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Sustainable development in the context of competence, teaching and the operation of education providers in vocational upper secondary qualifications

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The Finnish Education Evaluation Centre conducted an evaluation of the sustainable development learning outcomes of vocational upper secondary qualifications in spring 2015. The aim was to evaluate how well the sustainable development objectives defined in the qualification requirements for vocational qualifications have been achieved. In addition to this, the evaluation aimed to produce information that education providers could utilise in the development of their own activities and teaching as regards the sustainable development objectives.

The evaluation included an analysis of sustainable development in qualification requirements. Sustainable development is a key competence for lifelong learning as well as a central part of vocational competence. Furthermore, the qualification requirements were analysed to determine how sustainable development is reflected in the value base and the objectives of the qualifications, and how sustainable development competence is described in the different parts of the qualifications and as a subject of assessment. The objective defined in the qualification requirements as regards sustainable development is that the student or candidate operates in accordance with the ecological, economic, social and cultural sustainable development principles of their profession. In addition to this, the student or candidate adheres to central sustainable development provisions, regulations and agreements when working in their field.

In addition to competence (learning outcomes), the ways in which sustainable development objectives are reflected in the operations, everyday practices and teaching of education providers were also evaluated. The aim was to evaluate how the operations and teaching of education providers relate to learning outcomes. Students and education providers were also analysed for the purpose of identifying background variables and their relation to learning outcomes.

The evaluation consisted of a test for assessing learning outcomes as well as a self-assessment for education providers and a self-assessment for teachers. The evaluation was conducted entirely electronically. One of the objectives in the evaluation of sustainable development learning outcomes was to develop the electronic assessment test so that it could be used to assess the key competences for lifelong learning in vocational upper secondary education.

The evaluation focused on all education providers providing vocational upper secondary education, as well as students studying for vocational upper secondary qualifications who were graduating in spring 2015. Participation in the assessment test was based on sampling, so that respondents consisted of a proportion of the graduating students. The evaluation covered all eight fields of vocational education and training and nearly all vocational upper secondary qualifications. The qualifications selected for the evaluation included various qualifications from different education providers.

The evaluation participants consisted of a total of 4,457 students studying for different qualifications provided by 107 education providers. The evaluation included education providers from the administrative areas of all Regional State Administrative Agencies. Approximately 8% of the participating students were native Swedish speakers. The students consisted of 50.5% men and 49.5% women. The self-assessment for evaluating the operations of education providers was addressed to all education providers, and responses were received from 106 education providers. The respondents to the self-assessment for teachers were teachers who provided teaching for the qualifications selected for the evaluation. Responses to the teachers' survey were received from 798 teachers. Education providers have been provided with separate feedback on their own results.

The assessment of sustainable development focused on comprehensive ecological, social, cultural and economic sustainable development competence. The competence in regard to the different dimensions of sustainable development was examined from the perspectives of overall competence as well as knowledge-based and functional competence. The level of competence was graded on a three-point scale as satisfactory, good or excellent. In addition to this, the attitudes and the importance of sustainable development were also examined.

The sustainable development competence of students was found to be primarily good, with the level of competence of 67% of students graded as excellent, 23% as good and 9% as satisfactory. A small number of students exceeded the grade of excellent, while the competence of few students was graded as below the grade of satisfactory. Levels of functional competence were higher than levels of knowledge-based competence in all fields of education. Overall competence levels were higher among women than among men. Levels of knowledge-based competence were good among both women and men, but levels of functional competence among women were graded as excellent. Levels of competence were highest in the social dimension of sustainable development and lowest in the ecological dimension of sustainable development. There were significant differences between fields of education in regard to levels of competence. The highest grades were achieved in the field of humanities and education and the field of culture. The lowest grades were recorded in the field of natural sciences and the field of technology and transport. Contrary to other fields, in the field of humanities and education the level of competence of men was higher than that of women.

Factors that contributed more to differences in competence than field of education and gender included the student's language group and level of education. Finnish-speaking students achieved higher grades in overall competence as well as in knowledge-based and functional competence. Similarly, the grades of Swedish-language education providers were significantly

lower than those of Finnish-language education providers. Competence was also found to have a positive correlation with the level of education.

Students assessed their own level of competence as being primarily good. Students learn the most about sustainable development from on-the-job learning periods and practical work tasks. Students consider sustainable development to be very important in regard to vocational education and training. Consequently, a positive attitude towards studying sustainable development and its significance in regard to work tasks in the student's field of study was found to be one of the most notable factors contributing to better learning outcomes. Other factors that were found to contribute positively to competence included the student's own level of activity and the opportunity to learn sustainable development in connection with practices at home.

The self-assessments for education providers and teachers provided information on how sustainable development objectives are realised in the strategies of education providers, in the planning and implementation of education and in practical operations at educational institutions.

The majority of education providers (82%) had already been conducting systematic sustainable development work for a significant period of time. In spite of this, most education providers are only at a developing (41%) or emerging (36%) level in regard to sustainable development activities. The proportion of education providers that had reached an advanced level was 16%, while 7% were at an absent level. The area in which the realisation of objectives is at its highest is the values of the education provider, while areas in which it is lowest are the organisation and resourcing of operations. In regard to everyday practices, the realisation of matters related to the social dimension of sustainable development was assessed as having progressed the furthest.

Sustainable development teaching is primarily handled by vocational subject teachers. Sustainable development is taught in more than one unit of qualifications, and most often in the vocational and core subjects of qualifications and throughout studies. The teaching emphasises the social and cultural dimensions of sustainable development more than the ecological dimension. The teaching focuses particularly on motivating students, with less emphasis placed on developing the sustainable development knowledge base. Qualification requirements are considered to support teaching quite well. In the planning of education, the level of collaboration with workplace instructors is fairly low, and on-the-job learning periods rarely include learning assignments focusing on sustainable development.

Teachers also assessed objectives related to the social dimension of sustainable development as being realised better than those related to the ecological dimension. Teachers have a very positive attitude towards sustainable development, considering it an important core skill for all students and a central part of vocational competence. Teachers have, however, been provided with little continuing education in regard to teaching sustainable development. Consequently, teachers feel that the area in which the realisation of sustainable development objectives is lacking the most is personnel competence and its development.

Learning outcomes are not affected by how advanced the education provider's strategy is, but practical operations in regard to sustainable development at the educational institution seem to be connected to the competence of students. Learning outcomes and the development of competence are also positively affected by students having opportunities to learn about sustainable development in connection to both the education provided and the practical operations of the educational institution. The importance of teaching in regard to learning outcomes is emphasised particularly when the student has not learned about sustainable development in connection with practices at home or hobbies.

Monitoring learning outcomes and purposefully focusing on individual factors that affect learning outcomes makes it possible to ensure equal opportunities for all students to learn and achieve a level of competence corresponding to sustainable development objectives. Competences required by the working life can be improved by implementing the teaching of sustainable development in a more employment-oriented manner and by developing the content of instruction so that the ecological, social, cultural and economic dimensions of sustainable development are balanced.

It is important to ensure that sustainable development values and policies are integrated into the operations of the education provider and the educational institution's everyday operations and practices. The competence development and continuing education opportunities of teachers should also be ensured. The differences between fields of education and qualifications in regard to sustainable development competence can be evened out in connection with the revision of national qualification requirements. This would also provide an opportunity to clarify the integration of the key competences for lifelong learning into qualification objectives and develop assessment practices.

The evaluation showed that an electronic assessment test can be used in the assessment of the key competences for lifelong learning by focusing on the assessment of knowledge-based and operational competence and supplementing it with a student self-assessment. In order to ensure the relevance of the assessment, practical tasks specific to each field of education and qualification should be further developed. Ensuring that the results can be utilised requires the development of new feedback practices suitable for electronic assessment and methods for ensuring students' participation in the self-assessment process.

Keywords: vocational education and training, evaluation, assessment, competence, learning outcomes, sustainable development, key competence for lifelong learning, electronic test, self-assessment