

Advanced draft for the Forum



European Education and Training Expert Panel

Issue paper - Environmental challenges

Contents

1. Introduction	2
2. Key challenges and opportunities	3
2.1 Sustainability as a multidimensional concept	3
2.2 Education for sustainability: empowering individuals.....	4
2.3 The role of institutions across all levels of education	6
3. Looking towards 2030: priority areas of action	8
3.1 Acquisition of sustainability skills	8
3.2 The role of non-formal and informal education	9
3.3 Broadening the scope of sustainability education	9
3.4 Teacher training for sustainability education	10
4. Concluding remarks.....	11

1. Introduction

The strategic framework for European cooperation in education and training (ET 2020)¹ is based on common objectives and supports the improvement of the education and training systems of the European Union's Member States through common tools, mutual learning and the exchange of good practice via the open method of coordination. The value of this cooperation is widely recognised.

Since the adoption of ET 2020 in 2009, European societies and economies have been undergoing fast and extensive transformations that affect the way people live and work – and the way they learn. Consequently, there is a need to strengthen the relevance and impact of European cooperation by better understanding global trends and their implications for EU education and training policies.

As the current strategic framework comes to an end in 2020, the European Commission – Directorate-General for Education, Youth, Sport and Culture – is carrying out wide consultations as part of the preparations for its successor. The European Education and Training Expert Panel has been convened in order to make a strategic contribution by reflecting on the concept of 'embracing change', as well as discussing in what ways new trends are likely to influence education and training in the future, and how they could be addressed through European cooperation over the next decade.

The Panel – composed of 18 international experts² – was asked to focus on six thematic blocks, namely: demographic change; inclusion and citizenship; technological change and the future of work; digitalisation of society; environmental challenges; and investment, reform and governance. These were selected by the Commission from a pool of analyses of long-term strategic trends.

For each block, the Panel was invited to address the following scoping questions.

- Which are the major societal developments that will have an impact on how education and training are delivered in Europe in the medium to long term? How can European cooperation best respond to these challenges?
- What should be the strategic objectives of European cooperation in education and training for the next decade? Which should be the priority areas and themes?

The Panel carried out its work between October 2018 and January 2019.

This issue paper reflects the Panel's debates. It first illustrates the trends, challenges and opportunities for education and training that are associated with the Environmental challenges over the coming decade. It suggests issues that could be addressed through European cooperation, and offers a number of concluding remarks.

The information and views set out in this issue paper are those of the Expert Panel members and do not necessarily reflect the official opinion of the European Commission.

¹ Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020'), OJEC 2009/C 119/02 ([https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009XG0528\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009XG0528(01)&from=EN))

² The members of the Expert Panel were: Hermann J. Abs, Emmanuel Boudard, Etienne Denoël, Paul Downes, Malcolm Fisk, Silviya Karklina, Eva Klemenčič, Per Kornhall, Sandra Kučina Softić, Carla Morais, Rob Mudde, Serena Pastore, Andrius Plečkaitis, Anna Rabajczyk, Hanne Shapiro, Teresa Sordé-Martí, Gabriela Teodorescu and Raimo Vuorinen.

2. Key challenges and opportunities

This section presents the key challenges and opportunities for education that are related to sustainability. Education plays a vital role in promoting sustainable lifestyles for EU citizens, therefore sustainable development is an issue that needs to be at the heart of Europe's education and training systems. An education for sustainable development encompasses interdisciplinary knowledge of relevant environmental, social and economic issues, as well as specific competencies for tackling challenges related to these topics in our everyday lives. There is a need for more discussion around the concrete types of actions, tools, skills and even knowledge that can support sustainable development in our lives in a practical and effective way.

2.1 Sustainability as a multidimensional concept

It is not easy to define sustainability in an era of rapid demographic, social and economic change. It was broadly agreed by the Expert Panel that sustainability is a wide concept that is not restricted to environmental issues, but can and should also be framed in broader economic and social terms. It is therefore both a challenge and an opportunity for education to develop an understanding of sustainability as a dynamic and multidimensional concept.

The practical definition of sustainable development is the balance of social, economic and natural resources. This can be difficult, as human capital is an integral part of the ecosystem that we are trying to preserve. The United Nation's (UN) 1987 Report of the World Commission on Environment and Development: *Our Common Future*³ noted that sustainable development is meeting the needs of the present without compromising the well-being of future generations. The concept continues to expand in scope. In 2000, the Earth Charter⁴ broadened the definition of sustainability to include the idea of a global society 'founded on respect for nature, universal human rights, economic justice, and a culture of peace.' It is equally important to consider the UN Sustainable Development Goals⁵. To achieve these goals, humans will need to re-examine their policies on environmental protection, social responsibility and economic practice. A sustainable society is founded on equal access to healthcare, nutrition, clean water, shelter, education, energy, economic opportunities and employment.

Growing and ageing populations, migration and urbanisation are also factors that affect global development objectives. They influence, for example, production and consumption rates, employment conditions and income and social protection systems. They also influence the extension of efforts to guarantee global access to healthcare, education, housing, water, food and energy. Population dynamics not only pose challenges, but also may provide significant opportunities for more sustainable development. For example, human mobility benefits not only migrants, but also their countries of origin/destination and the global economy. Furthermore, urbanisation can be a powerful driver of sustainable development: higher population density encourages governments to provide essential infrastructure and services at relatively low cost per capita. Nevertheless, the benefits of demographic transitions, migration and urbanisation do not materialise automatically: whether or not a population dynamic presents a challenge or brings opportunities depends largely on the policies that are being implemented.

³ <http://www.un-documents.net/wced-ocf.htm>

⁴ <http://earthcharter.org/discover/the-earth-charter/>

⁵ <https://sustainabledevelopment.un.org/?menu=1300>

Another aspect of a community-based view of sustainability is acquiring a global view on production and consumption patterns. In order to promote sustainable consumption and production patterns, we need to transition towards a circular economy. Overall, sustainable consumption does not necessarily mean consuming less. It means changing unsustainable patterns of consumption by allowing consumers to enjoy a high quality of life by consuming differently.

The issue of economic development and corresponding levels of environmental impact also was raised: in fact, the more educated nations tend to leave deeper ecological footprints⁶ due to the higher socioeconomic position of the members of their societies, which implies elevated per-capita rates of consumption. This consumption drives resource extraction and manufacturing around the world. The world's average HDI⁷ has been increasing, reflecting large improvements in life expectancy, school enrolment, literacy and income⁸.

Businesses are facing new expectations: they are being asked to create long-term practices that do more to respect the environment, the well-being of employees and the prospects of future generations. Meanwhile, these same businesses are also in need to improve profitability, fund innovation and increase market share for current stakeholders. It is thus fundamental to approach the topic of sustainability in education from the perspective of sustainable growth. Inherent in building awareness are efforts to outline linkages between education and more sustainable societies.

2.2 Education for sustainability: empowering individuals

In Europe, attitudes to environmental protection appear, overall, to be very positive. According to Eurobarometer 2017 data⁹, 94 % of survey respondents claim that the protection of the environment is important to them personally, and in fact more than half (56 %) say it is very important. However, there appears to be a gap between concern for the environment and actual action. Although respondents report that environmental protection is important to them, their day-to-day actions often do not support this. The Expert Panel argued that many people do not consider it an issue that is either relevant to them directly, or they believe that their individual actions will not have a real impact globally. Some do not even engage in regular recycling. Ipsos (2011)¹⁰, for example, found that although 87 % of adults surveyed said that they recycled, only 51 % did so on a daily basis. Ipsos also found that there is much confusion about what can be recycled, even though people claimed to understand the benefits of recycling. In the EU, the potential for recycling plastic waste in particular remains largely unexploited, with less than 30 % of such waste collected for recycling. An important motivator for all groups in society is that recycling is or should become common behaviour. A shift towards a more sustainable lifestyle, however, covers a greater variety of actions, some daily and normal (such as using less water, recycling), others more extreme but with enormous impact (such as going car-free).

A key challenge for the future of education is how to turn general attitudes into behavioural change. The members of the Expert Panel emphasised the need for moving beyond awareness-raising to building understanding about sustainability through education, and then towards instilling a sense of

⁶ Lin, D., Hanscom, L., Murthy, A., Galli, A., Evans, M., Neill, E., Mancini, M.S., Martindill, J., Medouar, F.-Z., Huang, S. & Wackernagel, M. (2018). Ecological Footprint Accounting for Countries: Updates and Results of the National Footprint Accounts, 2012–2018. *Resources*, 7, 58.

⁷ The Human Development Index (HDI) combines per capita income, life expectancy and educational attainment in order to compare the economic and social development of different countries. Other relevant information includes work carried out on sustainable development by the Global Footprint Network (<https://www.footprintnetwork.org/our-work/sustainable-development/>)

⁸ http://hdr.undp.org/sites/default/files/2015_human_development_report_1.pdf

⁹ http://ec.europa.eu/environment/eurobarometers_en.htm

¹⁰ Ipsos Public Affairs (2011): Nine in Ten Adults Recycle, but Only Half Do So Daily

responsibility in individuals and generating change in individual habits and behaviours. In other words, moving from awareness to knowledge, and then to action. In addition to education *about* sustainability, Europe also needs education *for* sustainability, which involves using education as a tool to achieve sustainability in society.

For this to happen, some transitional objectives need to be met. Individuals should first be familiar with the relevant environmental challenges and the broader concepts associated with them. Students then need to become confident in inter- and transdisciplinary knowledge in order to be able to assess global processes and solutions with input from many different disciplines. Students also need to appreciate and cultivate an interest in being part of the solution through individual actions, to develop responsibility for our common home and to put knowledge into practice. The central issue here is reconnecting people to people and to nature; giving them a clear understanding of the problems and empowering them, over time, to be part of the solution through their actions and behaviours.

An education for sustainability requires a new vision of education in order to empower people to act. Future-ready students will need both broad and specialised knowledge to help them to identify and analyse broader societal, economic and environmental connections. To achieve this, teaching sustainability skills requires an interdisciplinary and community-oriented approach, meaning that educators are faced with the challenge of adapting conventional teaching practices. There is a need to move from 'reductionist' approaches towards interdisciplinarity, transdisciplinarity and cross-disciplinarity, which enable systemic connections to be made among disciplines. The members of the Expert Panel argued that finding the educational tools that enable learners to develop both an appreciation of environmental values and practical skills is a key issue. The following areas of knowledge and competencies emerged from the discussion as pillars for the future of education for sustainability:

- disciplinary knowledge: in particular STEM subjects (chemistry, biology, physics, technology, engineering, mathematics);
- epistemic knowledge: knowing about the nature of knowledge and the ways in which knowledge is produced and validated;
- process knowledge: e.g. what happens to resources, or how chemical processes work;
- systems thinking (which emphasises the interdependence of the components of dynamic systems) and forward planning;
- cognitive and metacognitive skills and attitudes, such as critical thinking, cooperation and creativity;
- civic competencies, such as participation and attitudes of respect and responsibility;
- use of information technology in order to progress towards sustainability goals;
- skills related to estimating the environmental impact of human actions;
- social and emotional competencies to foster empathy.

One way to increase the effectiveness of sustainability education is to refocus teaching on the understanding of the impact that individual actions have on the environment. The members of the Expert Panel pointed out that what students need to understand above all is that, in accordance with Newton's Third Law of Motion, for every action, there is an equal and opposite reaction. For example, if we pollute our water, we will be forced to wash in dirty water, or if we incinerate waste illegally, we will breathe polluted air. Key issues discussed in the Expert Panel as themes to be incorporated into education for sustainability are: climate change, disaster risk reduction, biodiversity, poverty reduction, sustainable consumption and other areas enshrined in the UN Sustainable Development Goals¹¹.

¹¹ <https://sustainabledevelopment.un.org/?menu=1300>

2.3 The role of institutions across all levels of education

Sustainability concerns all individuals, regardless of age or educational background. The members of the Expert Panel agreed on the importance of designing educational processes and approaches to ensure that knowledge of key sustainable development issues is integrated into every stage and every type of education. The challenge in this regard is to develop the role of schools and universities so that they become places in which sustainability is not only taught, but also actively practised. Contributions towards sustainability can come from active practices supported by schools (starting from kindergarten) and universities, taking into account the following interdependent levels: individual, organisational, institutional, social/economic and ecological¹².

The Expert Panel recommends that environmental education at all levels, whether formal or informal, should be grounded in critical and innovative thinking, promoting the transformation and construction of society. Environmental education should deal with critical global issues (such as climate change), their causes and interrelationships from a systemic approach and within their social and historical contexts. Fundamental issues in relation to development and the environment – such as population, health, peace, human rights, democracy, hunger and degradation of flora and fauna – should be perceived in this manner.

The Expert Panel stresses that strengthening individual commitment to sustainability is not only a matter of level of education, but it is also about assuring sufficient linkages and transitions between career development and sustainable lifestyles. In this regard, the 'green guidance' approach is concerned with sustainable development, environmental conscientiousness and responsibility for the ecosystem. It deals with the choice of work and jobs that minimise environmental harm and that heighten awareness of the importance of green careers. It also encourages individuals to consider the environmental implications of their career choices and to balance work and other aspects of their lives, thereby sustaining a way of life that promotes health, economic security and social justice¹³.

The role of formal education in building society is to support students to help them determine what should be conserved in their cultural, economic and natural heritage. Moreover, the challenge for all levels of education is to promote values and strategies for attaining sustainability in students' local communities while contributing at the same time to national and global goals. To reconfirm the contribution of education to society, there is a need to focus on the goals of education, such as helping students learn how to identify elements of unsustainable development and how to address them. Sustainability also has an intergenerational dimension. It is a part of informal lifelong learning, carried out in the family, schools, the local community and informal educational settings. It involves bridging gaps between generations by identifying common values, setting goals together and promoting interaction and cooperation at the community level.

Several initiatives build on the idea of the school as a sustainable institution. Launched in Ireland in 1997 as Green-Schools (known internationally as Eco-Schools), the Eco-Schools programme has grown to include over 40 000 schools around the world. This long-term initiative awards a green flag to schools that successfully complete the environmental management scheme. To be successful, the programme requires support from school leaders, active involvement of staff, long-term commitment and the willingness to involve students in decision-making. Another example is the EU's LIFE

¹² Learning for Sustainability. NSW Government Environmental Education Plan 2007-10

¹³ Di Fabio, A. & Bucci, O. (2016). Green Positive Guidance and Green Positive Life Counseling for Decent Work and Decent Lives: Some Empirical Results. *Frontiers in Psychology*, 7, 261, <https://doi.org/10.3389/fpsyg.2016.00261>

Programme¹⁴ on environmental education, which has co-financed pilot and demonstration projects that contribute to the implementation and development of EU environment policy and legislation, such as educational activities and materials about the environment aimed at schoolchildren, young people, teachers and families.

Although sustainable development is becoming a widely known concept, many people still do not automatically opt for the sustainable alternative in practical daily decisions. At present, there are further opportunities available within the primary school curriculum, in subjects or areas such as civic and citizenship education, social, environmental and science education, and health education to promote education for sustainable development. Moreover, the nature of the curriculum and the flexibility of class timetabling allows teachers to focus on the interrelationship between subject areas, making the integration of an education for sustainable development approach easier. In the secondary school system, Curriculum areas such as civic and citizenship education, social and political sciences, geography, science, health education, and some areas of business studies provide the best opportunities for the integration of education for sustainable development. However, secondary-level timetabling and structure do not easily allow for links to be made between subject areas. Higher education institutions have already been active in supporting sustainability, especially in relation to the UN Sustainable Development Goals and the 2030 Agenda on Sustainable Development. To date, more than 300 higher education institutions have committed to share and promote the Agenda 2030. Higher education has an equally key role to play in research and in the training of sustainability specialists and leaders in all fields. It also is important to include appropriate knowledge on sustainable development in the study programmes for engineers, managers, doctors, lawyers, economists and other professions.

The Expert Panel noted that, at present, in the case of study programmes not directly related to environmental education (such as environmental engineering or environmental protection), the topic of sustainable development is rarely addressed. Universities must work at the interface of disciplines in order to address the complex problems of today's world. According to the Expert Panel, reorienting education towards sustainable development will require significant changes in almost all areas. It should engage a wide spectrum of institutions and sectors and should also include the preparation of sustainable development education plans and programmes. Universities should also develop concepts of interaction, interdependence and change to enable individuals to develop a holistic view of life and to communicate the issues affecting preservation and conservation of the environment and its resources, as well as the impact of human development. They should also facilitate the examination of the choices arising from environmental preservation and economic development and the balance between them, the issues of social responsibility and the impact of all individuals on the natural environment. Furthermore, universities could provide a valuable service by building components of sustainable development into special programmes for teachers, senior managers, local leaders and others in leadership positions. Institutions also have a key role in global cooperation in terms of environmental and sustainability research.

Sustainability is already becoming an inherent part of the educational experience across all levels of provision in some cases¹⁵. Building on these existing initiatives across the board in a more systematic manner will provide the opportunity to generate further strategies of how education institutions already committed to sustainability can build synergies with their closer and wider communities, and become true hubs of practice.

¹⁴ http://ec.europa.eu/environment/life/products/download/factsheet_education_web.pdf. Programmes include awareness-raising campaigns and knowledge-sharing projects, many of which have developed creative tools.

¹⁵ Examples of this include the U4 Network, and a coalition of universities across the Pacific region working to save the Pacific Ocean. A further initiative is the Green Pack, an innovative multimedia educational kit.

3. Looking towards 2030: priority areas of action

The following key themes for European cooperation over the coming decade emerged.

Acquisition of sustainability skills:

- A focus is needed on the acquisition of sustainability skills, which will involve developing the skills of both teachers and learners.
- Identifying the key tools that enable learners to become sustainable citizens.
- Curricula and study programmes need to adopt an integrated and interdisciplinary approach to teaching sustainability.
- Teaching needs to use practical examples of environmental sustainability in both national and European projects to enhance knowledge acquisition and to empower individuals.

Informal and non-formal learning:

- Encouraging the non-formal and the informal educational sector, in order to pursue a holistic approach to environmental sustainability.
- Bring people together through nature-based projects, thus increasing social inclusion in a collaborative way. Spaces of formal education could open up towards communities and become spaces where people could exchange views on sustainability.
- Sustainability concepts could be reinforced in the professional development of civil servants.

Broadening the scope of sustainability education:

- Sustainability education should not be limited to environmental issues, but include social and economic dimensions of societies.
- Develop cognitive and emotional attitudes in order to become responsible consumers and citizens. Education for sustainability could thus be characterised as 'learning to transform'.

Teacher training for sustainability education:

- Teachers and educators should bridge subjects in different disciplines, giving students a holistic understanding of their role as individuals in the communities in a sustainable world.
- Teachers and educators should empower students to be part of the solution and to understand that their actions matter.
- Sustainability should be introduced into career guidance.

3.1 Acquisition of sustainability skills

Education has a powerful potential to give students the skills necessary to put sustainable development into practice. Knowledge, skills and competence development are vital parts of future education strategies in the area of sustainability, encompassing the knowledge and skills of both teachers and learners. The Expert Panel concluded that there is a need to identify tools that develop the key competences necessary for learners to become sustainable citizens. This has a two-fold dimension, in that people need to both transform their own lifestyles and to contribute to societal transformation.

Overall, the aim of sustainable education is to help people to become more knowledgeable, better informed, responsible, critical and capable of continuing to learn. A population that is well informed about the need for sustainable development will insist that public educational institutions include in their curricula relevant scientific and other topics that are needed to enable people to participate effectively in achieving sustainable development. Curriculum and related activities should incorporate, where appropriate, issues connected with concerns for the environment, the needs and aspirations of societies, and the role of economic development, and should recognise their equal importance in shaping a sustainable future.

Priority needs to be given to curricula that adopt an integrated and interdisciplinary approach to sustainability, combining content, process and systems knowledge. Furthermore, teachers should educate students about the value of the environment and the consequences of individual actions through practical examples. Concrete actions in this area could take the form of national and European school projects and higher education programmes (via coursework and/or apprenticeship) that address issues such as protecting the earth's ecosystems, developing more sustainable cities, implementing sustainable food-chain control strategies, exploring sea- and air-based sustainable energy systems or designing strategies for adaptation to climate change and greenhouse gas mitigation. Projects and classes should also be appropriately tailored to suit the needs of different age groups.

3.2 The role of non-formal and informal education

Education is an essential tool for achieving sustainability as it gives individuals the skills to live and work in a sustainable way. It should therefore be applied at all levels of formal, non-formal and informal education as an integral part of lifelong learning. In order to pursue a holistic approach, thought needs to be given ways of encouraging the non-formal educational sector (e.g. nature centres, non-governmental organisations, public health educators and agricultural extension agents) and the informal educational sector (local television, newspaper, radio and social media). Cooperation between the formal and non-formal/informal sectors will also open the possibility to work towards local sustainability goals. As an example, one way of bringing people together could be through nature-based projects, such as cleaning a river. This would help to increase social inclusion and empower communities in a collaborative way. At the same time, spaces of formal education could open up to their communities and become public spaces where people can exchange views on sustainability and connect with nature.

In the case of formal education, the goals, locations and methods are externally determined by the educational or training providers. In informal learning, the aims and pursuit of knowledge or skills are individually- or group-determined and it is commonly estimated that 70 % to 90 % of human learning falls into this category¹⁶.

Finding appropriate methods to discuss issues, for example by emphasising economic aspects over nature conservation or biodiversity aspects, is likely to engage a broader segment of stakeholders who may then become more active on both an individual level as well as joining in collective civic action towards policy change. Specific events, for example, can attract large crowds and are an effective way to build social proof that sustainable, green living is something in which many people are interested.

Furthermore, there is a need to ensure that policymakers and decision makers are aware of sustainability issues; there may therefore be scope for reinforcing the sustainability dimension of continuous professional development for civil servants and other professionals.

3.3 Broadening the scope of sustainability education

Education should embrace a broad and values-based concept of sustainability. The Expert Panel has found that the concept of sustainability is fundamentally about respect: for others (including present and future generations), for difference and diversity, for the environment and for the resources of our planet. This notion is not limited to environmental issues but includes the social and economic dimensions of entire societies. Sustainability may mean different things to different people, but the main definition is

¹⁶ Colin Latchem: Informal Learning and Non-Formal Education for Development, <https://files.eric.ed.gov/fulltext/EJ1106082.pdf>

meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Beyond acquiring practical skills, students must also develop cognitive and emotional capacities and attitudes in order to become responsible consumers and citizens. Education in this regard is built on relationships, so initiatives such as twinning schools across continents may be a way forward, in particular via 'e-twinning'. This would enable students to identify with wider groups of people from an early age. An education for sustainability of the future that comprises cognitive-emotional elements could be characterised as 'learning to transform'. This could be promoted by developing common European standards of 'green learning'. Education for sustainable development will require individuals to act strategically under conditions of uncertainty: it challenges the usual paradigm of 'What should be known?' and instead asks 'What should we be able to do?'. Education for sustainable development focuses on the competencies needed to transform social relations, the economy and the management of natural resources under conditions of uncertainty, without merely reacting to existing problems.

The following practical skills will help shape students' abilities and competences to develop future scenarios by active participation in modelling and transforming society towards sustainable practices: competencies to think in a forward-looking manner, to deal with uncertainty; competencies to work in an interdisciplinary manner; competencies to achieve open-minded perception, transcultural understanding and cooperation; participatory competencies; planning and implementation competencies; the ability to feel empathy, sympathy and solidarity; competencies to motivate oneself and others; and competencies to reflect in a distanced manner on individual and cultural concepts. Developing these competencies amongst graduates is particularly critical to the development of sustainability literacy.

Overall, citizens need to learn how to learn about sustainable development, to reflect, and to initiate, adapt to and evaluate change within themselves and in society. They need to become actors of change towards more sustainable consumer behaviours.

3.4 Teacher training for sustainability education

Teachers and educators should follow specific training, which will allow them to become central figures in educating citizens of sustainable societies. Teacher education institutions are well situated to play a central role in educational changes, and teacher educators are the key change agents. They can ensure that new teachers are trained and that current teachers are retrained to address sustainability.

Above all, teachers and educators must understand the various nuances and dynamics of the concept of sustainability. It is important to have professionals in place who not only teach sustainability themes, but who can also pull together the various disciplinary strands that will give their students a holistic understanding of a sustainable future and the role of individuals, communities and nations in a sustainable world. The development of this cadre of expertise will profoundly affect how rapidly nations will begin the move toward sustainability. Teachers and educators will need to empower students to be part of the solution and to understand that their actions matter. This could include more opportunities for student-centred projects and project-based learning, which highlight the importance of the transdisciplinary nature of learning and the mobilisation of different literacies and multiple theoretical and practical competencies, as well as promoting scientific knowledge, intellectual curiosity, creativity and collaborative work.

Finally, teachers and educators need to acquire skills surrounding career education in order to be able to orient their students towards more sustainable lifestyle and career choices.

4. Concluding remarks

The Expert Panel has considered the key issues around the role of education in promoting environmental awareness and sustainability. It has debated the key challenges and objectives, and also suggested possible approaches to establishing and achieving goals. Overall, the future EU strategy should take into account that sustainability has three pillars: environmental, economic and social, and that all three should be addressed, both individually and in terms of the connections between them.

Addressing the gap between the overall feeling of positivity towards the environment and actual actions taken is a vital challenge that education could play a key role in addressing by raising awareness and empowering individuals to assume responsibility for the environment. Linked to this is the issue of developing empathy, which will encourage individuals to become aware of the impact of their actions on others. Ultimately, the concept of sustainability is fundamentally about values and respect for others, including respect for present and future generations, for difference and diversity, for the environment and for the resources of the planet.

The Expert Panel also debated the issue of teaching sustainability, arguing that this requires an interdisciplinary, lifelong learning and community-oriented approach, which raises the challenge of changing conventional teaching methods. Teacher training is also a key part of sustainability strategy; teachers should be able to participate in specific training, which will allow them to become central figures in educating citizens of sustainable societies.

Skills development is also a key issue for teachers/educators and institutions, as well as for individuals. Teachers and educational institutions need to be able to create conditions for learners to develop the knowledge and the skills that they will need in order to live as responsible and sustainable citizens. This will require much thought around how to ensure that the institutional framework – which includes teaching skills and curricula in addition to teaching styles and methods – can meet these challenges. It may be that what is needed is to refocus teaching around understanding the impact of individual actions on the environment.

Other key issues highlighted by this Expert Panel include how to raise awareness at all levels of the education system – not just in schools – and how to ensure a balance between formal and non-formal learning at all levels as part of a lifelong learning strategy and as part of a general shift from teaching to learning, which is an important distinction. Finally, the role of regulation, sustainability standards and targeted funding should be considered. Exact combinations of these elements will depend on national systems, situations and traditions.

