CURRICULUM IN TRANSFORMATION MODE

Rethinking curriculum for the transformation of education and education systems

International Bureau of Education

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A FOREWORD BY DR. YAO YDO,

Director of the International Bureau of Education (UNESCO-IBE)

Never before in history has there been a period where we, as humans, have faced such substantial global threats. Now, education plays a principal role as the means to achieve the knowledge, the values, the competencies and the attitudes that can develop world citizens equipped to meet such a challenging future.

Education, in its contribution to the survival and flourishing of societies, can be considered the most effective investment in fighting poverty and helping to promote fair, inclusive development. It inhibits the intergenerational transmission of poverty, and increases the potential of generating income, influencing in equal part the positive evolution of other socioeconomic indicators. It fosters peace within and across communities, enhances citizen participation and strengthens democracies. The more educated a population is, the more it can contribute to promote development. Education works by changing social behaviours and strengthening more sustainable modes of production and consumption.

Current and future demands of the labour market, social and economic transformation, the protection of the environment, of human health and wellbeing all require a set of individual, interpersonal and social competencies that are integrated and solid, allowing students to conduct, manage and take responsibility for their own personal and collective wellbeing. There are many well-substantiated studies concluding that, with the acceleration of technological development, in 20-30 years around 70% of current jobs will disappear or be transformed beyond recognition. In these circumstances current skills will become obsolete and new ones will be required, including digital proficiency.

With this potential scenario we assert that curriculum, being the "DNA of the education system," is key in any initiative for social improvement, as it embodies an articulated and holistic vision to develop the education system; it offers a structure for quality learning and recognizes the competencies needed to shape world citizens and inclusive societies at the same time.

This is the reason why, more than ever, countries in the Global South need to be creative, to begin an innovative reflection on the curriculum to conceive it anew, to develop it and change it in order to ensure that education enables young people and the population as a whole to face the challenges ahead. The curriculum must be comprehensible and engaging to connect effectively with students and to contribute to the achievement of renewed social, economic and cultural objectives.

The disruption produced by the COVID-19 pandemic has intensified the already deep inequalities in accessing a quality, inclusive education. At the same time, they have demonstrated the adaptive and resilient capacity of education systems, namely in the rapid shift to digital or hybrid learning methodologies. However, there is a risk that returning to the status quo might reduce the impulse to change, leaving intact weaknesses that will have to be confronted in future crises. Therefore, a long-term planning effort is required to develop more inclusive learning, and help the youth to enter the knowledge economy as proposed by the Hybrid Education, Learning and Assessment (HELA) initiative developed by the International Bureau of Education under my lead.

Education must therefore take a prominent place when governments in the Global South devise policies, specifically ensuring that the excluded and marginalized are participants in robust schemes for improving their opportunities. Redoubling efforts in providing a universal, quality education, in particular through the adaption of curricula to particular contexts, helps significantly in strengthening the resilience and peacefulness of populations.

Often distracted by everyday urgencies, states lose sight of the need to organize, plan and monitor curriculum transformation in an integrated way, especially towards materializing SDG 4. Guaranteeing a curriculum that is relevant means putting its roots into the local and national reality, but also opening it to the world and to global aspirations. Thus, elements such as sustainable development education, peace education, global citizenship education and other issues gain major importance, not just as topics hastily added to an already overloaded

structure, but as ambitions that permeate the curriculum as a whole, from its vision to its design to the assessment of its outcomes.

The IBE is globally recognized as an institution that helps nation states to build their curriculum proposals within an international perspective, offering an expert, neutral and unbiased outlook about possible ways to design, develop, revise and update the curriculum. This action rests on the historic work that the IBE has carried out on education and comparative pedagogies, linking to a vast network of experts in the academic world as well as to institutions devoted to educational issues, and on its collection of curriculum materials from all times and places that may enrich the processes of curriculum design and development.

The IBE offers a coherent outlook on the complexities entailed by the implementation of the expected curriculum, the learned curriculum and the assessed curriculum as a seamless continuum. Very frequently, short-term curriculum revisions get stuck in the mere add-ons of content, in the changes to the learning materials or in recommendations to introduce "new" pedagogical approaches; avoiding a deep and bold initiative to reframe it to fulfill the needs and expectations of new generations. This leads to curriculum overload and imbalance, affecting the quality of education and learning and impairing the well-being of educators and learners. The systemic vision of the curriculum as an agent of change is lost, and the required modifications in interrelated elements such as teacher education and assessment strategies are not attended to simultaneously, thereby producing difficulties in the reception and buy-in during the transformation process.

In this regard, we are particularly interested in presenting the work of Mr. Renato Opertti, an appreciated IBE collaborator who, with his in-depth knowledge of education systems on multiple levels, and based on his collegial exchanges with specialists in many areas dealing with the technical and political aspects of educational improvement, shares with us a futuristic vision of the curriculum. Opertti provokes us to abandon the habitual approach that restricts curriculum to a pedagogical and discipline-based outlook, and to rethink the curriculum as a lever for transforming societies.

Through these pages, initial reflections will invite us to reconsider the curriculum as a way to express the powerful visions and desire of our societies to achieve a deep transformation of education as a new social contract, an education that should be holistic and inclusive, and that helps societies to advance their progress. He also invites us to re-conceptualize curriculum in order to go further than the mere specification of learning content, framing it as a process and product of public policy development, inviting the participation of multiple stakeholders and achieving the right to education for distinct groups and contexts.

Therefore, a series of specific ideas is proposed as the keys for rethinking curriculum in the time to come, including a stronger involvement of younger generations in the decision-making process, careful attention to vulnerable sectors, a focus on individuality and the aim for an education that is both global and local, appreciating diversity and nurturing freedom. These ideas can act as guides for action and as elements that embrace a deep reframing of education systems.

In closing, the book offers some perspectives for educational transformation that implies reflecting on the relationship between the curriculum and the future, especially the concept of transformation instead of reform, the inclusion of hybrid modes, attention to the challenges posed by the Fourth Industrial Revolution, and the sustainability of our planet as guidelines to redefine the competencies needed by our students and to rethink education systems to face these challenges.

With our hopes of a pleasant and provocative read, we expect that the reflections expressed in this book can serve as entry points for a close collaboration with UNESCO-IBE.

Dr. YDO YAO

INTRODUCTION

The transformation of education and education systems has emerged as a universal agenda across a broad range of societies. Despite the enormous differences both between and within countries—differences that have been exacerbated by the pandemic (World Bank, 2021; World Bank et al., 2022a, 2022b)—there is a general awareness globally that profound changes in educational purposes, content, and strategies, underpinned by significant improvements in the availability and use of resources, are critical for building a better future that is sustainable for future generations.

Among other notable aspects of what could become a universal movement for educational transformation, it is worth mentioning the more comprehensive educational approaches of a broad range of institutions and actors with complementary perspectives. It remains to be seen whether a transformative approach based on a hopeful, renewed social contract for education—involving policy, society, young people, and education, and balancing unity of purpose with diversity of perspectives—will prevail. It would require open-mindedness and clear indications of substantive agreements between institutions and actors with very different roles, responsibilities, and capacities—as well as an examination of what we really mean by transformation.

I discuss here the critical need for a comprehensive approach to the curriculum as a mainstay of new ways of understanding and acting within the field of education, reflecting transformative, progressive, and forward-looking perspectives. I first examine a broad conceptualization of curriculum and its implications for a transformative agenda (Chapter I. Reconceptualizing the Curriculum). Second, I share ten interconnected keys to rethinking the curriculum in light of the challenges posed by the post-pandemic era (Chapter II. Ten keys for rethinking the curriculum post-pandemic). Third, in a series of sections, I discuss a set of pressing issues in light of the emergence of a transformative curriculum agenda. Though they share a common conceptual thread, these sections can be read separately. Because of this, there is some repetition in the issues they cover (Chapter III. The meaning and content of transformation).

CHAPTER 1

RECONCEPTUALIZING THE CURRICULUM

The educational challenges of the pandemic and the post-pandemic period highlight the need to rethink the curriculum as a social imaginary that fundamentally addresses the question of what kind of education we want—as well as what kind of society, people, civic engagement, and community we want. My intent here is to provide context and direction for the evolution of curriculum design and development into a distinctly transformative, progressive, and forward-looking element within post-pandemic agendas.

Specifically, I will analyse the following topics, which I see as clearly interconnected: (i) a comprehensive understanding of the curriculum and its principal dimensions; (ii) situating a transformative educational approach within the 2030 Education Agenda; (iii) curriculum innovation in a context of societal disruption; (iv) positioning the curriculum in light of a vision of the future of education; (v) lessons of the pandemic and possible impacts on curriculum reform; and (vi) mapping global curriculum trends in support of curriculum transformation processes.

1. Principal dimensions of a comprehensive vision of the curriculum

From a comparative historical perspective, we can see that curriculum theory and practice reflect two overarching visions. The first is the view that the curriculum is the product of the selection and organization of educational content reflecting societal and educational perspectives. Goals, macro-objectives, study plans, the organization of teaching and learning processes, and criteria for student evaluation all fall within this perspective. The second is the delimitation of the curriculum according to the programmes of study specific to each educational level, primarily in line with disciplinary themes and content (Jonnaert, 2007; Jonnaert, Ettayebi, and Opertti, 2008; Gauthier, 2011; Amadio, Opertti, and Tedesco, 2014, 2015; Opertti, 2021a; 2021b).

Furthermore, the curriculum has been considered a technical issue that falls primarily within the domain of curriculum specialists and developers, disciplinary experts, pedagogical advisors, textbook editors, and evaluation specialists. It was apparently not seen as necessary to connect the curriculum with education policy design and decision-making processes. Though the curriculum was a crucial, powerful tool of education policy, it was not viewed as such.

However, within the last two decades or so, debate and collaboration around the curriculum has increasingly recognized its societal, cultural, political, and public policy dimensions, as well as its relevance for ensuring effective teaching, learning, and assessment processes and quality learning outcomes for all students equally. The guiding philosophy for curriculum design has evolved from one that is firmly rooted in disciplines and content toward one that instead aims to prioritize and give meaning to the question of what kind of education, education system, school, curriculum, pedagogy, and teacher we hope to develop, and for what kind of individual, civic engagement, society, and community. This is an inherently controversial, delicate, and evolving issue that involves a broad range of stakeholders

as well as perspectives from both within and outside of the education system. If this key question is minimized or ignored, the curriculum will lack legitimacy, as well as social and educational backing.

While the curriculum is understood as a political agreement that involves a broad range of stakeholders and reflects conflicts, tensions, and commitments that cut across society as a whole, it is also understood as a technical and education policy agreement that gives form and substance to the political dimension itself. In fact, the curriculum is a broad-based tool that: (i) helps support and develop education policies grounded in a long-term perspective and (ii) helps teachers effectively develop teaching, learning, and assessment processes. It is part of a comprehensive and interconnected approach to education spanning cultural, social, economic, civic, and community policy areas (UNESCO-IBE, 2015; Opertti, 2017, 2019, 2021a, 2021b, 2021c).

The curriculum is often seen as a critical foundation for educational transformation, as well as a determinant of educational objectives and their associated course content, channeled through a broad range of processes. These objectives are closely integrated with education policy and require public debate as well as discussions and meetings with stakeholders both within and outside of the education system (UNESCO-IBE, 2015).

Furthermore, the legitimacy and sustainability of the curriculum depends on how responsive it is to each student as a unique individual (UNESCO, 2017; OEI and UNESCO-IBE, 2018; UNESCO-IBE, 2022) and on its ability to broaden, democratize, and support learning opportunities, processes, and outcomes for all students equally regardless of their background, circumstance, and ability. Indeed, the curriculum entails an evolving, forward-looking selection of topics, knowledge areas, and disciplines that guide children and adolescents and help them understand the world and succeed in it despite individual and collective challenges (Futurelab, 2009).

To summarize, a comprehensive approach to the curriculum from an international comparative perspective requires that at least seven considerations be kept in mind during its design and implementation, namely:

(i) The curriculum reflects and affirms the kind of education being forged to move toward the desired social imaginary. This means being able to recognize the different ideological and programmatic perspectives that pervade those social imaginaries. It is thus critical to acknowledge the controversial nature of curriculum debates and development with a cross-regional approach that fosters learning and collaboration among regions and countries.

(ii) The curriculum contributes to the comprehensive education of individuals through a broad range of learning experiences linked to their hopes, motivations, interests, backgrounds, circumstances, and abilities.

(iii) The curriculum is at the core of education quality, underpinning the design and development of education policies. Mutual reinforcement and coordination between education policy and the curriculum is a sine qua non for effectively supporting students and their learning opportunities, processes, and outcomes.

(iv) The curriculum connects the *why, what, how, where,* and *when* of teaching, learning, and assessment to ensure that each student matters equally. It is important for the different components of the education system to be connected in ways that make sense in order to advance the goal of each student having the right to learn anywhere, at any time, and through personalized methods among peers.

(v) The curriculum can be broken down into a set of interconnected dimensions: prescribed—the written curriculum; implemented—what actually happens; negotiated/mediated—how the curriculum is interpreted by the different levels, institutions, and actors of education systems; perceived—how the curriculum is understood and used by teachers; experienced—how the curriculum is connected to and experienced by students; achieved—the set of learning outcomes achieved and competencies developed; hidden—unwritten assumptions, rules, values, and attitudes through which teaching, learning, and assessment are contextualized and have meaning within each school; and forgotten—the written curriculum that is not taught.

(vi) The curriculum guides and aligns lesson plans and programmes, and it also establishes links and priorities among them (Jonnaert et al., 2021) with the aim of ensuring that each student has truly personalized learning opportunities.

(vii)The curriculum depends on teachers being appreciated and empowered as classroom coordinators, managers, and policy-makers who take on the role of co-developers and co-agents of the curriculum, while students are understood and respected as agents and co-agents of their own learning.

2. Situating a transformative educational approach within the 2030 Education Agenda

The 2030 Education Agenda (UNESCO et al., 2015) represents a tremendous opportunity to rethink education as a whole from a systemic, humanistic, progressive, and transformative perspective. In fact, the agenda fosters a reexamination of synergies between key concepts such as equity, quality, and inclusion that have been influential in education over the last forty years (Braslavsky, 2005; Savolainen, 2009; Benavot, 2012; Amadio, Opertti, and Tedesco, 2015; Opertti, 2016, 2017, 2020).

The 2030 Agenda entails a new global system for educational governance based on two central ideas: education for all and education for sustainable development (Tikly, 2017). Sustainable Development Goal 4 (SDG 4)—"Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"—sends a strong signal that inclusiveness in education necessitates that equity and quality go hand-in-hand within an approach that emphasizes lifelong learning.

Some of the main aspects of the agenda can be summarized in the five points below:

(i) First, its purpose is to help transform people's lives and communities by positioning education as an agent of social change.

(ii) Second, it is based on a holistic, multidimensional approach to development that prioritizes the critical role of education in ensuring that development achieves and integrates the principles of sustainability, inclusion, social justice, equity, and cohesion.

(iii) Third, its humanistic nature is reinforced by the fact that education enables us to identify values, attitudes, and behaviors that are conducive to forging dignity, coexistence, and respect between people and communities.

(iv) Fourth, its progressive nature can be seen in the fact that it aims to build confidence in the potential of education to expand development opportunities for communities and individuals.

(v) Fifth, it highlights the idea of development as a delicate, dynamic interaction between cultural, political, social, and economic factors that both influence and are influenced by education.

It is important to situate a systemic, comprehensive view of the curriculum within the context of a new understanding of the key concepts of inclusion, equity, and quality advocated in the 2030 Education Agenda, namely:

(i) Equity involves reducing and eliminating injustices and obstacles to learning both within and outside of education systems in order to expand and democratize learning opportunities for all students.

(i) Quality involves reinforcing synergies among curricular, pedagogical, teaching, and learning strategies in order to truly connect the *why* and *what* of teaching, learning, and assessment with the *how*, *where*, and *when*.

(ii) Inclusion involves balancing equity and quality, while recognizing and building upon each student's potential, as well as understanding and accepting student diversity as an opportunity to identify, support, and achieve better learning opportunities, processes, and outcomes.

3. The curriculum in a context of disruption

While the 2030 Education Agenda establishes the foundations and the commitments of a renewed understanding of education, global disruption associated primarily with the Fourth Industrial Revolution is increasingly affecting individuals, citizens, workers, and communities.

Some of the main characteristics of this disruption include:

(i) The emergence of technology that blurs—while it simultaneously reshapes—the borders between the physical, digital, and biological dimensions.

(ii) The lengthening of the human lifespan and the redefinition of cycles of life, education, and work.

(iii) The growing impact of technology in shaping our perceptions of the world, changing our behaviour, and influencing our identities as human beings.

(iv) The profound changes in the relationships between humans and nature, as well as between humans and machine learning.

(v) The tensions and synergies between coexistence, complementarity, and competition with machine learning.

Broadly speaking, disruption affects all aspects of what we do, how we do it, and even who we are. It requires us to question traditional ways of weighing options and making decisions, both individually and collectively.

In keeping with an understanding of the curriculum as a reflection of societal and educational disruption, the following eleven recommendations may be considered:

(i) Let go of the narrow conception of teachers as transmitters and of students as receivers.

(ii) Avoid further fragmentation of educational programmes by level, environment, course offerings, and discipline; this fragmentation interrupts students' learning processes and progression.

(iii) Watch out for the pendulum swinging from teachers to students without due consideration for synergies between them.

(iv) Move beyond distinctions between so-called soft and hard skills and learning experiences, with the implications they entail concerning what is truly valued, taught, learned, and measured.

(v) Reject the strict separation of the brain, mind, and body in order to ensure a holistic understanding of the wellbeing and development of each student as an individual.

(vi) Integrate in meaningful ways the humanities, sciences, and ethics in order to better understand cross-cutting issues such as inclusion, sustainability, and gender, from the lowest educational levels to the highest.

(vii) Avoid a division between tradition and modernization, as the curriculum rests on a foundation that is forward-looking but also incorporates present and past developments.

(viii) Integrate theory and practice in curriculum design because they are inextricably linked and mutually reinforcing in all stages of education.

(ix) Incorporate both individual and collective dimensions of comprehensive education within all curriculum approaches.

(x) Integrate meaningfully and establish synergies between global and local concerns, realities, and demands in curriculum design and development.

(xi) Identify all possible connections among the dimensions of learning to know, to be, to do, and to live together (Delors, et al., 1996).

4. The curriculum as part of a forward-looking vision of education

In 2020, UNESCO published the seminal paper "Education in a post-COVID world: Nine ideas for public action," which grew out of the work of the International Commission on the Futures of Education. One of the strengths of this commission, instituted by UNESCO, lies in the fact that it is composed of distinguished individuals who have a wide variety of professional experience and expertise and who hail from different regions of the world. Taken together, the nine ideas proposed constitute a conceptual framework that enables us to situate the curriculum debate within a progressive societal and educational vision (International Commission on the Futures of Education, 2021; Opertti, 2021b).

The first idea refers to "strengthened public commitment to education as a common good." This kind of commitment, based on appreciating and balancing the values of inclusion, solidarity, and individual and collective progress, entails the involvement of a diverse range of actors both within and outside of the education system in debating, agreeing on, and expressing visions for society and development that uphold the role and responsibilities of education as a cultural, civic, social, economic, and community policy. This commitment requires careful balancing of, on one side, the role of the guarantor state and, on the other, the involvement of institutions and actors that reflect the patchwork of affiliations and traditions woven throughout society. The goal is to enhance the free expression of a wide array of competencies and talents within a framework of affirmation and adherence to universal values. When societies reject their own diversity, it becomes difficult to successfully build and sustain education as a common good.

The second idea clearly involves education as a universal human right within an approach that encompasses the interwoven cultural, social, economic, and political dimensions. This idea certainly pervades the 2030 Agenda for Sustainable Development (UNESCO et al., 2015) and, in particular, the conception of education as a pivotal and cross-cutting issue for the design and achievement of the 17 Sustainable Development Goals (SDGs). Moreover, the right to education requires facilitating equal access to connectivity and online platforms, which leads us to a renewed appreciation of the indispensable role of the state in guaranteeing five inextricably linked rights: to education, information, knowledge, connectivity, and learning.

The third idea rests on the firm belief that educators are the primary decision-makers in education systems regardless of the mode of teaching, learning, and assessment being used. Valuing educators as producers and managers of learning opportunities for all students proved to be even more important during the pandemic; as the document states, "the real capacity for response and innovation lies in the initiative of educators who, together with parents and communities, have in many cases found ingenious and contextualized solutions." Perhaps these openings that have been emerging within educational communities constitute a window of opportunity to help implement and sustain a transformation of education and education systems as part of a progressive approach toward society as a whole.

The fourth idea pertains to UNESCO's appeal "to everyone with educational responsibilities, from government officials to teachers to parents, to prioritize the participation of students and young people broadly in order to co-construct with them the change they wish to see." Students must not be considered "educational goals and objectives" but above all as active subjects with rights. When they are respected as infants, children, adolescents, and young people, they can become protagonists, managers, debaters, and disseminators of their own education. Furthermore, their crucial role in building a sustainable way of life affects their very existence, as well as the possibility of a future that today appears severely threatened, in large part by the decisions and behaviours of the adult world. We do, of course, need adult generosity, wisdom, and expertise in order to bring about fundamental transformations in course

content and in educational strategies, but it will only be sustainable if adults trust and support students to be protagonists and makers of their own futures.

The fifth idea highlights the need to "to protect and transform the school as a separate space-time, specific and different from home and other spaces of learning, where there is as much growth and expansion of social understanding as there is acquisition of skills, competencies and knowledge." One of the main reasons schools exist is that, in addition to being an irreplaceable instrument for cultural, social, and civic integration, they are also the principal means by which the younger generations acquire skills and knowledge that help open doors for true opportunities for collective and individual development. Valuing schools means much more than acknowledging and appreciating the fact that in-person instruction is indispensable for guaranteeing the right to education and learning. Moreover, in-person education can be strengthened within a framework of reexamination and of complementarity with virtual education, with the principal objective of broadening and democratizing learning opportunities.

The sixth idea addresses the debate on the critical role technology plays, whether in democratizing and equalizing opportunities or in deepening gaps and disparities. No decision regarding the present or future wellbeing of our society can disregard the issue of technology—not in the sense of something that relentlessly controls our lives down to the smallest details, but as a possible window of opportunity for building more just, inclusive, and sustainable societies. It is just as detrimental to human thought and action for us to fall into the temptation of technological determinism or fatalism as it is for us to dismiss or underestimate the use of technology as a means of improving the quality of life for individuals and communities. It is therefore essential that technology be a central pillar of the comprehensive education of the individual, fostering the exercise of freedom, independent thought, creativity, and resilience, among other important aspects. Lastly, technology can help us personalize teaching, learning, and assessment, keeping in mind that each person is a unique human being even if we all learn in more or less similar ways (Dehaene, 2018).

The seventh idea opens up a discussion on educational content as a linchpin of any proposal for educational transformation. UNESCO underlines the importance of education for encouraging and developing within students the independent and critical thinking skills that enable them to process, assess, and take a position on information of many different kinds with many different aims, which they receive at exponential rates. The document goes further and notes that the proliferation of "misinformation and fake news" can be "fatal for social life and human understanding but is also literally destroying lives." Responsible management of evidence produced through the triangulation of approaches, strategies, interventions, and data is essential for individuals to be able to manage their own lives without their beliefs, opinions, or actions being manipulated with the "humane" assistance of artificial intelligence, for the purpose of guiding, controlling, and commercializing what we build, do, and express in our daily lives.

The eighth idea refers to the need to reach a "just and effective use of these resources," which means reaffirming the idea that educational spending must be linked to a robust educational approach that is clear in its goals, content, and paths. The level of funding dedicated to education can be a good indicator of political will to prioritize investment and spending on education, but it does not in itself indicate a willingness to transform education. Education funding is central to transforming the educational agenda at both the international and national levels, not just to counteract the most perverse and regressive effects of the pandemic, but also to foster a reexamination of the objectives, content, and strategies of education with the aim of building sustainability in a post-pandemic world.

The ninth idea addresses the need to reinvent a proactive multilateralism underpinned by the irrefutable fact that "we are biologically all citizens of a single planet." There must be no loopholes or shortcuts in the effort to understand each other, collaborate, and act as one humanity to ensure global sustainability. Curriculum and pedagogy in particular—that is, balancing the why, what, how, when, and where of teaching, learning, and assessment—are increasingly seen as high-priority issues for reimagining education with a view to forging a better, more sustainable, and more just world. Allowing discussions on educational content to stagnate or be addressed only superficially makes education increasingly irrelevant; it also deprives the younger generations of frames of reference and tools for managing their own lives in the future.

5. The curriculum in light of lessons learned during the pandemic

Evidence is beginning to emerge about what has taken place during the pandemic with respect to student involvement and student support, as well as the continuity of learning processes. In particular, Reimers and Opertti (2021) identified examples of educational innovation prompted by the pandemic; these examples help shed light on paths toward building back better. The study is a product of the Global Education Innovation Initiative at the Harvard Graduate School of Education (focused on how to transform public education), the HELA Initiative (Hybrid Education, Learning, and Assessment) of the International Bureau of Education (UNESCO-IBE), and the inspirational vision developed in the document "Education in a post-COVID world: Nine ideas for public action" (see previous section).
Based on an analysis of 31 studies of examples of innovation from different regions and contexts, the following nine points are identified as relevant for contextualizing and reflecting a comprehensive, systemic vision of the curriculum:

(i) The positive sense that reimagining education after Covid-19 can help lay the foundation for a better future both globally and nationally. While it is essential to develop far-reaching initiatives to help mitigate the learning loss and inequalities caused by the pandemic (World Bank, 2021; World Bank et al., 2022a, 2022b), it is equally important to take advantage of the windows of opportunity that have opened up during the pandemic to rethink education and education systems.

(ii) Openness, boldness, creativity, and experimentation to give new meaning and visibility to fundamental educational categories and concepts such as the development of skills in students and educators, as well as ideas about the curriculum, pedagogy, home-based learning, in-person and remote education, technology, print and online materials, etc.

(iii) Confirmation that it is both possible and strategic to respond proactively to urgent challenges related to the social and educational implications of Covid-19, while at the same time laying a foundation for a profound societal, cultural, and educational transformation that involves crucial decisions on the goals, content, and development of education.

(iv) Recognizing a broad range of approaches, ideas, issues, initiatives, strategies, processes, and tools as complementary starting points for designing and developing innovative practices rooted in a systemic perspective that reinforces connections between different components of education and education systems within a medium- to long-term approach.

(v) Understanding and respecting students and teachers as individuals by supporting their wellbeing and development, building upon their competencies and their potential, addressing their felt needs, boosting trust among peers, and involving them in reimagining education and their future paths.

(vi) Reconfiguring and redesigning societal and educational roles, as well as partnerships and new ways of producing and managing change, in ways that incorporate more fluid and productive intersections between bottom-up and top-down governance with the aim of supporting systemic transformation that transcends the fragmentation of levels, course content, and learning environments.

(vii) Policy design and decision-making processes take place within all layers, levels, and components of the education system and involve a broad range of stakeholders as co-agents open to different formats that encourage collaboration within a context of distributed leadership.

(viii) A new understanding and appreciation of the hybrid use of old and new technology and its ability to democratize and ensure learning continuity, progression, and completeness—personalized for a variety of students in a way that is responsive to challenging social and educational backgrounds and circumstances.

(ix) The triangulation and documentation of evidence from a variety of approaches, interventions, contexts, studies, and data, demonstrating the potential of different interventions in light of the movement toward hybrid modes of teaching, learning, and assessment (Reimers and Opertti, 2021).

6. The curriculum in the context of global educational trends

Mapping global educational trends is useful for situating curriculum debates within the context of the post-pandemic era. I identify 14 of those trends here:

(i) A comprehensive understanding of the student as an individual, integrating and giving new meaning to disciplinary and interdisciplinary findings on how people learn, as well as on a broad range of pedagogical strategies for addressing students' varying expectations and needs.

(ii) A more nuanced understanding of issues that inform curriculum approaches requires the integration of disciplinary and interdisciplinary perspectives.

(iii) An openness to new arrangements and combinations between disciplines, cutting across all educational levels, that enables a focus on global topics in the curriculum, such as sustainability, inclusion, climate change, and learning to live together despite cultural differences.

(iv) An understanding of competence as the willingness of students to identify, use, and integrate values, attitudes, emotions, knowledge, and abilities to successfully respond to individual and collective challenges.

(v) Progress toward hybrid modes of teaching, learning, and assessment that involve levels, environments, course offerings, subject areas, and disciplines as one interconnected whole.

(vi) The reinforcement of versatility among teachers to lead, create, integrate, and provide learning opportunities that are increasingly focused on addressing challenges and situations that involve different disciplines.

(vii) Personalizing education, learning, and assessment to provide meaningful learning opportunities for all students equally.

(viii) Promoting and facilitating the freedom of students to create and manage a curriculum according to their aspirations and needs.

(ix) Strengthening a «glocal" approach to the curriculum that is globally oriented but also locally grounded, addressing cultures and contexts and incorporating a broad range of stakeholders to develop it, manage it, and provide legitimacy.

(x) Linking the curriculum and pedagogy to broaden the range of strategies for addressing student diversity.

(xi) Strengthening the integration of cross-cutting topics and approaches in the curriculum in a way that corresponds to societal and educational imaginaries.

(xii) Understanding assessment as a tool for learning progression and completeness within curriculum development processes.

(xiii) Building empathy and cooperation in order to develop a culture of trust and a growth mentality among students and teachers.

(xiv) Combining technologies as a powerful way of broadening and democratizing learning opportunities and also as a window of opportunity to reinforce connections among students, teachers, families, and communities.

7. A final note

This chapter describes a set of complementary approaches that position the curriculum as pivotal and essential for a post-pandemic education agenda. They involve arguing and demonstrating that the magnitude of change needed in order to educate the next generations for a sustainable, democratic, just, peaceful, and inclusive world requires a global reexamination of the curriculum and its integration with all the components of the education system.

It appears that the critical task in the curriculum debate and in curriculum development today is to reaffirm that the curriculum should be transformative, progressive, forward-looking, and disruptive—as well as underpinned by intensive, listening-based dialogue between different institutions and actors. This would involve reinforcing the centrality of the curriculum in education, in education systems, and especially in schools, as an opportunity to lay the foundation for a new way of envisioning the place of human beings on this planet, as noted in the document "Reimagining our futures together: a new social contract for education" by the Commission on the Futures of Education (2021).

That report identifies several ways of bolstering curriculum transformation agendas. These include: designing a curriculum approach for a damaged world; integrating knowledge and emotions in all educational activities; reinforcing the teaching and learning of fundamental literacies including oral and written communication, multilingual futures, and the application of mathematical knowledge and skills to a variety of situations; analysing the humanities as well as scientific understanding and research; examining the development of students' and teachers' competencies for a digital world; strengthening art

education as a way to expand the meanings the world can have for students; and educating for human rights, for active civic engagement, and for democratic participation (see Chapter 3. The meaning and content of transformation).

The centrality of the curriculum in integrating and creating interconnected meanings among the above-mentioned topics underlines the significant change in its focus and its role in foregrounding the individual, as an indivisible whole, and the comprehensive education of the individual as citizen, worker, and member of various communities at the global, national, and local levels. We are undoubtedly facing a paradigm shift in the why, what, how, where, and when of teaching, learning, and assessment that rests on transformations of both society and education as interlinked and mutually reinforcing processes.

CHAPTER 2

TEN KEYS FOR RETHINKING THE CURRICULUM

Introduction

This chapter brings together my reflections from "Ten keys for rethinking the curriculum," published by the International Bureau of Education (Opertti, 2022a) as part of the In-Progress Reflections Series on Current and Critical Issues in Curriculum, Learning, and Assessment. My purpose here is to share some guidance for rethinking the curriculum in light of four important considerations.

The first is the need to reinforce a holistic and systemic understanding of the curriculum as a dynamic, complex, and contested process of collective discussions, agreements, and developments, reflecting social aspirations and ideals and involving a diverse array of institutions and actors to define the *why, what, how, when*, and *where* of teaching, learning, and assessment (Amadio, Opertti, and Tedesco, 2015; Jonnaert, Depover, and Malu, 2020; Tedesco, Opertti, and Amadio, 2013; UNESCO-IBE, 2015; Opertti, 2021a).

The second is the idea, underscored by the 2030 Education Agenda (see Chapter I, section 2) , that the curriculum gains prominence, legitimacy, and sustainability on the basis of educational principles, policies, objectives, content, and strategies that contribute to the transformation of the lives of individuals and communities (Amadio, Opertti, and Tedesco, 2015; UNESCO et al., 2015).

The third consideration is disruptive global change that is profound, systemic, exponential, and unpredictable, among other important characteristics (see Chapter I, section 2). These changes have lasting societal effects and lead us to reexamine our identities and status as human beings, citizens, workers, businesspeople, and communities (Maddah, 2016; Schwab, 2017; Stiegler, 2016).

Fourth, Covid-19 has significantly contributed to discussions of two main issues. There has been an exploration and testing of proposals and pathways with regard to integration and synergies between in-person and distance education; removing barriers and discontinuities between educational levels, learning environments, and course offerings; and, crucially, revisiting educational aims, content, and strategies. The pandemic has also highlighted the need to delve into the competencies students need in order to face a diverse array of personal and collective challenges with regard to ensuring freedom of expression, independent and creative thinking, sustainable lifestyles and development, coexistence, and care of the planet (Advisory Council of the OEI, 2020; Fundación Santillana, 2020; International Commission on the Futures of Education, 2020; Microsoft and New Pedagogies for Deep Learning, 2020; Reimers and Scheleicher, 2020).

Key 1: Understanding and shining a spotlight on the youngest generations

One of the biggest challenges education systems across the world face is to understand students from a generational lifespan perspective that values and supports them as infants, children, adolescents, young people, and, above all, as protagonists taking responsibility for their own learning. The lack of intergenerational empathy is evident in educational, curricular, pedagogical, and instructional approaches that fail to make the connections between contexts, circumstances, values, emotions, and thoughts in order to address the different expectations and needs of all learners.

I share here four elements to support further understanding of the younger generations as an essential starting point for rethinking the curriculum from a transformative educational perspective.
The first is to focus on, analyze more deeply, and make visible the myriad factors associated with vulnerability. This implies going beyond a disjointed concept of vulnerability that sees individuals, groups, contexts, or circumstances in isolation. It requires that we also acknowledge the many interconnected vulnerabilities that challenge hegemonic "educational," "social," or "cultural" explanations. I highlight here three important considerations.

We must weigh how household deficits in connectivity and technology negatively affect teaching and learning conditions and processes. A growing long-term trend—unavoidable in the short term—of moving toward hybrid modes, in which in-person and remote learning are integrated and connected, generally accentuates these impacts and, crucially, serves to expand and democratize learning opportunities.

It is important to note that vulnerability is related to weaknesses in the conceptual and operational frameworks of public policies that rely heavily on compensatory mechanisms to address multiple economic and social vulnerabilities affecting education. Those frameworks fail to attain equally meaningful and sustainable learning processes and outcomes for various individuals and groups. It is possible that those frameworks are based on fragmented conceptualizations, under the assumption that the aggregation and cumulative effects of sectoral interventions alone improve educational opportunities without a robust vision that connects and strengthens them.

Furthermore, vulnerability affects the wellbeing and mental health of students, which can be better understood if the findings of psychology, psychiatry, neuroscience, and other disciplines are integrated. Unlike approaches that improve our understanding of students as indivisible, unique individuals, the accumulation of approaches and interventions designed to address identified needs of students—even within a multidisciplinary or interdisciplinary framework—fails to enhance understanding of and support for each person as a unique human being and to personalize the curriculum, pedagogy, and teaching for each student.

As Hargreaves (2020) notes, children's wellbeing is not an alternative to success in school but rather a precondition for learning, especially for the most vulnerable groups. Students' wellbeing is clearly a prerequisite for education that is engaging, meaningful, and sustainable. To a great degree, the concept of wellbeing reinforces a holistic view of education, recognizing the evolving interaction between the emotional nature of cognition and the cognitive nature of emotions (Pons, de Rosnay, and Cuisinier, 2010).

The second element is that the global pandemic is shedding light on the resilience of the youngest generations—aspects that may be hidden, unreported, or unknown, as well as undervalued in education broadly. We are beginning to observe and understand that during a period of isolation or reduced in-person interactions, students learn about, use, experience, and reflect upon a wide range of strategies to continue their education. It may be that much ground has been gained during the pandemic in terms of valuing learning that is based on problems, challenges, or projects that bring into play student competenciessuch as creativity, ingenuity, and adaptability as they confront shifting and adverse circumstances.

We may ask if students may have developed during and after the confinement period certain competencies that allow them to:

(i) gain more intellectual autonomy, more capacity for independent learning, improved executive (brain) functioning reflected in more flexible thinking and self-control, and greater online learning skills (Reimers and Schleicher, 2020; Morin, 2020);

(ii) develop active and long-lasting social, emotional, and cognitive "antibodies" against possible future pandemics or crises;

(iii) experience new ways of understanding, communicating, and building trust with their families, peers, and teachers;

(iv) understand how their own motivation, involvement, values, attitudes, and emotions give meaning to their education and learning; and

(v) learn how to handle a wide range of challenging situations by developing personal competencies (such as confidence and self-awareness) as well as interpersonal ones (such as empathy and working collaboratively with others).

Third, the younger generations will increasingly demand lifestyle changes on the part of adults to allow them to individually and collectively contribute to, be part of, and enjoy a better future that is sustainable. A renewed agenda of rights, commitments, and responsibilities, heavily influenced by the younger generations, could emerge after the pandemic. Several points are worth noting with respect to this.

Issues and approaches linked to sustainable, healthy, and socially committed lifestyles are increasingly mainstreamed in curricular and pedagogical approaches. Nevertheless, it is not enough to carry out activities or implement projects that demonstrate, for example, the benefits of a balanced diet or physical activity. It is also necessary to connect and develop a unified, actionable conceptual framework that cuts across different educational levels and offerings with the intention of guiding and supporting students in adopting lifestyles that are vital to global and local sustainability as well as personal and collective wellbeing. Additionally, it entails mainstreaming robust and evidence-based educational approaches on renewed ways of living in harmony, as well as understanding and protecting nature as part of one ecosystem.

At the same time, there must be a clear and substantive reaffirmation of freedom and independent thought that strengthens and protects the youngest generations as they develop preventive attitudes and "antibodies" against three mutually reinforcing risks: (i) the misuse of artificial intelligence devices and mechanisms to curtail the freedom of expression of individuals, groups, and communities; (ii) a view of people as data with "differential market values;" and (iii) the normalization of unrestricted citizen surveillance at all times.

Fourth, after prolonged periods of isolation, it becomes necessary to look for ways to reconnect young people with education broadly. This cannot be done by assuming that no significant learning of any kind has occurred during the confinement period or by disregarding the diverse range of strategies that teachers, students, families, and communities have developed to ensure learning continuity. Reconnecting essentially means documenting, understanding, respecting, and building upon the whole range of situations affecting the social, emotional, mental, and physical wellbeing of teachers and students. In fact, the pandemic has highlighted the importance of understanding the multidimensionality of wellbeing as a foundation for any teaching, learning, and assessment process.

Also, disconnection reveals an enormous pre-Covid-19 challenge that countries worldwide have faced in different contexts, namely, the historical fragmentation of education and education systems with regard to approaches, levels, cycles, course offerings, learning environments, and educational content. This fragmentation can constitute a powerful institutional, curricular, pedagogical, and instructional barrier to students' progression and to their learning continuity.

Moreover, fragmentation can disrupt the development of competencies and knowledge students must gain in order to be able to function competently in a world of exponential and systemic changes. Likewise, the organization of educational levels and course offerings into disciplinary silos stands in sharp contrast to the life experiences of students, who are faced with the task of tying together the many different stimuli and experiences and giving them some overarching, unified meaning. The disconnection and decontextualization of learning from students' aspirations and motivations alienates students from education by making it irrelevant for their lives.

Education systems face the challenge of meaningfully integrating bodies of knowledge that help students understand the complexity of the challenges they face now and will face in the future. This means, among other things, the ability to educate students on a range of competencies understood as essential for building a better future (Reimers and Schleicher, 2020) as part of a renewed commitment to a cosmopolitan humanism respectful of diverse traditions, groups, and affiliations. The capacity of educational institutions to design education as a driver for reimagining the future will be a critical test of their willingness to redesign learning systems for resilience.

Key 2: Combating factors related to vulnerability

As previously noted, vulnerability is the expression of a multidimensional set of shortcomings in human capacity that compromise the wellbeing and development of individuals, citizens, and communities. As Josep María Esquirol notes (Diario El País, 2020), human beings are vulnerable, which means that we are sensitive and capable of feeling sad and hurt.

It is clear that education cannot address vulnerability from a sectoral perspective endogenous to educational institutions. Nor can it do so on the basis of accumulating a multiplicity of interventions and supports from outside the education system. Instead of perspectives and approaches devoid of close interfaces between educational institutions and society as a whole, we need cross-cutting, inter-institutional approaches to understanding and addressing people's development and wellbeing. We must recognize that a person's competencies —embedded within and influenced by myriad contexts and circumstances— cannot be separated and isolated by area of intervention, beneficiary population, rights, or benefits.

Approaches to counteracting vulnerability require that we understand, value, and support people as individuals before we decide on any kind of sectoral intervention and certainly before limiting people to the prescriptions deemed necessary by institutions. It is important, then, to reaffirm that each person has enormous potential, unknown a priori, for learning and development. This potential is developed through ongoing interactions between various genetic and environmental factors mediated by the depth, continuity, and impacts of public policies.

Any child's development begins in the womb, and a lack of timely and high-quality public policy interventions produces and entrenches a set of vulnerabilities that are difficult to remedy at an older age. Studies show that the number of synapses in a child's brain is almost double the number in an adult brain (Dehaene, 2018). Useful synapses survive and multiply, while others are eliminated. This process is closely associated with the intensity and quality of stimulation the child receives from the environment, which naturally includes family, close adults, social actors, teachers, other leaders, peers, and the community.

In order for education to make progress toward the central goal of laying a foundation and supporting each student's developmental potential, we need a conceptual and operational framework that is common to all institutions that have responsibility for issues related to childhood, family, health, poverty, etc. Building this framework starts with discussion and agreement among those institutions on a robust, holistic conceptualization of child development from birth onward. Adopting coordination mechanisms and preventing the duplication of efforts and initiatives can be effective if it is based on unified conceptual frameworks that guide and support the range of developmental interventions.

Moreover, a comprehensive public policy approach to vulnerability challenges education systems to forge a multidimensional vision of student support and development and to ensure the continuity of teaching, learning, and assessment across institutions, levels, and course offerings.

To that end, we must go beyond reinforcing public-private coordination mechanisms. It is of the utmost importance that we come to agreement on educational time frames, processes, and content that are based on child development approaches that promote students' wellbeing, provide learning opportunities, and address their vulnerabilities. The cultural, economic, social, and geographic dimensions cannot be simply tacked onto educational dimensions; rather, they are interconnected within each initiative and action undertaken by schools.

In sum, addressing factors associated with vulnerability solely through education or social assistance is not a sustainable strategy for reducing the massive, flagrant inequalities that existed even before the pandemic and that have now become even more severe and more apparent.

Key 3: Building understanding between schools and families

The global pandemic has given rise to promising debates and developments focused on rethinking the interlinked roles and responsibilities of schools, teachers, students, families, and communities. Although the need to rethink those roles was undoubtedly overdue even before the pandemic, the absence or interruption of in-person school activities has highlighted the importance of examining mutual understanding and trust, as well as collaboration that goes beyond the nominal participation of families and communities in schools. The following five observations will allow us to explore this topic in more depth.

The first is a reaffirmation of the significant role schools play in structuring our social lives. Face-to-face interaction involves not only schools but also families, workers, communities, and society at large. As Dussel, Ferrante, and Pulfer (2020) note, the pandemic shed light on the role of schools in the socialization of children and adolescents, in terms of their relations with both adults and peers. Despite any criticism schools may deserve, their presence is vital and irreplaceable for societal harmony and sustainability.

Second, it appears that awareness is increasing globally among parents and communities about the delicate and complex task of teaching. The role of teachers in guiding students and in facilitating their learning processes is arguably better understood by parents today than before the pandemic, for example regarding issues such as "explanation, organizing student work, and even grading" (Dussel, Ferrante, and Pulfer, 2020).

Third, parents have sought out, experimented with, and learned ways of guiding and supporting their children, a task that is becoming more necessary and urgent the more we transition to educational modes that integrate in-person and online spaces. Even before the pandemic, there was certainly a need for more family participation in teaching and learning processes, beyond merely helping schools with non-instructional tasks. A key issue for the future will be for families to be motivated to expand their involvement and to receive guidance in doing so—and this is not merely a short-term effect of the pandemic. Education can no longer be reduced to teaching, learning, and assessment in a face-to-face environment. It also encompasses increasing diversity in opportunities for schools and families to mutually strengthen each other and collaborate in achieving shared objectives. This means embracing a vision of education without borders or limits.

Fourth, the ways educators and students understand each other, relate to each other, and support each other in hybrid settings create opportunities to bring generations together, broaden perspectives, and facilitate more personalized, open, and holistic perceptions of people as individuals. Emotions and experiences can play a much more significant role in the relationships between educators and students as they become open to seeing themselves in roles that may have previously been less visible, more isolated, or even hidden. This may be a golden opportunity for them to understand and connect with each other better as individuals.

The fifth element is an increasing awareness of the right to technological connectivity both within and outside the home as an essential foundation for expanding and democratizing hybrid education modes. As noted in Key 2, it is increasingly important to reinforce synergies between politics and programmes focused on families, the home, and education within a unifying framework of cross-cutting, interinstitutional social policy.

In sum, reinventing the education system means not just building more empathetic and substantive roles among teachers and students, but also empowering families as "learning coaches" to support their children's education (Reimers and Schleicher, 2020).

Key 4: Embracing "glocal" education

Global discussions about sustainability emphasize the critical need to bolster collaboration and interdependence globally, nationally, and locally if we are to build a sustainable planet. In particular, the 2030 Agenda for Sustainable Development, structured around 17 goals with their respective targets and indicators for 2030 (UNESCO et al., 2015), highlights the role of education as pivotal for attaining the other sustainable development goals (SDGs). It also frames the 2030 Education Agenda as a window of opportunity for promoting a transformative, humanistic, progressive, comprehensive, and sustainable vision of education and education systems (see Chapter I, section 2; Opertti, 2016). This vision takes on even more importance insofar as public policies acknowledge the role of education in building a future that is better, more sustainable, and more just for the next generations.

The argument that is emerging and gaining prominence is based on the fact that education must be able and willing to respond to today's lifestyles that lead inexorably to environmental destruction, human decadence, democratic decline, the deepening of inequalities, and a future in which artificial intelligence governs our lives. An education without robust ethical, humanistic, cultural, and social foundations will not help develop transformative perspectives on harmony, wellbeing, and development.

Now more than ever, education must involve connection, closeness, and convergence between cultures, traditions, affiliations, communities, countries, and regions toward the advancement of universal values and frames of reference that are respectful of diversity and difference. Indeed, a "glocal" education represents a commitment to support a global social contract (Commission on the Futures of Education, 2021) that necessitates new forms of cooperation and understanding between countries, as well as a reliable educational multilateralism with a vision of the future that is conducive to reinventing education. This means, among other things, rethinking the curriculum and pedagogy to collaborate in helping students actively adopt the roles of producers, protagonists, debaters, and disseminators of a new order of global harmony.

These discussions on more inclusive, just, and sustainable social imaginaries are becoming increasingly important in education. This involves a fundamental role for education in support of holistic transformation, as Edgar Morin wisely argued (Morin, 2020; Blanquer and Morin, 2020). If we are truly striving for a world in which the quality of thought, life, and society are strengthened, education must play a central role.

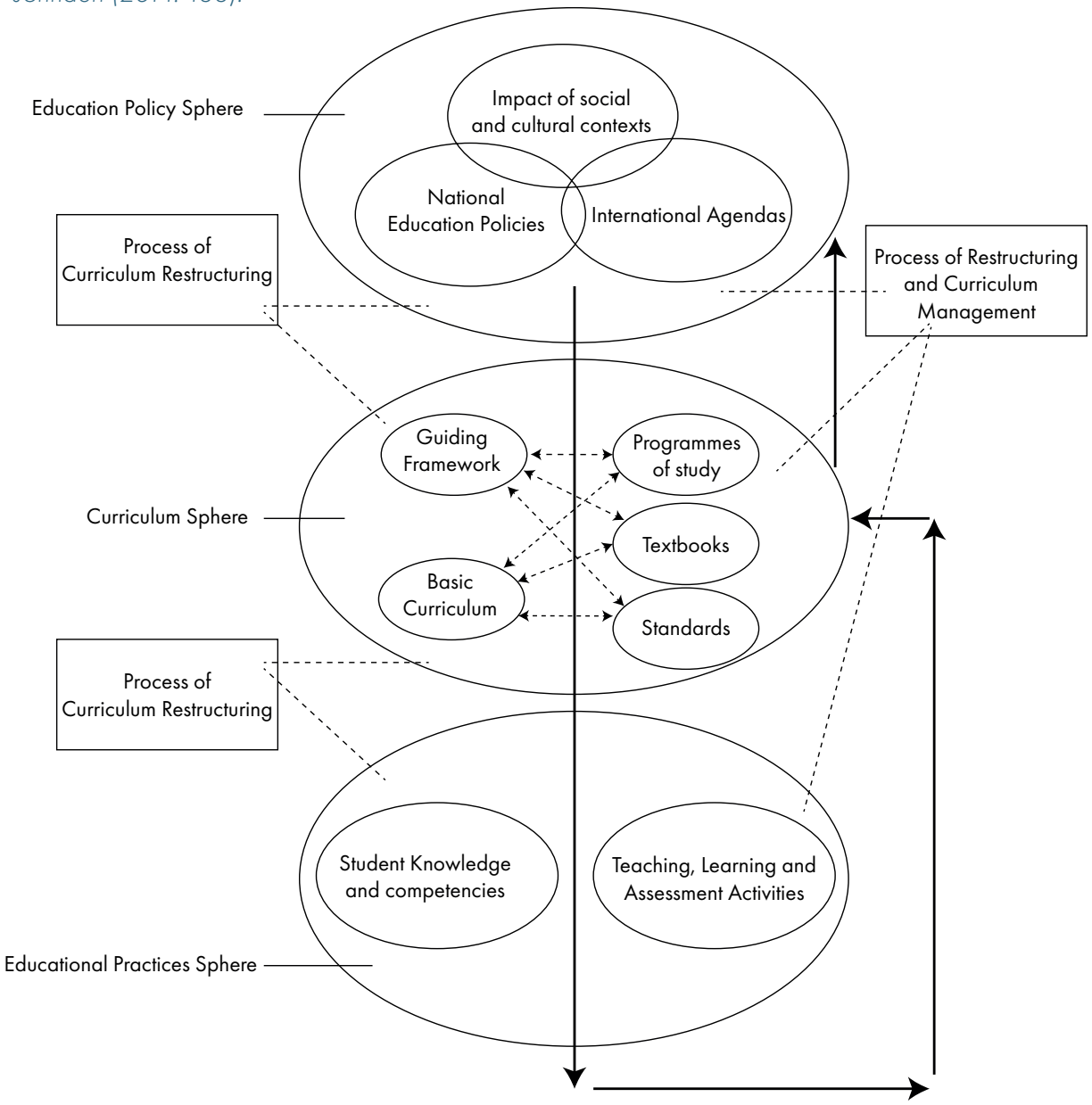
Education is paramount for developing in students a robust, coherent set of personal and interpersonal skills that will enable them to establish themselves and to handle rapid disruptive change. Furthermore, we must accept that the curriculum and pedagogy are local cultural developments within a framework of globally-oriented mediating perspectives (Tedesco, Opertti, and Amadio, 2013; UNESCO-IBE, 2015; Opertti, 2016). This means that while the curricular approach should be clear, in-depth, and

succinct in conveying what should be taught, learned, and assessed, it should also be flexible enough to empower schools to collaborate in developing the curriculum—transforming educational goals and course content into effective classroom practices.

The curriculum essentially turns our social visions for the world into a set of concepts, processes, and actions to provide each student effective, personalized learning opportunities. It also guides, frames, and provides coherence to study plans and programmes, as well as establishing a binding hierarchical relationship with them (Jonnaert et al., 2021).

Within the education system, the curriculum plays a restructuring role between education policy and strictly curricular issues, as Jonnaert and his team show (see figure).

Figure 1: Holistic curriculum and the curriculum restructuring process, adapted from Depover and Jonnaert (2014: 188).



When the curriculum plays a linking and coordinating role in education systems, strengthening a "glocal" perspective can provide students with knowledge and competencies geared toward new forms of coexistence, sustainability, social protection, disease prevention, health care, production, work, commerce, development, mobility, recreation, and wellbeing. Addressing these issues comprehensively requires new frameworks for educational relationships and interventions in synergy with policies related to health, social protection, work, family, and community.

As the International Commission on the Futures of Education notes (2021), we must make progress on "deepening human empathy, scientific progress, and appreciating our common humanity." This means reinforcing, among other things, a strategic alliance between health and education with the understanding that synergies between the two sectors are an essential foundation for building a holistic vision of personal and social wellbeing.

The new educational challenges can lead to a profound reassessment of strategies, as well as of the tools and resources used to educate the youngest generations. The interconnected dimensions of social life, civic engagement, work, and coexistence demand not just that we promote interdisciplinary dialogue, which is essential, but also that we recognize that initiatives related to issues such as inclusion and sustainability require connections, debates, and synergies between the humanities and the sciences, within a framework of ethical guidelines.

Education systems in general and schools in particular are obligated to teach specific disciplinary content. It is well known that more nuanced approaches to curriculum design and development cover cross-cutting issues in a variety of formats (workshops, projects, etc.) at all educational levels (for example, basic/primary education and secondary education). This is not enough, however, for students to fully understand issues such as climate change, healthy lifestyles, inequality, and diversity, as well as the broad range of perspectives individuals and groups hold on these issues.

The in-depth study of issues that are fundamental to individual and collective coexistence, wellbeing, and development requires much more than simply adding together multiple approaches and disciplines. Thorough understanding of a topic does not come just from considering different disciplinary approaches, as disciplines are essentially intellectual tools that contribute to knowledge on an array of topics but cannot by themselves fully explain those topics. There is always the possibility that our understanding of a question will be incomplete and unclear, precisely because the complexity of human thought and action cannot be confined to disciplines. The temptation to reduce the study of a topic to disciplinary, or even interdisciplinary, approaches can leave us without convincing or comprehensive explanations of it.

Let us consider the global Covid-19 pandemic as a complex current issue that requires a nuanced, in-depth integration of knowledge and competencies in order for us to fully understand it. For example, the

Scientific Council on National Education of France's Ministry of National Education and Youth (2020) recommends studying the epidemic as an opportunity to develop—in a unified, integrated way—competencies from a variety of fields, including native and foreign languages, mathematics, science, history, and geography, but also to support emerging disciplines like critical analysis of the media.

Furthermore, as the council itself notes, studying the pandemic allows us to cover three complementary dimensions: current challenges, information consumption, and the adoption of socially responsible attitudes and actions. Following this line of study, the wild animals market in Wuhan could be used as a case study for an analysis of traditional and modern ways of life, global and local value chains, high-end gastronomy (wild animal meat), local health-related knowledge and practices, human and animal mobility across continents, and other issues.

Also, one of the main challenges in creating and developing a "glocal" curriculum is to give students an active role as producers, debaters, and proponents of a new vision of global coexistence, starting from the assumption that maintaining the status quo would deprive them of a prosperous, sustainable future in which they should be protagonists. The curriculum should be based on a vision that is much more focused on laying foundations for the future than on reproducing the present or yearning for the past.

Key 5: Seeing the individual

The global pandemic, with its numerous devastating effects, reorients the discussion toward people and their life circumstances, as well as their hopes, frustrations, and plans for the present and the future. In education specifically, prior to the pandemic and even more during it, it has become clear that we need a holistic vision of human development that incorporates different interrelated facets.

This fundamentally means seeing wellbeing and human development from a perspective that reaffirms the value of social justice, as well as its humanistic, universal, and global character within the field of education. The resurgence of ethics and humanism as universal educational topics is increasingly important in curriculum proposal and development in basic and secondary education (Opertti, 2019). The curriculum clearly stands out as an important reflection of social imaginaries.

Furthermore, a holistic approach entails making clearer and more substantive connections between students' circumstances and their identities, expectations, needs, and limitations as infants, children, and adolescents. There should not even be such a separation, but education that is rigidly structured and fragmented according to levels and cycles often reinforces a narrow vision of students' needs and expectations. It is more difficult, for example, to move adolescent education toward an approach that encompasses perspectives, content, strategies, and practices connecting secondary education with technical-professional education than to continue with fragmentation by level, which can become a potent means of socioeconomic and cultural segregation.

Integrating findings from education sciences, cognitive psychology, and the neuroscience of learning shows that each person is a unique human being. Comprehensive education must recognize that each person is an indivisible whole in order to guide people effectively and give them conceptual and practical frameworks for analysing issues and making decisions about their individual and collective lives. This does not mean prescribing or imposing an ideal vision of the individual—whatever the intellectual foundations of that vision may be—but rather having a clear awareness that each person is a whole that comprises biological, psychological, anthropological, and sociological dimensions (Morin, 2020).

A progressive and forward-looking curriculum will take into consideration the need to emphasize and prioritize the individual in all areas of education, including educational goals and course content, pedagogical strategies, and assessment criteria and tools. Consideration of the individual is often "lost" or "obscured" in the accumulation of fragmented disciplinary content, as well as in the disconnect between cognitive factors and ethical, emotional, contextual, and situational factors.

Key 6: Building synergy among values

The 2030 Education Agenda spearheaded by UNESCO emphasizes that lifelong instruction in values lays the foundation for harmony, wellbeing, justice, and sustainable development. Values are an essential underpinning for teaching and learning processes. We must overcome the conditioning and prejudices that cause us to equate instruction in values with the prescriptive imposition of beliefs, affiliations, traditions, worldviews, and social imaginaries. It is also a mistake to frame discussions on values in terms of irreconcilable differences without entertaining the possibility of links or synergy between them.

It is crucial for teachers to share with students visions and practices that highlight complementarity between the values of freedom, justice, solidarity, inclusion, equity, cohesion, excellence, and wellbeing. Students' intellectual independence and informed actions are broadened, developed, and protected when values are taught and learned in a complementary way.

Moreover, it is essential that values not be limited to mere intentions or statements of general principles and cross-cutting issues throughout the curriculum. Rather, we must measure, facilitate, and document the contributions of values to the development of plans and programmes of study, both generally and specifically. There is no cognitive process that can sidestep the cross-cutting nature of values or the emotions involved in leveraging them.

Key 7: Embracing diversity

Education plays an essential coordinating role between the frames of reference common to society as a whole and the diverse array of identities, beliefs, and affiliations within it. Unlike disparities, which

are the focus of interventions designed to eliminate or reduce them, diversity is not understood as a problem or obstacle stemming from "deficiencies or failures" of students who apparently "deviate" from what is expected of them in terms of development and achievement. The paradigm of deviation puts the burden of proof on the attributes of students and, to a large degree, absolves education systems of responsibility.

In contrast to perspectives and practices based on binary categorizations of students, diversity is an opportunity to expand and democratize learning opportunities, processes, and outcomes and to contribute to holistic student development. At its essence, it entails understanding and recognizing the many dimensions of each person's uniqueness and identity, as well as their social, cultural, gender, life stage, ethnic, and geographic backgrounds. In this way, acknowledging the different sources of diversity is critical for fully understanding each student. Individual diversity often remains hidden because it is stifled by curricular and pedagogical approaches based on the artificial construct of an average student, which is actually fictional. There is also the risk of adopting hegemonic perspectives on diversity—for example, based on culture, geography, or affiliations—that overlook the individual student.

Furthermore, diversity challenges homogeneous mentalities, narratives, strategies, and practices that fail to appreciate the connections between what is unique to each person and what is common to everyone. While each student is unique in their own way, as is clearly reflected in the inclusive education paradigm recommended by UNESCO (UNESCO, 2017; OEI and UNESCO-IBE, 2018; UNESCO-IBE, 2022), analysis of brain scans shows that all students traverse very similar learning paths (Dehaene, 2018; Dehaene, Le Cun, and Girardon, 2018; Ferreres and Abusamra, 2019). In fact, learning processes are quite similar for all students, regardless of their unique characteristics as individuals.

In addition, diversity requires an in-depth understanding of teachers' different beliefs, attitudes, and practices with respect to students' abilities and learning potential, as well as their role and responsibility in ensuring student progress and educational completion. Ethical, curricular, and pedagogical considerations are interconnected. Diversity entails an ongoing back-and-forth between the frames of reference, perceptions, experiences, and practices of students and teachers.

Key 8: Education that fosters freedom

Historically, a fundamental question in education has been how to ensure students' intellectual independence in an atmosphere of respect and openness to debate—an atmosphere that contrasts differing ideas and approaches while maintaining an unwavering commitment to pluralism. An education that prioritizes freedom—what might be called a liberal, cosmopolitan education—aims to develop within students critical, constructive, proactive, and open-minded ways of thinking, without boundaries

or barriers, that enable them to take well-informed positions on a wide range of complex, pressing issues that affect their lives in the present and will affect them in the future.

An education in freedom absolutely does not mean adopting a particular political, economic, or social point of view, but rather focusing on what the students themselves believe and exploring the meaning of life in different settings, keeping in mind the ethical dilemmas they face in their day-to-day lives. As the philosopher Walter Benjamin argued (Apprendre à Philosopher, 2016a), the mission of education lies in promoting culture and in enlightening us, with the aim of producing free individuals with new ideals and building a more spiritual and rational humanity.

A progressive, forward-looking curriculum invites students to analyze issues and make decisions independently, allowing them to fully exercise their freedom as well as to help challenge hegemonic, biased narratives and ways of thinking. There is no true educational progressivism in settings or frameworks that curtail students' freedom. Furthermore, an education in freedom is the foundation for conceptualizing and developing competencies such as critical thinking, creativity, resilience, and empathy. It is difficult for students to gain the competencies of critical thinking, for example, if they do not have opportunities or spaces to be exposed to a broad range of perspectives on a given issue and to develop their own informed opinions.

An education in freedom also involves curricular, pedagogical, and instructional support so that the student has true freedom to consider and choose educational paths that align with their own perspectives. This involves not only curriculum design that encourages the student to connect different knowledge areas to answer their questions, but also open-minded teachers, committed to and skilled at fostering students' freedom through a wide range of pedagogical strategies.

Students' freedom to make curriculum choices rests on an understanding of them as producers, debaters, disseminators, and implementers of ideas and knowledge, with the aim of enabling them to meet the many complex challenges that are not presented to us in the form of tidy discipline-specific packages. A renewed consideration of the student's role is simultaneously an act and a demonstration of trust in their ability to use their freedom to create. The student must not become a mere consumer of educational platforms and resources—which are more and more widely available—that "exploit" their freedom of choice (Byung-Chul Han, 2021) for commercial purposes. Rather, with the understanding that education is a right and a common good, students are given guidelines and the tools to tailor their curriculum.

Key 9: Making progress toward hybrid education

The global pandemic has opened up the debate to new ways of understanding the goals of education and reflecting them in educational cycles that prioritize students and their learning processes. In this

regard, hybridization has become central not just for rethinking education but also for fostering education that questions its own limits and restrictions—both self-imposed and prescribed—with respect to learning opportunities.

Hybridization is a multifaceted concept that involves the ability to identify, combine, use, and test a variety of approaches, strategies, and intervention modalities to ensure that each student truly has a personalized opportunity to learn. I summarize below eight fundamental characteristics of hybrid education.

First, hybrid modes of teaching, learning, and assessment, unlike in-person and virtual modes, are rooted in the integration and complementarity of physical and virtual spaces. They aim to expand, democratize, support, and document learning opportunities for all students with individualized responsiveness to students' expectations and needs and to bolster their potential for excellence through a broad range of pedagogical strategies.

Second, hybrid education is pluralistic, in that it does not entail a single, prescriptive mode of organization and operations for all schools equally but rather a guiding framework (of discrete, concise, and robust criteria) for designing and reflecting different ways of integrating in-person and distance learning while taking into account the backgrounds, circumstances, and capacities of each particular school. A school's digital strategy must be considered from the perspective of a mixed in-person/remote approach (Menéndez, 2020).

Third, the beginning and end of hybrid education is the student's learning, which requires upending the traditional logic of curriculum design that generally begins with programmes and plans of study. Indeed, the careful selection, prioritization, sequencing, and integration of knowledge and competencies to support students and their learning is characteristic of hybrid education.

Fourth, hybrid education requires us to rethink the importance, prioritization, and organization of knowledge in the curriculum, as well as educational cycles and both group-based and individual instruction times. The curriculum, as a reflection and synthesis of societal imaginaries, must be able to achieve a persuasive, fluid convergence between key concepts and essential content that contributes to the comprehensive education of students as individuals.

Fifth, hybrid education can help redefine relationships between teachers and students, broadening knowledge areas and linking face-to-face and virtual spaces, which can enhance mutual trust. A central element is the improvement of teachers' and students' digital skills in order to create spaces for collaboration and feedback that make learning more relevant and sustainable.

Sixth, hybrid education entails renewed dialogue and collaboration between education and the set of social policies linked to the right to technological connectivity in education as a global public good in a framework that reinforces public policies. This requires strengthening three complementary spheres of public action: (i) access to devices and connectivity in homes and schools; (ii) public platforms backed by a strong government commitment to guaranteeing their availability and access, free of charge, to all citizens; and (iii) opportunities for teachers to design, share, and validate learning materials for mixed in-person/distance use.

Seventh, hybrid education entails the guided and proactive use of technology, framed by educational visions, to bolster spaces for the production, circulation, and dissemination of knowledge without borders or barriers of any kind. Technology can be transformed into a democratizing force for learning opportunities anytime, anywhere.

Eighth, and finally, hybrid modes constitute a powerful opportunity to rethink relationships between schools, educators, students, families, and communities. This means moving toward a broader learning ecosystem in which different institutions and actors reimagine the roles and responsibilities that enhance their understanding of and engagement with the complex work of teaching and learning. An important challenge is to ensure that students enjoy maximum opportunities in mixed learning ecosystems (Reimers and Schleicher, 2020).

Ultimately, hybrid education is a potential way of reinventing education systems (Microsoft and New Pedagogies for Deep Learning, 2020) to guarantee learning anytime, anywhere with the aim of building a new order of global harmony and sustainable development for individuals and communities.

Key 10: Appreciating teachers

The global pandemic has challenged teachers in their fundamental roles as mentors and guides for students, as well as learning facilitators. Their resilience in the face of unexpected, complex, and unpredictable situations—present and future—motivates them to design and implement educational initiatives where in-person formats, closely associated with conventional methodologies focused on the communication of information and knowledge, tend to be limited. Teachers dare to explore the unknown and search for solutions they can design, develop, demonstrate, and evaluate in dialogue and collaboration with their peers.

These educational initiatives are not isolated or totally individual measures. In fact, they may represent an incipient transformation in terms of mutual support and "outside-the-box" collaboration among teachers. Communities of practice within and across schools could help strengthen the mechanisms of collaboration among teachers that have emerged during the pandemic. Beyond providing open,

pluralistic spaces for sharing and exchanging practices based on peer learning, communities of practice could also encourage the production, discussion, and validation of support materials for hybrid teaching, learning, and assessment modalities.

Furthermore, in order for the drive for transformation led by teachers to be sustainable, we need empowered schools co-developing the curriculum and pedagogy, contextualizing innovations according to local needs and expectations. We need grassroots-level activism and responsibility, under the clear guidance of leaders who guarantee equitable opportunities for promoting local development.

Moreover, teachers' immersion in remote education during the pandemic has had the positive effect of helping them understand the expectations and needs of students as individuals, getting to know them through the confluence of identities, attitudes, and behaviors that are expressed in different ways in virtual spaces than in person, and experiencing new ways of communicating that help them empathize with students.

Finally, it is worth noting that this increased societal appreciation for the role of teachers could evaporate if education systems choose to return to pre-pandemic routines, which were already notoriously insufficient for ensuring learning opportunities for all students equally. If instead of forging a compelling, successful present and future, we decide to return to the pre-pandemic status quo, we run the risk of not just losing a tremendous opportunity to transform education but also increasing the frustration of citizens and communities, with corrosive effects on democratic sustainability and social inclusion.

CHAPTER 3

THE MEANING AND CONTENT OF TRANSFORMATION

III.1. What would transformation mean?

Educational transformation

The transformation of education and education systems is an increasingly universal issue for societies of both the north and the south; it turns education into a world laboratory for innovation and experimentation (Reimers and Opertti, 2022). In this regard, the Transforming Education Pre-Summit (Paris, June 29-30, 2022) and Summit (New York, September 19, 2022) clearly showed the growing importance of this issue globally.

The Pre-Summit specifically—the prelude to the Summit with heads of state invited by the Secretary General of the United Nations, António Guterres—aimed to "harness the evolving discussions on transforming education, elaborate initial content and establish a shared vision and suggested actions for the Summit, and generate greater momentum in the lead up to September." The event successfully brought together 1,850 participants from different regions, including two presidents and 154 ministers and vice-ministers, as well as experts, teachers, young people, United Nations bodies, NGOs, and the private sector (UNESCO, 2022a) with the aim of forging a transformative educational agenda.

I cannot do justice to all of the stimulating debates at the Pre-Summit, but it is important to consider some of the key outlines of the transformation we hope to progressively implement. Let us consider here aspects linked to meaning, approach, focus, content, and funding.
First, transformation must have its own specific meaning, its own identity as such, beyond merely contrasting it with reform or adjustment. Indeed, transformation involves proposing, debating, and coming to agreement on renewed educational purposes, content, and strategies that reflect profound changes in the social imaginaries that underpin them. It involves dynamic two-way communication, respectful listening, and collaboration between the spheres of politics, society, youth, and education, which can be summarized by the idea of a social contract for education, as the Commission on the Futures of Education notes in its report "Reimagining our futures together: a new social contract for education" (2021).

Furthermore, building intergenerational trust as a foundation for a new social contract for education is fundamental for rethinking the synergies between three interconnected dimensions: (i) the comprehensive education of individuals with a focus on fostering their freedom, independent thinking, and learning potential regardless of their background or life circumstances; (ii) education in democratic, inclusive citizenship with socially engaged citizens who develop and protect the environment through interconnected roles and responsibilities; and (iii) education with a broad, pluralistic view of knowledge that values its diverse ancestral origins, uses, and potential in order to assess its relevance for building sustainable lifestyles.

Second, a transformative approach means embracing its potential as a social movement that forcefully critiques education systems. At the heart of the movement is the concept of young people as front-line protagonists, co-agents, and partners in change processes. This leads necessarily to a rethinking of the design and tools of education administration, as well as a rearrangement of roles and responsibilities via mechanisms that are less hierarchical and more inclusive of young people's needs and expectations. At the Pre-Summit, young people repeatedly asserted—in a firm, respectful, and constructive way—that no decisions should be made affecting them without their involvement. We must no longer merely invite them without providing and safeguarding spaces in which they can participate in decision-making processes.

Furthermore, a transformative approach involves addressing the tensions and dilemmas between meeting immediate needs stemming from the pandemic and undertaking medium- to long-term efforts to build sustainable futures. In the short term, urgent and decisive action is needed to address social and economic threats to coexistence and development that affect so-called "learning poverty." According to estimates in "The State of Global Learning Poverty: 2022 Update" (World Bank et al., 2022a), 70% of ten-year-old children in low- and middle-income countries today cannot read a basic text. It is even more tragic to note that not only did this figure increase abruptly during the pandemic, but it was already growing before the pandemic (from 53% in 2015 to 57% in 2019). Without a doubt, a transformation of education was already acutely needed before the pandemic.

In light of this situation, UNESCO's Assistant Director-General for Education, Stefania Giannini, notes three priorities for education systems: (i) moving toward more agile teaching and learning systems; (ii) eliminating boundaries between disciplines in favor of more holistic approaches to education that focus on the individual and on cultivating global citizens; and (iii) reinforcing the right to education, including the right to learn anywhere, anytime. This represents a call for education without borders or limits—education that involves rethinking educational cycles, as well as formats, time frames, and course content to prioritize each student's opportunities and personalized learning progress.

Moreover, a transformative approach is reflected in the design of a localized curriculum that embraces unique cultural, linguistic, and community contexts and supports education that is rooted in dialogue and collaboration between regions, affiliations, and contexts. The localized nature of the curriculum does not imply a rejection of global commonalities and linkages; rather, it means that the global—far from prescribing or modeling—gains meaning from locally-based responses.

Third, a transformative focus necessarily entails consistently and firmly reinforcing fundamental competencies so that each student is competent in the versatile, contextualized use of language, mathematics, and science in order to handle a broad range of situations/challenges in life. Instruction in fundamental skills certainly does not take place without educational standards; nor does it mean reducing the educational, curricular, pedagogical, or instructional approach to the development of those competencies alone.

In fact, it is possible to prioritize instruction in basic literacies and to align modalities and instructional strategies for developing and achieving them (World Bank et al., 2022b) within an approach that aims to educate individuals and citizens for a future that is better, sustainable, enjoyable, and fair. Any learning by itself, even if it is seen as more basic or elementary, contributes to education even though it does not constitute the vision or ultimate goal of education or of the values that underpin it.

In addition, a transformative focus on the comprehensive education of the individual must address the many facets and implications of vulnerability resulting from an adverse combination of factors that are exogenous and endogenous to the education system and that also profoundly influence the exclusion of students from those systems. In light of such severe vulnerabilities, transformation requires a conceptual and operational framework that is cross-cutting and interinstitutional, and that envisions and strengthens education as a social, economic, cultural, civic, and community policy (Opertti, 2022c).

Fourth, the content of the transformation must be aligned with its meaning, focus, and approach. This requires extensive curricular, pedagogical, and instructional change that spans and connects different educational offerings and environments, as well as subjects and disciplines, across all educational levels in support of the progressive development of blocs of skills for individual and collective life. Competencies need a unifying thread that cannot be divided up by level or adjusted to fit rigid, disconnected educational cycles.

Two tasks are fundamental for underpinning transformative content. The first is to accept that technology pervades and influences teaching, learning, and assessment processes at every level in terms of its potential for broadening and democratizing learning opportunities. Technology can certainly be an essential component of the right to connectivity in education (as part of the right to education); it must be supported by a guarantor state and the international community facilitating the free, personalized use of educational platforms, resources, and content.

The second is to make decisive progress in mainstreaming green approaches to education that provide students a broad range of interdisciplinary and/or transdisciplinary learning opportunities with the goal of deepening their understanding of human beings and nature as part of one ecosystem that requires immediate and ongoing care. Furthermore, students must be capable of addressing interconnected global and local challenges, such as climate change and biodiversity.

Fifth, in order to transform education, we must be honest about the need to increase the amount and quality of educational investments and spending, to align them with measurable goals and objectives for processes and impacts, and to sustain them with a broad, progressive tax regime. The funding discussion document presented at the Transforming Education Pre-Summit (UNESCO, 2022b) proposes a new global compact for education funding that draws on four interrelated aspects: (i)

the total size of government budgets, determined by taxes, debt, macroeconomic policies, trade, etc.; (ii) education spending as a proportion of the national budget; (iii) the extent to which budgetary allocations for education are aligned with evidence-based approaches to equity and efficiency; and (iv) the monitoring of educational budgetary allocations, especially with regard to their impact on the most socially vulnerable communities, as well as improvements in data quality and usability.

A comprehensive perspective on funding and resource use, such as that outlined in UNESCO's document (2022b), helps us understand that rather than taking isolated steps toward growth and/or improvements in the efficiency of investment and spending, we should frame the issue within a transformative vision of education based on greater progressivity in the funding and distribution of resources.

In sum, given the scope and repercussions of educational transformation, it is not just a critical ethical obligation but also a question of survival and sustainability both now and in the future.

Seven points on curriculum transformation

The global education debate increasingly emphasizes the need to transform education and education systems so as to build and support societies capable of balancing sustainability, inclusion, justice, and equity. In addition, the transformation proposed does not involve fragmented issues, approaches, or intervention areas; rather, it attempts to connect the different parts of education within a unified, systemic vision. One of the ways to achieve these connections is to position the curriculum as a bridge between educational policy and practice, building synergies between the why and what of teaching and learning and the how, where, and when. Though not an exhaustive list, the seven points below can help to position curriculum transformation at the centre of education systems.

First, we must recognize the magnitude, depth, and implications of curriculum transformation in the post-pandemic era, as the curriculum could help us guide, develop, implement, and document the learning that is needed for a future that is qualitatively different from the present in terms of sustainability. We must adopt a multidimensional understanding of sustainability that involves not just the environmental dimension but also economic, cultural, political, and social aspects that are inextricably linked. Sustainability is linked to a comprehensive view of civic engagement that encompasses dimensions of the various literacies that are key for succeeding in society at many levels.

Second, we must reaffirm a vision of the curriculum as a product of collaboration and an evolving "glocal" development with various interrelated aspects (Opertti, 2021c). It is certainly possible to balance adherence to universal values and standards with an appropriate, healthy recognition of individual values that reflect different cultures and affiliations. Moreover, we must reaffirm a culture of international collaboration, complementarity, solidarity, and learning throughout educational content

both generally and specifically, expressed in terms of principles, competencies, issues, subjects, and courses. In addition, "glocal" perspectives, which are never uniform, are distinct from merely globalist or localist perspectives, and from any attempts to import or model ideas, approaches, strategies, or practices.

Third, the starting point for curriculum transformation could be to recognize the diversity and uniqueness of students in an inclusive way, respecting their backgrounds, life circumstances, cultures, affiliations, traditions, abilities, and styles. Diversity does not mean simply "adding up" disciplines and factors we expect to affect each student's participation and performance, but rather purposefully integrating knowledge from different disciplines—for example, philosophy and ethics, the neuroscience of learning, cognitive psychology, education, and artificial intelligence—and determining how factors interact to influence how each student engages with their learning.

Supporting each student equally requires diversifying methods of teaching, learning, and assessment in order to be responsive to the wide variety of student expectations and needs in a personalized way. Teaching cannot draw on assumptions, prejudice, or determinism regarding the learning potential of each student; rather, within a clear and robust understanding of the purposes of education, its raison d'être and value lie in facilitating the achievement of relevant, sustainable learning for all students equally. Teaching is underpinned both by an educational vision and by learning that is built, developed, facilitated, and tested.

Along with recognizing that each individual student is an indivisible whole and that we need a broad range of pedagogical strategies to teach them as unique individuals, it is also necessary to keep in mind that learning processes have some commonalities independent of the unique characteristics of each student. In brief, these commonalities are: (i) the need for an educational and curricular approach that the teacher can link to the student and their life experiences in a close relationship of mutual understanding; (ii) empathetic, timely, and high-quality feedback from the teacher to the student and vice versa; (iii) seeing mistakes as a source of learning, within a perspective that sees assessment as learning; and (iv) periods and processes of letting information soak in so that learning can be consolidated (Dehaene, 2018).

Fourth, curriculum transformation entails a profound realignment of roles in two complementary spheres, helping to broaden communities' perspectives on education. We must embrace the challenge of positioning both students and teachers as co-agents and co-developers of the curriculum—with both sides involved and responsible—rather than envisioning the teacher's role as one of merely conveying knowledge and the student's as one of passively receiving that knowledge. Moreover, parents could have a more active role in helping support their children's learning, which would entail at least three interrelated components: (i) opportunities and spaces to raise awareness and understanding of what and how students learn; (ii) new ways of relating to teachers enabled by the combined use of different technologies; and (iii) collaborating with teachers to guide students in their learning processes.

Fifth, curriculum transformation faces the urgent challenge of mainstreaming hybrid education as the linchpin of teaching, learning, and assessment processes. Hybridization involves combining and integrating different elements in a complementary way: (i) programmatic hybridization, which involves unifying disparate disciplinary content with the aim of better understanding issues underpinning the education of the next generations; (ii) institutional hybridization, which means that formal and informal offerings complement each other and work together to ensure that each student can enjoy a personalized curriculum; (iii) curricular and pedagogical hybridization of educational modes, which embraces complementarity between in-person and online spaces to expand learning opportunities and processes and to promote the achievement of sustainable, significant outcomes; and (iv) technological hybridization, which is based on the adoption of technology that is aligned with clear, robust educational goals. Hybridization is thus a multifaceted concept that influences how we understand education and learning.

Sixth, curriculum transformation entails connecting disciplinary and interdisciplinary approaches and components in order to ensure students have the frameworks and tools needed for managing the individual and collective challenges they will face in a "glocal" world of disruptive change. Managing these challenges means that each student can prioritize, combine, integrate, and give meaning to values, attitudes, emotions, abilities, and knowledge (Jonnaert, Depover, and Malu, 2020). One of the main challenges is for abstract definitions of competencies such as independent and critical thinking, creativity, and resilience to be adopted and incorporated by students—generally referred to as students' commitment to and ownership of learning.

Seventh, curriculum transformation involves consolidating a culture of triangulating evidence—with respect to approaches, policies, processes, and outcomes—that effectively guides us in developing, defining, and influencing education. This means reinforcing interdisciplinary perspectives that link findings in cognitive psychology, biology, the neuroscience of learning, education, and artificial intelligence. Among other examples, we could mention the back-and-forth relationships between the brain, cultures, environments, policy and programme interventions, and education; or we could experiment, measure, evaluate, and demonstrate the impacts of educational interventions in areas such as literacy among the most vulnerable. An evidence-based interdisciplinary and even transdisciplinary culture could shed light on how to improve the quality of learning opportunities, processes, and outcomes.

As noted above, curriculum transformation has been growing in importance on educational agendas worldwide in the face of pandemic and post-pandemic challenges. We are primarily debating the magnitude and depth of changes that reflect the civic, societal, and communal nature of education. Moreover, transformation can be underpinned by a "glocal" vision of the curriculum, balancing a collaborative, socially committed, global perspective that recognizes that we are all part of one planet with an approach that is grounded in local geography, culture, and context.

The starting point for transformation could be to recognize the uniqueness of each student, to support their learning processes as a journey toward universal goals of excellence without delay or interruption, and to eliminate barriers between levels and course offerings. Prioritizing students and their learning requires redefining the roles of teachers and students as co-agents of educational initiatives, as well as involving parents in their children's studies.

Education that is broad-minded, with transformed roles and content, embraces hybrid modes of learning and assessment and adopts the idea of education without borders or limits. Furthermore, education is reinforced by connecting disciplinary and interdisciplinary parts so that the various issues covered are meaningful and relevant for each student. These connections are bolstered by a hybrid education that offers many opportunities and spaces for producing, using, and sharing knowledge from different areas and sources. Finally, transformation must be rooted in the triangulation of perspectives, approaches, and data in order to produce robust evidence on how to better foster students' excellence and learning in different areas of knowledge.

Ten points on the futures of education

The transformation of education and education systems galvanizes societies across the world in the search for responses that will enable them to help reimagine and design a better future. A forward-looking perspective on education has been gaining ground partly because there is a growing recognition that the status quo condemns us to a future that is unsustainable (with respect to wellbeing and the holistic, balanced development of people and communities) and that severely jeopardizes the future of the youngest generations.

An education forum called the RewirEd Summit, organized by Dubai Cares (a global philanthropic organization based in the United Arab Emirates) in 2021—in coordination with the Ministry of Foreign Affairs and International Cooperation of the United Arab Emirates (MoFAIC) as part of a broad international partnership including UNESCO, UNICEF, the OECD, and the World Bank—examined considerations related to the future of education, which I analyse below. The following ten points, drawn from some of the discussions that took place in Dubai, can help inform the debate on the futures of education (Dubai Cares, 2021a, 2021b).

First, there is the question of whether the challenge faced by countries in a variety of contexts is to build back better or to build forward better (Reimers and Opertti; Opertti, 2021a, 2021b, 2021c). The debate is largely over whether efforts to improve education should have the pre-pandemic situation as their point of reference or should instead aim to design education that is qualitatively different from the pre-pandemic situation, even generating debate on pre-pandemic visions, strategies, and practices that are still standard in many countries. A vision that is more responsive and future-oriented, at least as

much as it is present-oriented, enables us to act more decisively to lay the foundation for education that requires extensive programmatic transformation in order to teach the next generations.

The second is the growing awareness that transforming education is a global task that entails understanding, achieving, and making progress on the basis of seeing global and local challenges, contexts, and realities as inextricably linked. This undoubtedly involves the reaffirmation of a proactive multilateralism that assumes responsibility for promoting transformed ways of collaborating with the aim of strengthening education as a human right, a global common good, a political and policy priority, and an endeavour that requires profound innovations with adequate programmatic and financial support (UNESCO, Commission on the Futures of Education, 2021; UNESCO, 2022a, 2022b).

The third is the need to rethink the competencies the next generations need to develop in order to lead, be proactive, and take responsibility for their individual and collective futures (Mateo and Rhys, 2022). This requires identifying, integrating, and establishing synergies between personal, interpersonal, social, and digital skills to be developed over the course of the educational and curricular programme, from early childhood education onward, understood as a unified, coherent, progressive whole. Several universal traits that define skills such as independent thought, creativity, and resilience, have undeniable historical, cultural, and local roots that—far from detracting from them—give them clear meaning so that they can be embraced by students from widely varying circumstances and backgrounds.

The fourth is the strengthening of educational initiatives that teach STEAM (science, technology, engineering, art, and mathematics) in a cross-cutting way within a framework of humanistic values and perspectives. The pandemic has certainly shown us the need to develop comprehensive, robust training in the sciences, and it has also taught us that this training must be grounded in ethical and humanistic guidelines that produce healthy, socially committed conceptions of life in society. Productive dialogue between the humanities and the sciences—for example, on issues related to pandemics, climate change, green education, and digital transformation—must pervade educational and curricular approaches as part of a lifelong learning approach.

The fifth is the need to discuss, demonstrate, and put into practice the idea that a transformation of education involves flexible, robust connections among teaching, learning, and assessment processes as an integrated whole, and it especially involves repositioning assessment as a learning tool in curriculum programmes and development. They cannot be separated; they are inextricably linked and cannot stand alone. This requires the education system as a whole to adopt a unified, robust educational vision that pervades those processes. It also means that teaching in various formats acquires meaning on the basis of the totality of learning it aims to develop in students.

The sixth is to accept the changes taking place in ways of understanding and thinking about students as individuals. This means, among other things, listening to and involving the youngest generations in a reimagining of educational transformation, reinforcing their role as agents of change. The recognition of intergenerational diversity is fundamental not just for facilitating spaces and opportunities that are better aligned with students' aspirations and inspirations, but also so that they take the necessary, healthy initiative to exercise their freedom of curriculum choice—that is, the jigsaw puzzle of topics that most interest them in order to gain understanding and produce, exchange, and disseminate knowledge (United Nations, 2022).

The seventh is a recognition that there has been significant learning loss during the pandemic with respect to fundamental literacies such as oral and written communication, solving math problems in the context of everyday situations, and basic comprehension of science topics that underpin everyday individual and collective decision-making. These losses will undoubtedly have serious impacts on the wellbeing and development of the youngest generations in the short, medium, and long term. However, compensating for lost learning opportunities should not be based on educational and curricular initiatives that remain stuck in pre-pandemic practices, but should aim to promote a profound renewal of those practices through a rethinking of the relationships between the key concepts and essential content in which we hope to instruct the next generations.

The eighth is to move beyond approaches that pit the pros and cons of in-person and virtual education against each other and that understand and manage them as separate spaces without open lines of communication between them. We must instead move toward hybrid modes of teaching, learning, and assessment that involve a renewed way of understanding and positioning education in the context of the social experimentation with educational innovations that is taking place and being documented globally (Reimers and Opertti, 2021).

In this context, there is a growing appreciation of the digital transformation of education, underpinned by varied and complementary uses of a wide array of technologies, as a potentially transformative and equalizing force for learning opportunities. Within hybrid education, technology democratizes knowledge and learning by providing teachers and students with opportunities to expand their shared and individual learning spaces, contributing to the development of pedagogies based on the principles of cooperation and collaboration (UNESCO, Commission on the Futures of Education, 2021).

The ninth is to give new meaning to schools, which, as the Commission on the Futures of Education (2021) notes, should be preserved as privileged educational spaces but also reinvented with the aim of helping transform the world to build a future that is more just, equitable, and sustainable. A strengthened role for schools appears to be oriented toward seeing them as community learning centres that map out, balance, and integrate formal, non-formal, and informal learning spaces that remove institutional

barriers and facilitate the involvement of teachers, students, families, and communities in their design and implementation (Reimers and Opertti, 2021).

The tenth is to reaffirm that a critical role of education systems is to give each student a personalized opportunity to get an education regardless of their individual backgrounds, circumstances, abilities, and motivations. Among other important aspects, this entails strengthening the working capacity and convening power of different institutions and actors in order to reach agreement on common objectives and to achieve them. In this approach, educational systems must ensure that each student can benefit from excellent teaching that can be carried out in different ways depending on the specifics of each context. In all cases, it is imperative to have high-quality, timely information so that educators can make evidence-based decisions to support all students' learning equally.

In summary, these ten points on the futures of education constitute possible ways to address education transformation from a systemic, progressive, and sustainable perspective.

Educational innovation and transformation

The educational agendas that seem to be emerging across different regions and contexts to address post-pandemic challenges put more emphasis on the need to transform education and education systems than on simply making adjustments to the status quo. Even if it seems laudable and reasonable for educational approaches, strategies, and interventions to focus on merely improving the current situation, this approach appears to be insufficient for responding to the nature and implications of the global challenges humanity is facing in building sustainable societies that provide hope and commitment to better futures.

The presumption that we are moving more toward systemic, profound, and progressive transformations than to fragmented or silo-based reforms (that would supposedly be more feasible) points toward the challenge of defining a transformative education based on clear, robust programmatic considerations that are interconnected with ideological issues. There are certainly no pre-existing definitions of transformations, nor one-size-fits-all models for countries to follow. What does seem to be evident is an extraordinary dynamism in the search for answers, which has in fact turned education into a global laboratory of experimentation and innovation (Opertti, 2021c).

We are thus facing a potentially promising situation in which the innovations that have been tested to manage the wide range of challenges posed by the pandemic, in particular with respect to addressing the multiple aspects, challenges, and implications of social and educational vulnerability—among other fundamental curricular, pedagogical, and instructional factors—demonstrate renewed approaches to education. Innovations are discussed more outside of traditional educational spaces and are more oriented toward positioning the student at the centre of education.

A study by the International Bureau of Education (UNESCO-IBE) and the Global Education Innovation Initiative at the Harvard Graduate School of Education entitled "Learning to Build Back Better Futures For Education: Lessons from educational innovation during the covid-19 pandemic" (Reimers and Opertti, 2021) identified 31 innovations in different regions of the world—namely, Latin America and the Caribbean, North America, Asia, Africa, Europe, and Arab countries—which paint a diverse picture of responses to the adversities associated with the pandemic.

The 31 innovations are grouped into five major innovation domains, namely: (i) the comprehensive wellbeing of students and teachers; (ii) a focus on deep learning; (iii) improved professional development for teachers and school directors; and (iv) family involvement. One of the fundamental lessons we draw from these innovations lies in demonstrating not only that innovation is possible when ideal conditions are facilitated, but that it is necessary, healthy, and possible in highly challenging contexts as well. As the study notes, "These innovations contributed to regaining and maintaining trust in the transformational power of education in the lives of students and in communities and societies at large at a most challenging time in which people were concerned for their lives and livelihoods."

It is interesting to note that, at the same time that the pandemic has exposed the harshest aspects of learning exclusion, it has led us to question whether the focus, content, and strategies that underpin teaching, learning, and assessment processes are appropriate for laying a foundation for the comprehensive, balanced education of students. It has led us to ask whether education systems provide students with the frameworks and tools they need for independent, competent, and responsible performance as individuals, citizens, workers, entrepreneurs, and members of different groups and communities. It is no longer just a matter of focusing curricular and pedagogical discussions on modifying the content of lesson plans and programmes. It is worth examining the logic, appropriateness, and impact of educational approaches that are based on the accumulation of knowledge without clear prioritization or meaningful connections between different areas of knowledge, preventing students from appropriating, contextualizing, using, and sharing them.

The study also asserts that we are not seeing markedly transformative innovations, but rather incremental or evolutionary improvements that either focus on strengthening education goals or giving students more agency, control, and responsibility for their education. The idea of improvement is more associated with reforming what exists, focusing on students who are already within the education system rather than on reaching populations that are effectively excluded. As the study indicates, "The failures of the education system before the pandemic lay not only in how they educated the students who had access to school, but also in how they excluded many students from access."

In addition, the innovations implemented confirm the importance of having an intentional approach to education and education systems rather than focusing on their weaknesses. There has certainly been

significant learning loss in basic literacies—for example, reading, writing, and mathematics—which are even more severe when the data are disaggregated by socioeconomic level. For example, various intergovernmental bodies estimate that the percentage of ten-year-old students who cannot read a basic text increased from 53% prior to the pandemic to 70% during the pandemic (World Bank et al., 2022a), which is a telling indicator of generational loss as well as social, educational, and economic impacts.

While noting that these numbers account for societal modes that are not viable with respect to developing and putting into practice just, sustainable social imaginaries, we must not address them by simply returning to pre-pandemic learning levels, since social and educational exclusion was already very high prior to Covid-19, especially in developing countries (Opertti, 2021c).

These innovations are certainly not tied to the pre-pandemic past in an approach that emphasizes recovering lost ground; rather, they are open-minded, bold, and innovative in reimagining post-Covid-19 education. Indeed, the study notes that "...the learning losses and gaps augmented by the pandemic... also provide clues and pathways to rethink and strengthen schools and education systems in the post-pandemic era to enhance and democratize learning opportunities."

One of the keys to the future that can link these types of educational innovations to major transformation lies in considering their post-pandemic sustainability. In the search for emergency responses, "...rules were upended, silos broken, and collaborations enabled that made it possible to reimagine the roles of a variety of actors: learners, teachers, parents, communities, governments and civil society organizations."

This bottom-up movement expands possibilities and generates new ways of understanding the scope and content of education, as well as fostering collaboration among institutions and actors that generally look at each other with suspicion. One wonders how much of this movement can truly influence the modus operandi and modus vivendi of education systems. The temptation to return to pre-pandemic bureaucratic routines is strong.

One of the major challenges lies in how innovations implemented during the pandemic can be entry points, windows of opportunity, and drivers of transformation in education systems. If they are reduced to either short-term responses or to fragmented interventions, their impact on the transformation of the education system will surely be negligible. The study illustrates this with an example of the changing role of students during the pandemic; they acquired more room to maneuver, so that they were "gaining agency over their learning, choosing what to learn and when, and accessing rich repositories of lessons and resources." Despite this progress in strengthening students' curricular freedom, there is certainly the risk that, if schools return to a modus operandi oriented mainly toward content delivery, "this will crowd out the gains made in empowering students to be in control of their own learning."

To summarize, innovation in a broad sense has gained ground during the pandemic in response to adverse circumstances, as have starting points for designing and implementing processes of systemic change that are necessarily multidimensional and underpinned by cross-cutting, interinstitutional perspectives. The determination and positive energy demonstrated by various actors during the pandemic must not evaporate in the face of bureaucratic rigidities or a nostalgia for the past and for comfort zones. Moreover, education systems at the national and local levels must fully understand the need to educate the next generations, helping students learn what they need to know in order to build a future that is better, sustainable, and just, as the study notes. This undoubtedly means rethinking education and education systems comprehensively. These are times for transformation, not merely reform or modification.

Disruption in education

The word "disruption" is repeatedly used as a way to describe the intensity, depth, and scope of the changes affecting society at various levels. Before the global pandemic, when disruption was already considered multidimensional, it was essentially marked by the irruption, evolution, and effects of the fourth industrial revolution. The digital transformation essentially disrupts the modus vivendi and modus operandi of our individual and collective lives. Nothing is immune to the effects of this disruption, which could be described as exponential, systemic, deep, and challenging (Davis, 2016; Schwab, 2017).

The fourth industrial revolution raises the question of how relevant or useful a silo-based, fragmented education is for a child or adolescent, in terms of guiding them and preparing them to successfully meet challenges and situations that require them to connect different ideas and pieces (Henry, 2016; Opertti, 2019; Mateo and Rhys, 2022). Fragmentation has to do not just with the accumulation of approaches and practices tied to disciplines as insular entities, but also with approaches, strategies, and interventions that cut back on the analysis of individuals and topics, overlooking key contexts and circumstances.

In fact, analyzing the implications of the fourth industrial revolution leads us to question the importance and coherence of differentiating—and even in some areas juxtaposing—certain ideas and concepts. The first is the differentiation between hard and soft skills and learning experiences, as if in reality an education in disciplinary concepts and content can be considered superior to the harnessing of the methodological competencies needed—such as independent, critical, and creative thinking; empathy; and communication—to substantiate, contextualize, apply, and demonstrate those concepts and content. In conjunction with this outdated differentiation, what is really being assessed is precisely that which is understood as "hard," with disciplinary content often treated separately, in isolation from each other.

The second is the separation of theoretical and applied education into relatively separate boxes, under the assumption that the adoption of key concepts within a given area of knowledge does not require

immediacy or progressivity in its experimentation, implementation, and evaluation. Organizing lesson plans and programmes in subjects and courses according to the theoretical-practical dichotomy does not seem to be a good strategy for preparing students to address educational situations and real-life situations that entail a constant back-and-forth between the conceptual/abstract and application.

The third is seeing education in the sciences and humanities as separate areas of study without making connections between them that would be meaningful for students. This compartmentalization impinges upon a comprehensive understanding of issues, situations, and challenges—for example the ability to see the ethical-humanistic dimensions of scientific decisions—as well as the implications of a comprehensive scientific education for independent, responsible civic engagement. Moreover, progress toward education that seeks to integrate the sciences and humanities, such as STEAM (science, technology, engineering, art, and math) along with the support of a humanistic approach, conflicts with inflexible curriculum ideas and practices in terms of the ways teaching, learning, and assessment processes are organized.

Fourth, differentiating between a more globalist education and a more local one does not seem to make sense in view of the fact that the fourth industrial revolution accelerates and deepens the development and accessibility of skills and knowledge that are common to many different cultures, regions, and contexts. The local nature of the curriculum is increasingly and significantly guided by nuanced, mutually beneficial dialogue between local and universal knowledge. It is not a matter of expanding globalization but rather transforming how we understand synergies between the global and the local in ways that foster diversity in paths and strategies for educating the next generations (Jonnaert et al., 2021).

Fifth, the critiques of education and the education system stemming from implications of the fourth industrial revolution reflect above all the need to prioritize ways in which students can fulfill their potential for independent, proactive, and creative thought and action, collaborating with others to succeed and adding value to what they create and do. Debates on educational transformation seem to focus more on the guidance and methodological assistance students need in order to combine intuition, emotions, knowledge, and abilities that transcend current circumstances as well as any possibility of automation and replacement of human resources.

Even though the methodological dimension continues to play a fundamental role in teaching the next generations, the effects of the pandemic and predictions about post-pandemic agendas enable a broader, more complex understanding of disruption.
We must not merely change the how of teaching, learning, and assessment, but primarily reexamine educational rationales, aspirations, content, and strategies so that the youngest generations can truly have and enjoy better, sustainable futures.

Disruption no longer encompasses merely considerations related to the fourth industrial revolution; it also provides a warning about the breaking points of a civilized way of life. We are faced with dilemmas regarding whether education helps reproduce an unsustainable, regressive present and future, or in fact is the opposite: a critical tool for building a new civilizational order that reveals a transformative, progressive education indicative of a new social contract for education, as asserted by the International Commission on the Futures of Education coordinated by UNESCO (2011).

The following are some of the points that could reflect a transformative impulse within education, in the context of disruption that is both broad and deep. Above all, it is important to revive discussions about how education and its different components embody social and developmental imaginaries that reorder relationships between humans and nature as members of the same ecosystem. This involves, among other things, reconsidering development from a perspective that both critiques current modes of production, distribution, and consumption and generates alternatives that articulate new forms of comprehension and of interdependence between the global and local levels (Opertti, 2021c).

A second aspect refers to the cross-cutting nature of the comprehensive education of the student as an individual, which fundamentally entails stimulating and safeguarding their unlimited freedom of independent thought, based on arguments and evidence. It also means bolstering their freedom to choose and to put together the jigsaw puzzle of their individual education within a rights-based framework of curricular and pedagogical approaches that encompass universal aspirations and objectives for all students equally.

A third aspect relates to a broad conception of hybrid education as a linchpin for rethinking the modus vivendi and modus operandi of education systems with significant implications for pedagogical aspects (Kukulska-Hulme, 2022). This means embracing the challenge of combining, integrating, and fostering dialogue between approaches, strategies, interventions, levels, offerings, and learning environments in order to broaden, democratize, and support learning opportunities, processes, and outcomes for each student. Hybridization, which logically involves complementarity between in-person and online education, fundamentally entails breaking with unidimensional and unidirectional thinking and actions, which are more oriented toward maintaining adherence to models than being responsive to the learning expectations and needs of students. The key seems to be to link and combine what has previously been fragmented, antagonistic, and mutually exclusive.

A fourth aspect has to do with reimagining the role of teachers as educators with respect to five complementary dimensions: a model, guide, and facilitator; visionary, passionate, and curious; versatile, open-minded, and « glocal » ; proactive, independent thinker and doer; and co-agent and co-developer of the curriculum, producing and debating knowledge. These five dimensions may be helpful in defining a transformative educator, and they should be reflected in the profile, role, education, and professional development of teachers, as well as in the prioritization of the teaching profession.

A fifth aspect relates to the redefinition of schools as open, hybrid spaces for lifelong learning, in light of the renewed forms of collaboration among teachers, students, families, and communities that have emerged during the pandemic, bolstered by the use of different technologies (e.g., radio, TV, internet, and WhatsApp; Reimers and Opertti, 2021). The innovative impetus led by schools to support students and ensure learning continuity during the pandemic necessitates a new way of governing education systems, with roles strengthened so that schools can effectively lead teaching and learning processes in their specific contexts. Rethinking the roles of all actors within schools, reconsidering the organization of cycles and levels to ensure learning opportunities for each student, and integrating in-person and online learning spaces to ensure learning continuity and fluidity are some of the fundamental issues to address.

In sum, rethinking education means, among other things, examining societal disruption as the breaking point of lifestyles worldwide that condemn the youngest generations to unsustainable futures. The central dilemma we face in education is whether to continue reproducing—and even, in some cases, worsening—unsustainability, or to do the opposite: educate for sustainable, healthy, just, and socially committed lifestyles. The magnitude of transformation is of a similar scale to when national societies in various regions of the world put their trust in education—from the late 19th to early 20th centuries—as the best and most powerful driver for social, cultural, and political integration.

III.2 Pressing issues in educational transformation

Green education for sustainable societies

The transformation of education, which is taking on the characteristics of a global movement (UNESCO, 2022a), is based fundamentally on the moral imperative and the urgent need to educate the next generations for sustainable, healthy, and socially committed lifestyles. This means that students are to be prepared to use their basic, transformative literacies in a skillful, flexible, and proactive way to make informed decisions and take responsibility for those decisions as global citizens. Literacies are understood here in the broad sense that includes the meaningful integration of values, attitudes, abilities, knowledge, and emotions in order to successfully meet the challenges we face as individuals, citizens, workers, entrepreneurs, and community members.

A green education for sustainable societies would have four interconnected dimensions: (i) inclusive and participatory governance; (ii) transformative teaching, learning, and assessment practices; (iii) community lifelong learning environments; and (iv) locally relevant sustainable infrastructure.

The first of these dimensions—inclusive and participatory governance—requires generating the political will necessary to build confidence among governments, young people, teachers, citizens, civil society, and the private sector to forge a shared agenda of pursuing the common good. The public sphere is

the space par excellence for rational democratic collaboration (Habermas, 1997; Byung-Chul Han, 2022), in which the diverse range of stakeholders both within and outside of the education system can listen to each other, argue, share, learn, understand each other, and find common ground to move forward in educational transformation. Rationality is used here in the sense given by the philosopher Byung-Chul Han of "a reflection that is sent beyond the moment, to the past and the future" and that "requires time" (2022).

Furthermore, a green education calls for cross-cutting, interinstitutional partnerships and actions, as well as for the promotion of new ways of collaborating with the public sector involving different ministries—primarily those linked to education, the environment, social issues, and finance—as well as to civil society and the private sector. The mainstreaming of green education in national plans for economic and social development can be seen as an indispensable impetus for building green societies that are just and inclusive. We therefore need a holistic perspective on green education that refuses to pigeonhole it within the education system according to levels, offerings, or disciplines.

As was clearly affirmed at the Transforming Education Youth Forum and Pre-Summit (Paris, June 29-30, 2022; UNESCO, 2022a) led by UNESCO, young people are key actors and co-agents in any transformative agenda we hope to develop (United Nations, 2022; UNESCO, 2022a). Their involvement goes beyond strengthening the legitimacy and sustainability of what is proposed by education systems. Rather than merely consulting them, we should facilitate, respect, and incorporate their points of view on their present and future development and wellbeing.

The second dimension—transformative teaching, learning, and assessment practices—refers to providing all students equally a broad range of interdisciplinary and/or transdisciplinary learning opportunities and processes, common to the different educational levels, with the goal of reinforcing an understanding of human beings and nature as parts of one ecosystem that requires ongoing care and attention.

Students need to be prepared to respond proactively to interlinked global and local challenges, including issues related to climate change and biodiversity. This requires the development of local curricula and pedagogies underpinned by two interconnected principles: (i) seeing each student as a unique individual immersed in various contexts and backgrounds and (ii) reviving local knowledge, even ancestral knowledge, that can contribute local solutions to sustainability challenges. Moreover, an inclusive local curriculum depends, to a large degree, on versatile, transformative educators who have the will, openness, and skill, as well as the trust and support of education systems, to co-develop a curriculum that truly connects with students in terms of their ideals and ideas about better futures.

The third dimension—community lifelong learning environments—entails mapping out, supporting, and recognizing the fact that learning about green education can take place in different settings. This

learning can happen anywhere through the combination and integration of formal, non-formal, and informal learning environments in face-to-face, digital, and hybrid teaching and learning formats, as well as through the involvement of a wide array of institutions and actors. Education systems must ensure that the myriad learning opportunities created and managed in a multitude of settings are all part of one ecosystem of green education in which very different institutions communicate with each other—sharing ideas, knowledge, and resources—and join forces to reach the individuals and groups most vulnerable to the impacts of climate change and related factors.

The pandemic has shown us once again the importance of opening schools up to new—and even disruptive—ways of collaborating with a broad range of stakeholders in supporting teaching and learning in many formats (Reimers and Opertti, 2021). Green education can be a powerful opportunity to further reinforce schools' links with their communities through the involvement of students, teachers, families, communities, civil society, and the private sector, in implementing joint initiatives on a wide range of issues and challenges that are globally and locally relevant. In order to make this possible, school administration, as well as the curriculum and pedagogy, must be reexamined.

In addition, green education requires intergenerational dialogue and collaboration. We should all be prepared to do our part to ensure that our planet and our lives are sustainable. The vast range of learning opportunities, content, and resources on green education—both in-person and online—must be considered global common goods, available to everyone regardless of their age, background, or life circumstances. One of the greatest challenges may be to lay a foundation for interregional understanding and commitment in order to act collectively, especially to acknowledge the fact that intergenerational learning between children and parents can play a significant role in combating the climate crisis.

The fourth dimension—locally relevant sustainable infrastructure—refers to how indoor and outdoor learning spaces can help mainstream green education from early childhood on. This means promoting investment in accessible, open learning spaces where teachers and students—seeing each other as partners and having the support of communities—commit to tackling challenges related to green education through interdisciplinary and/or transdisciplinary initiatives. It also requires profound attitude changes among teachers and students with respect to the progressive adoption of sustainable lifestyles.

We know that many responses to the unsustainability of humanity lie in taking advantage of local solutions, especially identifying and making use of resources available in communities. Investment in school infrastructure and equipment can be simultaneously increased and redirected toward building local capacities. It can also become a powerful opportunity for stimulating the creativity of different kinds of individuals working together—for example, teachers, architects, designers, engineers, and businesspeople—to design educational spaces for a green education. This could have a substantial impact on the creation of green jobs, as well as providing examples for the youngest generations to follow.

The right to technological connectivity in education

The pandemic has certainly opened our minds to debating and implementing ideas and initiatives that in the past would have been seen as "impracticable," "for other places," or "possible in a few years." Faced with proposals for change based on evidence about what really works in a variety of contexts and situations, pockets and coalitions of resistance emerge ipso facto that typically end up consolidating the customary, conservative practices of education systems.

Addressing pandemic-related challenges leads us to question the perception that change can only begin under certain optimal conditions. We have seen barriers and prejudices between the education system and society fall away, when they had previously been mutually reinforcing, leading to communication problems, criticism, and certainly zero-sum games. These changes are indicative of new ways of understanding the purpose and content of education, transforming it into something that has the potential to be more of a community, family, and civic endeavour than in the past (Reimers and Opertti, 2021).

An education forum called the RewirEd Summit, organized by Dubai Cares (a global philanthropic organization based in the United Arab Emirates) in 2021—in coordination with the Ministry of Foreign Affairs and International Cooperation of the United Arab Emirates (MoFAIC) as part of a broad international partnership that includes UNESCO, UNICEF, the OECD, and the World Bank—constituted a compelling reaffirmation that the transformation of education and education systems has become a high priority in light of the challenges posed by the pandemic and the post-pandemic era. It is no longer a matter of simply reforming and improving pre-pandemic practices or dreaming of a return to an idealized past, but of resolutely facing the challenge of building forward better on a foundation of development, harmony, solidarity, and collaboration between regions, countries, communities, citizens, and individuals.

The RewirEd Summit included discussions on a declaration about educational connectivity prepared by UNESCO with the support of Dubai Cares (2021b). The "Rewired Global Declaration on Connectivity for Education" is a well-reasoned, persuasive, and compelling argument that the right to education necessitates the right to technological connectivity, not just in the sense of access to educational platforms and resources but also, crucially, with respect to democratizing knowledge and education without borders or barriers.

Technological connectivity is thus understood as a tool for diversifying teaching, learning, and assessment processes, as well as for analyzing and improving learning outcomes. What is more, it is seen as a potentially powerful equalizer of opportunities, provided the state ensures it is used as a global common good rather than expanding primarily as a function of the social and cultural capital of students and their

families. The latter approach leads inexorably to the exacerbation of inequities and gaps, as well as to the unregulated privatization of technological connectivity.

The declaration is structured around three general principles that constitute a multidimensional approach to the digital transformation that pervades all areas and components of education and education systems. The first of these principles concerns the targeting of technological connectivity toward marginalized or disadvantaged populations since approximately two out of every three children and adolescents around the world lack access to the internet in their homes, as the declaration itself notes.

This first principle in fact encompasses four interrelated elements. First, it means guaranteeing universal connectivity at all times and places for all students equally, which would help broaden and democratize spaces and paths for getting an education, accessing knowledge, and learning without restrictions. Second, the universal right to connectivity requires sustainable public funding that is not limited to short-term measures to address a temporary lack of in-person instruction. Third, governments have the responsibility to require internet and cell phone service providers to offer educational connectivity plans that are easy to understand for a general population that does not have the digital savvy to evaluate them. These plans should have fixed or subsidized fees. Fourth, the role of technological connectivity is to supplement, expand, and enrich a quality in-person education, which is still the primary—and essential—interface for education (Commission on the Futures of Education, 2020).

Furthermore, the declaration raises the issue of whether the right to universal connectivity should be accompanied by the right to disconnect from technology in education for the purpose of avoiding prolonged, uninterrupted use of digital technology.

The second principle concerns the need to reinforce investment in development and to make free, high-quality digital content available to the public to help diversify learning opportunities and experiences. There are three elements of this second principle.

First, the challenge is to achieve public sector commitment to fund the development and maintenance of robust public platforms that, in line with the national curriculum, enable teachers and students to produce, collaborate, and exchange digital educational content that is accessible to the public. This undoubtedly means reaffirming the idea that teachers and students should be co-agents of the curriculum (OECD, 2020).

Second, we must have a broad repertoire of educational resources that are tailored to the needs of different kinds of students and that have been developed and tested in collaboration with teachers. It is important to stress that issues related to creating and curating digital learning resources, as well as to collaboration and peer learning within teachers' communities of practice, must be addressed in teacher education and professional development.

Third, we must monitor the adaptation and application of digital resources and their actual contributions to the improvement of teaching and learning, relying on the triangulation of evidence from various data sources and from research carried out using different methodologies.

The third principle suggests that progress toward hybrid education—that is, toward complementarity between in-person and online spaces—requires significant pedagogical innovation to improve the development of personal, interpersonal, social, and civic competencies among students and teachers. This third principle can be broken down into four elements.

First, the use and, we could even say, the appropriation of digital spaces carries with it a recognition of their uniqueness as learning spaces. This also involves the development of new educational approaches and content, as well as the diversification of pedagogies that position teachers, students, and families as producers, developers, and validators of materials rather than simply recipients of "turn-key" materials from various providers. We are in the early stages of a renewed educational paradigm in which producing, discussing, experimenting, adopting, and disseminating learning in open formats is valued more than just receiving, consuming, and reproducing it.

The second element is seeing the use of technology as a powerful way of reinforcing the social and civic dimensions of education, involving peer-based work among and between teachers and students toward educational goals that are shared across each community. Technology certainly helps personalize education to each unique student, which does not mean an individualist education that is isolated from social interactions; in fact, those interactions remain the glue holding the educational endeavour together, and they have an enormous impact on students' wellbeing and learning processes.

Third, students' and teachers' data must be protected and kept anonymous so that they cannot be diverted toward non-educational purposes but rather are used to guide students toward learning progression and completeness.

Fourth, we must promote the healthy, safe, productive, and responsible use of the internet through education that enables each student to understand digital ecosystems and use them creatively while remaining vigilant about their digital footprint and associated implications.

These three principles of technological connectivity—a focus on the most vulnerable groups; sustained investment in free, high-quality educational materials; and pedagogical innovation to implement hybrid education—are in line with and contribute to what the civil society organization Big Change refers to as the three fundamental drivers of educational transformation (Goddard et al., 2021). These drivers are: (i) establishing the education system's purpose and objectives to reflect the challenges and opportunities of the future and the values and priorities of various stakeholders; (ii) helping teachers and

students lead and co-lead educational initiatives and enabling multiple stakeholders to be involved in decision-making processes through the use of more accessible, useful, and interesting information; and (iii) fostering more student-focused initiatives, integrating new ways of assessing and acknowledging learning, and strengthening ties between the learning sciences and teaching practices.

In sum, one of the keys to educational transformation, which is increasingly understood in various regions and contexts, lies in the expansion of the right to education, recognizing that digital transformation is a window of opportunity for democratizing the adoption and enjoyment of knowledge and education without limits or borders. The declaration prepared by UNESCO in collaboration with Dubai Cares lays the groundwork for us to understand that the challenge of connectivity is systemic, multidimensional, cross-cutting, and interinstitutional, and that it requires the unequivocal support of a state that guarantees opportunities. Moreover, it is important that we connect the institutional, curricular, pedagogical, and instructional pieces such that students and teachers can adopt spaces, opportunities, platforms, and resources with the aim of engaging in learning experiences that prepare the next generations for futures that are clearly better and more inspiring than the present.

Competencies in education

Debates pervaded by the contrasts between different ideas and approaches are critical for countries to make progress on their agendas promoting coexistence, wellbeing, inclusion, and development. Especially in education, discussing proposals is key for fostering transformation and assessing the potential scope of transformation so that education systems can train the next generations to meet the challenge of building better and more sustainable futures (International Commission on the Futures of Education, 2021; Advisory Council of the OEI, 2020; Opertti, 2021a).

Among other recurring, thorny, delicate issues, skills-based approaches constitute a key reference for rethinking graduation profiles, aims, and educational content at all levels of education, as well as ways of implementing them.

In addition, collaboration on skills-based approaches is reinforced when robust critiques and challenges to those approaches are taken into consideration. Dogmatism with respect to competencies-based approaches—with some defending them tooth and nail while others want to throw them out the window—leads to conflict in debates and closes off possible paths for convergence and for the synthesis of ideas and proposals. Under no circumstances should we lose sight of the fact that approaches to teaching, learning, and assessment processes are dynamic tools that are open to discussion and whose value depends on their responsiveness to each student's specific learning needs and expectations. Curricular and pedagogical personalization generally requires the triangulation and integration of perspectives and approaches from different schools of thought.

Political philosophy professor and researcher at the University of the Basque Country Daniel Innerarity calls into question the raison d'être and appropriateness of competency-based approaches with the provocative heading "an education for incompetence" in his excellent book The Society of Ignorance (Innerarity, 2021). Let us examine here his arguments in the interest of exploring paths for understanding and integrating educational approaches.

First, Innerarity starts with an extended discussion in which he warns of "that pedagogical craze that has led us to put competence rather than knowledge at the centre of education." The point is that overemphasizing skills as "turnkey solutions for educational transformation" while disregarding knowledge as the essential foundation for those skills can hollow out the very concept of skills. It is also important to reaffirm the fact that knowledge—far from being devalued—is prioritized in skills-based approaches: knowledge is carefully selected, integrated, and leveraged to enable effective responses to situations/problems/challenges (Jonnaert, Deporvu, and Malu, 2020).

Second, Innerarity notes the potential bias of a perspective on competencies that is more oriented toward the economy than toward education and "where the value of things, goods, and knowledge will be validated, thereby reduced to an exchange value." In contrast to an economistic view of competencies or the reduction of competencies to technical education, competencies are fundamentally linked to education, civic participation, community engagement, and job preparation in a broad sense that goes beyond their utility for the performance of a particular job or task. This does not mean that competencies have only a limited functional value, but rather that they help enable people to navigate various spheres of individual and collective life with determination and competence. A clear example of this entails competencies linked to forging sustainable, socially committed, and healthy lifestyles as a cross-cutting issue for lifelong learning.

Third, Innerarity ascribes to a skills-based education the intent to educate to "stay ahead of the competition" and to understand education "as training in formal skills that can be used in service of anything." It is necessary to clarify that the educational process of becoming competent at responding to challenges of any kind does not ipso facto exalt competitiveness as a value in and of itself or prioritize getting ahead. As an example, competence can be associated with active civic engagement in democratic societies or with laudable social goals related to solidarity and cooperation (International Commission on the Futures of Education, 2021).

Moreover, the skills typically named, such as flexibility, resilience, and versatility, are not "blank checks" that justify any kind of behaviour—or considering and measuring them solely in terms of their "economic return." Rather, they gain meaning and relevance according to their contextualized use within social and educational imaginaries. The fundamental value of skills stems from the educational approach that gives them meaning. They cannot define an educational approach by themselves.

Fourth, Innerarity raises the issue of the status of knowledge by affirming that "the shift from lesson plans structured around knowledge and content to plans focused on skills is the most visible manifestation of a general devaluing of knowledge in schools and universities." It is erroneous, however, to assume that a curriculum grounded in competency -based approaches necessarily neglects knowledge, as if competence does not actually involve the use—or rather, the appropriation—of knowledge for certain educational purposes.

The risks Innerarity raises—for example, of referring to "reading skills instead of texts" or of fostering "capacity for conflict resolution instead of teaching about the meaning of justice"—seem to rest on the assumption that skills are not rooted in values and knowledge that in fact give them meaning and direction. No educational approach functions in the absence of values and standards—or under the assumption that its design is determined a priori without dialogue, disagreement, and collaboration among different actors and institutions both within and outside of education systems.

Fifth, Innerarity draws our attention to the fact that knowledge cannot be categorized as more or less functional or useful or important, denigrating "certain areas of knowledge, such as the humanities or philosophy," or even worse, showing "disdain for knowledge itself." The desire to pass all knowledge through the sieve of utility can lead to rigid categories and divisions between hard and soft knowledge and skills, or between measurable and non-measurable knowledge, or between the curricular and the extracurricular, under the maxim that, supposedly, only that which is measured is valued. This deprives us of the understanding that knowledge surprises us by exposing us to perspectives, issues, and ideas that we would not necessarily encounter in our day-to-day responses to needs.

Sixth, Innerarity invites us to ask whether our ability to understand fundamental issues of life involves "engaging in reflection that goes beyond considerations of utility—what used to be called liberal arts and is today referred to as the humanities." As Innerarity rightly says, even studying "odd things" and finding yourself "forced to justify it by arguing that it develops certain cognitive competencies that can be useful in professional life" exposes us to a variety of ways to develop, experiment with, and test a wealth of knowledge, while reinforcing our skills of reflection and independent, free, creative thinking. To a great extent, it is a question of, on one hand, enjoying knowledge without the demands of current needs or, on the other hand, understanding better how we can respond more effectively to current needs if we can form deeper perspectives on the issues we confront.

Competencies-based approaches are not limited to the search for functional, pragmatic solutions to a challenge or situation; rather, they aim to develop in students the knowledge and competencies—as well as the desires, values, emotions, and attitudes—that they can rely on when seeking their own solutions. What students develop on their own can differ from what is imagined and suggested by teachers (Jonnaert, Depover, and Malu, 2020), which can be surprising and even unsettling, as students make

contributions that can improve our understanding of issues. There are no solutions that are, so to speak, set and fully standardized in competencies-based approaches, but rather individual and collective work based on assessments and meanings that students give to a particular situation posed by the teacher.

Seventh, Innerarity reminds us that educational processes are marked by "the experience of failure, unsolvable problems, and questioning the profits that sustain our ways of life." Education undoubtedly carries a certain healthy discontent and discomfort because of our inability to fully understand issues and because there is always something irreducible or impenetrable that eludes our grasp. Competencies-based approaches are more of an invitation to experiment and find new ways to respond to problems than to validate existing knowledge.

In sum, Innerarity's book helps us understand the need to rethink the relationship between knowledge and skills within the framework of a comprehensive vision of education that examines fundamental issues of life in society and that could give additional direction, support, and sustainability to our responses to the pressing issues of the day. Perhaps we need a bit more philosophy in the sense described by the German philosopher Odo Marquard (quoted by Innerarity), who states that philosophy "has a particular addiction to unsolvable problems, which it never resolves but from which it can never quite break free."

Programmes of study in education

Discussions about the direction, substance, and implications of transformation processes require us to rethink the why and what of education, that is, what we hope to achieve with learning opportunities that are personalized for all students equally. Clearly, our focus on the purposes of the education we seek to develop, as we work toward desired social imaginaries, is reflected in the frameworks and tools that underpin it. Among other aspects to consider, I focus here on four key elements of the approach to educational programmes of study, which are a critical tool for helping to educate the next generations.

First, it is important to specify where programme discussion and design takes place, as this gives us an indication of whether it follows the endogenous logic of levels, offerings, subject areas, and disciplines, or is instead located in spaces of conversation and integration between them. One of the central discussions concerns whether the programmes themselves are entities, which are not necessarily framed within a curricular vision that defines the why and what of education, or if they are essentially thinking tools that reflect a unified, robust, coherent vision of the curriculum that links the entire education system together. One risk of seeing each programme of study as its own unit is that ultimately the curriculum that specifies what to teach, learn, and assess is reduced to a list of disconnected programmes, leading inevitably to a fragmentation of approaches, knowledge, and content.

Second, educational programmes can be developed in institutional settings that reflect independent constructs generally embedded within each discipline, or they can be developed in shared spaces between levels with a focus on bolstering learning progression, fluency, and completeness. Curriculum design and development can be very different if the starting point is a focus on disciplines instead of on the learning we want students to gain through the integration of competencies and knowledge; these form the foundation that gives the curriculum meaning, legitimacy, and sustainability (Amadio, Opertti, and Tedesco, 2015; Jonnaert, Depover, and Malu, 2020; Opertti, 2021a). Indeed, one of the Achilles' heels of curriculum design and development processes is that they are tied too closely to discipline-based instruction without considering possible synergies with and implications for learning and assessment processes that allow us to consider the wide range of needs and expectations of all students equally.

Institutional design in support of the development of programmes of study must be embedded within an educational and curricular approach, as well as an education systems approach. One interesting experience worth noting is that of the High Council of Programmes (hereinafter CSP for the French) created in 2013 as part of the education reform law (Ministry of National Education and Youth, High Council of Programmes, 2020).

The CSP's role is essentially to share its opinions and develop proposals related to: (i) the general instructional approach for early childhood, primary, and secondary levels; (ii) educational content in the common cycle of knowledge, skills, and culture across primary and lower secondary education, ensuring coherence and coordination between cycles as well as modes of assessing learning outcomes; (iii) the nature and content of secondary school graduation exams and their adaptation for students with different abilities; and (iv) the nature and content of teacher hiring assessments, with the necessary adaptations for different types of students, as well as the goals and general approach of initial and continuing education of teachers.

The CSP is based on a comprehensive curricular approach whose analysis takes into consideration the specifics of each level, as well as coordination between levels, and that also seeks to align early childhood, primary, and secondary programmes with teacher training and professional development. Furthermore, the proposals related to exams are framed within the educational approach that is common to all the programmes, and they take into consideration the diversity of student abilities.

It is also worth noting that the CSP operates independently as a scientific advisory body of the Ministry of Education, Youth, and Sports, with the authority to make proposals but not to make decisions or carry out inspections. As the President of the Council Mark Sherringham (2022) notes, the CSP can operate effectively if it works closely with the various parts of the ministry and maintains complementary roles and responsibilities. In this way, the Ministry's role is not just to support the proposals developed by the CSP but also to carry out all the consultations and discussions that are necessary for the programmes of study to be approved.

Moreover, it is interesting that the CSP includes three representatives, three senators, two delegates of the Economic, Social, and Environmental Council (CESE for the French), and ten individuals known for excellence in their specializations and their knowledge of the education system appointed by the Ministry of Education, Youth, and Sports. This composition of the CSP clearly reflects the perspective that the discussion, development, and validation of programmes requires an understanding of education as a political, societal, and technical issue that necessitates interconnected approaches and complementary perspectives.

Third, the CSP's overarching programmatic approach is made clear in a February 2022 interview of CSP vice president Philippe Raynaud by the newspaper Le Monde. Raynaud asserts that the programmes are created with the aim of inspiring teachers' work so that students understand and absorb them. Raynaud notes, however, that these programmes must be consistent with the evolution and unique dynamics of education systems, of society, and of higher education (Raynaud, 2022). The programmes are clearly understood as powerful, important tools insofar as they reflect an educational and curricular vision that is in line with the wide range of expectations and needs of society as a whole.

Raynaud also broaches the delicate topic of the overburdening of education as families, politicians, and associations of various kinds demand that education systems take into consideration their particular priorities. Indeed, the CSP's role is to develop guidelines and to clearly identify priorities, bearing in mind the challenge of educating the next generations within a unified, cross-cutting educational vision at all levels. This requires not just satisfying stakeholders but also having the political and professional will to take the necessary steps to support students' comprehensive, well-rounded development. Raynaud notes, for example, that the CSP has suggested refocusing economic programmes on microeconomic issues that, with respect to disciplinary or historical debates, take into consideration the role of women and colonial history (Raynaud, 2022).

It is important to note that if we consider the interactive effects of curriculum overload, a bias toward a limited core of learning areas and disciplines, very short time frames for programme completion, and the fact that students and teachers generally feel overburdened and express discontent, it is to be expected that all of this will negatively affect learning opportunities, processes, and outcomes, and that the most vulnerable groups will be affected the most (OECD, 2020; Opertti, 2021c).

Analyzing the CSP demonstrates the importance of institutional designs for programme development that encompass the education system as a whole, in which proposals are developed in dialogue with society and views can be expressed without undue interference from government ministries. There is no political sponsorship, as it were, but there is no corporate sponsorship either—or co-opting by the structures of education systems.

Fourth, as noted in the seminal paper "Reimagining our futures together: a new social contract for education" from the UNESCO-led International Commission on the Futures of Education (2021), discussions about programmes must take place within a new curricular approach that promotes learning that is: (i) ecological—laying foundations for environmental sustainability, promoting steps for addressing the challenges of a damaged world and adapting our production and consumption to what is really needed for mutual coexistence and wellbeing among countries; (ii) intercultural—building awareness of different cultures, knowledge, and perspectives with mutual respect and dialogue, on a foundation of shared approaches to teaching human rights, civic engagement, and democratic participation; and (iii) interdisciplinary—based on in-depth, mutually beneficial dialogue between the humanities and the sciences that fosters scientific inquiry and understanding as an expression of the human spirit, as the document notes.

In sum, an analysis of educational programmes of study involves not just guidelines and course content—often referred to as prescriptive curriculum—but also its effective implementation, its achievements, teachers' perspectives on it, and students' experiences with it. An educational programme alone does not guarantee anything, but a robust, accessible programme can play a central role in achieving equitable outcomes in terms of educational quality. Unlike a traditional approach that sees programmes of study as self-contained units, the current trend is toward promoting dialogue across programmes to generate and explore ideas, fostering the skills and knowledge established in the curriculum for educating the next generations.

Intelligences and education

One of the major debates in education today is how to effectively address student diversity, recognizing that we are each part of an indivisible whole (Morin, 2018, 2020). It would be difficult to make progress on personalizing education without understanding individual-level diversity, as well as its interaction and juxtaposition with other sources of diversity, such as cultural, gender, social, identity, and geographic sources.

One of the keys to addressing diversity is to come to an understanding of each individual student, starting with a recognition of their skills and how those skills are understood, valued, stimulated, and expanded by education systems. Examining human intelligences from a holistic perspective can shed light on how education can have positive impacts on student wellbeing and development.

The March 2022 issue of the French magazine Sciences Humaines discusses the interdisciplinary analysis of human intelligence, enriching an informed debate to promote a holistic understanding of the issue, as well as to provide support both individually and collectively. Specifically, I am referring to the article titled "Six questions about intelligence" (available in the original French) by researchers Sophie

Brasseur and Catherine Cuche (2022), who have PhDs in psychology from the Catholic University of Louvain (Brasseur and Cuche, 2022). Let us examine here each of the questions and some possible implications for education.

In the first place, the historical debate between how much is explained—and to some extent justified—by the influence of genes or the environment, seems to be settling upon an interactive understanding between the innate and the acquired. It is a back-and-forth relationship in which not everything is determined by genes or totally modifiable by the environment. Brasseur and Cuche mention that genetic factors are responsible for 40% to 60% of the variation in infants' intelligence and that, in fact, even though a baby's brain is fully formed at birth, only 10% of synapses—that is, the connections between neurons—are functional at that point. To a great degree, the brain's functioning depends on a set of interrelated factors—affective and cognitive stimulation, as well as quality of food and healthy lifestyles, etc.—that show the need to develop a comprehensive childhood policy, from birth to age six, that is cross-cutting, interinstitutional, and interdisciplinary.

If the brain is not intensively stimulated in the critical period between birth and age two, genes will leave their mark more strongly; this will be a significant source of inequality between people and can be aggravated by other types of inequalities—e.g., cultural, social, economic, and geographic. The amount of stimulation from family and community environments, as well as from public policies, can influence life opportunities in adulthood. In fact, Brasseur and Cuche assert that in adulthood, genetic factors account for 75% of the variability in intelligence.

Second, Brasseur and Cuche analyse whether intelligence is a singular or multifaceted concept. Either it is understood as a unique capacity drawn upon to confront a broad range of situations regardless of cultures and contexts, or it is associated with the development of specific competencies associated with particular contexts and tasks. However, intelligence appears to have components common to the development of various skills that may be more or less related but are not totally independent of each other. This would mean, for example, that through education, the development of artistic intelligence and mathematical intelligence are not entirely separate since they not only have common foundations but can also be mutually reinforcing. Curriculum and pedagogy should promote, as a general rule, the development and connection of various kinds of intelligences in students while taking into consideration students' perspectives and motivations. In short, intelligences are multifaceted and complementary, and they also have common foundations and differentiated paths.

Third, Brasseur and Cuche discuss possible genetic explanations for the functioning of intelligence. The authors point out that evidence from various studies indicates that there are many genes (more than 1000) related to intelligence. Each of these genes accounts for a tiny portion of the variation in intelligence. In this regard, measurements of general and specific neurocognitive skills help identify

the influence of genes mainly in the first two decades of a person's life. These skills include executive functions (e.g., planning, goal setting, and decision making), memory, complex reasoning, and sensory motor speed.

Recognizing that genes have a significant impact on the development of skills and abilities that are essential for managing various challenges does not mean we must downplay the role of education; rather, we must prioritize its key role in underpinning the learning opportunities and needs of each student. Curricular and pedagogical approaches must take into consideration the characteristics of each individual student in order to enhance their learning (Opertti, 2021).

Fourth, Brasseur and Cuche discuss whether the intelligence of a person within a given age group remains stable or changes over time. Children's intellectual capabilities fluctuate significantly until age six or seven, and they can be affected both by children's developmental characteristics and by environmental factors, which underlines the importance of robust policies to support children. Even when variations in intellectual capabilities are minimal, significant variations in cognitive levels do in fact develop, and these variations could be linked to the quality of educational programmes. This means that intelligence is simultaneously fixed and changing, as Brasseur and Cuche note.

Moreover, if someone has a growth mindset regarding their own intelligence, that helps boost motivation, perseverance, and attainment of learning objectives. This finding is consistent with PISA studies showing that the reading performance of students who disagree with the statement that intelligence is an attribute that cannot be changed much is 32 points higher than that of students who agree with that statement, independent of their socioeconomic background and their school (OECD, PISA, 2020; Opertti, 2021c).

Fifth, Brasseur and Cuche argue that people's genetic potential can grow during a slow process of maturation and dynamic interaction with the environment. Rejecting deterministic perspectives—whether genetic or environmental—allows us to highlight the back-and-forth relationship between the brain and learning, mediated by various kinds of stimuli. The example mentioned by Brasseur and Cuche is illustrative: What would have become of Mozart if he had not been immersed in a musical environment beginning in childhood or if his father had not invested so much in his musical education?

We must not merely increase the intensity of stimuli but also understand when the brain is even able to respond to those stimuli. Undoubtedly, the relationship between the brain, cognitive abilities, and learning can be better supported through carefully designed educational programmes that incorporate appropriate time frames, content, rhythms, and sequencing for optimal student development. It does not seem appropriate to expect increases in cognitive stimuli in childhood—for example, in reading, writing, or mathematics—to produce learning if students' comprehensive, balanced development and the brain's level of maturity have not been given due consideration.

Sixth and lastly, Brasseur and Cuche raise the question of the effects of the environment on the intellectual capabilities of a country as a whole. Existing global evidence appears to show that those capabilities can increase or stagnate over time. Education policies that are rooted in a foundation of lifelong learning and that promote the diversification and democratization of learning environments can be key to increasing levels of collective intelligence in a society.

In summary, knowledge about the formation, development, and impact of human intelligence is essential for education to support student learning while giving due consideration to the multiple and evolving interactions of reciprocal feedback between genes and stimuli from the environment and from public policies.

A vision and agenda for the curriculum

The document "Reimagining our futures together: a new social contract for education" (International Commission on the Futures of Education, 2021), provides an insightful look at the curriculum as a set of interlinked dimensions that connect the why and what of teaching, learning, and assessing with the how, where, and when. Let us take a look at some of the elements the document sets out as ingredients for a transformative vision and agenda for the curriculum.

First, it prioritizes the curriculum as crucial for building and sustaining a new kind of social contract for education. The concept of a contract is not new in education, but it is interesting to see how it is linked to the present and future with a transformative approach to education systems. This requires us to understand what has already been argued for some time (UNESCO-IBE, 2013a, 2013b): that the curriculum cannot be reduced to a summation of plans and programmes of study fragmented by levels, course offerings, and learning environments. The curriculum is essentially an educational, societal, political, and policy construct—necessarily contested, with a back-and-forth dynamic and agreements struck between a range of institutions and actors both within and outside of education systems.

In addition, a curriculum is robust if it reflects the increasing complexity of the relationship between knowledge and the world. Knowledge here is understood broadly—including its production, discussion, acceptance, adoption, and use—for the purpose of enabling students to help address the challenges humanity faces in terms of rethinking paradigms of development and economic growth and building a more sustainable world. Knowledge precedes and forms the foundation for any decisions about which skills—that is, the ability to manage various kinds of challenges—students should develop.

Rather than reducing knowledge to units of content and information within the boundaries of individual disciplines, we should see it as a guiding principle for prioritizing learning content and sequencing in a way that cuts across educational levels and promotes competencies development.

As the International Commission on the Futures of Education (2021) states, we are faced with a new curricular dynamic in which many are demanding a robust emphasis on knowledge that provides meaning and that pervades all aspects of education.

Second, the document argues that a comprehensive and pluralistic conceptualization of knowledge must include a diverse range of epistemological perspectives and must contrast and integrate ideas and approaches from various contexts. Knowledge is not "inferior" or "superior" depending on its geographic, social, cultural, or other origins. There are no strictly universalist or localist approaches, which would in any case be expressions of hegemonic stances of varying scope; rather, the curriculum reflects unique, evolving combinations of global and local knowledge that develop from a patchwork of affiliations, cultures, traditions, and worldviews (Opertti 2020, 2021c).

Third, the curriculum is closely linked to the "knowledge commons" of humanity, which consists of global common goods that benefit all people equally with the aim of enabling people to forge the future they envision or desire. This is linked to a democratizing conception of knowledge as part of the right to education. During the pandemic specifically, due to the need to ensure the continuity of education in online spaces, educational platforms and materials that had been fee-based were made available at no charge.

The question is raised whether those resources will continue to be available at no cost after the pandemic to support hybrid education, with the state guaranteeing the right to technological connectivity as intrinsic to the right to education (Dubai Cares 2021a, 2021b). If not, restricted usage will further exacerbate the social inequalities and learning gaps that existed prior to the pandemic, especially in developing countries.

Fourth, the paper examines the curriculum as an intergenerational construct that helps students contextualize and give meaning to their cultural backgrounds through their studies and reflections. Rather than simply transmitting knowledge from one generation to the next, the task is to transform the meaning of that knowledge in light of students' expectations and experiences, in dialogue with older generations. The extent to which educational approaches facilitate the process of giving new meaning to knowledge—rather than simply reproducing it—is crucial for knowledge to be adopted in a meaningful way with an eye to the future.

Fifth, the document lists a set of curricular priorities that serve the purpose of reimagining the futures of education as a whole with a transformative, forward-looking perspective. Let us examine each of these.

The first concerns what is called a curriculum for a damaged planet—that is, a new way of seeing human beings as part of the planet and part of the same ecosystem as nature. This refers to generating

opportunities and learning spaces so that students can raise questions both individually and collectively about how the dominant modes of production, distribution, and consumption will make our habitats unsustainable in the near future. An awareness of harm is important not just for counteracting or mitigating that harm but, more fundamentally, for forging new ways of connecting with the natural world, protecting it, and seeing the biosphere as an educational space, as the document puts it.

These transformed ways of understanding the natural world must be at the heart of the curriculum—no longer just understanding how different fields contribute to our comprehension of climate change from an interdisciplinary perspective, but also embracing the depth and breadth of the issue with a transdisciplinary approach. The idea of transdisciplinarity means transcending the distinctions between disciplines, which are based generally on fragmented approaches, to create a new way of thinking (Singh, 2021). To that end, the curriculum must generate spaces and opportunities for students to be able to develop systemic ways of thinking that give meaning to the connections between areas of knowledge so they can manage individual and collective challenges.

The paper argues that within this transformed educational paradigm, the approach to climate change should include gender perspectives as well as cross-cutting perspectives on social and economic problems, integrate history and geography, and foster critical thinking and a commitment to civic engagement. This integrated approach highlights the need to rethink the purposes of education as well as to ask ourselves whether current organizational frameworks of instruction allow us to understand the full scope, substance, and implications of climate change.

It is important to raise the question of whether the curriculum, at its various levels, shares with students perspectives, mindsets, and practices that prompt them to think about the fact that in order to live in harmony with nature, as the document argues, we must to take the necessary steps to ensure harmony and wellbeing. Merely transmitting information or knowledge in discipline-based units is insufficient for students to reflect critically on their lifestyles so as to make significant changes to their mindsets and actions.

Moreover, the paper clearly argues that the concept of social justice, which is gaining prominence in the agendas of educational transformation that are being set in various parts of the world, is inseparable from environmental justice. It is not just about fostering a kind of virtuous environmental awareness detached from a vision that redefines the foundations of development in a more locally grounded way, or of engendering environmental attitudes that are limited to feelings and emotions. A socially committed ethic of care clearly involves a cognitive dimension. As the document rightly argues, the curriculum must encompass an in-depth understanding of how scientific and technological approaches toward the planet are produced, how the earth and the universe are documented, and how knowledge practices are linked to lifestyle practices on a damaged planet.

Finally, the document argues for an ethic of care both for the self and for others, recognizing that we are interconnected individuals in an increasingly interdependent world, that we should both take care of others and be taken care of, and that combating gender discrimination requires respect and support for all people equally. The curriculum undoubtedly plays a key role in challenging unjust, regressive views and practices, which foster unequal roles and responsibilities and penalize the most vulnerable groups. The curriculum can thus be an inflexible tool for reproducing existing practices, or it can unleash cultural transformations that influence mindsets and practices and that enable us to be rightly optimistic about building better and more sustainable futures.

Cooperation and solidarity in education

One of the strengths of the document produced by the International Commission on the Futures of Education (2021) is its delineation of core issues related to educational transformation from a pluralistic and proactive perspective. One of these is the aim of giving meaning to approaches that are as global as they are local—rooted in common standards and respectful celebration of diversity and difference, understood in a broad and inclusive way. Another issue raised is the goal of moving toward a pedagogy of cooperation and solidarity. Let us examine here some of the points made.

First, the document states that how we learn should be determined by why and what we learn. The foundations, objectives, and content of courses are the means by which we build, affirm, and guarantee the right of every student to study and learn regardless of their backgrounds, life circumstances, motivations, and views. This means respecting and valuing them fully as individuals, providing them frameworks and tools to be able to develop independently and responsibly, as well as to collaborate with and learn from their peers from the most diverse backgrounds and circumstances.

In this regard, the document rightly frames the ethical standard of education as respect for the dignity of the individual, which entails teaching students how to think for themselves rather than teaching them what and how they should think. Protecting and expanding students' freedoms—to form their own opinions and to think independently and proactively, free of any kind of indoctrination—is crucial in a world in which it is imperative to reaffirm a global identity based on the shared values of freedom, dignity, and respect for human rights (Velazco, 2020).

Second, the document argues that pedagogy is relational: it involves influence, feedback, and mutual learning between teachers and students, who—along with knowledge—constitute what is often referred to as the pedagogical triangle. This triangle serves to foster collaboration and understanding between teachers and students in order to identify and produce shared knowledge—the "knowledge commons"—that can benefit everyone equally to help build the future we envision. Unrestricted access, use, production, and socialization of knowledge, as an issue that involves teachers and students, is

at the heart of a transformative pedagogy. As the document argues, this means that teachers must provide students opportunities to explore, create, and interact with both the known and the unknown, encouraging their curiosity and interest.

Third, the document advocates for collaborative interdisciplinary learning focused on recognizing and solving problems. Education should be problematized through topics that challenge students in their search for answers that connect ideas, content, and strategies that are not presented in isolated disciplinary "units" but that instead invite students to transcend disciplinary borders and boundaries (Morin, 2020; Opertti, 2020, 2021c). As the document points out, this also means breaking down the walls between schools and communities, broadening student experiences beyond their individual lives.

Given that all true interdisciplinarity rests on a foundation of robust disciplinarity, in-depth understanding of any issue requires linkages and triangulation across disciplines, as well as the identification of elements that remain unexplained, beyond the scope of current knowledge. A clear example is our knowledge of the brain. Although it has increased exponentially in recent decades through interdisciplinary approaches, key aspects of the brain's functioning remain unknown (Manes, 2020).

In addition, the active involvement of students in their learning processes—handling problems and challenges—enables us to develop a curriculum that is more connected to their personal experiences and interests, as well as to share perspectives that emphasize their ability to effect change in the world rather than accepting things as they are. This certainly orients education more toward transformation than reproduction of existing mindsets and practices.

Fourth, the document argues for valuing and supporting diversity and pluralism in order to make education inclusive and intercultural. True inclusion is when a student is understood—in terms of their own identity and their own reality—and they also respect the dignity of their peers. Inclusion essentially means recognizing that all students are unique individuals who matter equally (UNESCO-IBE, 2022) and that this is the key starting point for combating discrimination of any kind. In fact, a pedagogy of solidarity involves challenging exclusions that are rooted in racism, sexism, colonialism, and authoritarian regimes.

Moreover, an intercultural society that is both global and local must affirm people's own cultural identity rather than imposing it from the outside or requiring assimilation into the dominant culture. The document clearly highlights the need for pedagogies that promote mutually beneficial exchanges between cultures based on complementarity, reciprocity, and respect. Rather than feeding cultural conflict by framing disagreements as irreconcilable, we should facilitate shared common spaces in which differences are an asset for teaching and learning. This means civilizing our civilizations, to use an expression coined by the sociologist Slajoj Zizek (2022).

Furthermore, the document warns that pedagogies cannot be "automated," as that would overlook the many personalized methods of teaching, learning, and assessment used in various contexts, including with the assistance of artificial intelligence (AI) and other technology. It takes time and patience to develop and implement a transformative pedagogy that promotes and adopts values such as solidarity and cooperation; this cannot be accomplished through technology, as it is incapable of accelerating learning on its own.

Fifth, the document discusses the need to unlearn the prejudice, bias, and divisiveness that lead to the silencing and exclusion of local knowledge, collective memory, and cultural traditions. Hegemony of thought and of knowledge must be challenged by a pedagogy of solidarity that brings cultures together and fosters unrestricted knowledge-sharing. Perhaps if we considered local knowledge, which has been obscured for a variety of reasons, it would allow us to find some answers to today's global sustainability challenges, which seriously threaten the wellbeing and development of the youngest generations. Without a doubt, unlearning—as a sound pedagogical practice—is linked to fostering intellectual freedom, imagination, and innovative thought among students.

Sixth, the document advocates for learning how to heal the wounds of injustice that can stem from hegemonic or monocultural approaches to knowledge. Pedagogy that makes room for a broad range of perspectives, including those of local cultures, constitutes one way of decolonizing knowledge, as well as engaging with different ways of understanding and seeking answers that are both global and local. Recovering and giving new meaning to local knowledge can play a key role in strengthening relationships between education and communities. Some innovations developed during the pandemic lend support to the idea of schools as community resources and idea-generators (Reimers and Opertti, 2021).

Seventh and lastly, the document highlights the need to strengthen assessment in support of student development. Pedagogies of solidarity and cooperation challenge us to develop our assessment approaches and tools by documenting and quantifying them, since it is common knowledge that what is not measured has little importance in education systems that are increasingly scrutinized on the basis of assessments.

This would undoubtedly mean, as the document states, that the goal of cooperation can be measured, for example, when a group of students engages in negotiation and conflict resolution, taking into consideration and combining a wide range of perspectives. In addition, reexamining assessment does not mean adopting certain tools and rejecting others as irredeemably exclusionary but rather understanding that the format chosen for assessment should be aligned with pedagogical objectives. This does not mean putting assessment above pedagogy but rather seeing it as the result of the process of developing an educational programme.

In summary, the thought piece published by the International Commission on the Futures of Education helps us understand that a transformative pedagogy—one that prioritizes the values of solidarity and cooperation—requires us to put into practice social imaginaries animated by those values.

Knowledge and emotions

In this section, I focus on issues related to the integration of knowledge and emotions, as discussed by the International Commission on the Futures of Education (2021).

The commission's document asserts that the curriculum must be grounded in a view of students as complete human beings, reaffirming the principle that each person is an indivisible whole. Indeed, every person constitutes a unique whole, comprising biological, psychological, anthropological, and sociological elements (Morin, 2020; Blanquer and Morin, 2020). A renewed appreciation of students as individuals is a key element on the post-pandemic agenda, largely due to the need to respond to emotions associated with, for example, the isolation, anxiety, distress, and uncertainty, that students experienced during school closures. In reality, the pandemic has led us to a more humane vision of the student—one that is less tied to the rigidities of levels, course offerings, and educational settings, and to the fragmentation of knowledge into disciplines that "divide" what is fundamentally indivisible.

The document also presents evidence from the neuroscience of learning indicating that knowledge and emotions are part of the same cognitive process. It is not groundbreaking to note that emotions are part of any cognitive process, but it is important to identify certain elements that clearly call into question the idea of a linear impact of emotions on learning. Let us examine here some of these elements.

First, education specialist Héctor Ruiz Martín (2020) reminds us that "the emotions students experience during an educational activity can help or hurt their ability to remember what they have learned, independent of the time or effort invested." Taking emotions into consideration in educational initiatives is not a guarantee of the conditions and processes necessary for significant, sustainable learning. However, failing to take them into consideration or minimizing them ensures that what has supposedly been taught will not be learned.

Second, and following on the points made by Ruiz Martín, teachers must help enable students to leverage their emotions for positive educational impacts. This means achieving a balanced level of emotional arousal that engages them with their learning processes. In fact, Ruiz Martín asserts that "performance will be optimal if the level of arousal is moderate; if it is too high or too low, performance on the task will be negatively affected." Activities given by teachers to students can engage them emotionally, which is essential for producing learning—though insufficient on its own. It is not enough to simply assert that emotions influence learning.

Third, an educational programme must be robust enough to ensure that emotions can be leveraged for the attainment of curricular goals and objectives. Ruiz Martín also reminds us that emotional arousal plays a key role in boosting the ability to retain and recall lived experiences and situations. In other words, emotions have a significant impact on the development of episodic and autobiographical memory about everyday life events.

In addition, the influence of emotions on semantic memory—linked to the development of ideas and concepts, as Ruiz Martín notes—is weaker than their influence on episodic memory. Emotions can generate satisfactory memories of the curriculum experienced by students (Opertti, 2021a, 2021c), but that does not mean ipso facto that students will actually absorb concepts and key ideas from the curriculum or have the ability to reflect on them. This underlines the fact that any educational approach must be based on a robust understanding of the knowledge we want students to acquire, as well as on ways of achieving that learning, bearing in mind the need to find the right balance between emotional engagement and cognitive processes.

Fourth, there is increasing recognition that social and emotional factors are crucial in education—not just for skill development among students and teachers but also for sustained academic learning. Moreover, the wide range of educational experiences aimed at ensuring learning during the pandemic has highlighted the need to mainstream socio-emotional learning (SEL) across the curriculum as a means of supporting student wellbeing, as well as providing students with the competencies needed for future crises and other kinds of unforeseen situations (Reimers and Opertti, 2021).

The socio-emotional dimension is key to how we understand the concept of competencies, and it is the starting point for processes of teaching, learning, and assessment—the foundation for the achievement of significant, sustainable learning. In addition, socio-emotional learning is closely linked to a conception of the student as an individual; the social dimension requires that we pay careful attention to the removal of barriers to students' educational progress.

Socio-emotional learning entails the sequenced and integrated development of intrapersonal skills (related to self-awareness and self-management) and interpersonal skills (social awareness and relational abilities) that help students form opinions and make decisions responsibly. These competencies are seen as essential for academic achievement, school engagement, civic participation, mental and physical health, and professional development (Mischenko, 2021).

Fifth, the socio-emotional dimension fundamentally has to do with a community-oriented education because, as the commission's document notes, this links the educational trajectory of each student to broader aspirations of social cohesion and inclusion. Learning to empathize, cooperate, confront prejudice and bias, and navigate conflict are key components to prioritize in curriculum development,

as they are inextricably linked to a vision of society that makes room for common ground and mutual understanding between different perspectives and beliefs.

Sixth, the curriculum plays a fundamental role in prioritizing the socio-emotional dimension by providing a variety of learning experiences that cut across disciplines, involving both students and teachers in learning together and bridging generations, as well as in peer-based learning and collaboration to help prepare students to handle a variety of challenges. The document notes that mindfulness, compassion, and critical inquiry contribute to the achievement of robust socio-emotional learning and that we must encourage and support teachers accordingly.

Seventh, mindfulness expert Polina Mischenko, mentioned above, shows how socio-emotional learning can be approached by promoting mindfulness among students. This means paying conscious attention to our experience of a specific moment within ourselves and in our environment (Kabat-Zinn, 1990, cited by Mischenko, 2021). Mischenko notes in fact that "A mindful attitude/quality can be described as one that is balanced (equanimous), curious, open-minded, non-reactive, accepting, kind, and caring."

Mischenko discusses the results of 54 studies on the development of mindfulness-based programmes in education (Roerse, Galla, and Baelen, 2020) that demonstrate positive impacts for students. These programmes improve students' emotional regulation, wellbeing, physical health, and mental health, and strengthen their ability to make decisions and engage in society. It is also important to note that there is no strong evidence that these programmes have a positive impact on students' academic performance.

With respect to health and wellbeing, the document on the futures of education emphasizes the importance of quality physical education that fosters important movement skills, encompassing different kinds of skills and activities in a gender-inclusive way. Physical education can have at least four objectives: (i) contribute to the holistic social and personal development of students, with balance and harmony between the mind, brain, and body; (ii) foster the physical and motor development of students, personalized for each individual student; (iii) build a culture of physical activity that enables students to handle a range of motor demands and physical activities; and (iv) promote the development of knowledge, skills, and attitudes that encourage students to adopt healthy lifestyles and commit to lifelong physical activity.

In summary, understanding cognition as inextricably linked to emotions is the logical corollary of valuing each student as an indivisible, unique whole. The beginning and end of any educational programme is the comprehensive wellbeing of students, and for this we need versatile teachers to guide and support them, engaging them in studies that are relevant for their lives both now and in the future.

Literacies

As noted above, the seminal document "Reimagining our futures together: a new social contract for education" (International Commission on the Futures of Education, 2021) gives us an overarching vision of education, providing direction and frameworks for the curricular and pedagogical transformations that are beginning to take shape globally, regionally, and locally. In this section, I delve into the concept of literacies, including their scale and scope.

First, it is important to note that discussions on the concept of literacies can be framed by perspectives—rooted in social imaginaries—on the education of individuals and communities. Literacies, as an evolving and contested concept, essentially reflect the kind of society we want to build and its underlying foundations of inclusiveness and social justice (Opertti, 2019).

As noted in the document on the futures of education, the idea of educational literacies goes beyond the classroom and the school, involving societal commitments to broad support and outreach. It seems necessary, then, to reject the outdated view of literacies that has been handed down to us—a view devoid of historical and social foundations to legitimize and support it.

Second, there is a growing tendency to redefine the scope and content of literacies in light of the complexity, depth, and interconnectedness of the challenges many people are facing due to disruptive change. Indeed, pervasive societal disruption, driven by digital transformation, leads us to a necessary redefinition of the why and what of education.

In this changing and uncertain context, progress is being made on the development of ideas and concepts related to what are termed augmented literacies (Ferrarelli, 2021) in view of the spread of digital culture, as well as fundamental or redefined literacies (Opertti, 2019). Broadening the range of literacy competencies does not in any way mean neglecting or dismissing competencies related to proficiency in one's native language, in math, or in science; these are the foundation for any further broadening or development of other competencies that are of equal or similar importance.

Third, the linkages and synergies between personal, interpersonal, civic, and communal skills make it difficult to fit them within individual disciplines. For example, student proficiency in oral and written communication is expressed, developed, and demonstrated in a variety of learning experiences that include and involve all the disciplines. It is impossible to remain isolated within disciplinary bastions or to neglect these competencies when they involve other disciplines. Nor is it a matter of merely coordinating approaches among disciplines under the umbrella of multidisciplinarity or even interdisciplinarity.

Progress toward a broader conceptualization of literacy competencies requires transdisciplinarity—that is, encouraging new ways of thinking and managing the many challenges that do not fit within individual disciplines, but only as part of interdisciplinary dialogue or outreach (Singh, 2021). For example, scientific competencies—increasingly in demand because of the challenges of the pandemic and specifically the post-pandemic period—are part of a comprehensive approach to the education of the individual, which also encompasses ethics, the humanities, and technology.

Fourth, literacy competencies are by their very nature multidimensional and cross-cutting. We could categorize them into three broad groups. The first group comprises competencies linked to language, culture, and communications, which are vital for engaging proactively and effectively in society amidst interwoven individual and collective ties. As noted in the document on the futures of education (International Commission on the Futures of Education, 2021), linguistic and cultural diversity are fundamental components of the knowledge commons, which can benefit everyone equally by enabling them to build the future they want to see.

Moreover, communication is fundamentally related to the competencies of listening and self-expression, whether in writing, verbally, or through images or the body. Related to this, the concept of "transmedia literacy" means that "the subject has learned in formal and informal settings, from social media to video gamer communities, from YouTube to discussion forums" (Ferrarelli, as cited by Scolari and others). The expansion of communication to new spaces and spheres of action, Ferrarelli says, "blurs boundaries and makes knowledge seep into practice both within the classroom and beyond."

The second group of literacy competencies has to do with the comprehensive, balanced education of individuals with the aim of conveying frameworks and tools necessary for them to lead, manage, and assume responsibility for healthy, socially committed, and sustainable lifestyles. Again, this does not mean treating skills in isolation—for example, skills related to the environment or health or social issues or sports or physical education—but instead taking up the educational challenge of laying the foundation for a better future for the next generations. The key to transforming practices is to rethink the mindsets underlying them.

The third group includes civic literacy competencies that foster proactive, innovative, and responsible engagement in democratic societies. This includes competencies that produce independent thought and action, the enjoyment of freedoms, the well-informed formation of opinions on a range of issues, and the acquisition of robust "antibodies" to crises, conflicts, and catastrophes. This group also encompasses the convergence of education connected to norms of democratic coexistence involving the balancing of associated rights and responsibilities—commonly known as civics education—and education that values and integrates diversity and differences, while advocating for pluralism in perspectives, ideas, and paths—commonly known as civil education (Cox, 2017).

A related component is raising awareness that we share one ecosystem with nature and that, because nature is global, it requires civic engagement that is both global and local and that reflects shared universal values. Far from stifling or obscuring differences, a universalism of values safeguards them and indeed permits their expression through adherence to shared norms of coexistence.

Fifth, literacy competencies lead to new ways of understanding and being understood due to the use of technology, broadly speaking. Discussions seem to be too focused on building the digital competencies of students and teachers, though that is undoubtedly imperative for implementing curricular and pedagogical transformation. Nevertheless, because of the breadth and depth of the digital space, we are in a situation in which literacies are augmented by the extensive, ongoing use of technology, as Ferrarelli asserts.

Digital proficiency, which cuts across the three literacy competencies mentioned, enables us to enjoy knowledge and practices without borders or limits, and it also generates new identities and habits (Ferrarelli) that call into question the idea that education only takes place in in-person settings. The pandemic itself has taught us about virtual identities and how they can contribute to the development of competencies such as independent learning and resilience.

Sixth, literacy competencies across the three dimensions outlined here—languages, cultures, and communications; comprehensive education of the individual; and global and local commitment to civic engagement—necessitate changes in how we think about teachers and students. Rather than seeing their respective roles as simply conveying and receiving information, we see them as critical "prosumers," that is, they produce knowledge while also discussing, testing, expanding, and naturally also consuming it.

There is a growing recognition that their relationship is one of agents and co-agents rather than teachers as implementers of a curriculum and students as recipients of it. These changing roles have a significant impact on how we manage education systems, as we question the importance and sustainability of top-down approaches and at the same time become more open to the kinds of bottom-up initiatives that have gained momentum due to the need to ensure learning continuity during the pandemic (Reimers and Opertti, 2021). This is potentially a more promising and inclusive situation, given the broadening of spaces for developing and testing educational approaches.

In conclusion, the broadening of the concept, meaning, and scope of literacy competencies is at the core of current discussions on curricular and pedagogical transformation globally, nationally, and locally.

Inclusive education

Dr. Joanne Banks, a researcher and speaker on inclusive education, recently edited a book titled *The Inclusion Dialogue: Debating Issues, Challenges and Tensions with Global Experts*, which helps shed light on the debate about inclusiveness from an interregional perspective to inform those working

toward transformative education agendas. Banks interviewed 12 world-renowned experts from different regions of the world, with different professional backgrounds and perspectives on inclusive education, in an effort to map out current debates on inclusiveness, as well as to share an overview of eight tensions she identifies regarding inclusive education policies and programmes (Banks et al., 2022). Her analysis certainly confirms once again the nuanced and complex nature of discussions on inclusiveness, as well as some possible approaches to implementation. Let us examine each of the eight tensions here.

First, we are to a certain extent mired in false conflicts regarding what we mean by inclusive education. Banks delineates some of these disagreements, which largely centre on the relative heterogeneity of learning environments in which students with diverse abilities are educated. Segregation can occur in settings that actually separate students in schools or classroom spaces designated for special education or in settings that—though intended to be inclusive—in fact include curricular, pedagogical, and instructional practices that fail to take into consideration the diverse needs and expectations of all students.

Even though the type of learning environment is key for building true inclusion, what ultimately makes the difference is how well the educational programme serves each unique student in settings in which they have opportunities to interact, empathize, and learn with peers who have different backgrounds. Banks highlights the need to adopt a certain "ideological impurity" in order to prioritize the most effective ways of supporting each individual student's potential for excellence, taking into consideration their backgrounds, life circumstances, and abilities. Inclusiveness is not about labeling or stigmatizing schools but about schools having the ability to serve the needs of each unique student.

Second, Banks reaffirms that the contexts in which inclusive education initiatives are developed influence not just the targeting of policies and programmes but also how these are grounded in historical, national, political, economic, and cultural dimensions. The intersection of factors associated with, for example, poverty—characteristics and abilities of students—can alert us to areas of entrenched vulnerability; these require inclusive education to be framed within cross-cutting, interinstitutional policies of educational inclusiveness, going beyond purely educational factors.

Furthermore, rather than being mandated by law or regulation, inclusive education is understood as an ongoing process that can always be improved. The experts consulted note that education systems that are recognized worldwide as being inclusive—such as those in Italy, Portugal, and New Brunswick, Canada—are not perfect because simply not having special schools or special education offered separately within education systems does not ipso facto guarantee equitable learning opportunities, processes, or outcomes. Inclusiveness can become just another aspiration and hope rather than a tangible reality if we do not actually have the programmatic strength and evidence to support inclusive education policies in schools that are heterogeneous in terms of student backgrounds and abilities.

Third, Banks points out the importance of historical legacies in the implementation of inclusive education policies, especially in identifying the challenges and conflicts brought about when working against approaches that see students as needing compensation or remediation for their "deficiencies." An example is the strong influence of medical models of separation structured around "student disabilities," as well as the categorization of students, courses, and schools as special.

Moreover, inclusive education has come to be held in high regard globally, especially since the 1990s, partly as a result of international and national human rights agendas and the legal frameworks that underpin them. This has led to a healthy rethinking of the role of special schools in supporting regular schools by sharing approaches and interventions, as well as by integrating with regular schools.

Nevertheless, as these experts note, special schools and classes can remain on the periphery of education systems, often with separate financing mechanisms, curricula, and assessments from the rest of the system. This may lead to regular schools transferring more challenging students to special schools, which become increasingly isolated within the education system.

Fourth, Banks highlights ambiguities and contradictions in the ways governments interpret international policies and regulatory frameworks. One of the main challenges lies in ensuring a clear, robust understanding that inclusive education entails a recognition of the uniqueness of each person as an individual, not tied to a categorization of their "deficiencies" or "disabilities"—instead recognizing, respecting, and supporting their potential for excellence, as well as providing spaces in which their right to education is respected and affirmed.

Holding on to conceptualizations and labels that categorize students, along with separate educational paths under the broad, discretionary umbrella of special education, has the negative effect of creating divisions both within the education system and between education and society as a whole. In addition, countries sometimes take a number of precautions regarding the possible application of international rules such that, as the global experts assert, they create an ambiguous space that enables education systems to maintain and justify special education course offerings in parallel to inclusive ones.

Fifth, Banks addresses tensions related to striking the right balance between responding to individual differences or needs and at the same time achieving inclusiveness and respect for all students. This is the opposite of normalizing educational approaches and practices centred on the average student, which neglect students who are farther from the norm. Furthermore, grouping students with similar needs into special classes within regular schools—such as in Ireland and England beginning in the middle of the first decade of the twenty-first century—raises ethical dilemmas concerning not only the categorization of students but also the harmful effects of segregation in its various forms (institutional, curricular, pedagogical, instructional, etc.). No education system is wholly inclusive, which presents the

challenge of how to fit special education (its meaning, substance, and scope) as well as its application in specific situations (e.g., focusing on students with severe intellectual challenges) within the inclusive objectives and strategies being pursued.

Sixth, Banks emphasizes that teacher empowerment, teacher-training, and teaching practices are key for changing mindsets and attitudes related to inclusiveness. The experts interviewed identify certain aspects of the modus operandi in education systems as serious obstacles to inclusiveness. Among others, they point to institutional and curricular imperatives to standardize and to teach with a focus on certain outcomes and performance; an institutional tendency to direct the teaching profession more toward managing and controlling differences than toward engaging with them; and a lack of curricular and pedagogical approaches for handling diversity in student backgrounds and abilities. In light of these obstacles, we must focus on building teachers' confidence in themselves, as well as their power and responsibility in increasing students' learning capacity, while rejecting prejudice and preconceived notions about upper limits on learning potential.

Seventh, Banks clearly emphasizes the importance of pedagogy that is inclusive—with respect to the different backgrounds and abilities of all students—to the achievement of profound transformation in education and in education systems. Among other approaches, the global experts mention the universal design for learning (UDL) as one of the most promising frameworks for changing mindsets, moving beyond deficiency-based approaches, and accepting student diversity as a given (Fovet, cited by Banks). UDL is a useful, flexible, accessible, and easy way to serve students who have a broad range of preferences and abilities, incorporating error as a source of learning (Trinity College Dublin, University of Dublin, 2022).

Eighth and lastly, Banks mentions parents as the forgotten group in approaches to inclusive education. It is paradoxical that despite their increased power and influence, their role has remained largely passive, with decisions still made by professionals. Moreover, parents have questions and fears about special education having a negative impact on their children because regular schools can in fact have "inclusive exclusion." The global experts argue that teachers, school administrators, and parents must reach consensus on the meaning of inclusive curricula, pedagogies, and teachers, and that this process can be bolstered by pandemic-era changes in communications between families and schools (Ainscow, cited by Banks).

In summary, the eight tensions identified by Banks are a resource for rethinking the direction and scope of efforts to mainstream inclusiveness within education systems, under the principle of aligning the various components and levels of the system to foster inclusiveness in the classroom.

Debating higher education

The World Higher Education Conference, organized by UNESCO in "close collaboration with the government of Spain, the regional government of Catalonia, the city hall and regional authority of Barcelona, and in partnership with GUNi/ACUP (Global University Network for Innovation/Catalan Association of Public Universities)," took place in the captivating city of Barcelona in 2022 (UNESCO, 2022c). The conference brought together, in a cordial and collaborative atmosphere, 1,800 attendees from 130 countries, representing governments, universities, civil society, NGOs, and international bodies, as well as students and teachers.

The goal of the conference was "to reshape ideas and practices in higher education to ensure sustainable development for the planet and humanity," and to that end, "to offer new knowledge, innovative ideas, and creative alliances, and to produce an enlarged and reinvigorated coalition of the global higher education community in favour of the 2030 Agenda for Development" (UNESCO, 2022c).

The conference was given a distinctively hopeful tone by the presence of young people from across the world, who not only revitalized ideas, debates, proposals, and formats, but also advocated for strengthening higher education to enable the next generations to build a just, inclusive, sustainable, and peaceful world. We must not merely document the injustices and inequalities affecting the various levels of education, but also engage with an urgent agenda for profound change. Change is needed in early childhood, primary, and secondary education, as well as in higher education, which remains the guide and foundation for the other levels. Particular emphasis was placed on aligning changes across the various levels so as to support the implementation of robust, unified curricular and pedagogical initiatives.

UNESCO Assistant Director-General for Education Stefania Giannini (UNESCO, 2022c) summarized clearly and eloquently the roadmap proposed by the conference for supporting countries in the transformation of higher education. This roadmap is seen as a living, evolving, pluralistic document that is subject to discussion and that argues for the need to create and legitimize a transformative vision of higher education that supports a variety of paths and strategies. The goal is to finalize the document in late 2022. Let us take a look at three notable aspects of the proposed roadmap: the mission of higher education, changes in focus, and transitions that need to begin or be reinforced.

First, a strength of the roadmap is that it takes a fresh look at the mission of higher education, which it describes through three lenses. The first lens involves a reaffirmation of a cosmopolitan openness to the world, underlining the idea that higher education must contribute to the education of global citizens, thereby enabling them to manage the complexity and depth of issues that are not subject to reductionism or simplification. Complexity does not mean "switching to hard mode," but rather delving into the roots of issues and going beyond the usual approaches and explanations.

The second lens concerns the need for knowledge sharing and for open science (through transdisciplinary approaches). Underlying the idea of sharing without borders or limits is the hope of building university ecosystems of innovation that help to democratize knowledge in two senses: the university engaging purposefully and generously in outreach to a diverse society while at the same time being receptive to the knowledge that is produced in various societal spheres in different circumstances and formats.

Moreover, transdisciplinarity does not mean rejecting disciplinarity, multidisciplinarity, or interdisciplinarity. Rather, it means recognizing that the complexity of the challenges humanity faces today requires new ways of thinking and acting that are much more focused on making connections than on trying to understand issues in isolation.

The third lens highlights the hope for a new social commitment and the ethical responsibility that is central to the ethos of tertiary education. Universities are typically known for social engagement, for example through extension activities and a certain focus on being responsive to the needs and expectations of more vulnerable populations. Going forward, universities must improve their ability to understand the needs and expectations of society with more of a two-way dynamic of mutual learning than a top-down approach, which functions as a kind of colonialism and even an imposition of knowledge. It is also important to emphasize the ethical responsibility of universities to search for solutions to pressing social issues, revitalizing their role as powerhouses of "glocal" thought.

Second, the roadmap drawn up by Giannini suggests several changes of focus within higher education institutions. The first values the idea of cooperation among universities as well as between them and society, rather than a focus on competencies that are closely tied to institutional rankings (focusing on competencies linked to the indicators used in those rankings). Prioritizing cooperation would necessitate working within a framework that recognizes that institutions are dependent on each other for attaining higher levels of excellence; they are unable to reach those objectives in isolation.

The second focus concerns the need for variety in approaches, paths, and strategies, diversifying educational options in order to effectively serve the full range of students amidst the disruptive changes pervading society at various levels. Rather than assuming that students are mainly pursuing the goal of successfully entering the job market, it is important to bear in mind that their educational hopes and motivations can be linked to concerns about the future in their personal and collective lives. It is also important to emphasize humanistic values and social solidarity.

The third focus fundamentally concerns flexibility and diversification in course offerings within higher education institutions to align educational programmes with increasingly diverse competencies and qualifications, according to specific societal needs. In addition, the fourth focus aims to foster open systems that build bridges and promote interinstitutional partnerships in order to address the challenges of today and tomorrow—challenges whose complexity and global scale transcends local borders and institutions working in silos.

The fifth focus argues that higher education institutions must decisively commit to the search for solutions to new and interconnected global threats such as climate change, the loss of biodiversity, political polarization, increasing inequality, and ongoing armed conflicts. We must not simply critique these issues but "get our hands dirty" in order to understand them and take action while engaging with different perspectives and approaches that develop beyond the closed doors of academia. Moreover, the sixth focus refers to the ethical imperative of higher education institutions to contribute to the democratization and transformation of society with the aim of achieving greater social justice and sustainability.

Third, this new mission and these changes of focus set out in the roadmap require also changes in the modus vivendi and modus operandi of institutions. These are presented in the form of six possible transitions, all of which are grounded in specific contexts and local cultures. The first transition concerns the need to move from situations that exclude significant portions of young people from higher education to affirming the right to higher education as a common good of society that requires the involvement of various institutions and actors.

The second transition raises the enormous, urgent challenge of moving from education anchored in traditional, hierarchical disciplinary divisions to a more holistic model consistent with a vision of the student as an individual, prioritizing students' comprehensive education with a focus on challenges and issues. As a complement to the second transition, the third involves moving from silo-based disciplinary approaches to transdisciplinarity in the way we cover issues, as well as in the way we organize course offerings and educational environments and experiences.

The fourth transition suggests moving from a closed view that sees education as having a beginning and an end to the creation of a broad range of lifelong educational endeavors, taking into consideration the fact that it is increasingly common for people to study during several different seasons of life, in response to ongoing changes in jobs and tasks, as well as in spaces for professional development and advancement.

The fifth transition involves challenging uniform educational models applied to all students equally and moving toward alternatives that incorporate institutional, curricular, and pedagogical flexibility to personalize education for a diverse student body. In addition, the sixth transition means moving from educational models based on the transmission of information and knowledge toward models that emphasize the transformative value of knowledge in enabling students to manage many kinds of challenges.

In summary, the World Higher Education Conference communicated to governments and higher education institutions the pressing need for transformation in order to face the double challenge of bolstering education's sustainability and relevance, as well as rethinking the foundations, substance, and implications of its engagement with societal transformation.

REFERENCES

Advisory Council of the OEI. (2020). *¿La educación del mañana? ¿Inercia o transformación?* Madrid: OEI.

Amadio, M., R. Opertti, and J. C. Tedesco. (2014). *Un currículo para el siglo XXI: desafíos, tensiones y cuestiones abiertas.* Investigación y Prospectiva en Educación, 9. Paris: UNESCO.
Retrieved from: http://unesdoc.unesco.org/images/0022/002294/229458s.pdf

Amadio, M., R. Opertti, and J. C. Tedesco. (2015). *El currículo en los debates y en las reformas educativas al horizonte 2030: para una agenda curricular del siglo XXI.* IBE Working Papers on Curriculum Issues, 15. Geneva: UNESCO-IBE.
Retrieved from: http://www.ibe.unesco.org/sites/default/files/resources/wpci-15-curragenda_21stcentury_spa.pdf

Apprendre à Philosopher. (2016a). *Walter Benjamin. Il faut construire l'histoire avec les vaincus.* Paris: RBA France.

Apprendre à Philosopher. (2016b). *Jurguen Habermas. L'échange d'arguments entre les membres d'une société est le fondement de la liberté.* Brussels: RBA France.

Banks, J. et al. (2022). *The Inclusion Dialogue: Debating Issues, Challenges and Tensions with Global Experts.* Routledge.

Benavot, A. (2012). "Policies towards quality education and student learning: Constructing a critical perspective." *Innovation: The European Journal of Science Social Research* 25(1), 67-77.

Blanquer, J. M., and Morin, E. (2020). *Quelle école voulons-nous? La passion du savoir.* Paris: Editions Sciences Humaines.

Braslavsky. (2005). La historia de la educación y el desafío contemporáneo de una educación de calidad para todos. Pp. 269-285 in *Pedagogía y educación ante el siglo XXI*, edited by J. Ruiz Berrio. Madrid: Universidad Complutense de Madrid.

Brasseur, S., and C. Cuche (2022). *Six questions sur l'intelligence.* Sciences Humaines, 345. Paris: Sciences Humaines.

Byung-Chul, H. (2021). *NO-COSAS. Quiebres del mundo de hoy.* Buenos Aires: Taurus.

Byung-Chul, H. (2022). *Infocracia. La digitalización y la crisis de la democracia.* Barcelona: Taurus.

Cox, C. (2017). *Conceptos de ciudadanía mundial integrados a los lineamientos curriculares de 10 países: análisis comparativo.* Reflexiones en Curso sobre Cuestiones fundamentales y Actuales del Currículo, el Aprendizaje y la Evaluación, 19. Geneva: UNESCO-IBE.
Retrieved from: http://unesdoc.unesco.org/images/0024/002477/247788s.pdf

Davis, N. (2016). *What is the fourth industrial revolution?* Geneva: World Economic Forum.
Retrieved from: https://www.weforum.org/agenda/2016/01/what-is-the-fourth-industrial-revolution

Dehaene, S. (2018). *Apprendre! Les talents du cerveau, le défi des machines.* Paris: Odile Jacob.

Dehaene, S., Y. Le Cun, and J. Girardon. *La plus belle histoire de l'intelligence. Des origines aux neurones artificiels vers une nouvelle étape de l'évolution.* Paris, Robert Laffont.

Dubai Cares (2021a). *RewirdEd at a Glance*. Dubai: Dubai Cares.
Retrieved from: https://www.rewired2021.com

Dubai Cares (2021b). *Rewired Global Declaration Connectivity of Education*. Dubai: Dubai Cares.
Retrieved from: https://en.unesco.org/futuresofeducation/sites/default/files/2021-12/Rewired%20Global%20Declaration%20on%20Connectivity%20for%20Education.pdf

Dussel, I., P. Ferrante, and D. Pulfer. (2020). Nuevas ecuaciones entre educación, sociedad, tecnología y Estado. In P*ensar la educación en tiempos de pandemia. Entre la emergencia, el compromiso y a la espera."* Buenos Aires: UNIPE. http://www.grade.org.pe/creer/archivos/pensarlaeducacion.pdf

Esquirol, J. M. (2020, July 18). El movimiento humano más radical y más humano es el de cuidarnos. *Diario El País Ideas*. https://elpais.com/ideas/2020-07-18/josep-maria-esquirol-el-movimiento-mas-radical-y-mas-humano-es-el-de-cuidarnos.htm

Ferrarelli, M. (2021). *Alfabetismos aumentados. Producir, expresarse y colaborar en la cultura digital.* Buenos Aires: Facultad de Comunicación de la Universidad Austral.
Retrieved from: https://ojs.austral.edu.ar/index.php/australcomunicacion/article/view/613

Ferreres, A. and V. Abusamra (2019). *Neurociencias y educación*. Buenos Aires: Paidós Educación.

Fundación Santillana (2020). *La escuela que viene. Reflexión para la acción*. Madrid: Fundación Santillana.
Retrieved from: https://laescuelaqueviene.org/wp-content/uploads/2020/12/20201217-LEQV-segundatemporada.pdf

Futurelab. (2019). *Curriculum and teaching innovation: Transforming classroom practice and personalisation. A Futurelab handbook*. Retrieved from: http://www.creativetallis.com/uploads/2/2/8/7/2287089/futurelab_-_curriculum_and_teaching_innovation.pdf

Gauthier (coordinator). (2011). Le curriculum dans les politiques éducatives. (Dossier). *Revue international d'éducation de Sèvres* 56, 31-165.

Goddard, C. (2021). *A New Education Story. Three drivers to transform education systems*. London: Big Change.
Retrieved from: https://big-change.org/new-education-story

Habermas J. (1997). *Teoría de la acción comunicativa. Complementos y estudios previos*. Madrid: Cátedra.

Hargreaves, A. (2020). *What we have learned so far from the Coronavirus pandemic*. Blog by Diane Ravitch.
https://dianeravitch.net/2020/04/30/andy-hargreaves-what-we-have-learned-so-far-from-the-coronavirus-pandemic

Henry, C. (2016). *9 Things That Will Shape the Future of Education: What Learning Will Look Like in 20 Years?*
Retrieved from: https://elearningindustry.com/9-things-shape-future-of-education-learning-20-years

Innerarity, D. (2021). *La sociedad del desconocimiento*. Barcelona: Galaxia Gutenberg.

REFERENCES

International Commission on the Futures of Education. (2020). *La educación en un mundo tras la COVID: Nueve ideas para la acción pública*. Paris: UNESCO.
Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000373717_spa

International Commission on the Futures of Education. (2021). Reimagining our futures together: a new social contract for education. Paris: UNESCO.
Retrieved from: file:///C:/Users/renat/Downloads/379707eng.pdf

Jonnaert, P. (2007). *Le concept de compétence revisité*. Montreal: Université du Québec à Montréal.

Jonnaert, P., M. Ettayebi, and R. Opertti. (2008). *Dynamiques des réformes éducatives contemporaines.* Pp. 17-25 in Logique de compétences et développement curriculaire, edited by the authors. Brussels: De Boeck.

Jonnaert, P., C. Depover, and R. Malu (2020). *Curriculum et situations. Un cadre méthodologique pour le développement de programmes éducatifs.* Louvain-la-Neuve: Deboeck Supérieur.

Jonnaert, P. et al. (2021). *Towards indigenous curricula.* In-Progress Reflection No. 41 on Current and Critical Issues in Curriculum, Learning and Assessment. Geneva: UNESCO-IBE.
Retrieved from: https://www.researchgate.net/publication/348733342_In-Progress_Reflection_No_41_On_Current_and_Critical_Issues_in_Curriculum_Learning_and_Assessment_Towards_indigenous_curricula_2

Kabat-Zinn, J. (1990). *Full catastrophe living: The program of the stress reduction clinic at the University of Massachusetts Medical Center*. New York: Dell.

Kukulska-Hulme et al. (2022). Innovating Pedagogy 2022: Open University Innovation Report 10. Milton Keynes: The Open University.
Retrieved from: https://prismic-io.s3.amazonaws.com/ou-iet/5c334004-5f87-41f9-8570-e5db7be8b9dc_innovating-pedagogy-2022.pdf

Maddah, M. (2016). *Welcoming the Fourth Industrial Revolution: Paving the Road of Innovation Towards a Cyber-Physical Reality by 2030.* Beirut: American University of Science and Technology (AUST).
Retrieved from: https://50.unido.org/files/research-papercompetition/Research-Paper-Maddah.pdf

Manes, F. (2020). *"El cerebro es la estructura más compleja y enigmática en el universo. Contiene más neuronas que las estrellas existentes en la galaxia."* BBC News/World. Interview with Irene Hernández Velasco. HayFestivalArequipa@BBCMundo.
Retrieved from: https://www.bbc.com/mundo/noticias-54719567

Martin, H.R. (2020). *¿Cómo aprendemos? Una aproximación científica al aprendizaje y la enseñanza.* Barcelona: Grao, ISTF.

Mateo, M. and J. Rhys (editors) (2022). *El poder del currículo para transformar la educación: Cómo los sistemas educativos incorporan las habilidades del siglo XXI para preparar a los estudiantes antes los desafíos actuales.* División de Educación. Nota Técnica No. IDB-TN-02516. Washington D.C.: IDB.
Retrieved from: https://publications.iadb.org/es/el-poder-del-curriculo-para-transformar-la-educacion-como-los-sistemas-educativos-incorporan-las

Menéndez, P. (2020). Debemos pensar cuál es la dimensión digital de la escuela. *Revista Colegio.* Retrieved from: https://revistacolegio.com/pepe-menendez-debemos-pensar-cual-es-la-dimension-digital-de-la-escuela

Microsoft, New Pedagogies for Deep Learning (2020). *Education Reimagined: The Future of Learning. Remote to Hybrid Learning.* A position paper on a paradigm shift for education. Retrieved from: https://edudownloads.azureedge.net/msdownloads/Microsoft-EducationReimagined-Paper.pdf

Ministry of National Education and Youth, High Council of Programmes. (2022). *Le Conseil supérieur des programmes.* Paris: Ministry of National Education and Youth. Retrieved from: https://www.education.gouv.fr/le-conseil-superieur-des-programmes-41570

Ministry of National Education and Youth, Scientific Council on National Education. (2020). Recommandations pédagogiques pour accompagner le confinement et sa sortie. *Document rédigé par le Conseil Scientifique de l'Education Nationale.* Paris: Scientific Council on National Education. Paris: Scientific Council on National Education.

Mischenko, P. (2021). *Aprendizaje socioemocional basado en la conciencia plena en un entorno educativo híbrido.* Reflexiones en Curso sobre Cuestiones fundamentales y Actuales del Currículo, el Aprendizaje y la Evaluación, 48. Geneva: UNESCO-IBE. Retrieved from: Aprendizaje socioemocional basado en la conciencia plena en un entorno educativo híbrido - UNESCO Digital Libraryhttp://unesdoc.unesco.org/images/0024/002477/247788s.pdf

Morin, E. (2018). *Pour résister à la regression. Dialogues.* Paris: l'Aube.

Morin, E. (2020). *L'aventure d'une pensée.* Paris: Sciences Humaines.

OECD. (2020). *Curriculum Overload. A way forward.* Paris: OECD.

OECD, PISA. (2020). *pisa en español.* Paris: OECD. Retrieved from: https://www.oecd.org/pisa/pisaenespaol.htm

OEI, UNESCO-IBE (2018). *Iberoamérica inclusiva. Guía para asegurar la inclusión y la equidad en la educación en Iberoamérica.* Madrid: OEI. Retrieved from: https://www.oei.es/Educacion/Noticia/oei-y-unesco-presentan-una-guia-de-inclusion-y-equidad

Opertti, R. (2016). *El currículo en la agenda educativa 2030.* Ruta Maestra, Currículo para transformar la educación (15). Bogotá: Santillana. Pp. 6-11.

Opertti, R. (2017). *15 Claves de análisis para apuntalar la Agenda Educativa 2030.* Reflexiones en Curso sobre Cuestiones Fundamentales y Actuales del Currículo, el Aprendizaje y la Evaluación (14). Geneva: UNESCO-IBE. Retrieved from: http://unesdoc.unesco.org/images/0025/002590/259069S.pdf

Opertti, R. (2019). *Miradas educativas desde la comarca y el mundo.* Montevideo: UCU. Retrieved from: https://ucu.edu.uy/es/node/47500

REFERENCES

Opertti, R. (2020). *10 Claves para transformar la educación POST-COVID.* Insights Compartir. Bogotá: Santilla. Retrieved from: https://appscmspro.s3.amazonaws.com/INSIGHT_10_claves_para_transformar_la_educacion_Post_Covid_V4.pdf

Opertti, R. (2021a). *Diez pistas para repensar el currículum.* Reflexiones en Progreso N. 42 sobre Cuestiones Actuales Críticas en el Currículum, Aprendizaje y Evaluación. Geneva: UNESCO-IBE: Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000375453_spa

Opertti, R. (2021b). *Educación en un mundo post-COVID: Consideraciones adicionales.* Reflexiones en Progreso N. 43 sobre Cuestiones Actuales Críticas en el Currículum, Aprendizaje y Evaluación. Geneva: UNESCO-IBE. Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000375522_spa

Opertti, R. (2021c). *La educación en tiempos de repienso planetario.* Montevideo: EDUY21/ITAU Foundation.

Pons, F., de Rosnay, and F. Cuisinier (2010). Cognition and emotion. In P. Peterson, E. Baker, and B. McGaw (eds.), *International Encyclopaedia of Education* (Vol. 5, pp. 237-244). Oxford: Elsevier.

Raynaud, P. (2022). On ne reecrit pas des programmes dans le but de relever le niveau de l'école. *Le Monde.* Retrieved from: https://www.lemonde.fr/education/article/2022/02/14/on-ne-reecrit-pas-des-programmes-dans-le-but-de-relever-le-niveau-de-l-ecole_6113581_1473685.html

Reimers, F., and R. Opertti (2021). *Aprender a reconstruir mejores futuros para la educación. Lecciones de la innovación educativa durante la pandemia de COVID-19.* Geneva: UNESCO-IBE. Retrieved from: http://www.ibe.unesco.org/sites/default/files/resources/aprender_a_reconstruir_un_mejor_futuro_de_la_educacion.pdf

Reimers, F., and A. Scheleicher (2020). *Aprendiendo durante la pandemia. De la disrupción a la innovación.* OECD, Global Education Innovation Initiative, International Schools, and Universidad Camilo José Cela. Retrieved from: https://globaled.gse.harvard.edu/files/geii/files/aprendiendo_durante_la_pandemia_v2-2.pdf

Roeser, R.W., B.M. Galla, and R.N. Baelen (2020). *Mindfulness in schools: Evidence on the impacts of school-based mindfulness programs on student outcomes in P-12 educational settings.* The Pennsylvania State University, 1-19. Retrieved from: https://selcenter.wested.org/resource/mindfulness-in-schools-evidence-on-the-impacts-of-school-based-mindfulness-programs-on-student-outcomes-in-p-12-educational-settings/#

Savolainen, H. (2009). "Responding to diversity and striving for excellence. An analysis of international comparison of learning outcomes with a particular focus in Finland." Pp. 49-59 in *Defining an inclusive education agenda: Reflections around the 48th session of the International Conference on Education*, edited by C. Acedo, M. Amadio, and R. Opertti. Geneva: UNESCO-IBE. Retrieved from: http://www.ibe.unesco.org/sites/default/files/resources/defining_inclusive_education_agenda_2009.pdf

Schwab, K. 2017. *La quatrième révolution industrielle.* Préface de Maurice Lévy. Malakoff, France: Dunod.

Sherringham, M. (2022). Les programmes scolaires, enjeu de campagne. *Le Monde.* Retrieved from: https://www.lemonde.fr/societe/article/2022/02/28/les-programmes-scolaires-enjeu-de-campagne_6115593_3224

Singh, V. (2021). Towards a Transdisciplinary, Justice-Centered Pedagogy of Climate Change. In *Curriculum and Learning for Climate Action. Toward an SDG 4.7 Roadmap for Systems Change (eds. Radhika Iyengar and Christina Kwauk)*. Geneva: UNESCO-IBE.

Stiegler, B. (2016). *La disruption rend fou. Culture Mobile penser la societé du numérique*. Orange. Retrieved from: http://www.ict-21.ch/com-ict/IMG/pdf/Stiegler-la-disruption-rend-fou-09.17-cm-visions-bernard-stiegler-02.pdf

Tedesco, J. C., R. Opertti, and M. Amadio (2013). *Porqué importa hoy el debate curricular*. IBE Working Papers on Curriculum Issues, No. 10. Geneva: UNESCO-IBE.
Retrieved from: http://www.ibe.unesco.org/sites/default/files/resources/wpci-10-curr_debate_spa.pdf

Tikly, L. 2017. The Future of Education for All as a Global Regime of Educational Governance. *Comparative Education Review*, Vol. 61, no. 1, p. 22-57.

Trinity College Dublin, University of Dublin. (2022). *Trinity College Dublin Inclusive Curriculum Project – Trinity-INC*. Dublin: Trinity College Dublin.
Retrieved from: https://www.tcd.ie/equality/projects/inclusive-curriculum

UNESCO. (2017). *Guía para asegurar la inclusión y la equidad en la educación*. Paris: UNESCO.
Retrieved from: https://unesdoc.unesco.org/ark:/48223/pf0000259592

UNESCO. (2022a). *Precumbre sobre la Transformación de la Educación*. Paris: UNESCO.
Retrieved from: https://www.unesco.org/es/transforming-education-summit

UNESCO. (2022b). *Acción Temática Vía 5 sobre Financiamiento de la educación. Documento de discusión*. Paris: UNESCO.
Retrieved from: https://es.transformingeducationsummit.sdg4education2030.org/AT5DiscussionPaper

UNESCO. (2022c). *2022 UNESCO World Higher Education Conference*. Paris: UNESCO.
Retrieved from: https://events.unesco.org/event?id=1674672224&lang=3082

UNESCO et al. (2015). *Educación 2030. Declaración de Incheon y Marco de Acción. Hacia una educación inclusiva y equitativa de calidad y un aprendizaje a lo largo de la vida para todo Education 2030*. Paris: UNESCO (Doc. ED-2016/WS/2).
Retrieved from: http://www.unesco.org/new/fileadmin/MULTIMEDIA/FIELD/Santiago/pdf/ESP-Marco-de-Accion-E2030-aprobado.pdf

UNESCO-IBE. (2013a). *International Experts' Meeting Key Curricular and Learning Issues in the Post-2015 Education and Development Agenda*. Geneva: UNESCO-IBE.
Retrieved from: ibe Expert Meeting_final agenda_list_participants - 2013_09_19 (unesco.org)

UNESCO-IBE. (2013b). *Learning in the post-2015 education and development agenda*. Geneva: UNESCO-IBE.
Retrieved from: http://www.ibe.unesco.org/fileadmin/user_upload/Publications/unesco-ibe_Statement_on_Learning_Post-2015_eng.pdf

REFERENCES

UNESCO-IBE. (2015). *Repositioning and reconceptualizing the curriculum for the effective realization of Sustainable Development Goal Four, for holistic development and sustainable ways of living.* Discussion paper presented at the World Education Forum, Incheon, Republic of Korea, 19–22 May 2015. Geneva: UNESCO-IBE. Retrieved from: http://www.ibe.unesco.org/sites/default/files/resources/wef_ibe_position_paper_eng.pdf

UNESCO-IBE (2022). *Llegando a todos los estudiantes: una caja de recursos de la UNESCO-OIE para apoyar la inclusión y la equidad en educación.* Geneva: UNESCO-IBE.
Retrieved from:LLEGANDO A TODOS LOS ESTUDIANTES: una caja de recursos de la UNESCO-OIE para apoyar la inclusión y la equidad en la educación | Oficina Internacional de Educación

United Nations. (2022). *Youth engagement.* New York: United Nations.
Retrieved from: file:///C:/Users/renat/Downloads/Youth%20engagement.pdf

Velazco, A. (2020). *In Defense of Cosmopolitanism.* Project Syndicate. Retrieved from: project-syndicate.org

World Bank (2021). *Comunicado de Prensa. Banco Mundial: Una cantidad sin precedentes de niños podría caer en la pobreza de aprendizajes debido a la pandemia.* World Bank: Washington D.C.
Retrieved from: https://www.bancomundial.org/es/news/press-release/2021/10/29/world-bank-pandemic-threatens-to-drive-unprecedented-number-of-children-into-learning-poverty

World Bank et al. (2022a). *The State of Global Learning Poverty: 2022 Update.* Washington D.C.: The World Bank.
Retrieved from: https://www.worldbank.org/en/topic/education/publication/state-of-global-learning-poverty.

World Bank et al. (2022b). *Guía para la Recuperación y Aceleración de los Aprendizajes.* Washington D.C.: The World Bank.
Retrieved from: https://thedocs.worldbank.org/en/doc f97022e739dbda353412b3d588f6f362-0200022022/related/Spanish-Exec-Summary-Guide-for-Learning-Recovery-and-Acceleration-July-7.pdf

Zizek, S. (2022). *Heroes of the Apocalypse.* Project Syndicate.
Retrieved from: project-syndicate.org

NOTES

NOTES

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Mr. Renato Opertti holds a degree in sociology (UDELAR, Uruguay) and a master's degree in educational research (CIEP-Uruguay/IRDC-Canada). Currently Opertti is a senior expert at the International Bureau of Education (UNESCO-IBE) where he contributes to IBE knowledge production, capacity development, technical assistance and the implementation of several UNESCO-IBE flagship initiatives such as HELA (Hybrid Education, Learning and Assessment) and Green and Blue Curriculum.

Opertti is part of UNESCO Secretariat supporting the Revision of the 1974 Recommendation on Education for Peace and Human Rights, International Understanding, Cooperation, Fundamental Freedoms, Global Citizenship and Sustainable Development.

Opertti is the President of the Council of Advisers of the Organization of Ibero-American States for Education, Science and Culture (OEI) which is the highest consulting and advisory board with regard to policy and strategy. Likewise, he coordinates the UNESCO-UCU Chair on Hybrid Education at the Catholic University of Uruguay (UCU). He teaches at UCU and other universities on international trends in education.

Opertti is a frequent lecturer on issues relating to the transformation of education and curriculum at international and national events.

Opertti is a member of the Latin American Coalition for Teachers Excellence which is a joint initiative of the Varkey Foundation, the Inter-American Dialogue and the OEI.

During the last years, Opertti has supported several countries – MOEs, civil society and international organizations – in addressing educational and curricular challenges posed by COVID-19 through capacity development and knowledge production. Recently, Opertti has contributed to the implementation of several of the TES (Transforming Education Summit) Calls to Action, led by UNESCO.

Opertti has managed the Programme "Innovation and Leadership in Curriculum, Learning and Assessment" at IBE-UNESCO (2006-2019), providing support to countries in different regions. Opertti has also worked for several intergovernmental organizations such as CAF, ECLA, IDB, UNDP, the World Bank and UNICEF.

He has numerous publications in several languages relating to education, curriculum, learning, inclusive education and hybrid modes of education. Recent publications of note include "Education in times of planetary rethinking" (2021) and "Curriculum in transformation mode" (2022, Spanish version).

Through these pages, Renato Opertti shares a series of reflections that invite us to revisit the curriculum as an opportunity and lever for societies to express their visions and aspirations. Curriculum can serve to position education as the pillar of a renewed social contract grounded on the welfare of all learners as persons and supporting societies and communities give effect to sustainable and better futures for the younger generations.

To do so, we need to re-conceptualize curriculum at large: from a mere specification of frequently fragmented learning contents to its understanding as both a process and product of public policy developments in which diversity of stakeholders own and take responsibility for education as a global common good. Curriculum and pedagogy, by going hand-in-hand, and supported by effective teaching, learning and assessment processes, can play a key role in fulfilling the right to education for every learner equally, according to their own individual needs.

Key ideas in this book help us to rethink curriculum with future-oriented approaches, entailing a stronger involvement of younger generations in the decision-making process and a careful attention to vulnerability and disadvantaged groups. A curriculum that embraces individuality and diversity within collaborative and caring learning settings, nurtures freedom and autonomous thinking, connects meaningfully the global and the local, and assumes the hybridization of education.

The book also delves into perspectives for educational transformation prioritizing the development of learners' foundational and transformative competencies as the barometer of a progressive curriculum. Crucially, this entails rethinking the mindsets and practices of education systems in light of the interconnected challenges posed by the Fourth Industrial Revolution, post COVID-19, generative AI and the sustainability of the planet and the world.

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