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# TACKLING THE CHALLENGE OF TEACHER'S SUSTAINABILITY COMPETENCES IN TAMK

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**Teachers are important change agents in sustainability transition. In their profession they can either encourage or discourage students' active agency towards sustainable practices in individual lives and professional environments. However, promoting societal change agency is not necessarily build in teacher identity (Asikainen & Tapani 2021). Thus, we need to identify and describe concrete teacher's sustainability competences, and to develop learning pathways towards gaining these competences. The article states that there has already been plenty of research on this topic, but we still lack concrete competence descriptions that could be turned into evaluation criteria. The latter part of the article introduces TAMK's activities towards competence based digital open badge driven learning pathways on teacher's sustainability competences.**

Providing all people with basic knowledge and skills needed for promoting sustainable development is included in the seventeen Sustainable Development Goals (SDGs) agreed by the General Assembly of the United Nations in 2015, the Agenda 2030. It is thus a commonly accepted goal for education, and has been adopted e.g. in the guidelines of the Ministry of Education and Culture (2020) and by the Rectors' Conference of the Finnish UASes (Arene 2020). Most recently this goal has been included in the shared competencies of Finnish UASes (Arene 2022).

The learning goal gives two tasks to TAMK as a higher education institution educating professionals. First, it gives the educational communities and teachers as individuals a task to fulfil – to equip the students with the knowledge and skills to promote sustainable development as professionals. Second, it challenges the teacher educators to provide present and future teachers with competences needed in fulfilling the first task. These competences can be called teacher's sustainability competences (Rieckmann 2012).

This article presents an outlook on what the second challenge includes and provides one solution to strengthening our teacher's sustainability competences. In order to do this, the article first discusses ways to define teacher's sustainability competences, then discusses these competences and finally describes how TAMK is developing concrete ways to enhance these important capabilities of teachers.

### ***Key Sustainability Competences and Dimensions of Change Agency***

Key Sustainability Competences have been described by many researchers who have analysed what kinds of skills an individual needs to be able to act for a better, sustainable, future (e.g. Rieckmann 2012, Wiek, Withycombe, and Redman 2011, UNESCO 2017). The outcomes of these analyses are typically lists of competences that can be grouped in behavioural and strategic competencies that facilitate taking action and finding viable solutions to sustainability problems in collaboration with diverse people; cognitive competencies with a particular focus on critical, systems and futures thinking; ethical and reflective competencies, which include capacities for critical contemplation of values, norms and personal choices; and affective competencies, e.g. understanding and processing one's feelings as well as developing empathy and sensitivity towards others (Koskela and Paloniemi 2023, UNESCO 2017, p. 10).

These general competencies provide a good starting point in defining the more contextualized sustainability competencies and skills for each occupation through an analysis of the occupation. In the case of teaching occupation, we have to ask what the core missions and most important activities of teachers in higher education institutions are, and how they relate to promoting sustainable development. Answer to the question above seems quite obvious. Teachers should be able to facilitate the students in achieving competences listed e.g., by UNESCO – but what does that mean in practice?

### ***Frameworks of Teacher's Sustainability Competencies***

Corres, Rieckmann, Espasa and Ruiz-Mallén (2020) conclude in their review on teacher's sustainability competence frameworks that the descriptions of educator competences follow two main lines. The first is descriptions based on the competencies described in a UNECE (2012) policy paper, which introduces “a framework for the professional development of educators” (p. 7). Table 1 presents the method used by UNECE – presenting the educator competences as a cross tabulation of the essential characteristics of Education for Sustainable Development listed and four dimensions of competences: Learning to know, Learning to do, Learning to live together and Learning to be (UNECE 2012, 5–17).

**Table 1. The structure of UNECE Educator Competencies for Sustainable Development**

Dimensions of Competences	Learning of Know	Learning to Do	Learning to Live together	Learning to Be
Essential Characteristics of ESD	12 educator competencies for Sustainable Development			
A holistic approach, which seeks integrative thinking and practice				
Envisioning change, which explores alternative futures, learns from the past and inspires engagement in the present				
Achieving transformation, which serves to change in the way people learn and in the systems that support learning				

The second commonly used way of describing educator competences builds on KOM-BiNE model developed in the CSCT (Curriculum, Sustainable Development, Competences, Teacher training) Comenius project (Rauch & Steiner 2013). This model recognizes teacher's roles as an individual instructor in the classroom, as an active member of an educational institution, and as a pedagogic professional reaching out to society. Further, the model stresses the interplay of networking, teaching, developing visions and reflecting in the development of learning processes for SD by using emotions, systems thinking,

knowledge, action, and values and ethics – all with future orientation and recognition of local and global scales.

The review by Corres and others (2020) as well as our own research on the literature comes up with a partial answer to the question of what a teacher should be able to do? We can find an answer to the part on the core missions. This is especially true for the UNECE model describes the teacher's competencies through the aimed student's sustainability competences and idealized principles of education for sustainable development. The Kom-Bine model gets closer to teacher's work as it accounts for the different roles a teacher has. Still, these frameworks and the ones that build on them, don't get to the operational level of teacher's work.

### ***Getting Concrete at TAMK***

TAMK combines two tracks of expertise in developing teacher's competences in Education for Sustainable Development: expertise in sustainability education and expertise in competence-based digital open badges.

Some experimentation on developing teacher's sustainability competences has taken place in TAMK's School for Professional Teacher Education (Asikainen & Tapani 2021). The development work continues in the TAMK lead Erasmus+ Teacher Academies project EduSTA – Academy for Sustainable Future Educators aiming at developing Digital Open Badges and supporting educational materials for teacher's sustainability competences together with four European partnering teacher education institutions (read more on EduSTA web page).

TAMK launched the use of open badges in 2017, primarily for the staff development (e.g., Moodle master classes and Video technologies). In the recent years the use has been expanded to cover continuing education, projects, and they are also included in degree programmes. Parallely, the pedagogical development programme of TAMK is developing a set of Digital Open Badges for TAMK teaching staff. The

Digital Open Badges developed in EduSTA on teacher's sustainability competences should be ready for piloting in the beginning of 2024.

At this point, we are still in the beginning of the operationalizing of the competences. Yet, we can sketch some important competence areas by connecting sustainability competences with the teacher training curriculum and professional competencies of teachers: teacher's change agency, designing learning processes with a sustainability mindset, pedagogical design for sustainability competences, assessment of sustainability competences. These are still quite general and will quite certainly change during the process, but they are already steps towards defining teacher's sustainability competences from the perspective of the teaching profession.

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