

THE SKILLED REPORT



Tools and Recommendations for issuing the International Skilled Certification of “Educators on Sustainability Through Food”



Co-funded by the
Erasmus+ Programme
of the European Union

2020-1-IT02-KA201-079705

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It has been stressed for many years that the **training of teachers deserves reflection and consideration**, both in the initial phase and in its development as well. The last thirty years have stressed that the internship and the formative development of teachers in the context of experiential situations are essential aspects of quality training for them and their students.



In recent years, **much attention has been paid to Sustainable Development**. Economic, environmental, and social issues have demanded everyone’s attention, and **teachers** are not excluded. They **can play a pivotal role in promoting sustainable development by educating and inspiring students to understand, appreciate, and actively participate in creating a more sustainable world**. Engaging students in learning about Sustainable Development requires using various science practices, content knowledge, and cross-cutting conceptual lenses.



Fully engaging with Sustainable Development pushes young people and educators to be interdisciplinary, creating meaningful, real-world learning and action opportunities (Charnley et al., 2023). However, **specific training regarding these issues is not mandatory for teachers and literature suggests that initiatives, within the European Union, are still relatively sparse**.

This document has been written as a final recommendation concluding SKILLED - Key competences for building sustainability knowledge through food - Erasmus+ project.

It aims at preparing a proposal for the procedures and tools needed to issue the international Skilled Certification of “Educators on Sustainability through Food”. In particular, it pays particular attention to skills and competencies for teaching the Agenda 2030 and its Sustainable Development Goals (SDGs), and for teaching sustainability through food.





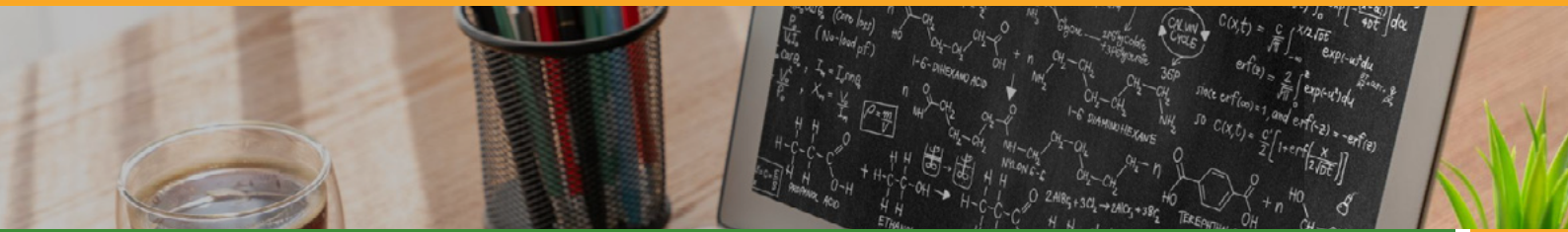
2. WORKING METHOD



The present document was assembled based on:

1. a **desk analysis** regarding teachers' careers in Europe, focusing on Continuing Professional Development in each country. This analysis was conducted in Bulgaria, Italy, Latvia, and Spain between January and March 2023;
2. a **qualitative survey** with open-ended questions, targeting the teachers who have been actively involved and trained throughout the SKILLED project lifecycle, focusing on Continuing Professional Development regarding (food) sustainability. This survey was administered in April 2023.

In particular, the survey data was used to enrich the desk analysis and bridge the language barriers among EU member states. In fact, although there are general directives on teacher training at the European Union level, each state decides how to implement them according to its context, with different degrees of flexibility and autonomy.



3. TEACHERS AND PROFESSIONAL DEVELOPMENT IN EUROPE

There is a consensus among researchers and political leaders that teachers can play a pivotal role in the development of appropriate changes in society. Their quality, in fact, is one of the most important school variables influencing students' learning outcomes, and ensuring investments in human resources is a key factor for success. For many years, the Council of the European Union has been guiding policy-related actions in this field as it identifies the quality of education and training as one of its strategic objectives.



It stated « [...] there is a need to ensure high-quality teaching, to provide adequate initial teacher education, continuous professional development for teachers and trainers, and to make teaching an attractive career choice. [...] High quality will only be achieved through efficient and sustainable use of resources - both public and private, as appropriate - and through the promotion of evidence-based policy and practice in education and training» (Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training, ET 2020, OJ C 119, 28.5.2009, p. 4).

At present, in Europe, there are **two main career structures² for teachers, namely multi-level and single-level** (Eurydice, 2021). The former is organized into formal ascending career stages, where teachers progress within them. Usually, levels are defined by a set of competencies, growing responsibilities, roles, and/or hierarchical relations. Also, the salary usually changes according to the career structure but is not its main feature. Examples of Countries running this type of structure are Bulgaria, Latvia, France, and Ireland.

2. A career structure is defined by Eurydice (2021) as a recognized progression pathway within a job or a profession.

Conversely, the latter has no formal career stages, which means career progression consists of advancing on the salary scale, but they do not usually imply a change in formal hierarchical relations between colleagues.

Examples of Countries running this type of structure are Italy, Greece, Spain, and Germany.



In general, the flexibility of the multi-level career structure allows teachers to diversify their jobs depending on the level achieved, according to a mix of criteria such as number of years of service, compliance with Continuing Professional Development (CPD) requirements, and appraisal results. In some multi-level structures, career evolution aims at management roles that provide teachers with better economic conditions.

That could be a benefit for them but a loss for the educational system that removes capable teachers from their educational tasks. However, there are also the opposite cases, where a teacher's career does not evolve towards management roles, failing to give teachers who would like to experience this opportunity.



Instead, in the single-level structure, where a predetermined career model is absent, teachers are more likely to follow their personal preferences, talents, and/or the school's needs. However, it must be said that in these educational systems, the variety of roles and responsibilities is often limited, and there is often a lack of formal recognition and of monetary/ time compensation.

Each structure has strengths and weaknesses. However, in both cases, becoming a teacher is a gradual process that usually includes three consecutive steps: an **Initial Teacher Education (ITE)**, an **Induction phase**, and **Continuing Professional Development**.

Initial Teacher Education (ITE).

This is the starting point, which begins before applying to the role of teacher. In most of the European educational systems, Higher Education Institutions (HEIs) offer Bachelor's, Master's, and Ph.D. that provide teachers with knowledge and core professional competencies and help students develop the attitudes needed for their future roles and responsibilities.



This last point is a very important element for the EU community. Its policy documents, in fact, have been continuously highlighting that future teachers should develop not only subject knowledge but also professional skills during their studies. In particular, according to the EU, an ideal ITE, to be effective, should be based on three key elements:

- disciplinary knowledge,
- pedagogical theory (general and related to the discipline),
- practice in the classroom or in-school placement.

In some European Countries, like Germany, Latvia, and Turkey, alongside the regular ITE programs, there are also education and training programs that have been introduced as an alternative entry point to gain a teaching qualification. These programs are usually characterized by a higher degree of flexibility and shorter duration, and they are partly or entirely employment-based.

These **alternative pathways** usually target individuals with professional experience gained inside or outside education (i.e., lateral entrants) or graduates from other disciplines.

In this sense, they have been introduced to diversify the teaching profession, by attracting high-quality graduates and/or highly skilled professionals from other fields, but also to respond to the shortage of teachers within the EU.



Induction.

Once the education phase has been completed and a teacher applies to a school, the next step is usually induction, which is a structured support phase that lasts several months. For example, in Spain and Cyprus its duration is about six months, in Italy a year, while in Malta and Norway, newly qualified teachers are entitled to a two-year induction program.



Regardless of duration, however, in most of the EU Countries, this phase is compulsory even though there is no single way to do it. In many education systems, it takes place at the beginning of the first contract as a teacher (as in the case of Italy), therefore the teachers, who enter this phase, are already fully qualified, and the induction may occur during the probationary period before confirming the recruitment. For others, instead, induction is an additional step toward the fully qualified teacher status, and it occurs within the ITE, as in France or Cyprus.

The induction offer may contain different elements; however, teachers usually receive additional knowledge and training, personalized help and advice, and carry out the tasks incumbent on experienced teachers.

It is a delicate transition phase that has important formative and supportive components (European Commission\EACEA\Eurydice, 2018, p. 34).

Finally, to ensure that newly qualified teachers have acquired sufficient knowledge and experience in the working environment, in most European Countries, where induction is compulsory or recommended, new teachers usually undergo a formal assessment at the end of this phase.



Continuing Professional Development.

High-quality education is not a destination but a lifelong journey. Human knowledge is expanding, data and facts are constantly changing, and teachers need to keep up with the rapid changes in society and are unlikely to teach the same things year after year.



For these reasons, a key element for teachers' career progression (both intellectually and professionally) is Continuing Professional Development (CPD), which allows teachers to achieve new expertise, receive support, and more opportunities. That, in turn, will also benefit students as they will be more likely to improve their learning and achievements. At present, in Europe, each Country regulates the CPD of teachers in different ways.

It can be either considered as a professional duty (for example, in most of the EU Countries, like Italy, Bulgaria, Latvia, and Spain) or as an optional activity since there is no statutory obligation for teachers to participate in CPD (this happens only in Denmark, Ireland, the Netherlands, Norway, and Turkey)³.

As far as career progression is concerned, in Countries with a multi-level career system (like Latvia and Bulgaria) the completion of a certain amount or certain topics of CPD activities may be mandatory for promotion to the next career level.

Instead, in countries with a single-level career structure (like Italy and Spain), CPD may be a prerequisite for salary progression.



3. In Europe, CPD may also be defined in terms of the time allocated to each teacher for various CPD activities. In this sense, there are two types of time allocation: mandatory and entitlement. CPD is mandatory when there is a set minimum number of hours, days, or credits that every teacher is obliged to complete (this happens, for example in Latvia and Bulgaria). Instead, when CPD is defined as an entitlement, a certain amount of CPD time is granted to each teacher during or outside of teaching (working) hours. The teacher has no obligation to use the time, but schools are obliged to provide the opportunity (for example, this happens in Italy, Czechia, and Iceland).

Recent data (TALIS, 2018) has revealed that in the EU a high proportion of teachers participate in CPD activities. In fact, 92.5 % of lower secondary teachers stated they attended at least one type of professional development activity in the 12 months before the survey. On average, teachers stated to have attended three to four (3,5) different types of professional development activities. Most of them consisted of courses/seminars attended in person (71.3%), whereas online courses/seminars were only one-third of the offer (34.2%⁴). However, it is reasonable to assume that today, after the Covid-19 pandemic, these percentages may be different.

As far as topics addressed in CPD are concerned, data from TALIS (2018) highlighted that professional development related to the teachers' subject field(s) was most common. In fact, "Pedagogical competencies in teaching my subject field(s)", "knowledge and understanding of my subject field(s)" and "knowledge of the curriculum" were among the most frequently recurring responses.

Other important topics were professional development related to interdisciplinary skills, like for example, assessment, ICT, student behavior and classroom management, and individualized learning also featured.



By contrast, teaching in a multilingual setting and communicating with people from different cultures were less frequent. Likewise, few teachers participated in professional development activities related to school management and administration. **No specific questions have been reported on Sustainable Development.** That is because it could have been more considered as an in-depth study of a scientific discipline rather than a specialization on its own. Interestingly, **none of the teachers involved** in the SKILLED project when asked "What competencies are considered the three most useful to teacher professional development" **chose competencies for Sustainable Development. Most of the answers were in line with previous TALIS findings, as disciplinary, digital, and methodological competencies were the most frequently reported.**

4. Each of these questions has been singularly asked, requiring the respondents to choose between two options: to mention the feature or to not mention it. Here, only the mentioned features have been reported (and not the "not mentioned" category). Hence, the total is not 100%.

3.1. Continuing Professional Development: Two examples from Italy and Latvia

Countries regulate the CPD of teachers in different ways. Although in all the **Countries involved in this project, CPD is considered a professional duty** rather than an optional activity, there are some differences in terms of the time allocated to each teacher for CPD activities: i.e., no time definition, mandatory, and/or entitlement.



CPD is considered to have **mandatory status** when there is a set minimum number of hours, days, or credits that all teachers are obliged to complete. That is, for example, the case of Latvia and Bulgaria. Instead, CPD is a **teacher's entitlement** when there are specific hours, days, or credits that all teachers have the right to take, and schools are due to provide the opportunity. That is for example the case of Italy. Finally, defined time for CPD is not present in Countries like Spain or Greece (Eurydice, 2021).

Two⁵ examples of CDP retrieved from the answers of the qualitative survey (administered to the teachers of the SKILLED - Key competencies for building sustainability knowledge through food - project) **are reported below.**

LATVIA



A teacher of general, vocational, and interest education is responsible for the improvement of his/her professional competence. Professional competence must be improved by completing the program of at least 36 hours in three years.

In general, it is important for personal development and required by the Ministry of Education and Science, but it does not affect salary or positions. The professional competence development program must include one of the following topics. *General competencies of the teacher* (innovations and development trends in education, upbringing issues, improvement of civic attitude, promotion of high-quality, creative pedagogical activity by implementing the pedagogical process according to the needs of each student, future learning content for the promotion of future competences, sustainable development, and inclusive education, protection of children's rights, health and safety, recognition of child abuse and domestic violence and prevention).

5. All the partner involved in this project reported in the survey their experience with Continuing Professional Development. For the sake of synthesis, in this document, we decided to provide only two of them.

Educational content and didactics (choice of competence-based learning strategies and methods, including reading and writing skills, for the promotion of the thought process, creativity, and innovation, didactic models, traditional, multidisciplinary, and interdisciplinary learning process, the concept of proficiency and transversal skills, innovations in the subject and content and methodology of the field of study, information and communication technology skills in a qualitatively modern educational environment).



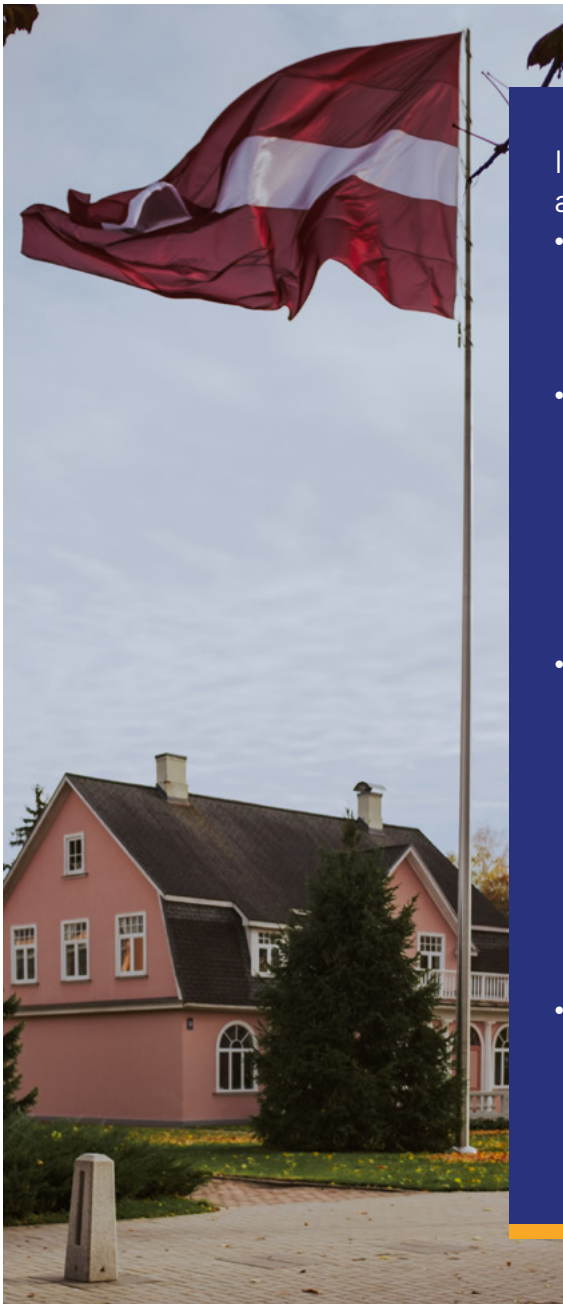
A course can last from 8 to 160 hours. The shorter program shall be developed and implemented by a local government, private educational institution, or a professional non-governmental organization of teachers. These courses could also be created and conducted by institutions under ministries or local government bodies. These institutions might not be officially listed as educational establishments, but their internal rules allow them to carry out educational activities. Additionally, universities that offer programs focused on teaching methods could also develop and deliver these courses.



The development and execution of programs of 72 hours or more is carried out by higher education institutions offering pedagogical study programs. Collaboration with the Ministry of Education and Science ensures alignment and quality.



Upon completion, a teacher receives certification in pedagogy, special education, preschool content, and teaching methods, a certificate as a career advisor for teachers, or authorization to teach a vocational education module. In a program spanning 160 hours, the responsibility for developing and executing this program rests with higher education institutions that offer pedagogical study programs. This collaboration is conducted in conjunction with the Ministry of Education and Science to ensure alignment and quality. In such cases too, upon successful completion, a teacher attains a certification in a different subject.



In Latvia, most of the professional updating courses are offered by:

- The National Centre for Education, which provides professional competence development training, courses, and seminars.
- The Ministry of Education and Science, in cooperation with higher education institutions of Latvia, organizes further education courses, workshops, seminars, master classes, learning group training, online training, as well as individual consultations on various issues of interest.
- The methodological centers of state gymnasiums which play a certain role in ensuring methodological work, promoting cooperation between educators, and coordinating and providing support for the work of educators of the educational institution, city/region. They organize courses and master classes, improving the professional competence of teachers.
- Subject associations/societies that promote the development of professional skills by organizing conferences, excursions, summer courses, examples of good practices, and exchange of thoughts to learn together and help each other.

Typically, teachers seeking professional development courses utilize specialized websites tailored to specific subjects. Moreover, teachers often receive course recommendations from their respective associations or societies. Occasionally, schools also arrange courses for their faculty based on the unique requirements of their teachers.

ITALY



Newly employed teachers are required to complete 50 hours of compulsory training, 20 hours of which will be conducted through the ministerial online platform SOFIA⁶, which was implemented in February 2016.

In addition to offering training courses, the online platform aims to create a digital environment to facilitate communication, discussion, and exchange of materials among teachers during their first year of service.



Italian Law 107 of 2015⁷ defines the training of school staff as “*compulsory, permanent, and strategic*”. The new regulatory framework sets out some innovative instruments:

- The principle of compulsory in-service training.
- The award of a personal training card to teachers.
- The definition of a National Training Plan (three years), with related financial resources.
- The inclusion in the three-year plan of the educational offer of each school of the recognition of training needs and planned training actions.
- Recognition of participation in research, training, and documentation of good practices, as criteria to enhance and encourage teaching professionalism.

The compulsory, permanent, and structural training of teachers, defined by paragraph 124 of Law 107/2015 is unequivocally “in-service training”, then to be carried out during the schedule of teachers contractually provided. This means that the compulsory nature of the training is closely linked to the timetable of the teachers and should not represent an increase in working hours, beyond that provided for contractually, as the European Court of Justice recognized in October 2021.

6. <https://sofia.istruzione.it/>

7. <https://www.miur.gov.it/-/legge-107-del-maggio-2015>

As regards compulsory training, which covers digital skills and the critical and responsible use of digital tools, including the psychophysical well-being of pupils with disabilities and special educational needs, and practices and inclusion, a system of continuous training has been developed. To strengthen both knowledge and application skills, planning, mentoring, and support activities are also an integral part of these training courses, including guidance on the development of the potential of students to promote the achievement of specific school objectives and activities of experimentation of new teaching methods.



On the Ministry's website, in the aforementioned law, personal training is recognized as *"opportunities for effective development and professional growth, for a renewed social credibility of contribution to innovation and qualification of the education system"*. All teachers (both full-time and temporary contracts) and those who aspire to the role of teacher are registered in ranking lists prepared by regional school offices according to the parameters defined by the Ministry of Education with a personal score that is automatically assigned.



Such a score evolves thanks to the performance of periods of teaching as well as to continuous training that allows the teacher to add points to their school career. Schools, Universities, State institutions (like Local Health Units and commercial entities), accredited associations, and private institutions, especially through online platforms, are the bodies that provide courses for teachers.



As regards the accreditation of a course, the recognition of qualified subjects for the training of schoolteachers is conferred on professional associations and disciplinary associations linked to scientific communities. Once the entity is accredited by the Ministry of Education, the offered courses must be included in the above-mentioned online national platform SOFIA, managed by the ministry itself. It must be noted that the content of the single courses is not the object of a specific evaluation by the Ministry.



4. EDUCATION FOR SUSTAINABILITY

Teachers play a vital role in promoting sustainable development by educating and inspiring students to understand, appreciate, and actively participate in creating a more sustainable world. They can integrate concepts of environmental protection, social equity, and economic viability into their lessons, helping students develop critical thinking, problem-solving skills, and a sense of responsibility towards the planet and its resources. By instilling conservation values, ethical consumption, and global citizenship, teachers contribute to shaping environmentally conscious and socially responsible individuals who can contribute to a sustainable future.



Recently, the **Joint Research Centre (JRC)**, the European Commission’s science and knowledge service, promoted “GreenComp”⁸, a **reference framework for sustainability competencies**. It is a guide for educators to respond to the growing need for teachers (but also people) to improve and develop knowledge, skills, and attitudes to live, work, and act sustainably.

“It is designed to support education and training programmes for lifelong learning. It is written for all learners, irrespective of their age and their education level and in any learning setting – formal, non-formal and informal”.

Such competencies can help learners to form a knowledge basis about sustainability topics, to become systemic and critical thinkers, as well as to develop agency for the sake of the Planet.

8. GreenComp: the European sustainability competence framework.
https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en

Specifically, GreenComp focuses on four areas embracing the definition of sustainability (i.e., *embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability*), which correspond to twelve specific competencies that, together, make up the building blocks of the sustainability competence for anyone (i.e., *valuing sustainability, supporting fairness, promoting nature, systems thinking, critical thinking, problem framing, futures literacy, adaptability, exploratory thinking, political agency, collective action, individual initiative*). (Bianchi et al., 2022).



At present, several courses for Continuing Professional Development about sustainability have been created in the EU.



For example, **inItaly**, today, the theme of sustainability is part of the themes for the updating of teachers in service⁹. Specifically, reference is made to Civic Education through Sustainable Development and global citizenship. As a result, many refresher courses are proposed, especially online, focused on this topic. It should be noted that these courses are aimed at all teachers and are not only at teachers of scientific subjects, given the transversality of the theme of sustainability.

However, of the three dimensions of sustainability, the environmental one is the most addressed. There are courses approved by the Ministry that provide credits for teacher training and courses that are not recognized by the MIUR. In the first case, a rich list of accredited institutions is available on the RiGenerazione Scuola¹⁰ (Re-Generation school) website.

9. Offerta formativa 2022/2023- docenti.

Retrieved from: Eurosofia: <https://www.eurosofia.it/offerta-formativa/corsi-docenti.html>

10. "RiGenerazione scuola" is the strategy launched by the Ministry of Education to promote the ecological and cultural transition of and in schools, in line with the objectives of the 2030 Agenda and the resources of the PNRR. <https://www.istruzione.it/ri-generazione-scuola/>

In Latvia, every teacher can operate and receive a government-recognized professional certificate by engaging in the activities of the Foundation for Environmental Education (FEE). SWF was founded to promote sustainable development through environmental education.



FEE's activities are related to the implementation of foundation for environmental education (FEE International) programs in Latvia, where since 1998 the activities and development of all FEE International programs - Eco-schools, Young Environmental Reporters, Blue Flag, Green Key, and Explore the Forest - as well as the national level program My Sea have been ensured.

In 2002, the Eco school program was launched, in which Limbaži Secondary School has been involved for eight years.

Participation in the Eco school program takes place through the establishment and operation of an environmental management system, as well as the institution's regular work on environmental issues.

The governance system is created by following the 7-step criteria of the Eco school program (eco-council, environmental assessment, action plan, monitoring and evaluation, linkage to the curriculum, involvement of the whole school and society, environmental code). The second essential basis of the Eco school program is focused work on topical environmental topics - waste, energy, water, forests, transport food, environment and healthy lifestyle, school environment and surroundings, climate change, and biodiversity.



In the Spanish compulsory curriculum, the integration of environmental and sustainability topics is greater in Secondary Education. Those aspects are mostly dealt with theoretically and focused on instrumental subjects. When the approach is practical, it is often linked to reflection processes (Pellín Carcelén, et al., 2021).



In Bulgaria, a recent ordinance issued by the Minister of Education and Science established the state education standard for civic, health, ecological, and intercultural education. Ecological education is defined as “a process for developing ecological culture, ecological consciousness and ecological behavior in their mutual interconnection leading to recognizing ecological laws, protection, enhancement, management and rational usage of natural resources, as well as protection of the environment and ecological equilibrium (Ordinance n°13, 2016¹¹)” (Afrikanov, 2023). However, it seems that most of the teachers involved are from the science field.



Instead, **in Greece**, the Environmental Education Centre (ECE) is a network of public educational structures of the Ministry of Education and Religious Affairs focusing on environmental education and acting as a support at local, national, and international levels. That network aims at the environmental awareness of students, their participation in improving the quality of life, the holistic view of the environment, as well as the training of teachers and educators in environmental issues.

Examples of topics provided are ecology and environment, natural resources, sustainable management and sustainability, biodiversity and ecosystems, atmospheric pollution, and climate change.

However, if sustainable topics are gaining attention, especially from science teachers, **little interest is paid to sustainability through food**. Nevertheless, **food is quite important for sustainable development**. Growing, distributing, processing, and consuming food can have an important impact on both our health and the environment.

11. <https://leap.unep.org/countries/bg/national-legislation/regulation-no-13-21092016-civil-health-environmental-and>

It is not by chance that the food system is at the heart of the European Green Deal¹², which is a comprehensive policy and action plan introduced by the European Commission at the end of 2019, to address the pressing challenges of climate change, environmental degradation, and sustainability by 2050.



Most of the teachers sampled for this survey couldn't recall a course for Continuing Professional Development dedicated to food and sustainability.

In fact, in the EU, most of the attention regarding the topic of food is still focused on its nutritional standpoint only. Yet, food affects every aspect of our lives, and creating more sustainable food systems is a priority for the European Union. Teaching food sustainability is about fostering a holistic understanding of the interconnectedness of our food systems with the environment, society, and economy.

Examples of key aspects of teaching food sustainability are reducing food waste, promoting local and seasonal eating, climate change and agriculture, and consumer choices.

Once individuals are provided with knowledge and skills, they can make conscious choices that contribute to a more sustainable and resilient food future.

Within this survey, Italians were an exception, even though they were more knowledgeable on this ground as they came from a farming school. Additionally, it must be said that, recently, the Italian government has introduced food sustainability into school programs (albeit on a discretionary level, not compulsory for schools) within mandatory Civic Education¹³ courses and the "RiGenerazione Scuola" (Re-Generation school) action plan.



12. https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en
 13. https://www.istruzione.it/educazione_civica/

Examples of courses recognized by the Italian Ministry of Education are “Scuola & Cibo”¹⁴ (School and Food) a free school educational online program for healthy and sustainable nutrition; the *Slowfood* course¹⁵ which has a cost and deals with sensory education, taste, but also education to environmental and food sustainability.



Therefore, in this case, food sustainability becomes a cross-cutting issue compared to the others which are associated with it.

Another example is the distance learning course (FAD) named “Consapevolezza in Mensa”¹⁶ (Awareness in the Canteen) to promote healthy and sustainable choices and reduce food waste.

The course is promoted by the Territorial School Office of Milan and is aimed primarily at teachers of pre-school and first-cycle education.

14. <https://scuolaecibo.it/>

15. <https://www.slowfood.com/what-we-do/food-and-taste-education/taste-education-resources/>
<https://www.slowfood.it/educazione/altri-progetti/corsi-miur/>

16. <https://milano.istruzioneelombardia.gov.it/20221125prot000019011/>

Distance training course for teachers: “awareness in the canteen” Promoting healthy and sustainable food choices and containing food waste. (2022, February 10). Retrived from: Ufficio Scolastico Territoriale di Milano: <https://milano.istruzioneelombardia.gov.it/20220210prot0001646/>

Following the SKILLED Framework and its connected course, teachers will be able to design educational paths to teach sustainability through food in the school environment, using innovative methodologies and tools, as well as by examining concrete experiences in the local communities.

But to obtain an official certificate, schools, and other CPD providers must adopt this framework and train teachers consequently.



The benefits are twofold, as learning among peers and other school-based formats usually increases the impact of the CPD, and then food topics will be embedded into local communities, which has been stressed as particularly important by all the project’s participants.

ESF-U1	VALUES THINKING
ESF-U2	SYSTEM THINKING
ESF-U3	CREATING LEARNING SPACES
ESF-U4	INTERPERSONAL AND SOCIETAL COLLABORATION
ESF-U5	PROJECT MANAGEMENT
ESF-U6	DIGITAL COMPETENCES FOR EDUCATION
ESF-U7	FOOD – DIETS – SUSTAINABILITY

(Figure 1. The framework of learning outcomes of the “Educator on Sustainability through Food” is composed of 7 Units of Learning Outcomes, which are a structured aggregation of competencies, knowledge, and skills.)

The underlying assumption guiding the definition of learning outcomes in the “Educators on Sustainability through Food” Framework is that Education for Sustainable Development (ESD) via food sustainability is a comprehensive and intricate process. It seeks not merely to convey knowledge, but rather to effect community transformation by fostering awareness and inclusive learning. To achieve this, the learning outcomes encompass more than just understanding food sustainability, safety, and healthy diets.

They also encompass the creation of learning settings that can effectively leverage transformative experiential learning. This involves emphasizing soft skills like teamwork, emotional intelligence, and empathy, which lie at the heart of the sustainability journey.



To ensure seamless recognition and portability of learning outcomes across countries, aligning to attain a European qualification, **the “Educators on Sustainability through Food” Framework has been structured into units of learning outcomes following the ECVET methodology** (European Parliament, Council of the European Union, 2009). In essence, the European Credit System for Vocational Education and Training (ECVET) serves as a technical framework. It facilitates the transfer, recognition, and potential accumulation of an individual’s learning outcomes in pursuit of a qualification.

ECVET’s purpose is to empower individuals with greater control over their learning paths, fostering mobility across countries and diverse learning environments, encompassing both training and work opportunities.

Specifically, **ECVET aims to:**

- **Recognize** learners’ accomplishments based on specific criteria within qualification descriptions.
- **Promote** exchanges and mutual trust, encouraging European citizens’ mobility between companies, training providers, and workplaces (across borders, sectors, and disciplines).
- **Acknowledge** learning outcomes without lengthening learners’ education and training duration, thereby facilitating lifelong learning and adaptable pathways.



To develop the learning outcomes for this project, we utilized the definitions of knowledge, skills, and competencies outlined by the European Qualification Framework (EQF, Council of the European Union, 2017):

- **Competence** – the ability to use knowledge, skills, and personal, social, and/or interpersonal skills, in work, study, or professional development, in the context of the EQF Competence is described in terms of responsibility and autonomy.
- **Knowledge** – the outcome of assimilation of information through learning. Knowledge is the body of facts, principles, theories, and practices that are related to a field of work or study. In the context of the EQF knowledge is described as theoretical or factual.
- **Skills** – the ability to apply knowledge and use “know-how” to complete tasks and solve problems. In the context of the EQF, skills are described as either cognitive, that is, involving the use of logical, intuitive, and creative thinking, or practical, that is involving manual dexterity and the use of methods, materials, tools, and instruments.



Considering the responsibility that the Educator of Sustainability through Food should possess, the Framework was elaborated at an EQF Level 6.

According to the European Qualification Framework (Council of the European Union 2017), at the EQF Level 6, the individual should:

- **Possess the following**
 - Knowledge:** advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.
 - Skills:** advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialized field of work or study.
- **Be able to act with the following responsibility and autonomy**

Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing the professional development of individuals and groups.

Finally, it was necessary to use a **taxonomy** that could effectively describe learning outcomes, in terms of competencies, knowledge, and skills, according to the identified EQF level (i.e., EQF 6 Level). For this purpose, Bloom’s taxonomy, as revised by Anderson & Krathwohl (2001), was used.



As a learning outcomes framework, this matrix serves as a valuable resource for crafting instructional materials aimed at equipping educators to foster sustainability through food. Each learning outcomes unit is systematically structured around distinct competencies.

Within each competency, there are learning outcomes about both knowledge and skills.

Each piece of knowledge encompasses one or more skills, and this relationship works reciprocally.

The incorporation of Bloom’s Taxonomy ensures a thoughtful representation of different levels of responsibility and autonomy, ranging from “being able to...” to knowledge-based actions like “describing, recalling, knowing...” and skill-based actions like “applying, creating, demonstrating, selecting, managing...”. This integration ensures a comprehensive approach to learning and development.

6. WAYS FORWARD

The Framework's learning outcomes serve as a roadmap for constructing learning paths and gauging the depth of knowledge gained by teachers. The 7 Units mirror distinct training modules, and learning outcomes can be interwoven to formulate novel modules. The adaptable nature of these learning outcomes empowers the Framework to cater to diverse training settings, encompassing formal, non-formal, and informal contexts.

This adaptability also facilitates the assessment and validation of competencies acquired by teachers in non-formal and informal environments.



Moreover, the results of the SKILLED project can be useful in creating certified programs to “teach sustainability through food”. In particular:

- National, regional, and local policymakers can refer to the Skilled matrix for their policies and work programs, that aim at advanced learning for environmental sustainability.
 - Formal and nonformal education and training institutions can use video courses provided in the SKILLED Platform¹⁸. They can be useful in shaping their educational offerings at the general, higher vocational, and adult education levels.
- SKILLED matrix and materials retrieved from the project can be used by teachers for initial training and Continuing Professional Development.

18. <https://www.skilled4food.net/>

- The proposed video lesson program provides a high-quality, inclusive training program that can help improve local social and environmental conditions.
- The whole SKILLED experience be used by school principals and coordinators to organize transdisciplinary, cross-cultural, and mobility projects.
- The results of the SKILLED project can be used for assessment and certification services that could generate new certificates from the Matrixes.



Last but not least, research institutions can use the SKILLED results to determine which pedagogies are best suited for students to develop Green Comp skills.

One point that SKILLED can contribute, the JRC, with its GreenComp, asks schools and organizations to implement and evaluate its framework in real and specific training contexts so that it can be modified and refined based on the feedback from professionals and end users.

In this context, the SKILLED project and its platform can help to enhance and contribute to the achievement of the competencies highlighted and emphasized by JRC.

Matrix learning outcomes function as criteria for assessing and certifying teachers as “Educators on Sustainability through Food.”

They stand as evaluation markers to establish a teacher’s proficiency in this domain.





In summary, from the results obtained from the SKILLED project, learning about sustainability through food is essential to achieving a sustainability mindset and triggers the will to act for a sustainable future, both as consumers and as citizens and professionals.

Teachers should be recognized and thus motivated through “certified programs and courses” to acquire not only knowledge on these issues, but especially new teaching methodologies to support students’ systemic, creative, and proactive approach.





7. CONCLUSIONS

Continued Professional Development (CPD) plays a crucial role in the ongoing growth, improvement, and effectiveness of teachers. CPD refers to the process of teachers engaging in structured learning activities, training, and professional experiences to enhance their skills, knowledge, and teaching practices.

The role of CPD for teachers is multifaceted and encompasses several important aspects, such as professional growth, skill enhancement, staying current, improving teaching practices, networking, and addressing educational challenges.



Given the challenges posed by Sustainable Development, in Europe, at present, there is growing attention to CPD for teachers regarding sustainability, which aims at enhancing the educators' knowledge, skills, and awareness related to sustainability concepts and practices. In particular, among the different issues related to Sustainable Development, the food system plays a key role. In fact, growing, distributing, processing, and consuming food can have an important impact on our health and the environment.

For these reasons, teaching food sustainability can be strategic for promoting a holistic understanding of how our choices as consumers, producers, and policymakers impact the planet, ecosystems, societies, and our well-being.

It empowers individuals (and new generations in particular) to be responsible stewards of the environment and advocates for positive change in the global food system.

However, despite its importance, literature and the survey conducted on this project have shown that **sustainability** is not appealing to most teachers, mainly because they have many priorities regarding their different needs at school. For this reason, **it could be strategic to add Sustainable Development issues into other subjects, like digital and classroom management competencies.**



In this sense, the matrix created for the SKILLED project is innovative, as food issues (i.e., health, environment, culture, wastage, and Agenda 2030) are embedded into different competencies, like values thinking, creating learning spaces, system thinking, and digital competencies.



The SKILLED project aimed at addressing teachers and students with the complexity of food systems and their challenges. Following the objectives of the 2030 Agenda for Sustainable Development and the European Green Deal, the project developed, tested, and disseminated a framework of learning outcomes that teachers and educators can use for teaching sustainability through food. **This project emphasizes that sustainability, as a competence, should be applied to all spheres of life, personally and collectively.**

Using food to learn, and practically apply sustainability, is a matter of mindset, from childhood to adulthood, including the understanding that humans are part of the planet system, the nature, and depend on it.

Teachers must be both advocates and enhancers of students' improvements. Teachers and students must be placed in interactive and co-constructive learning spaces. Both must therefore be equipped with knowledge, skills, and attitudes that support them in becoming agents of change and contributing individually and collectively to shaping the future within the planet's boundaries.



The SKILLED project has shown that **all types of learning** (i.e., formal, nonformal, and informal) **should be used to develop that competence.**

Teachers must consequently empower students (through transdisciplinary and experiential learning pathways and methodologies) to incorporate sustainability values and embrace complex systems to take or demand actions that restore and maintain ecosystem health and improve justice, generating visions for a sustainable future.

Although SKILLED strengths find support in the literature, the limitations of this study should not be overlooked. In particular, the project involved only five schools and a relatively small number of teachers (often highly motivated, as they volunteered to join the program).

Future developments of this project should include more Countries and other schools, such as catering and hospitality training institutes. Larger samples, in fact, will help mitigate these limitations and will provide a better generalizability of results.



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