

The International Science and Evidence-based Education Assessment

Position Paper

Authors

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ABSTRACT

Education is indispensable for the flourishing of people from all backgrounds and stages of life. However, given the accelerating demographic, environmental, economical, socio-political and technological changes - and their associated risks and opportunities - there is increasing consensus that our current educational systems are falling short and that we need to repurpose education and rethink the organization of learning to meet the challenges of the 21st century. The United Nations Educational Scientific and Cultural Organization (UNESCO) “Futures of Education” initiative was formally launched at the United Nations General Assembly in 2019 to provide such a vision of education for the future. The International Scientific and Evidence-based Education (ISEE) Assessment synthesizes knowledge streams generated by different communities and stakeholders at all levels and scales and will thereby essentially contribute to re-envisioning this future of education. The overall aim of the ISEE Assessment is to pool the expertise from a broad range of knowledge holders and stakeholders to undertake a scientifically robust and evidence-based assessment in an open and inclusive manner of our current educational systems and its necessary reforms. In this commentary we discuss the aims and goals of the ISEE Assessment. We describe how the ISEE Assessment will address key questions on the purpose of education and what, how, where and when we learn, and evaluate the alignment of today’s education and theory of learning with the current and forthcoming needs and challenges and to inform policymaking for future education.

Keywords: ISEE Assessment, futures of education, flourishing, policy, theory of learning, UNESCO

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Not many would argue with the claim that education matters, for people of all stages of life. However, there is less agreement on the purpose of education. Should it be to improve the human condition, or should it be directed toward meeting the demands of the workplace to promote economic growth? Is prosperity, as presently measured by Gross Domestic Product (GDP), positively related to the state of education systems? (1, 2). Moreover, the flourishing of today's societies is challenged in different ways than was the case 300 years ago, when systems of mass schooling developed in tandem with the emergence of modern nation-states (3). Climate change, uncertain job markets, growing social inequality, and pandemics such as the ongoing Covid-19, are the challenges we currently face. Our future more than ever depends on how we, as a global society, build our education systems to ensure continued human advancement and flourishing.

We start by asking two fundamental questions: are our education systems still serving the right purpose? And are they equipped to address the pressing challenges we face? To answer these questions and provide guidance on ways forward, an assessment is needed of the current state of knowledge on education and learning, encompassing their entire complexity: goals of current education systems and their alignment with today's societal needs, the sociopolitical as well as education-specific contexts in which education is embedded, and the state-of-the-art insights into students' learning experiences drawn from both the education and learning sciences including new insights from neuroscience. The challenge is to bring together different streams of knowledge that have been generated by different communities working on common areas, but yet have not drawn and built on each other's work.

Addressing these key questions and challenges is exactly the aim of the International Scientific and Evidence-based Education Assessment (ISEE Assessment), where we take a multi-perspective, multicultural and multidisciplinary approach to advance rethinking the education agenda. The ISEE Assessment will contribute directly to the United Nations Educational Scientific and Cultural Organization (UNESCO) global "Futures of Education" initiative which was launched at the United Nations General Assembly in 2019.

The term "Assessment" here refers to a critical evaluation of the state of existing knowledge on education and learning by a team of independent experts drawn from a broad range of relevant disciplines and from across the world, interacting with key stakeholders in education. This knowledge will primarily be drawn from peer-reviewed scientific literature, but will also include credible grey literature. Importantly, the assessment will achieve a synthesis across disciplines by ongoing deliberative discussions across the team and stakeholders throughout the project, and by addressing overarching key questions and translating these answers into policy-relevant recommendations. In addition, this exercise will highlight gaps in knowledge and identify potential future research agendas.

To be clear, the ISEE Assessment is of a very different nature than international largescale student assessments such as the Programme for International Student Assessment

(PISA). Assessments like the one we propose here have proved extremely fruitful in other domains (4) to synthesize information available from a wide range of disciplines. This has never before been performed for education.

EDUCATION: AN INTEGRATED APPROACH

Developing a conceptual framework is an essential first step in approaching an assessment of this nature (4). The conceptual framework presented in Figure 1 captures the key inter-linkages within the education system which will be assessed, and will guide the assessment.

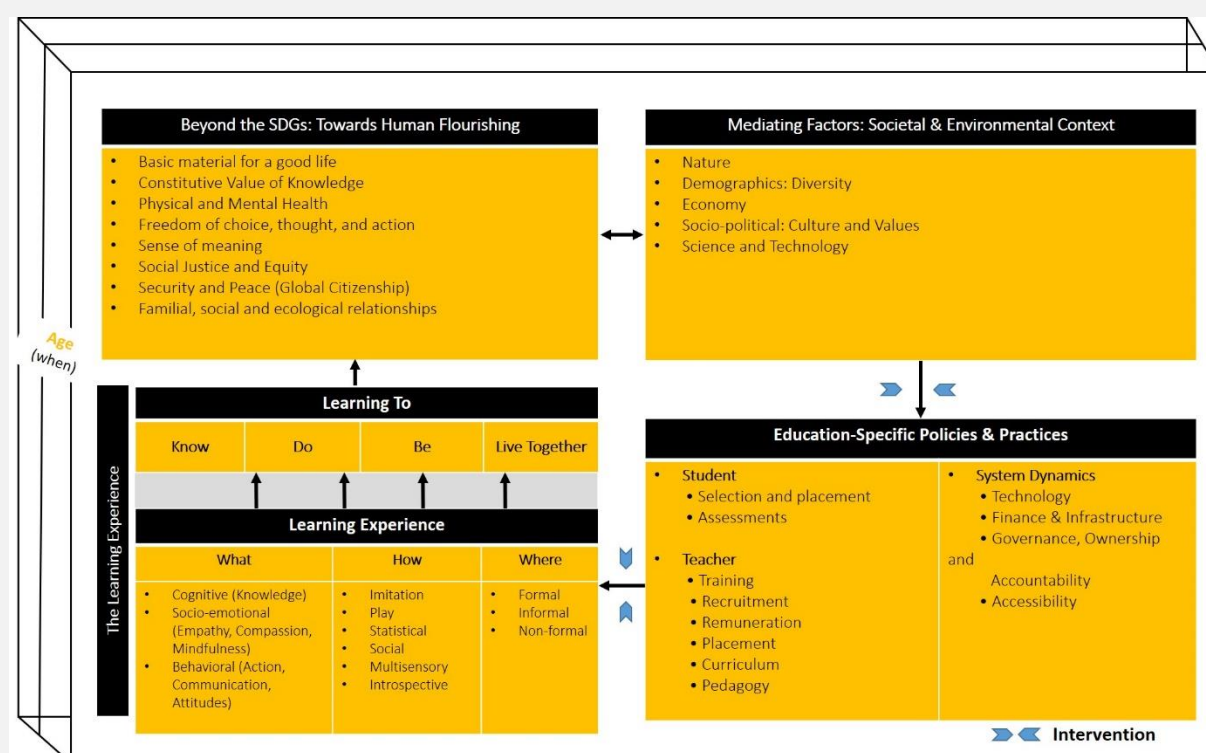


Figure 1: The ISEE Assessment Conceptual Framework of Lifelong Learning

First, we assess what we learn and its implications for education and learning (Box 4 in Figure 1). We will evaluate

- (i) If there is purely a focus on knowledge acquisition - the cognitive or intellectual dimension of learning or broader to include the social and emotional dimensions. Emerging insights from the learning sciences, including neuroscience, emphasize the inherently inter-connectedness across the cognitive and the social, emotional and embodied dimensions of development and learning (5, 6, 7, 8);
- (ii) How contextual factors (e.g., cultural, political, environmental, technological) have influenced what we learn or need to learn (Box 2 in Figure 1); and
- (iii) If what we learn in our current education systems will be sufficient to meet the challenges of the 21st century.

Second, we assess how we learn and its impact on education and learning. Education studies have long established the importance of forms of pedagogy for learning (9),

recognizing the centrality of the pedagogic device (10) and children's learning to learn (11). Recently, pedagogy has evolved with many new methods such as gaming and learning through social interaction and play, as well as through contemplative practices that enhance sensual, emotional and mental awareness (12). Furthermore, over the last two decades, a rich body of information has been produced about how learning happens at the brain and behavioral levels, including individual differences and environmental influences on learning (13, 14). The educational implications of claims derived from research from these various disciplines have yet to be evaluated in an integrated manner relative to the learning experiences and practices that exist.

Third, we assess where we learn and its impact on education and learning. We evaluate the interplay between the formal (e.g. at school), non-formal (e.g. at work) and informal (i.e. unintentional such as via peer interactions) learning settings, face-to-face and online learning and the impact it has on learning. An urgent example is the recent shift to online learning forced by the Covid-19 pandemic and its implications. But also the increasingly significant phenomenon of 'shadow education' (or private supplementary tutoring) in many societies, its causes and its implications for formal schooling, the learning experience and social inequality are important to assess (15).

Fourth, we will assess when we learn and its impact on education and learning. Debate over the correct timing for formal education is longstanding, as is concern over the capacity of formal age-based schooling to accommodate diversity amongst learners. Studies from developmental psychology and neuroscience have revealed how the ease of learning varies with age, from infancy to old age (16, 17). Being offered the right inputs at the right time may improve learning, but at the same time, schooling conditions and (cultural) contexts may cause great variation in what is being taught when (Boxes 2 and 3 in Figure 1). What implications might such insights have for the timing of interventions and design of school curricula? These are key questions many policy makers need answers to when redesigning their educational and learning policies.

WHAT WILL THE ISEE ASSESSMENT PROVIDE?

First, it will provide an understanding of how our social, economic and political systems influence and are influenced by our education systems (the inter-dependent link between Box 2 and Box 3 in Figure 1). We will examine how these contextual factors are related to diverse conceptions of the purpose of education (the inter-dependent link between Box 1 and Box 2). For example, the assessment will report on how economic policies, labor market pressures, and politics have influenced curriculum development, approaches to student assessment (18), and competition for credentials across various global contexts.

Second, we will use the four pillars of education: i) learning to Know, ii) learning to Do, iii) learning to Be, and learning to Live Together (19) as benchmarks to analyze how contextual

factors have influenced and been influenced by the educational aims and practices that these pillars encompass (the inter-linkages between Box 3 and Box 4 in Figure 1). At the same time, we will assess the relationship between the “What”, “How”, “Where” and “When” of learning and the pillars of education in the light of state-of-the-art evidence from the science of learning, and studies of the socio-economic, environmental and other challenges we face today.

Third, we will assess how the pillars have contributed towards the conception of human flourishing and the interdependencies across the “What”, “Where”, “How” and “When” towards these pillars of education (inter-linkages between Box 4 and Box 1).

CONCLUSION

There is an increasing recognition by policymakers that education and learning policies should be guided by science and evidence. The recent New Educational Policy released by the Government of India is a case in point. By synthesizing the state of existing knowledge on education and learning across disciplines and regions of the world, the ISEE Assessment will generate the information and recommendations needed taking into account what works, what does not and where more research is needed to guide and support policy-making beyond the 2030 education agenda. Moreover, the assessment comes at an opportune time when the world is reeling from the devastating impacts from the coronavirus that has as of March 2020 put about 1.53 billion children out of school. The sudden shift to online and digital technology poses many questions to educators and policy makers. Many questions that this assessment addresses will be useful guides in future crises and challenges.

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Anantha Duraiappah and Nienke van Atteveltdt jointly wrote the paper and share first-authorship. All other authors are listed alphabetically and contributed to the Conceptual Framework during a scoping meeting, and/or to writing and editing earlier drafts of the paper (Stanley Asah, Gregoire Borst, Stephanie Bugden, J. Marieke Buil, Oren Ergas, Stephen Fraser, Julien Mercier, Juan Felipe Restrepo Mesa, Alejandra Mizala, Yoko Mochizuki, Kaori Okano, Christopher Piech, Kenneth Pugh, Rajiv Ramaswamy, Nandini Chatterjee Singh, & Edward Vickers).

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The ISEE Assessment



The International Science and Evidence based Education (ISEE) Assessment is an initiative of the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), conceived as its contribution to the [Futures of Education](#) process launched by UNESCO Paris in September 2019. In order to contribute to re-envisioning the future of education with a science and evidence-based report, UNESCO MGIEP embarked on an ambitious project of the first-ever large-scale assessment of the knowledge on education.

The overall goal of the ISEE Assessment is to pool the multi-disciplinary expertise on educational systems and reforms from a range of stakeholders in an open and inclusive manner and undertake a scientifically robust and evidence-based assessment that can inform education policy making at all levels and scales. It is not to be policy prescriptive but to provide policy relevant information and recommendations to improve education systems and the way we organize learning in formal and non-formal settings. It is also meant to identify information gaps and priorities for future research in the field of education.

In the education sector, the term assessment generally refers to activities used to measure student progress. Going beyond this narrow notion of education assessment, and drawing lessons from the [IPCC Assessment Reports](#) and other scientific environmental assessments (such as [Millennium Ecosystem Assessment](#) and [IPBES](#)), UNESCO MGIEP aspires to initiate a **scientifically credible, legitimate, relevant and inclusive** process that will assess the state of education as a complex system and its role in achieving sustainable and peaceful societies.

The ISEE Assessment uses the 1996 Delors report's four pillars of education *Learning to be*, *Learning to know*, *Learning to do* and *Learning to live together* as the evaluative benchmarks and the lens of "what", "where", "when" and "how" we learn and teach. The assessment is designed along three Working Groups: (1) Human Flourishing, Education and Learning; (2) Education, Learning and Context; and (3) Learning Experience. In addition, there is a technical group on Data and Evidence. The ISEE Assessment Report is expected to be released in November 2021.

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