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*Executive summary*

**Teacher education for the green transition and sustainable development**

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**ABOUT EENEE**

EENEEis an advisory network of experts working on economics of education and training. The establishment of the network was initiated by the European Commission’s Directorate-General for Education and Culture and is funded by the Erasmus+ Programme.PPMI is responsible for the coordination of the EENEE network. More information on EENEE and its deliverables can be found on the network’s website [www.eenee.eu](http://www.eenee.eu). For any inquiries, please contact us at: eenee@ppmi.lt.

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# Executive summary

**Context and methodology**

The move to a greener future requires that we all learn to live and work in more sustainable ways. Teacher professional learning has been identified as one of the most significant catalysts for bringing innovation and sustainability into our education systems, and thus equipping learners to contribute to this transition.

Importantly, in June 2022 the European Union (EU) has adopted a Council Recommendation on learning for the green transition and sustainable development. This Recommendation formally calls for learning for sustainability (LfS) to become a key priority area in education policies and programmes, and for support to be given to educators through training and professional development in this area. Learning for sustainability is concerned with building the knowledge, skills, values and attitudes to engage with the major issues threatening both people and planet.

This analytical report reviews documented research and good practices in relation to effective teacher education for sustainability, with the purpose of informing policy decision-making and frameworks in this area. Its findings and recommendations have been drawn from an extensive literature review and are supported by a Key Informant Group that has helped to identify blind spots and check the validity of the research and experiences presented.

**Current LfS experiences in schools and teacher education**

Although LfS is not a curriculum priority in most jurisdictions, its coverage, scope and depth in schools have improved significantly over recent years. However, various obstacles still hinder the process of embedding LfS into school education. These include the structuring of curricula around single subjects, and the greater emphasis currently placed on the cognitive domain of sustainability in comparison to socio-emotional or action learning. Currently, only individual champions and some eco-schools are taking the lead by considering more transformative forms of learning. This is no surprise, since most teachers have not been trained to design, facilitate and assess learning experiences of this nature.

Although teachers are generally aware and committed to teaching for sustainability, many do not feel ready to do so. Current LfS efforts in teacher education tend to be isolated and fragmented, instead of being mainstreamed into existing professional learning programmes for teachers, or in day-to-day practice. In initial teacher education (ITE) programmes, LfS often takes the form of one-off curriculum development projects, and occurs primarily in geography and science courses. In continuing professional development (CPD) programmes, it is often characterised by one-time, theoretical and decontextualised sessions for groups of individual teachers seeking to improve their teaching practice.

Many teachers are eager to continue learning about sustainability through professional development. Although they are aware that opportunities in this area exist in their countries, they recognise that they have not taken these up. Thus, it is important to assess what is preventing them from engaging in sustainability training, as well as whether and how their participation is incentivised and recognised.

The review also highlights the key role that teacher educators play in guiding teachers at all stages of their careers. Despite this, some countries often neglect to identify this key group at policy level, or fail to give them the professional development support they need.

**Teachers and competences for the green transition**

Over recent years, numerous sustainability competence frameworks for teachers have been developed and piloted. However, these have had little impact on teacher education to date. Their complexity and divergence from dominant practice make them difficult to embed into an already densely packed teacher education curriculum.

Designing teacher education that includes LfS competences requires existing frameworks to be adapted so that they consider micro-contexts (individual teachers or teacher candidates and programmes), meso-contexts (institutions), and macro-contexts (education and social systems). Most studies have concluded that professional development involving substantial contact hours over a long period of time is more effective in developing teacher competences. Also, teachers learn most effectively when programmes are content focused, use active learning, support collaboration, are school-based, use modelling of effective practice, provide mentoring support, and offer opportunities for feedback and critical reflection.

**Catalytic entry points to change teacher education**

This report proposes eight catalytic points and actions that can provide some of the core pathways for changing the provision and mainstreaming of LfS in teacher education:

1. **LfS as a political and policy commitment:** this report identifies that political commitment and leadership at the highest levels has proven to be catalytic in the drive to change and embed LfS into teacher education. A connected or ‘whole-of-government’ approach to LfS enhances the reach of policies. Similarly, the alignment of initiatives with national policy agendas or priorities is seen as increasing the chances of successfully embedding LfS into teacher education.
2. **Professional competences and standards –** **driving quality throughout schools:** embedding LfS into teacher professional standards is one of the most effective ways to mainstream sustainability and promote quality learning experiences. Establishing expectations and pathways for teachers to develop competences in LfS over the course of their careers is also an impactful way to embed learning about sustainability in schools.
3. **Recognition and reward – incentivising and motivating teachers:** recognition schemes can incentivise educators to delve into or deepen their engagement with LfS. The inclusion of LfS criteria in role descriptions and the responsibilities of positions has also been shown to be effective in upscaling sustainability learning efforts. It incentivises teachers and teacher educators to seek professional development in this area and offers recognition of their expertise in this area.
4. **Micro-credentials and the certification of learning:** micro-credentials provide new avenues and great potential for driving LfS in schools and teacher education in the near future. Further experimentation is necessary regarding how to develop and use micro-credentials in LfS; the challenge is to provide micro-credentials that are flexible and relevant, and which offer equal opportunities to certify professional competences, so that the certification is relevant and comparable between Member States.
5. **Resources for a sustainable future:** the value of developing teacher resources to support LfS is well recognised and has been shown to be key to mainstreaming educational initiatives in schools. National agencies that are seeking to reorientate the course of teacher education towards sustainability could consider developing or adapting resources. Such resources must clearly and explicitly identify objectives that align with teachers’ needs in this area and should be based on extensive piloting and cycles of improvement.
6. **Changing together - collaborative inquiries and peer learning:** LfS networks and platforms have proved instrumental in activating a cultural change both in schools and in teacher education, especially where there is a lack of dedicated support from government or of sub-regional opportunities in relation to LfS. Participatory research approaches and change academies have also been identified as providing ideal platforms for institutions to challenge their perceptions and misconceptions regarding sustainability, as well as to clarify what it means to create authentic learning opportunities in this area.
7. **Framing LfS as educational innovation or renewal:**efforts that articulate the wider value of LfS in education and to learners, beyond immediate concerns with the environment and sustainability, can deepen the engagement of teachers and educators. Such efforts are effective in reaching those teachers who are yet to commit to sustainability, but who have an interest in educational quality or creating better opportunities for students. In addition, initiatives that connect LfS with the reform of educational pedagogies more broadly, and with other educational agendas such as the digital transition, have greater chances of success.
8. **Fresh insights and visions - futures education and new technologies:** research suggests that connecting teachers with research institutions and groups engaging in futures and digital learning projects can inspire these teachers to rethink their practices in the light of sustainability. Such approaches offer significant potential to shape learning experiences in LfS and to consider alternative futures with the help of new technologies. However, it must be recognised that while some teachers are captivated by digital innovation, others fear the changes that technology might bring.

**Recommendations**

The report proposes the following recommendations, framed primarily for policy makers:

* **Recommendation 1.** **Celebrate** by visibly showcasing political leadership and policy commitment towards LfS by specific EU Member States, within the context of teacher education. Such examples will attract the attention of others to this agenda.Similarly***,*** promote a ‘whole-of-government’ response to LfS that leads to integrated policy and use of resources.This could be achieved by documenting and celebrating best practice.
* **Recommendation 2.** **Convene** authorities, agencies and professional groups to consider how best to embed LfS into professional standards or competence frameworks of teachers. Integrate LfS into definitions of what it is to be a qualified and effective teacher. Establish expectations, evaluation systems and pathways for teachers to develop and demonstrate competences in this area. It is important that this is achieved through collaborative processes securing the involvement of the teaching profession.
* **Recommendation 3.** **Promote** the use of self-evaluation approaches and reflective practice tools to drive the development of teachers’ competences in LfS. This should be carried out by establishing networks of teachers, evaluators and ‘critical friends’ that encourage deep reflection and challenge current practices. Consideration should be given to generating guidelines and tools in this area.

* **Recommendation 4.** **Recognise** best practice in schools, colleges and teacher education, as well as outstanding educators in LfS, through the use of award schemes. A European-wide competition would not only motivate engagement but also trigger conversations about what constitutes best practice in this area*.* Member States could establish their own processes and nominate candidates, encouraging them to consider what best practice in LfS looks like.
* **Recommendation 5.** **Create,**through grants and funding schemes, spaces for teachers and teacher educators to grow LfS projects through teacher collaboration and peer-learning. Encourage authorities and agencies to provide similar collaborative learning pathways at national and sub-regional levels.
* **Recommendation 6.** **Incentivise** teachers to develop their competences and experiences in LfS. Include sustainability criteria into role descriptions, the responsibilities of positions, and in career progression profiles. A publication that captures the best of these examples could help to inspire others.
* **Recommendation 7: Support** teacher education providers through targeted schemesthat provide funding, networking platforms and other resources to assist them in integrating LfS into their professional education and development offerings. Such efforts should be aimed at initial and practising teachers, as well as headteachers and education leaders*.*
* **Recommendation 8. Encourage** the certification ofLfS training through micro-credentials. These micro-credentials should be flexible, relevant, offer equal opportunities to teachers, and be transferrable. The European Commission could work alongside relevant stakeholders to support experimentation and piloting in this area.
* **Recommendation 9.** **Advance** the development of resources for teacher education providers by promoting efforts that address LfS as a pedagogical strategy through a whole-school approach. Work with stakeholders to ensure that these resources are relevant to teachers’ needs in this area (and not simply environmental objectives) and are based on extensive piloting and cycles of improvement.
* **Recommendation 10.** **Develop** guidelines and a set of criteria to evaluate the effectiveness of LfS professional development programmes and resources offered by teacher education providers. Encourage the adaptation of these guidelines at national and sub-regional levels, and for the particular stakeholder groups.
* **Recommendation 11. Raise awareness** ofthe importance of multi-stakeholder platforms that provide professional learning opportunities and facilitate access to LfS materials, especially where there is a lack of dedicated support from government or of sub-regional opportunities in relation to sustainability learning.

* **Recommendation 12.** **Invest** in participatory action research and change academies that enable stakeholder groups to develop and implement strategic actions with regard to LfS in policies, programmes and practice. Encourage national authorities, professional bodies and other stakeholders to support these processes.
* **Recommendation 13.** **Define** the value of LfS to learners, and demonstrate how it can contribute to meeting core educational priorities. This will attract the attention of those teachers who are not yet engaging with sustainability, but who may be curious to learn more.
* **Recommendation 14.** **Connect** programmes and funding schemes that encourage better alignment between the digital and green transitions in teacher education, as a way of increasing the uptake of LfS by teachers. Encourage authorities and agencies to do likewise.
* **Recommendation 15.** **Inspire** greater engagement with LfS by encouraging teachers and teacher educators to work with research institutions and groups engaging with futures and metaverse learning projects. Form partnerships that will encourage teacher education providers to experiment with these areas, and explore ways to transgress the boundaries of current educational approaches.

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