focus on social sustainability.

Since the central change phenomena selected in all three workshops under the examination were the same, one could also consider the required skills and competencies to be similar in themes of green transition, continuous change, and collaboration in all three workshops. However, a more detailed definition of skills could also reveal different nuances.

11.4 The Futures Envisioned in Future Workshops

The style of future visions has varied from year to year – theme titles in 2021, the vision of statement in 2022, and future theses in 2023 – but the content has been quite similar.

11.4.1 Changing Kymenlaakso – Kymenlaakso's Future Workshop 2021

The desired future visions for Kymenlaakso created in the 2021 Future Workshop can be categorized into three based on a follow-up survey (Kujanpää & Viljakainen 2021).

- Cross-border cooperation in Kymenlaakso (respectful decision-making, collaboration, future actions as everybody's responsibility),
- The Enchanting Tale of Kymenlaakso (positive examples, branding work, local community spirit, unique stories),
- Agile Digital Region of Kymenlaakso (an innovation ecosystem that enhances digital competence, digital equity and accessibility, digital services, and cybersecurity)

All the visions require a set of actions to be taken to achieve them. These include the identification of Kymenlaakso's strengths and positive stories made visible. Further, cross-municipal collaboration among all stakeholders should be initiated immediately. Within five years, digital environments and technologies are made accessible to everyone, and digital literacy is supported. Within ten years, the leadership of Kymenlaakso's shared branding work is considered very important, emphasising nature and positive aspects.

11.4.2 Toward the New and the Unknown – Kymenlaakso's Future Workshop 2022

In the 2022 report (Kujanpää & Viljakainen 2022), the approach to the future was based on statements of intent. These were built on the insight produced during the Future Workshop and further condensed in Kymenlaakso's "Era of Competences" process. The future unfolds as follows:

> *Kymenlaakso is shaping up to be a paradise for remote work, meaning that remote work is broadly considered in industry and education. Multilocation living and smooth connections enable residents of the region to work elsewhere and, conversely, attract new residents and businesses, particularly to affordable rural living. Remote learning improves the possibility for young people to choose their place of residence. The reduction in commuting increases leisure time and reduces carbon emissions.*

In Kymenlaakso, they are pioneers in the energy sector. This implies collaboration in the adoption and research of new energy forms. The region comprehends the potential of liquid natural gas and biogas and prepares for the introduction of bio-components. Kymenlaakso is seen as becoming a region of well-being where service promises are transparent and adhered to. Services are offered for people of all ages, and service pathways are flexible. Creativity and people-centric development contribute to the growth of attractiveness.

11.4.3 Time for Choices: Harnessing the Future – Kymenlaakso's Future Workshop 2023

In the 2023 report (Leirimaa & Viljakainen 2023), the material produced in the Future Workshop was condensed into five future theses that take into account the region's culture, identity, nature, working life, and education:

- In a sustainably successful Kymenlaakso, the culture of operation is just and open. Collaboration is conducted in the spirit of deep trust (which includes considerations of fairness, silo-free collaboration, and open communication).
- In a sustainably successful Kymenlaakso, the region's identity supports branding and is built upon an existing idea of goodness (which includes the themes of resources and positive aspects, culture, and common good).
- In a sustainably successful Kymenlaakso, nature influences decision-making and is understood as a prerequisite for well-being (which includes investments in the green transition and understanding nature as a prerequisite for well-being).

- In a sustainably successful Kymenlaakso, working life understands diversity, encourages entrepreneurship, and supports innovation (which includes themes like entrepreneurial activity, the understanding of diversity as an asset, and consideration of non-traditional sectors).
- In a sustainably successful Kymenlaakso, education is lifelong and aims to meet the needs of work and competence (which includes themes that encourage anticipation, a focus on the needs of the workforce, flexibility in response to change, and continuous learning).

All three future visions share core values of collaboration, and inclusivity as components of desired future. Kymenlaakso should become a place for the flexible, remote working environment and embrace digital technologies. The strong focus is sustainability, emphasising green energy, ecological awareness, and commitment to a sustainable future. The importance of a just and open culture, inclusivity, and valuing diversity is highlighted. The significance of branding and positive storytelling are key to enhancing the attractiveness of the region. However, the workshops differ in their specific priorities and the ways they approach achieving these goals. The first report prioritises cross-border cooperation and decision-making. The 2022 statements of intent take a more detailed role in the energy sector operations, whereas 2023 provided the most multifaceted vision of the future.

11.5 Discussion

As stated in the Future Workshop report from 2023, there are similarities in the results from the last three years in terms of change phenomena, competencies, and desired future visions. It can be said that despite different annual focuses, the tone and perspective are consistent. However, it is essential to note that current events in the surrounding operating environment have an impact on the responses: the COVID-19 pandemic and gathering restrictions brought digitalization and remote work into the discussion, while the Ukraine conflict significantly influenced not only the security perspective but also energy solutions. On the other hand, the emphasis on three sustainability dimensions in the third examined Future Workshop contributed to the growth of social considerations. However, as the third report acknowledges, working through sustainability dimensions seemed effortless, and considering them did not reduce or slow down responses. To some extent, it can be stated that Kymenlaakso has both the readiness and capability to work towards a comprehensive sustainable future. The formulation of questions, however, facilitated the diversification of perspectives.

Shared future visions also have scientifically proven significance. Future visions can be presented as a central part of the flow of societal change: they are seen as strongly reflecting underlying values and guiding the actions shaping the future. (Mäkelä, Karjalainen, Parkkinen 2022: 299-230.) In the case of Kymenlaakso, it is interesting that different participant groups in different years have achieved similar results, especially the desired future visions formed have similar tones. The societal change can thus affect the region's people broadly and over the longer term. As an underlying current, shared values convey the need for change and the willingness to change past practices (such as a lack of cooperation). Future visions can be thought of as the driving force for actions related to the future, and without them, society cannot flourish (Mäkelä, Karjalainen & Parkkinen, 2022: 299-230).

What is particularly commendable in Kymenlaakso's future workshop work is that despite challenges and uncertainties, the people are seeing positive future visions and form opinions about the desired future for the region. The fact that different people participated in the future workshops each time, in a way, validates the significance of these future visions and demonstrates that they are widely shared. We all have the ability imagine futures, but Kymenlaakso's future workshops are a way to provide space and time for collective imagination and to consider the necessary actions to achieve the desired future.

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12 CONCLUDING REMARKS: CREATING FUTURES

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"The present is the only space in which we can influence the futures that are with us today" (Conway, 2023: 22). Every time we make a choice, we take steps towards a new possible future. Futures are built on our individual actions and decisions today, and as such, we become collectively responsible for what futures will be. However, knowing the consequences of our actions or how others will act is not always possible. Thus, futures usually bring surprises, too. These do not release us from responsibility, as when we react to surprising events, we regain the opportunity to again choose from different futures and regain our agency.

Younger people have a natural tendency to think more about futures than the past. However, as we spend more time on this planet, our view of time changes; we start to perceive the past as ahead of us as we reflect on our actions and lives (see, de la Fuente et al., 2014). Time, therefore, is best understood spatially rather than as a linear conception of moving from one point to the next. Therefore, we need the ability to think about the possible futures when making plans and decisions. If we believe there are multiple possible futures ahead of us, we also feel it is imperative to make plans. Planning allows us to choose a path towards the future, where we want to end up, instead of other futures, which may not be as preferable. (Baumeister et al. 2016.) However, our scope of time is most often only a week, a day, or less, but we should also be thinking much further ahead.

Making plans gives us a nice feeling of having some control over our lives and a sense of agency (e.g., Lachman & Firth, 2004). The promise of our modern society is that almost everything is possible if you work hard enough, believe in yourself, and act decisively. However, this falls apart somewhat under the scrutiny of intersectional analysis as it fails to take into account that we are not all equal, and privilege structures of inequality influence the actions available to us (Jibrin & Salem, 2015). The promise still lingers, shaping how we perceive futures and our actions as our society advances technologically, with recent huge leaps forward in artificial intelligence, which again promises to free us from the mundane tasks of our present. Yet, the environmental impact of these new technologies is often invisible, and for example, generating a single image in an AI model uses as much electricity as charging your phone (Hekkilä, 2023). At the same time, centuries-old concerns resurface: will machines, AI, or robots take our jobs? As in the past, jobs have not entirely disappeared but are changing. And as we seem to reach the technological futures we have imagined, are we left only with images of unwanted futures? These concerns over our future and our role in it are compounded by issues of climate change, a fear of how long our planet will remain livable, and our ability to work and provide for ourselves.

With all the possibilities opening in front of us and all the worries we carry, we easily reach a state of psychic entropy and inaction. Mihaly Csikszentmihalyi (2013) determines psychic entropy as chaos inside the mind. This chaos often occurs when we perceive that all options are open to us. The opposite of this rather unpleasant state of mind is flow. Getting into a state of flow starts with a choice: from all the options one has, what is the one to choose as a goal? When the choice is made, the chaos suddenly evaporates. Given recent world events, we might also say that our society is suffering psychic entropy, and we need a common positive vision of possible futures to counter negative far-right rhetoric and avoid systems collapse. We must avoid lost futures due to societal psychic entropy and a failure to conceive of desirable futures. Thus, the promise of a better tomorrow and the ability to bring about our desired futures might require more systematic reflection, knowledge, and methodologies in order to take action and make decisions.

Instead of just reacting to events and finding our way forward despite them and our circumstances, we can decide to have agency in the process, choose the futures we want to see, and take steps to achieve it. This process is empowering. Even if it seems that futures are hard to reach, the realization of futures is much more likely if we first make a conscious choice. As Baumeister et al. (2016) put it, planning works best if we first make a vision of the desired future and then start to think about what the obstacles between us and the desired futures are and what could go wrong. This can help us to decide if the desired future is worth pursuing and helps us prepare for possible difficulties. On the contrary, if we first worry about futures and only afterward start to think about whether we should pursue some of the

possible futures, we easily get stuck on the negatives rather than the opportunities futures might bring. Oettingen & Mayer (2002) state that just thinking positively about futures does not help either. Positive thinking and fantasizing of wished futures may feel nice but lead to much less action compared to the "vision first, worry later" option. Fantasies do give us positive feelings and some sense of satisfaction, but if the likelihood of the desired future is also being judged (based on the past, our knowledge, and the obstacles to overcome), we will have more realistic expectations and better understanding of the needed actions. This leads to a much higher probability of achieving the desired outcomes. In short, what we expect to happen will more likely happen than what we merely wish to happen.

Eleonora Barbieri Masini (1993), who has been called the mother of Futures Studies, distinguished the field from others and defined it as a whole by six characteristics. These characteristics refer to transdisciplinarity, complexity, globality, normativity, scientificity, dynamicity, and participation. All these aspects have been touched upon and reflected in the articles of this Futures issue of Xamk Beyond - including normativity in the sense described by Masini, where it "indicates the relations of these studies with specific values, desires, wishes, or needs of the future" (Masini, 1993: 21).

As the reader of this issue, we hope that you have found topics and areas of interest in the articles to perhaps also challenge your perceptions of the future(s) from these perspectives. We invite you to dare to create futures of your choosing.

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