Why our teaching in higher computing education should address sustainability

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Abstract. This lightning talk argues for the following statement: «No major subject in computing education should be taught without linking it to sustainability"

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1   Summary

We argue that **no major subject in computing education should be taught without linking it to sustainability**. We make three points to underpin this statement:

First, candidates from computing education will enter the job market and work to solve big societal challenges. Global challenges are very complex and requires varied competence, e.g. within IT/digitalization. Our students are deeply needed. With respect to sustainability (e.g. climate crisis and democracy), information technology is part of the problem AND the solution. Through their education, new computing professionals need insight in these connections. Furthermore, much of what we do as professionals is based on judgment and values that need to be conveyed and reflected upon. The fact that the world needs to handle severe challenges e.g. related to climate and democracy represent essential ethical issues our students need to relate to.

Second, as teaching staff we should be able to explain why the courses we teach are significant to addressing important challenges in the world (including relevant aspects of sustainability). For talking about sustainability among ourselves and with the students, we need a shared vocabulary. Multiple frameworks and taxonomies exist, and some explicitly address information technology. As teaching staff we also need insight on the connection between our domain/course/research field and sustainability. Getting this insight can be demanding and requires keeping updated on state-of-the-art research, which is constantly changing and may have shortcomings. We might also need more motivation to target our teaching to challenges our students will meet in work life. This motivation can develop from dialogue with the students and between colleagues, and from one's interest in societal challenges and the role of information technology in solving them.

Third, working with sustainability issues requires particular types of compe-tence, and we need to adapt our teaching so as to help students develop this com-petence. As teachers we need to know what competence is relevant as well as which learning activities and outcomes lead to it. In addition to competence within the subject area in question, students need more general competence, e.g. in systems thinking, future thinking and multidisciplinary collaboration. All courses need not, however, include sustainability as a separate topic. Existing curricula can be updated and made more relevant through a contextualization in sustainability. This does not have to include all dimensions of sustainability, e.g. all SDGs. Furthermore, the study program in total should be the starting point for considerations on where and how to include sustainability in the courses of the program. Good examples/cases, maybe based on dialogue with collaboration partners in work life, can be key to successful integration of sustainability through relevance and possible learning outcomes for students and teaching staff alike.

This is an area which begs for experience sharing and knowledge building among educators in higher computing education. We hereby encourage our colleagues to engage in discussion and research, locally, nationally and internationally, on the meaningful and successful integration of sustainability in computing education.