

**Learning to transform the world: Key Competencies in Education for Sustainable Development**

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**Abstract**

*Education for Sustainable Development (ESD) aims to develop competencies that enable and empower individuals to reflect on their own actions by taking into account their current and future social, cultural, economic and environmental impacts from both a local and global perspective. It requires individuals to act in complex situations in a sustainable manner – to explore new ideas and approaches and participate in socio-political processes, with the objective of moving their societies progressively towards sustainable development. ESD understood in this way aims to enable learners to take responsible actions that contribute towards creating sustainable societies now and in future. It develops the skills and values and attitudes that enable citizens to lead healthy and fulfilled lives, make informed decisions, and respond to local and global challenges (UNESCO, 2016:IV).*

*ESD should be understood as an integral part of quality education and lifelong learning. All educational institutions ranging from preschool to tertiary education and including both non-formal and informal education should consider it their responsibility to address sustainable development and to foster the development of key cross-cutting competencies related to sustainability. The development of these competencies is an essential contribution to efforts to achieve the Sustainable Development Goals (SDGs), but also with the competencies to engage as informed citizens in promoting the transformation to a more sustainable society.*

*(UNESCO, 2017). ESD consist of holistic and transformational education that addresses learning content and outcomes, pedagogy and the learning environment. In addition to including and prioritizing content on climate change, poverty and sustainable consumption in the curriculum.*

*This article presents ESD as a form of transformative and competence-based education. It describes the competencies that ESD should develop and the action-oriented transformative pedagogy needed to facilitate this process. It also discusses the needs of education in developing competencies for ESD.*

**Key Words:** *Transform, Education, Sustainable Development.*

**Introduction:**

**ESD as transformative and Competence-based education:** Societies across the globe are facing new challenges arising from the pace of technological progress and globalization. These include growing complexity and uncertainty, increasing individualization and social diversity, expanding economic and cultural uniformity, degrading ecosystem services upon which societies depend, and heightened vulnerability and expose to natural and technological hazards. The complexity of these challenges- including the variety of actors involved, the situation and the courses of action-does not allow for straightforward problem-solving processes and instead necessitates creative and self-organized action.

In order to contribute to sustainable development , individuals need to learn how to understand the complex world in which they live and how to deal with uncertainties, trade-offs, risk and the high velocity of societal (global) change. They need to be able to collaborate, speak up and act for positive change within the world (UNESCO 2015 a). These people might be called “sustainability citizens”. Since the late 1990s, the discourse on how to educate such sustainability citizens has shifted from an input orientation, focusing on lists of essential educational content, to an outcome –based competence approach. Such outcomes include enabling people to engage effectively in this increasingly complex world and contribute to transforming its structures. The competence approach is based on establishing which approaches work best in the real world and then identifying how to foster the necessary learning.

As noted above, in the context of the current global challenges, it is argued that ESD should enable individuals to reflect on their own actions by taking into account their current and future social and environmental effects – from a global perspective. This then enables them to intervene productively in shaping them in a more sustainable manner. A competence-based approach can help here to bridge the gap between knowledge and action.

**Development of Sustainability Competencies:** The emergency ESD approach aims to identify key competencies needed for learners to become sustainability citizens. Accordingly, the Global Action Plan (GAP) highlights learning outcomes that stimulate learning and promote core competencies such as critical and systemic thinking, collaborative decision-making and taking responsibility for present and future generations. The key competencies essential for individuals to transform their own lifestyles and to contribute to societal transformation towards sustainability are;

- **OECD's Key Competencies:** The OECD project (organization for economic cooperation and development) 'Definition and Selection of Competencies (DeSeCo) classifies key competencies into three categories: Using tools interactively, and the ability to use technology; interacting in heterogeneous groups; and acting autonomously.
- **Shaping Competencies:** This framework consists of the following key competencies for shaping or transforming the future: gather knowledge in a spirit of openness to the world, integrating to align with the other imperatives-think and act in a forward-looking manner, acquire knowledge and act in an interdisciplinary manner, deal with incomplete and overly complex information, cooperate in decision-making processes; cope with individual decision-making dilemmas, participation in collective decision-making processes; motivate oneself as well as others to become active; reflect upon one's own principles and those of others ; refer to the idea of equity in decision-making and planning actions; plan and act autonomously; and show empathy for, and solidarity with, the disadvantaged.
- **Sustainability Competencies:** Wals (2015) distinguishes the following competence-based dimensions of sustainability: the dynamics and content of sustainability, the critical dimensioned sustainability, the change and innovation dimension of sustainability, and the existential; and normative dimension of sustainability.
- **Key Competencies in Sustainability:** Wiek et al have recently updated their framework, which comprised five key competencies, adding a sixth (problem-solving competencies) in 2016: systems thinking competence, anticipatory competence, normative competence, strategic competence, interpersonal competence and integrated problem-solving competence. Their work has played an important role in

drawing together many of these concepts and lists and in providing a structure for facilitating discussion about the competencies considered critical for sustainability.

- **Sustainability core Competencies:** Galsser and Hish (2016) identified five additional key competencies: affinity for life, knowledge about state of the planet, wise decision- making, modelling sustainable behavior and transformative social change.

While these list exhibits certain differences they also coincide with a number of key sustainability competencies. There is general agreement within the international ESD discourse that the following key sustainability competencies are of particular importance for thinking and acting in favor of sustainable development.

- **System thinking Competency:** the ability to recognize and understand relationships, to analyze complex systems, to perceive the ways in which systems are embedded with different domains and different scales, and to deal with uncertainty;
- **Anticipatory Competency:** the ability to understand and evaluate multiple futures-possible, probable and desirable –and to create own’s own visions for the future, to apply the precautionary principle, to assess the consequences of actions, and to deal with risk and changes;
- **Normative Competency:** the ability to understand and reflect on the norms and values that underlie one’s actions and negotiate sustainability values, principles, goals and targets, in a context of conflicts of interests and trade -offs , uncertain knowledge and contradictions;
- **Strategic Competency:** the ability to collectively develop and implement innovative actions that future sustainability at the local level and further afield;
- **Collaboration Competency:** the ability to learn from others; understand and respect the needs, perspectives and actions of others (empathy); understand, relate to and be sensitive to others (empathy leadership) , deal with conflicts in a group; and facilitate collaborative and participatory problem-solving;
- **Critical thinking Competency:** the ability to question norms, practices and opinions; reflect on own one’s values, perceptions and actions; and take position in the sustainability discourse;

- **Self-awareness Competency:** the ability to reflect on one's own role in the local community and (global) society, continually evaluate and further motivate one's actions and deal with one's feeling and desires;
- **Integrated problem-solving Competency:** the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution that promote sustainable development –integrating the above-mentioned competencies.

This list highlights competencies that are particularly essential for sustainability and which have not been in the main focus of formal education. While each competency has its own qualities and areas of relevance, they are mutually interdependent. This is why the integrated problem-solving competency is of particular importance. In addition, basic competencies such as communication skills are crucial for dealing with sustainable development. Furthermore, these key sustainability competencies have to be developed in conjunction with basic competencies.

However, while competencies describe the capacity or disposition to act to address complex challenges, they do not necessarily imply that an individual will act in a certain way in a specific situation. Hence to transform capacities into real sustainable actions, individuals need corresponding values and motivational drivers. Furthermore, sustainability performance is related to an individual's environment, understood as opportunities to perform that are beyond the individual's control. From this perspective, opportunities are environmental and contextual mechanisms that enable action. In other words, they are conditions that provide the necessary support and avenues for sustainability driven action. Learning on the capability approach Nussbaum (2000) emphasizes the crucial importance of governance institutions providing opportunity structures that give individual's their capability to act. In other words, 'Capabilities should be understood as the set of real opportunities to be what they have reason to value '.

### **Main implications of ESD for the practice of education and pedagogy:**

**Whole-Institution Approach:** ESD is not just a matter of teaching sustainable development and adding new content to courses and trainings. Schools and universities, for instance, should see themselves as experiential places of learning for sustainable development and should therefore orient all their processes towards principles of sustainability. For ESD to be

more effective, the educational institutions as a whole has to be transformed. Such a whole – institution approach aims to mainstream sustainability into all aspects of the educational institution. It involves rethinking the curriculum, campus operations, organizational cultures, student participation, leadership and management, community relationships and research. In this way the institution itself functions as a role model for the learners. While all elements of the whole-institution approach are important, interactive, integrative and critical forms of learning are the core of delivering ESD in the classroom and other learning settings, making this approach an action-oriented transformative pedagogy.

**Action-Oriented Transformative Pedagogy:** ESD is about developing sustainability competencies and thus, empowering and motivating learners to become active and critical sustainability citizens able to participate in shaping a sustainable future. The pedagogical approach needed to achieve this end should be learner-centered, action-oriented and transformative. While such pedagogical approaches describe the general character or guiding principles for designing learning process. ESD favours methods that foster sustainability competencies through active learning. These participatory teaching and learning methods, empower learners to take action to promote sustainable development. When teaching and learning methods for a specific setting are chosen, they have to match the needs of the learner group, the context in which learning takes place. In order to create diverse and cross-boundary learning settings and draw holistic, comprehensive pictures of global sustainability challenges, educational institutions and educators should foster partnerships at the local, national and international level.. While acknowledging that adequate responses to sustainability challenges cannot be limited to single perspectives, disciplines or ways of knowing, it is important that learning within partnerships becomes a source of creativity and innovation. Action- oriented transformative pedagogy also contribute to achieving the aims of GAP , which calls for more quality e-learning opportunities for youth, youth participating in and contributing to ESD advocacy, policy development and implementation at local, national and international levels, and more youth-led ESD activities.

**Need for Assessment of ESD learning Outcomes:**

To date little is known about the quality of ESD programs, the extent of their implementation and their effectiveness in generating the desired changes in learning attainments. Assessing both the outcomes of ESD and efforts that seek to reorient education systems is a challenge to be addressed. ESD programs and initiatives should be assessed at multiple levels, in

particular, large- scale assessments for learning outcomes, assessment of learning outcomes at the individual level, national assessments more aligned with national educational priorities, contextualized school and institutional assessments to improve implementation and delivery, the development of formative assessment practices to empower teachers to gauge specific pedagogical practices in classrooms, and personal self-assessment of individual progress. ESD elements are already included in several large-scale assessments. The cognitive tests, developed in consultation with OECD member countries and expert advisors, will assess young people’s knowledge and understanding of global issues, intercultural knowledge and understanding, and analytical and critical thinking skills. Additionally, the student questionnaire will use self-reported data to analyze skills such as the ability to interact respectfully, appropriately and effectively, and demonstrate empathy and flexibility, as well as attitudes such as openness towards people from other cultures, respect for cultural otherness, global-mindedness and responsibility. There are many ways to assess learning outcomes. The approach taken will depend on the context and on how ESD is delivered. Methods of assessment will need to be aligned with learning objectives and teaching and learning practices. Given the variety of learning objectives and competencies, assessment of ESD learning will most likely involve a range of methods. It is crucial that the methods used to assess ESD extend beyond verifying knowledge of facts to also assess learners ‘competencies. Assessing competence development in ESD remains a major challenge, as much remains to be done to operationalize and model sustainability competencies. Another challenge lies in assessing changes in competencies and other learning outcomes over time.

**Key Competencies for ESD Educators:**

Educators are powerful change agents with the ability to deliver the educational response needed in the context of sustainable development. Their knowledge and competencies are crucial for restructuring educational processes and educational institutions towards sustainability. Teacher education must meet this challenge by reorienting itself towards ESD as demanded by international declarations such as the Strategy for Education for Sustainable development (UNECE 2005) and the Bonn Declaration (UNESCO 2009), as well as various educational policy papers published at the national level. Monitoring and evaluation of the Decade of Education for Sustainable Development (DESD) has highlighted many good examples of how to integrate ESD into teacher education. It has also identified support for teachers as a key condition for the successful adoption and implementation of ESD.

However effort to prepare teachers to implement ESD have not advanced sufficiently. More work is needed to reorient teacher education to approach ESD both in terms of content and teaching and learning methods. For teacher to be adequately prepared to facilitate ESD, they must develop key sustainability competencies, including knowledge, skills, attitudes, values, motivation and commitment. However, in addition to general sustainability competencies, which can be described as a teacher's capacity to help people develop sustainability competencies through a range of innovative teaching and learning practices. Learning Objectives for teachers to promote ESD are as follows;

- Know about sustainable development and the related topics and challenges
- Understand the discourse on, and the practice of ESD in the local, national and global context
- Develop an integrative view of the key issues and challenges, taking into account social, ecological, economic and cultural dimensions from the perspective of principles and values of sustainable development
- Develop disciplinary, interdisciplinary and trans disciplinary perspectives on issues of global change and their local manifestations
- Reflect on the challenges facing promotion of the concept of sustainable development and the importance of their field of expertise for facilitating sustainable development and their own role in the process
- Identify local learning opportunities related to sustainable development and build cooperative relationships
- Evaluate and assess learner's development of cross-cutting sustainability competencies and specific sustainability-related learning outcomes.

To facilitate the development of ESD competencies in teacher education, changes need to be made to the content and structure of pre-service and in-service teacher education. ESD should provide the fundamental orientation for teacher education programmes. Subject discipliners, subject didactics, educational sciences and practice-oriented studies should include methodology principles and subject knowledge from ESD. Learning on the basis of real societal challenges in local contexts requires cooperation with external partners. Modules should thus enable access to external partners and include possibilities for project-oriented collaboration. To better integrate ESD into teacher education, development of the content and organization of teacher education programmes, should involve the participation of key

stakeholders, such as students, teachers, local NGOs and ESD experts. To facilitate innovation, it is crucial that educational institutions have the necessary structural conditions as well as the freedom to engage in organizational learning processes.

### **Conclusion:**

ESD can help to facilitate sustainable development by developing the cross-cutting sustainability competencies needed to deal with a wide range of sustainability challenges. To empower people worldwide to take action in favor of sustainable development, all educational institutions should undertake to deal intensively with sustainable development issues and foster the development of sustainability competencies. Therefore it is crucial not only to include sustainability-related content in the curricula, but also to employ an action-oriented transformative pedagogy. To put this pedagogy into practice, educators are needed who not only know about ESD but who also have developed teaching competencies related to ESD in their own education and training.

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