



REFLECTION ON 21ST CENTURY COMPETENCES, SMART LEARNING ENVIRONMENTS, AND DIGITALIZATION IN EDUCATION

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Abstract

We are facing unprecedented social, economic, and environmental challenges due to accelerating globalization and the rapid pace of technological development. Nonetheless, these forces offer us countless new opportunities for human progress. The future is uncertain, and we cannot predict it, but we must be open and ready for it. After Covid-19, the “new normal” will be characterized by change, reorientation, and sustainability. Both studying and working have quickly changed in form, requiring digitalization and digital competence in both individuals and organizations. It has become evident that the digital revolution concerns people and their habits, behaviors, and attitudes in using the new technology. Moreover, there is a need for innovative pedagogy, and a move to curricula 4.0, which are aligned with the 4th Industrial revolution, which change the way we live, work, communicate, perform, relate, and also the way we learn, and new perspectives on quality and its effects. Online innovative education will be a strategic priority at every institution. This conceptual article is based on the current discourse on the reflection and rethinking of 21st century competences, smart learning environments, and digitalization in education. The author has provided examples of the ongoing debate. The article’s focus on the future of education is based on her own research and perspectives. The discussion is centered on the OECD report on the future of education and skills, Education 2030, and the UNESCO initiatives in the OER Recommendation and the Futures of Education - Learning to Become.

Keywords: Covid-19, ecosystem, futures of education, OER Recommendation, new normal.

1. Introduction

We are facing unprecedented social, economic, and environmental challenges due to accelerating globalization and the rapid pace of technological development. Nonetheless, these forces offer us countless new opportunities for human progress. The future is uncertain, and we cannot predict it; but we must be open and ready for it. The children who go to school in 2018 will be young adults in 2030. Schools must prepare them for jobs that have not yet been created, for technologies that have not yet been invented to solve problems that have not yet been foreseen. It will be a shared responsibility. Seizing opportunities and finding solutions will require sharing responsibility. To cope with this uncertainty, pupils will need to develop curiosity, imagination, resilience, and self-regulation; they will need to respect and appreciate the ideas, perspectives, and values of others; and they will need to cope with failure and rejection but move forward in the face of adversity. Their motivation will be more than lucrative employment. They will also have to care for the well-being of their friends and

families, their communities, and the planet. The role of education will be to equip learners with the interest, determination, and skills they need to shape their own lives and contribute to the lives of others.

The crippling effects of Covid-19 on education systems around the world have been staggering. At the peak of the disruption in April 2020, more than 1.6 billion students were affected, which was 91% of all students in the world. The scale of this disruption exceeded anything experienced in the pandemic period. Because millions of students were affected, the demand for online learning skyrocketed (UNESCO, n.d.). The consequences are being debated and discussed worldwide. Different scenarios have been predicted. Because the aftermath of this crisis is unpredictable, higher education institutions need a response framework that will be applicable both now and in the future. They need to prepare for an intermediate transition phase and to make their institutions sustainable in the long term by rethinking learning and reducing risks (DeVaney, Shimshon, Rascoff, & Maggioncalda, 2020; Ossiannilsson, 2020). In the emergency phase, there were no excuses for halting continuous learning. During this phase, the need to reflect on and rethink 21st century competences, smart learning environments, and digitalization in education became increasingly obvious. It has become clear that it is not possible to return to what was previously considered normal. The new normality after Covid-19 will be about change, reorientation, and sustainability (Ossiannilsson, 2020). It has been shown that the digital revolution is about people and their habits, behavior, and attitudes in relation to not only the use of new technology but also the need for innovative pedagogy and curriculum 4.0 in facing global challenges. Online education will be a strategic priority in every institution. A sustainable society requires access to digital platforms and the promotion of flexibility in learning to help our students grow and develop. The decisions taken today within the framework of Covid-19 will have long-term consequences for the future of education. These decisions must be based on a humanist vision of education and development within the framework of human rights. Such decisions will enable us to prepare for the OECD (2020) Learning Compass and the UNESCO (2019) initiative, which goes beyond the Sustainability Goals (SDG) agenda for 2030 and targets the Futures of Education - Learning to Become, which are the focus of this conceptual article.

2. Method

This conceptual article is based on the current discourse on reflecting on and rethinking 21st century competences, smart learning environments, and digitalization in education. The content of this article is based on a presentation by the author at the ICIER2020 conference on the same topic. The article's focus on the futures of education and is based on her own research and perspectives. The author has provided examples of the ongoing debate, which, however, do not always represent official perspectives. Moreover, the article does not provide a comprehensive review of developments in the field or events across the globe.

3. Results

3.1. Futures of Education and Skills 2030

OECD (2018) has been working on a learning framework for 2030, which offers a vision and guiding principles for the future of education systems, which, however, are not prescriptive. The learning framework for the OECD project Education 2030 was co-designed by government representatives and a growing community of partners, including innovative leaders, experts, school networks, school leaders, teachers, students, youth groups, parents, universities, local organizations, and social partners. Two questions were considered:

- What knowledge, skills, attitudes, and values do the students of today need to thrive and shape their world?
- How can educational systems effectively develop knowledge, skills, attitudes, and values?

The OECD (2020) framework was built on a common vision for Education 2030, which is aimed to help each learner develop as a whole person, to realize his or her potential, and to contribute to building a common future based on the well-being of individuals, communities, and the planet. Children entering schools today must be responsible and empowered. They must place collaboration over division and sustainability over short-term gain. In an increasingly volatile, uncertain, complex, and ambiguous world, education can make the difference between people successfully facing challenges and being defeated by them. In an era marked by a new explosion of scientific knowledge and a growing number of complex social problems, it is appropriate that curricula evolve—perhaps in radical ways. Their attitudes toward others, including those who are differently abled, will be crucial in building a sustainable global society. The core dimensions are as follows:

- New solutions in a rapidly changing world
- Broader education goals: Individual and collective well-being
- Learner agency: Navigating a complex and uncertain world
- Broad set of knowledge, skills, attitudes, and values in action
- Competencies that transform our society and shape our future
- Design principles for moving toward an eco-systemic change

These dimensions reflect the UNESCO (2019) initiative, Learning to Become, which is aimed at rethinking education and shaping the future. The initiative has catalyzed a global debate on how knowledge, education, and learning need to be reimagined in an increasingly complex, uncertain, and precarious world. The initiative is also aimed at developing everyone's potential to become the best they can be.

Furthermore, the OECD Learning Compass 2030 is an evolving learning framework based on an ambitious vision of the future of education. It provides points of reference for the future regarding individual and collective well-being. The metaphor of a learning compass was adopted to emphasize the need for students to learn to navigate independently in unfamiliar contexts (Figure 1).



Figure 1. OECD Learning Compass

The framework provides a comprehensive vision of the types of competences that students will need in 2030 and beyond. It also aimed at developing a common language and understanding that are globally relevant and informed, while providing space to adapt the framework to local contexts. The components of the Learning Compass include core principles, knowledge, skills, attitudes, values, and transformative competences as well as a cycle of anticipation, action, and reflection. The concept of student representation is central, as the Compass is a tool that enables students to orient themselves while enacting their sense of purpose and responsibility while they learn to positively influence the people, events, and circumstances around them. The Learning Compass 2030 is neither an assessment framework nor a curriculum framework. It recognizes the intrinsic value of learning by elaborating a wide range of learning within a broad structure. It recognizes that learning does not only take place in school. The concept of social well-being has changed over the years to encompass much more than economic and material well-being. Although there may be many visions of the future, the well-being of society is a common goal.

3.2. OER Recommendation

In the autumn of 2019, a milestone was reached when almost 200 countries worldwide adopted the UNESCO OER Recommendation, which was preceded by a series of declarations and initiatives on open education in the 20 years since the concept of OER open education was first presented in 2002 (Ossiannilsson et al., in press; UNESCO, 2019). The Recommendation will contribute to the development of open and inclusive knowledge societies and to the realization of the United Nation Sustainable Development Goals, particularly SDG4, which are aimed at high-quality inclusive and equitable education and lifelong learning opportunities for all.

The OER Recommendation also addresses other SDGs, including SDG 5 (gender equality), SDG 9 (industry, innovation, and infrastructure), SDG 10 (reducing inequalities within and between countries), SDG 16 (peace, justice, and strong institutions), and SDG 17 (partnerships

in achieving the goals). The most recent definition of OER is included in the UNESCO OER Recommendation, as follows:

OER is learning, teaching and research material in any format and medium [...] in the public domain or subject to copyright and published under an open license, allowing free access, reuse, re-use, adaptation and redistribution by others.

The Recommendation goes beyond mere resources and materials. It covers five areas in particular: (i) building the capacity of stakeholders to find, reuse, create and share OER resources, (ii) developing supportive policies, (iii) ensuring full and equitable access to quality OER, (iv) promoting the creation of sustainable business models for, OER and (v) facilitating international cooperation (Figure 2).

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| Build | Build the capacity of stakeholders to find, reuse, create and share OER |
| Develop | Develop supportive policy |
| Ensure | Ensure inclusive and equitable access to quality OER |
| Nurture | Nurture the creation of sustainability models for OER |
| Facilitate | Facilitate international co-operation |

Figure 2. The five areas in the UNESCO OER Recommendation

4. Conclusion and Recommendations

Today we are at a crucial moment in history. The crisis of the Covid-19 has led to a paradigm shift in how learners of all ages access learning worldwide. It is therefore more crucial than ever that the global community comes together to promote universal access to information and knowledge through OER. The global education community continues to face the great challenge of providing interactive and motivating educational experiences during school and university closures. OER have never been needed as urgently and comprehensively as they are today.

Through open education, appropriate and meaningful educational opportunities can be offered to every individual at every stage of life and career, including access to content, courses, support, assessment, and certification in ways that are flexible and take into account different needs. Barriers, such as those of access and cost, are reduced or eliminated. However, open education is complex, and the ecosystem in which it takes place must be considered (Cape Town Open Education Declaration, 2007, 2017). Huang et al. (2020) conducted a comprehensive review of the definitions of Open Educational Practice (OEP) in the literature.

Based on these definitions, the authors identified the following five conditions that be present in OEP practices: OER Open Teaching; Open Collaboration; Open Assessment; and Enabling Technology. Huang et al. (2020) emphasized that in OEP, students are encouraged to learn in a flexible way. OEP includes scientific practices that are participatory, cooperative, and innovative, going far beyond OER. Its adoption requires a radical change in mindset, attitudes, and values, requiring a culture of openness, which is crucial in achieving the UNESCO UN Agenda and Education for all 2030 (Ossiannilsson, 2018, 2019, 2020). Both initiatives by OECD and UNESCO promote all aspects of human rights, social justice, and diversity. It is time for the international community to recognize the fundamental importance of education in achieving all 17 SDGs and for educational institutions to support achieving them worldwide. In the renewal of education, human interaction and well-being must be priorities. It is also time to embrace the ecosystem of learning. Therefore, education, learning, and competences must be reconsidered and shaped to meet the global challenges ahead in 2030 and beyond.

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