HOW HIGHER EDUCATION IS REACTING ON CLIMATE CHANGE – EXPERIENCES FROM FINLAND

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Abstract

This paper discusses the changing work during the climate change, because higher education should be able to react on the needs and of the working life and simultaneously provide knowledge, skills and competences to develop the the society towards the desired direction. We explore how higher education in Finland is reacting and additionally discuss how it should react. In our approach, the changing work during the climate change is seen also as an opportunity, not only as a threat. We discuss the significance and impact of climate change on higher education and examine how higher education is reacting.

We see sustainable development as an opportunity in changing working life and discuss its significance and impact on higher education. Our case studies focus on two Finnish universities of applied sciences. We explore how these universities implement sustainable development in their actions, what challenges there are and how the actions are developed. Based on this research material we study how higher education is reacting on the changes of work and society under the climate change. The viewpoint in our article underlines the context of learning and teaching, i.e. how climate change and sustainable development should be approached especially from the perspective of learning and teaching targeting the changing world of work.

Keywords: Higher education, climate change, Finland, sustainable development, changing work.

1 INTRODUCTION

This article starts from discussing the changing work during the climate change, because higher education should be able to react on the needs and expectations of the working life and simultaneously provide knowledge, skills and competences to develop the working life and the society towards the desired direction. In this article, we explore how higher education in Finland is reacting and additionally discuss how it should react. In our approach, the changing work during the climate change is seen also as an opportunity, not only as a threat. We discuss the significance and impact of climate change on higher education and examine how higher education is reacting.

The rational behind our approach is posthumanism, which is based on humanism, but sees human beings as a part of nature and that nature must be considered in all actions. According to posthumanism, humans have no right to destroy nature or set themselves above it in ethical considerations a priori. Human knowledge, earlier seen as the defining aspect of the world, is reduced in posthumanism so that it has a less controlling position ([1], [2]).

In this article, we see sustainable development as an opportunity in changing working life and discuss its significance and impact on higher education. Our case studies focus on two Finnish universities of applied sciences, Häme University of Applied Sciences (HAMK) and Turku University of Applied Sciences (TUAS). We explore how these universities implement sustainable development in their actions, what challenges there are and how the actions are developed. Based on this research material we study how higher education is reacting on the changes of work and society under the climate change. The viewpoint in our article underlines the context of learning and teaching, i.e. how climate change and sustainable development should be approached especially from the perspective of learning and teaching targeting the changing world of work.

The research strategy of the article is based on action research, and the research methodology focuses on literature review, document analyses and participatory observation. The documents used consist of authentic documents, such as curricula in Finnish higher education institutions, the documents and research reports about education development on national and European level, and educational policy papers and initiatives in Finland and in Europe. The research methodology of the empirical material is based on the case method, where the research material consists of written and electronic material from

the two case universities of applied sciences as well as other data material based on participatory observation.

2 CLIMATE CHANGE AND CHANGING WORK – FROM THREATS TO OPPORTUNITIES

Digitalization and globalization change work and skills needed (e.g. [3], [4]), but seldom changing work is studied from the climate change perspective. However, the need to move towards a more sustainable society and economy is maybe the biggest change maker in working life. If climate change is mentioned in connection with changing work, the discussion is full of threat scenarios. Surprisingly, climate change can change work also to a positive direction.

Striving towards carbon neutrality changes work. New technologies and intensification of the use of resources can be good for the climate and the nature as well as offer economically profitable solutions and have positive effects on employment. New energy methods and resource efficient solutions require workers in planning, production, assembling and service, and circular economy creates new jobs too ([5]). Completely new professions will emerge, such as carbon footprint calculator, urban farmer, artificial meat or biomaterial grower and solar panel cleaner ([6]).

Many branches and industries can become more labour intensive than earlier. In the current world, it is not profitable to repair products, but when resources and raw materials have to be utilized less and more efficiently, the current way of thinking, based on disposable goods, can change. Maintaining goods and selling services can increase, selling of goods decrease, and branches such as repair and handicraft, having a high employment effect, can grow in the future.

Automatization and artificial intelligence raise concerns of job losses. Probably they are not able to compensate people in jobs, which require creativity, human touch, or the ability to act in sudden or complicated situations. Sustainable future requires that the status of jobs, which focus on caring for people and nature, must be improved. In the current world, there are many well-paid and highly respected jobs, which are useless or even harmful from the viewpoint of the climate or nature. Concurrently, the jobs that cause most good for people and no harm for the environment are low-paid and less respected, for example elderly care ([5], [7], [8], [9]).

According to the research, the relevance of the work is getting more and more important for the workers. The work is experienced as meaningful if the employing organization operates ethically, fostering common good and striving towards sustainable future. Political decision-making can develop work towards the direction, which uses less resources and improves the wellbeing of people, other animals and nature. Climate change can have many positive impacts on the changing work, if we decide so. Though we must give up many things, we can also get many other things which can truly add our wellbeing, such as meaningful work tasks, more commonality and social participation, clean and healthy working and living environment, and a healthier diet ([10], [11], [9], [5]).

Themes such as climate change or sustainable development are not common in the educational discussion on future competences and life-long learning. However, education should be able to provide knowledge and skills to solve these questions ([12], [13], [14]). The scientific community and the leading climate researchers in the world agree on that time is short to mitigate climate change ([15]). Climate change cannot be solved by one actor, state or government. It is required commitment to shared objectives as well as multilateralism, i.e. co-operation and decision-making together with many countries. Education plays a crucial role to provide knowledge and skills to act in this kind of environments.

3 SUSTAINABILITY IN HIGHER EDUCATION

What kind of changes will the implementation of sustainability in higher education require? Before a change in action, a change in ways of thinking is needed. Education should support the development of the learners' competences and characteristics and contribute to a value base that enables the learners to build their own worldviews in order to create a sustainable future. The content of learning helps to understand the links between nature, society and the economy and seeks to develop solutions for a sustainable future, and the mission of the curriculum is to organise the opportunities for learning to do so.

Educational thinking can proceed from the traditional mindset of humanism to the direction of posthumanism so that nature should be taken into account in all actions. We no longer have time to rely on early childhood or basic education to develop attitudes and mindsets and ensure that the next generation is more aware and accountable in their decision-making. According to the Intergovernmental Panel on Climate Change (IPCC 2018) report ([15]), actions must be done now and therefore current students in higher education, near-term actors and policymakers in our society, are in a central position as we make decisions about necessary changes in the way we live.

Currently, working life demands guide the goals of learning in higher education. The competences required by working life are important goals for education, but they cannot be the sole purpose of education; education should aim to support the growth of learners into responsible citizens who are able to critically evaluate and reform their own activities. The will and ability of the learner to question things and seek solutions outside traditional thinking patterns are the goals of learning in a reformative higher education. Developing characteristics such as responsibility, ethics, or curiosity requires bringing an ecological educational perspective into higher education as well. In order to develop an understanding of the connections between people, nature, society and the economy, reform of learning methods and environments is needed. These should include solving genuine problems in authentic environments, cross-disciplinary collaboration across subject lines, and dialogical and participatory learning situations. (e.g. [16], [14]).

Curricula in higher education have huge potential both educationally and conceptually by conveying values, attitudes, and mindsets. Concerning sustainability, the curriculum goal could be that students, teachers and other staff in higher education institution understand the causes and consequences of sustainability crisis and climate change and the dependencies between them, identify opportunities in climate change and become aware of their ability to influence a sustainable future for the creation of their own and joint activities. The objectives of the curriculum can then be described, for example, as a higher education institution, that the graduating student has the capacity for critical thinking, the conditions for a good life, and the knowledge, skills and attitudes to participate in creation of sustainable future. The curriculum can incorporate basic knowledge of sustainable development and climate change by integrating them into studies and/or providing separate studies on the subject. To ensure the impact this should be done in all study fields or disciplines.

4 HOW UNIVERSITIES OF APPLIED SCIENCES REACT ON CLIMATE CHANGE IN FINLAND – TWO CASES

The programme for the sustainable development and responsibility of universities of applied sciences in Finland was published in November 2020. It provides a common reference framework and supports the work of all 24 universities of applied sciences in Finland in their efforts towards a more sustainable and responsible future. We describe here briefly how two universities of applied sciences are implementing this programme.

In its strategy, Turku University of Applied Sciences (TUAS) has committed itself to achieving climate goals for the region, and the goal is to be carbon neutral in 2025. However, the development of education is seen as the main role of TUAS in climate change work. The aim is that all students have at least a basic knowledge of climate issues, and that the most degree programmes include a significant number of studies on climate in relation to that field of study. In addition, an important major role in the climate work of TUAS is played extensively by the establishment and implementation of research and development projects for the region and its operators. Research, development and innovation (RDI) is and will therefore be directed towards projects that clearly implement the objectives of climate work. Key research and development themes include clean water, circular economy, renewable energy production and energy storage, and the production and use of open information to prevent climate change.

Own activities at TUAS are altered in line with the objectives of the climate programme, which has caused and will cause changes in everyday life. Significant reductions in energy use have been achieved through site sealing between 2015 and 2020. The use of energy will continue to be reduced and ensure that only renewable energy sources are used in its production. The fleet of cars in use by the UAS will be transferred to use as low carbon fuel as possible and the new procurement will be carried out only by purchasing full-electric cars. Commuting is encouraged to be implemented even more by public transport, cycling or walking. The greenhouse gas emissions from food production and the reduction of food loss in all co-op canteens are also promoted.

TUAS Education Development Unit supports degree programmes and trainings to integrate climate issues into studies. The goal of the TUAs pedagogical approach, Innovation pedagogy, is that the graduating students have the conditions for a good life, and knowledge and skills and attitudes to participate in creating a sustainable future. This requires the students, teachers and other UAS staff to understand the causes and consequences of sustainability crisis and climate change and the dependency relationships between them, to identify opportunities in climate change and to be aware that they can make a sustainable impact for the creation of the future by their own and joint activities (e.g.[16]). This goal has been described in the TUAS joint learning plan, Innopeda curriculum, which gives also concrete tips and ideas to increase climate understanding.

It is essential to achieving the objectives of the programme for sustainable development and responsibility that all TUAS players, staff and students alike, have sufficient knowledge, skills and attitudes on issues concerning sustainability and responsibility. This is why there are several activities to support staff for change, including training and guidance, as well as active dialogue and communication with current and future students on sustainability issues.

In the strategy of Häme University of Applied Sciences (HAMK), sustainable development has been cited as a key activity of the organization leading its operations. The HAMK Sustainable Development programme was published year 2020, and it is built in line with the objectives of the UN Agenda 2030. Sustainable development activities in HAMK are structured into blocks of education, research activities and campus activities typical for higher education institutions.

In education, the ecological angle for sustainable development is inherently present in HAMK as training in studies the field of natural resources. For more than ten years, HAMK has also offered Degree Programme in Sustainable Development. The goal is that all degree programmes have sustainability knowledge and skills built in. However, it is necessary to agree with the findings that indicate teacher activity and orientation play a key role in implementing sustainable development education (e.g. [17], [18], [19]). Thus, staff training and the operational culture of the institution will then take centre stage.

In RDI activities, sustainable development can be said to be taken into account in 90% of projects. An international dimension to RDI is also sought in cooperation with international strategic partner institutions ([20]). In campus activities, issues related to energy and water consumption, recycling, food loss and everyday practices are highlighted. Actors responsible for these matters include property management staff and those responsible for procurement. Various events and theme days in SD issues are definitely an essential development area, and they have been implemented from the autumn 2019.

From 2018, HAMK has participated in the International Higher Education Green Metric Assessment ([21]) along with over 800 other colleges (ranking position 35 in 2019). The diverse data collected serves as database for improving the Sustainable Development activities.

Shared statement of purpose is important for an educational institution operating in a wide region in different locations. For HAMK, this means integration with the objectives of the Carbon Neutral Hämeenlinna City and innovative circular economic activities in the region.

5 DISCUSSION AND CONCLUSIONS

According to the research knowledge lays groundwork not only for climate understanding, but also for climate responsibility. Increased understanding of climate change can encourage climate actions and also reinforce the desire to act for climate. Education plays a key role in securing the knowledge and skills necessary for climate understanding and responsibility, as well as the ability to act in changing and entirely new working environments in the climate change era ([22]).

Research suggests that higher education in Finland has not yet reformed its activities to the extent necessary to promote sustainable development. Reforms are needed, but it is good to remember that education cannot just reformed through changing teaching and learning. To achieve real change, it will also require changes in the structures, processes and everyday practices of higher education institutions. Strategic decision-making, management engagement and practical actions are needed to promote a sustainable future in everyday life.

The reform in higher education also needs a change in mindset and the ability to see things in a new way in order to develop policies. That's why change management plays an important role. In educational organizations, changes require renewing thinking by teachers, and curricula serve as tools for change in the renewing process.

Our case studies show that these universities of applied sciences are motivated and working towards integrating sustainable development and responsibility in all their actions. The new joint programme for the sustainable development and responsibility of universities of applied sciences in Finland encourages all universities of applied sciences to act, and the results are monitored annually. It remains to be seen whether the actions will be adequate as we mirror them to our global environment, challenges brought by climate change and a changing world of work and professions. The relevant point is that universities of applied sciences have raised sustainable development to the strategy level in their decision-making and made action plans for concrete progress. Action is still at the beginning and it is important to take care of the plans being implemented and monitored ([23]).

It is the responsibility of the educational organisation to create such conditions and atmosphere that change is possible and desirable. Change requires decisions to be made and cooperation among all parties. The universities of applied sciences as well as all higher education institutions have the opportunity and obligation to serve as value leaders and influence change towards a sustainable future. Their impact is created by the expertise that they produce for society through education and RDI activities. This impact is reflected in the changes of company practices, operating models, quality management systems, funding principles, and ways of thinking. In all, the desired sustainable changes in society and the world will be achieved through education and open interaction, through measures by individuals and communities and the legislative and administrative actions they bring about. The world around us is changing all the time, and we can't stop changes, but with education we can make a difference in the direction of changes.

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