

A Vision for Futures Education Promoting Knowing as Intelligent Action.
Intergenerational Education for Adolescents towards Liveable Futures by
Kathryn Paige, David Lloyd and Richard Smith, Cambridge Scholars
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Together with the maintenance of birth-rates and migratory flows, education is an essential investment that every society must make in terms of its own future. Moreover, the characteristics and the quality of both the education and the future are mutually interdependent. At this moment in our history, for the first time ever, we have come to be aware that the future we are building must be *liveable*, something that has thus far been taken for granted, but which we now know we ourselves have radically jeopardized. At the same time, it has recently become increasingly clear that this awareness is growing within all generations and that the need to change human trajectories is perceived with the greatest urgency by the youngest of these generations: those who most risk facing the increasingly devastating consequences of an unsustainable present. We thus need an education that is coherent with this awareness. In *Intergenerational Education for Adolescents towards Liveable Futures* Kathryn Paige, David Lloyd and Richard Smith propose a framework designed to meet that need.

Towards a learning-centred and life-centred framework

Until relatively recently, education has always been considered as an investment in a *foreseeable* future characterized by *progress* towards increasing levels of growth, consumption, life expectancy, wellbeing, etc. There has also been a direct correlation between this world view and a mainstream educational paradigm in which learners should follow the same pathways and receive the same type of teaching: learning should be conceived of in terms of sequences of discrete abilities to be developed, moving (in age-based groups) one year after another from what is simpler to what is more complex, measured as a series of foreseen results to be achieved via standardized and homogeneous inputs and activities.

On the contrary, a new awareness has led to a vision of learning as a process of change related both to oneself as a learner and one's world as an inhabitant. Perhaps now as never before there is recognition that change can come about only if learners both perceive the need or a desire to move towards new scenarios and outcomes and develop an ability to create and nurture interpersonal relationships - as learners of all ages become participants in learning communities. Within such communities, the dynamic interplay between learning and change is based on co-emergence (whereby objectives become manifest in terms of reciprocal needs) and co-specification (whereby outcomes are defined in terms of reciprocal answers). This is a form of *co-learning*: a process based on reflective dialogue, building meaning together through, experimenting, exchanging and conversing.

In the opening pages of the book, the authors set themselves the challenge of providing science and environmental educators with a framework for building such learning communities that are able to see themselves as members of wider ecological communities. This view is placed firmly within the context of examples from practice for how educators can help build understanding and enable capabilities orientated towards living for a more-eco- socially just and sustainable world (p.3). This is indeed no small task. The authors assume a critical stance concerning our idea of knowledge, calling into question the what, why and how of knowledge-building processes. In this respect, they present readers with a critique of school learning as conventionally divided into subject disciplines in order to advance a place- based, transdisciplinary approach to both planning and learning processes. Such an approach is not only learner and learning- centred, but also *life-centred*. If education aims at promoting liveable futures, then the stakes are indeed high and both decisions and actions are of vital importance. The eco-justice framework the authors propose has a deliberate post-humanistic stance, inasmuch as it foregrounds both the *rights* and *standing* of species other-than-human. Starting from this perspective, the authors are critical of a science education - with reference also to STEM education - which fails to recognize its own anthropocentric nature and argue for an education which engages students in viewing their wellbeing as inextricably linked to the wellbeing of all other forms of life on Earth. Such a vision goes beyond the boundaries of traditional approaches within ecological sustainability, in order to promote the cultural shift that is required from a viewpoint that measures the relative value of things, to a *view of care* which extends to the whole planet.

Building learning pathways

In curriculum development, contents are chosen to work on through methodological approaches in order to promote learning outcomes. The contents can be considered as the *what*, the methodological approaches as the *how*, and the outcomes as the *why* of the curriculum. The authors illustrate a particularly fertile mix between these components. For example, in Chapter 1 studying Gum trees and their inhabitants leads not only to understanding the characteristics, relationships and transformations of a particular ecological niche but also serves to illustrate what the authors call the *sustainability values* of a *Nurturing and Appropriate Technology*. In the same way, the contents of each of the following chapters furnish not only examples of ecological interdependency in order to facilitate understanding of the vital importance of this concept but also to offer models for developing action which contribute to building future scenarios and, above all, enact alternatives to current unsustainable practices.

In the same way, vision and action feed into and out of each other as the importance of each of the following key features of futures education emerges as part of interwoven sustainability values: *Cooperation Communal Care and Behavioural Adaptation* (Chapter 2); *Structural Adaptation and Appropriate Design* (Chapter 3); *Future- proofing Recreation, Cooperative and Nurturing Behavioural Adaptation, Inter- generational and Intra-generational Eco- social Equity* (Chapter 4); *Interconnections, Cultural Adaptation, Resilience* (Chapter 5); *Inter-Generational Wisdom and Sustainable Design* (Chapter 6); *Individual and Community Activism and Biodiversity Enhancement* (Chapter 7). Each chapter brings together approaches and strands of inquiry which seldom come into contact within the field of science education and sustainability education. For example, some of the case studies presented in chapters 2 (on Water Literacies) and 7 (on the earthworm) contain a number of elements typical of classical environmental education/field studies activities that most primary and secondary teachers would be accustomed with. The difference, however, lies in the deliberate attempt to promote in learners' an

activist stance as they build knowledge and develop awareness. One of the teachers quoted explains this quite clearly: “[students] see themselves as instigators of something being changed, they are feeling worthwhile about what they are doing” (p.33). It is in this sense that the relationship between education and the quality of the future we seek to bring forth comes to matter both for the learners and their teachers and moreover also for the community at large. The teachers’ planning for the learning pathways implemented is no longer shaped by pre-existing learning outcomes but by the desire to empower learners to research and to make a difference to one’s own world, often not knowing where the journey is going to go, but at the same time knowing that it cannot only go where it has already been. What is gained is greater awareness of one’s own place (both as an environment inhabited and as a role played by living in it) and greater connection between knowledge building and acting in that place.

Learning and languaging

Learning can be seen a process of adapting to experience, producing change in ways of understanding and being that is the outcome of that experience. Language plays a dual role in this process, because it mediates both the experience and the subsequent adaptation. Language permits the flow and the sharing of information between people and their environments, the dialogue and communication between individuals and inside individuals, which are the very essence of living and learning. As Maturana puts it: “we human beings exist and operate as human beings as we operate in language. Languaging is our manner of living as human beings” (2002: 27). In this respect, the framework proposed by the authors shows how, whether explicitly or implicitly, learning as adapting to experience involves a recurring process of problem- posing, whereby questions search for answers which, in turn are the occasion for new questions. A particular focus is on how scientific questions evolve (p.29) as learners experiment, discover and build knowledge through action. What are scientific questions? How are they formed? Where do they lead us? Formulating and reflecting on questions promotes a constant interaction between cognitive and linguistic levels, showing how language as a cognitive tool can lead in a variety of directions: “By focusing on students’ questions, investigations followed in directions that the teachers were not expecting [...]” (p.28).

Another feature of the dialogue between learning and languaging is the continuous interplay between human language (composed of phonemes, graphemes, words, speech and writing, discussion, ...) and visual language (composed of lines, shapes, sizes, colours, symbols, pictograms, diagrams, photos, images, ...). The way in which these two forms of language interweave and merge during the learning activities enriches the futures visions which emerge. The way in which this multimodal languaging stimulates thinking and re- thinking while developing futures scenarios is a rendered most explicit in Chapter 4, but is a constant focus throughout, as learners are encouraged to challenge current views, beliefs and behaviours, including their own.

Transdisciplinary approaches for crossing boundaries

In seeking to provide a framework which could guide the design, implementation and evaluation of the type of activism proposed within a framework of eco-just education, the authors draw frequently on Wilber’s approach to transpersonal psychology and *integral theory*. This is another bold move in their attempt to challenge and go beyond mainstream educational paradigms based on learners as individuals and disciplines as particular sets of cultural practices typical of given fields of enquiry, experience and activity characterized by specific epistemological, linguistic and methodological features, thereby both crossing and bridging boundaries and mapping new territories. This reflects the authors’ commitment to working close to the interface between teaching and learning and the experiential and reflective practice that gives rise to what is taught and what is learned. There is no attempt here to codify and standardize learning processes for the sake of making it easier for teachers and researchers to establish, track or map given learning progressions. The authors’ intention is to constantly explore and narrate the experiences which are made possible through the transdisciplinary approach. Hence, as they describe it (p.50), individual and collective dimensions, interpretative and monological stances are constantly interwoven within the perspective of *integral experiencing*. Knowledge is never separate from values, decisions, emotions and relationships.

In this way, a transdisciplinary approach permits the building of new epistemologies, methodologies and languages that go beyond those of single disciplines in order to formulate and address new and common questions. Transdisciplinary approaches are cooperative, in that the members of learning communities come together to build new constructs that are the reason for being of the communities themselves. Moreover, transdisciplinary approaches should enable us to go beyond existing ways of languaging and ways of acting, which prove not only inadequate in the face of new problems but also a source of the self-same problems.

In summary, the authors have written a book that is not just a call for a new approach for futures education but also a series of innovative and well-documented proposals for realizing it. Moreover, their proposals clearly illustrate Dewey's idea that "knowledge is a perception of those connections of an object which determine its applicability in a given situation (1916: 353-54)". Central to this idea is "maintain[ing] the continuity of knowing with an activity which purposely modifies the environment", inasmuch as "knowledge in its strict sense of something possessed consists of our intellectual resources - of all the habits that render our action intelligent" (1916: 400). If our action is to be intelligent, then it cannot be mere understanding and application of existing knowledge, but rather a complex construction based on questioning why, what, how to know and act in such a way as to maintain sustainability and build liveable futures. In this way education can enhance young people's engagement so they can be empowered to be a driving force for their own and other generations.

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