

Pack for Sustainability: Navigating through Uncharted Educational Landscapes

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Education has not lived up to its promises to be part of the solution to environmental problems; some say it is a part of the problem rather than the solution. This means that we have to set a new course and we have some uncharted landscapes ahead of us. The year 2020 has passed, some say with little regret, and the next big milestone has long since been defined by the U.N. Sustainable Development Goals (UNSDG) as 2030. However, how do teachers make sense of this journey in their daily practices? How do we get to a 2030 that will not be a mere stepping stone for further disappointment and deferment? To support us on this journey, we have put some conceptual gadgets into a pack with four pockets. We can take this PACK on our journey to help us get to a destination that we can be content with. But traveling with this pack, one must transform ones conception of education.

Keywords: sustainability education ; transformative education ; climate crisis ; pedagogy

1. Introduction: Guiding Questions

A model citizen of the modern world born in the year 2000 and growing up in the Millennium decades could have had—and should have had—opportunities to develop a sense of sustainability that builds on democratic values in the classroom, at school, and at district and national levels. However, having lived through the first couple of decades of the 21st century, many teenagers have a different experience. In a conversation during the early months of 2020, some teenagers remarked that they did not think of “2020” as referring to a year; it was more like a number with a life of its own. Asked to clarify, they responded: “It is more like a reference point, a destination. And this year many things will be postponed.” Among the things postponed were several programs aimed at sustainability, inside and outside of education. The course is not set for 2030, but will that year also turn into a destination for postponing further action? Greta Thunberg has called for an immediate change:

We need to stop focusing on dates and numbers and actually accept and acknowledge the fact that we need to reduce our emissions right now. We can talk about 2030 or 2040 as much as we want. But it is what we are doing now that really matters. ^[1]

As far back as 2008, the U.S. National Science Foundation funded workshops across the United States with 2020 in mind. At one workshop held in Corvallis, Oregon in 2008, about 30 participants, including some well-known educators and researchers, were to address lifelong Science, Technology, Engineering, and Mathematics (STEM) learning in both practitioner and researcher communities. A well-known physics scholar mentioned the work *What Teachers Need to Know about Language* ^[2], and said she was not interested in telling teachers what to do “until we understand how children learn”. At the global level, similar work had begun with support from UNESCO, such as the Decade of Education for Sustainable Development, which ran from 2005 to 2014. The world was ripe for critical approaches to education, reflected in scholars and teachers striving for educational improvement. However, education has not lived up to its promises; some say it is a part of the problem rather than the solution ^[3]. This means that we have to set a new course and we have some uncharted landscapes ahead of us. The year 2020 has passed, some say with little regret, and the next big milestone has long since been defined by the U.N. Sustainable Development Goals (UNSDG) as 2030. However, how do teachers make sense of this journey in their daily practices? How do we get to a 2030 that will not be a mere stepping stone for further disappointment and deferment? To support us on this journey, we have put some conceptual gadgets into a pack with four pockets (see **Table 1**). We can take this PACK on our journey to help us get to a destination that we can be content with.

Table 1. A PACK with guiding questions (gadgets) about educational design.

	P Pedagogy	A Assessment	C Curriculum	K Knowledge
Gadgets	How do we teach students?	How do we evaluate learning?	What is to be taught?	What knowledge is needed?

The four gadgets in the above PACK—the questions on pedagogy, assessment, curriculum, and knowledge—can help us navigate through uncharted educational landscapes. The conventional way of using these gadgets, beginning furthest to the right and then moving from right-to-left, goes like this:

(K) gather experts to identify relevant knowledge and skills; According to this logic, good educational design begins with (C) organize these as objectives of formal education; (1) identifying relevant knowledge and skills as desired learning outcomes, then (A) devise a way of assessing the extent to which these objectives are met; and (P) develop appropriate practices of the work of students that connect the knowledge (K), the curricular objectives (C), and the assessment (A).

(2) translating the learning outcomes into curricula for regulating organized educational activities, (3) designing ways of evaluating to what extent these objectives have been met, and then (4) developing appropriate pedagogical approaches for teacher–student sessions. Some might want to reverse the order of (3) and (4), i.e., devise a way of teaching before designing a means of assessing to what extent the desired learning has taken place. Approaching things in this way, we take for granted certain understandings of the four questions. We call this “conventional understanding” of educational design.

When we as teachers PACK, we find that we already have something helping us along at each junction, whether we need something to direct us to the next point on a path, or we need to sit down, perhaps contemplating where we are, looking back and evaluating the trip up to now. When we refer to the bottom line in **Table 2** as a conventional understanding of educational design we do, of course, make a generalization. When the physics scholar remarked that she was not ready to tell teachers what to do until they knew more about how students learn, she was expressing doubts about this conventional understanding. Likewise, when Jerome Bruner put forth the spiral curriculum in *The Process of Education* ^[4], following the Woods Hole conference in 1959, he was questioning the priority of knowledge in educational design and emphasizing the importance of understanding students’ learning. Although radical at the time, and even today, these changes do not question the very idea of established knowledge as the starting point for educational design.

Table 2. The PACK with a conventional framing of educational design.

	P Pedagogy	A Assessment	C Curriculum	K Knowledge
Gadgets	How do we teach students?	How do we evaluate learning?	What is to be taught?	What knowledge is needed?
Conventional understanding	Presentation of established knowledge and training for skills.	Student is assessed, either formatively or summatively.	Curriculum defines objectives and content of education.	Knowledge building as an accumulation of established knowledge and skills.

2. Educational Research and Design

PACK-ing for educational design in times of crisis requires an engaged dialogue about the essence of education. Questioning educational design from the perspective of sustainability in the year 2021 makes us dive much deeper into the muddy waters of education than Bruner did during the educational crisis of the late 1950s or the participants in the above-mentioned conference in Oregon in 2008 could have envisaged. Generating a consensus about objectives is often seen as the first step in educational reform ^[5]. We believe, however, that reaching a consensus is neither realistic nor desirable for educational change but, rather, that it is the dialogue arising from conflicting views on both objectives and practices that should drive the project. John Dewey proposed something similar when arguing for the importance of democracy for education ^{[6][7]} and various writers have pointed towards this path as both important and powerful ^{[8][9]}.

Educational research has changed in size, scope, and color over the last 40 to 50 years; for professors in education in the 1950s and 1960s, the current field would be almost unrecognizable. When New Public Management took off in the 1990s, the management of research was affected and a trend towards quality assurance and assessment put its roots down ^[10]. Productivity became an important metric for ranking educational institutions, from primary education up to universities, with quality control adopted from business models becoming ever more present as an administrative ideal. At the same

time, the gap between quantitative and qualitative research seemed to widen (again). The OECD supported national evaluations of educational research (IERD) and various international metrics became more important in the organization, administration, and politics of education, from early childhood education to higher education, the ranking systems of universities, the Bologna process in Europe, and the PISA and TALIS surveys by OECD.

This trend behind large international organizations has created larger systems of knowledge and opened new channels for knowledge generation and exchange, but at the same time marginalized various local sources of knowledge and, in some cases, narrowed the conception of accepted knowledge to that generated through “scientific” methods ^[11]. Such prevalence of “scientific” knowledge over other kinds of knowledge has been criticized in the humanities since the early decades of the 20th century when logical positivism disappeared as a research project. Yet, knowledge qualified as “scientific”, according to positivistic ideas, continues to prevail over other forms of knowledge ^[12].

Since the 1990s, neoliberalism has pulled education away from typical sustainability values towards values and practices that are unsustainable ^{[3][13][14][15][16]}. In an editorial to a special issue of *Environmental Education Research* on environmental education in a neoliberal climate, David Hursh, Joseph Henderson, and David Greenwood write:

It can be readily shown that neoliberal tenets have formed the core principles for primary, secondary, and higher education reform in many countries over the last two decades ... Leading Finnish educator Sahlberg (2011) writes that these countries adopt ‘management and administrative models brought to schools from [the] corporate world’ (203). Teaching, for example, is constrained by prescribed curriculum, and learning, evaluated through standardized tests. ^[13] (p. 306)

What Hursh et al. are referring to here is a reality that others have also observed, such as Stephen Sterling in his book *Sustainable Education: Re-visioning Learning and Change*. He notes that for decades, education has been identified as a key to addressing sustainability issues but, at the same time, most education reinforces unsustainable values and practices:

We are educated by and large to ‘compete and consume’ rather than to ‘care and conserve’. Secondly, education is, as never before, subject to unremitting emphasis on inspection and accountability in the name of ‘quality’. Yet dysfunction, stress, and the pressure to compete are widely compromising the quality of educational experience and the lives of educators and learners. Thirdly, governments are concerned about the ‘socially excluded’, drop-outs from schooling and ‘failing’ schools and higher education institutions; yet policies which force institutions to compete mean that the advantaged ones get better and richer while the disadvantaged ones become more disadvantaged and receive blame for failing. ^[3] (p. 21)

These concerns are not new, but their relevance is new, or is at least being renewed with increased urgency. Up to the last quarter of the 20th century, schooling could operate with the traditional idea of transmitting knowledge and practices from the experienced and skilled (adults, experts) to the inexperienced and unskilled (children and youth). Although harshly criticized at times, this generic idea prevailed. A call for a new pedagogy, even a cry as in Woods Hole in 1959, did not challenge this understanding of schooling.

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