CANADIAN UNESCO CHAIRS

REFLECTIONS ON THE FUTURES OF EDUCATION

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The Canadian Commission for UNESCO (CCUNESCO) serves as a bridge between Canadians and the vital work of UNESCO—the United Nations Educational, Scientific and Cultural Organization. Through its networks and partners, the Commission promotes UNESCO values, priorities and programs in Canada and brings the voices of Canadian experts to the international stage. The Commission facilitates cooperation and knowledge mobilization in the fields of education, sciences, culture, communication and information to address some of the most complex challenges facing humanity. Its activities are guided by the United Nations' 2030 Agenda for Sustainable Development and other UNESCO priorities. CCUNESCO operates under the authority of the Canada Council for the Arts.

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INTRODUCTION

UNESCO's Futures of Education is a global initiative to reimagine and rethink education by 2050. Through an open consultation process involving youth, educators, civil society, governments, businesses, and other stakeholders, it will gather ideas that will shape our future. A publication on how knowledge, education and learning will look like by 2050 will be presented during the next UNESCO General Conference in November 2021.

A first issue called Humanistic Futures of Learning: Perspectives from UNESCO Chairs and UNITWIN Networks has been published in January 2020. This is the first collection bringing together the perspectives of a UNESCO flagship network that holds a privileged place in the research ecosystem. Indeed, the UNESCO Chairs are uniquely positioned contribute to the global debate on the futures of education. The call for contributions generated enormous interest; UNESCO received 178 submissions by more than 400 authors. Of these, a selection of 48 reflection papers by over 100 authors from 65 institutions were selected. The main findings were presented in January 2020 at the first meeting of the International Commission on the Futures of Education.

We are particularly pleased that the contributions of six of our Canadian UNESCO Chairs have been selected to contribute to the global reflection. As the list below demonstrates, they offer insightful perspectives on a wide range of subjects:

1. "Knowledge democracy for planetary survival" by Budd Hall and Rajesh Tandon, UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education, University of Victoria

2. "Sustainability as a purpose on the path of learning for the future" by Charles A. Hopkins, Gerd Michelsen, Ilga Salīte, Alexander Siegmund, Daniel A. Wagner, Atsufumi Yokoi, Daniel Fischer, Katrin Kohl, Dzulkifli Abdul Razak and Kate Tilleczek; UNESCO Chair in Reorienting Education towards Sustainability, York University

3. "Toward a vision for arts education" by Lawrence O'Farrell and Benjamin Bolden, UNESCO Chair in Arts and Learning, Queen's University

4. "Strengthening our connection to nature and building citizens of the Earth" by Liette Vasseur and Christine Daigle; UNESCO Chair in Community Sustainability: From Local to Global, Brock University

5. "Reinventing the world through landscape reading" by Philippe Poullaouec-Gonidec, UNESCO Chair in Urban Landscape , University of Montreal and,

6. "Open educational resources and global online learning" by Rory McGreal, UNESCO Chair in Open Educational Resources, Athabasca University.

Under UNESCO's Creative Commons License, we are pleased to re-publish these thought-provoking papers on the Canadian Commission for UNESCO's website. We believe these publications deserve further visibility within Canada since they demonstrate innovative ideas and considerations on what the futures of education could especially look like in our country.

I invite you all to read and share these papers broadly in your respective networks.

Happy reading!

Sébastien Goupil
Secretary-General

KNOWLEDGE DEMOCRACY: OPENING OUR DOORS TO ALL KNOWLEDGE SYSTEMS

Budd Hall and Rajesh Tandon
UNESCO Chair on Community-based Research and Social Responsibility of Higher Education
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The authors argue that acknowledging the diversity of knowledge customs and cultures or knowledge democracy is no longer just an issue of cultural justice but rather a matter of human planetary survival.

The following is a list of knowledge stories that illustrate the common thread of the power of local experiential and land-based wisdom:

- Around 1910, Japan 'discovered' Korea's rice fields – nearly 1,400 varieties of rice were being cultivated in different ecological zones and seasons.
- In ancient India, the Ayurveda system of health care developed a holistic body- mind-heart approach using natural herbs and plants.
- The Coast Salish Indigenous communities in western Canada developed multiple ways of catching, storing and consuming salmon thousands of years ago.
- The Maasai pastoralist communities in northern United Republic of Tanzania have long understood the relationship between themselves, wild animals, cattle herds and the ecology of the region, allowing them to move and live on the land in harmony.
- The Indigenous communities in Oaxaca, Mexico have preserved the biodiversity of tropical forests by adhering to a set of cultural practices evolved over generations.

Each of these knowledge stories tell of local communities—farmers and Indigenous groups—who developed systems of food production, medicine and health care and ways of living in balance with the rest of nature. In each of these stories, knowledge paid integrated attention to body, mind and/or heart or spirit as a whole.

THE DEVALUATION AND DECLINE OF LOCAL KNOWLEDGE SYSTEMS

The knowledge accumulated through the practice of generations around the world was used locally and served the entire community. Such knowledge was gained 'by doing' and transmitted across generations orally in mother tongues. Community elders became 'knowledge-keepers'.

...we have promoted one knowledge system to the exclusion and demise of others.

Nearly five hundred years ago, as colonial occupation of the world spread from Europe, 'modern science' also developed. This 'western' system of science systematically devalued local, existing knowledge systems by labelling them 'traditional'. Domination over territories and its people over these five centuries was sustained through the destruction of local knowledge systems. In the process, local cultural practices and local mother tongues have gradually disappeared.

By basing the foundations of 'modern' education predominantly on the limited epistemological foundations of what is called the 'Western Canon' or 'Eurocentric' knowledge, we have promoted one knowledge system to the exclusion and demise of others. This cultural injustice poses myriad

challenges to the very survival of humanity itself. To help correct this long-standing inequity, learning to become in the future needs to be premised on 'knowledge democracy'.

CORRECTING KNOWLEDGE INEQUITIES BY PROMOTING DIVERSITY

'Knowledge democracy' implies acknowledgement of a diversity of knowledge systems and cultures. It entails fostering the growth and spread of a diversity of languages, cultures and practices. Just as we recognize the critical importance of biodiversity to the health of our planet, it is now imperative that we recognize that a diversity of knowledge systems is vital to our survival. Knowledge democracy recognizes the epistemological privileges of ancient and land-based knowledges as well as the knowledge of people pushed to the margins of our societies. It further means that knowledge – a critical part of transformation and action for a better life – should be made available to be harnessed for the larger public good and not for private gain.

Marginalized knowledge practitioners, including the farmers of Korea and Thailand, the healers of India and Uganda, fishing communities, forest dwellers and Indigenous peoples, are now being 're-discovered' for organic foods and holistic healthcare. Currently, attempts are being made to reverse the consequences of this epistemicide over five centuries. However, this cannot be done without acknowledging the premises of knowledge democracy. The future of knowledge relevant to the peaceful co-habitation of humanity on planet earth should entail respectful co-construction and co-habitation of a diversity of experiential, practical, local and Indigenous knowledge systems with 'modern science'.

Education required to support 'learning to become' for citizens of the future needs to promote respect for one's own knowledge, language and culture while simultaneously acknowledging the diversity of these systems and practices. Critically, valuing one's own knowledge is the building block for learning new knowledge and skills to become citizens of the future.

INCORPORATING KNOWLEDGE DEMOCRACY INTO EXISTING EDUCATIONAL SYSTEMS

Knowledge democracy principles can be readily incorporated into the futures of education. Essentially, this practice translates to learning to respect learning in the classroom as well in everyday life. There are practical ways that knowledge democracy can be promoted within existing education systems. In primary levels of education, it will entail a further push to incorporate interactive learning in the real world (i.e. learning from life). At the secondary level, education syllabi can be framed around clusters of societal challenges. In post-secondary education, both teaching and research can be directly linked to developing socially responsible professionals and experts. The use of community-based participatory research methodologies by students and teachers can promote respect for local knowledge and co-construction of research. This approach to research may contribute to generating locally relevant knowledge solutions, including for the Sustainable Development Goals.

The perspective of knowledge democracy seeks to integrate formal systems and institutions of education with learning in everyday life. Learning to become an active future citizen can be facilitated by practical measures to blur rigid boundaries between the classroom or laboratory with everyday life. Learning from oral traditions of knowledge can be creatively integrated with learning from written texts. Cognitive tools of thinking can be seamlessly mixed with arts-based, affective methods as well as with the practice of skills. As thinking, feeling and acting beings, we can also nurture our capacities to learn by thinking, feeling and acting. Such an integrated perspective of knowledge democracy can be foundational in the future design of educational systems and methodologies.

If the futures of education are to promote universal learning to become, then education has to be seen as serving the public and the well-being of humanity as a whole.

The perspective of knowledge democracy also encompasses the explicit recognition of the public purposes of education. If the futures of education are to promote universal learning to become, then education has to be seen as serving the public and the well-being of humanity as a whole. While individuals do benefit from all systems of education as they learn to do, earn and prosper in their own lives, learning to become active future citizens of humanity requires education to serve a greater holistic purpose. It is the public purpose of education alone that will prepare humanity for sustainable futures. Such a commitment to the public purpose of education needs to be societally embedded and not merely dwell amongst 'educationists' alone. The perspectives and principles of knowledge democracy will help to embed this societal commitment in the futures of education.

SUSTAINABILITY AS A PURPOSE ON THE NEW PATH OF LEARNING FOR THE FUTURE

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This article argues for a new vision of education that gears learning towards building an equitable and inclusive society in a possible future with planetary stability and well-being as the main goal. The authors call for education to include new literacies to enhance critical thinking in an information intensive age; build up socio-emotional and affective dimensions in learning to achieve an inclusive and equitable future society; focus on reciprocity in teaching and learning pedagogy; and emphasize an appreciation of biodiversity and respect for Indigenous knowledge to ensure sustainable development.

Globally, inequalities and conflicts deprive millions of people of the opportunity to live a decent and humane life. These existential crises are increasing in frequency as populations grow, the climate changes, habitats of numerous (often yet unknown) species are encroached or eradicated, and massive human migrations are in motion. In this nascent era of the Anthropocene, we still use descriptors of futures that are rather fearful. Yet, with sustainability, a positive global vision has emerged for a just and safe future, with sustainable development as a pathway and education as a catalyst for change. However, we are far from achieving such sustainable development and are limited in imagining well-being as we lose balance within economic, natural and societal domains.

Our future will crucially depend on our ability to learn to live within planetary boundaries, decrease disparities and care for "the other", a term that applies not just to humans. To achieve this, we are in need of radical changes in education to focus on new paradigms of development and well-being that embrace all forms of life. Today´s and future challenges require different approaches to education. Education should prepare learners for the world as it exists and acknowledge the past, yet teach perspectives, values, norms, skills and competencies to address a world as it could be tomorrow. Education should support visions of futures while critically questioning and further improving the concept of sustainable development both globally and locally. An education that is purposed towards building an inclusive and equitable future for all is needed. Thus, our vision should require a humane idea of education that is not limited to the supply of skilled workers but is also concerned with individual human potential for knowing, being, doing and living together sustainably.

Educational change is often compared to turning around a large ship – it requires a decisive act, concerted efforts and prolonged periods of time to change course. Nonetheless, the consequences of unsustainable collective lifestyles require us to define a new trajectory for the purpose of education: the collective well-being of all living and animated beings. The path to overcoming the (re-)building of education systems based on rigid school curricula and core disciplines is through learning to design and continuously improve a collective vision of multiple possible futures and ways of being both individually and collectively. Learning in the broadest sense must address the fundamental challenges of our time. What should or can we know? What should we do? And what do we do? What may we hope for? For what purpose do we strive? Within this document, we provide key insights that will help guide the formation of a new purpose of education.

FORMING KNOWLEDGE, ACKNOWLEDGING THE UNKNOWN AND FACING THE INFORMATION EXPLOSION

Humanity has never before had access to such a wealth of information. We have seen tremendous success in expanding educational content in many nations around the globe. This could be a moment of great potential for public discourse, awareness raising and the birth of new forms of education. This exponential growth of information as well as dynamic interactions of knowledge sub-systems contain opportunity if understood and put into use.

However, the range of available information and enhanced levels of public education do not automatically lead to the development of a knowledge-based society or improved public deliberation. On the contrary, it often lacks wisdom and contextualisation in nature. Currently, truth as a shared standard for the acceptance of information as knowledge has come under fire with the advent of post-truth, fake news, alternative facts, etc. With the simultaneous diversification and harmful use of media, we experience a homogenization of media reception, supported by standardized algorithms and artificial intelligence. Media literacy has become a crucial competence. Enhancing critical thinking capabilities to synthesize information into knowledge and eventual wisdom are seminal societal skills to be taught.

How can we learn to deal with discomfort from being exposed to information and opinions that do not initially support our current worldviews?

The demand for sustainability as a new purpose of education requires intensified efforts to address the socio-emotional and affective dimensions of learning beyond the cognitive focus. In essence, the reimagining of education should answer questions such as: How can we learn to deal with discomfort from being exposed to information and opinions that do not initially support our current worldviews? How can we learn to better understand and accept the limitations of what we know, and accept that what we believe to know today is likely to change in the future? How can we learn to appreciate the diversity of ways of knowing, including Indigenous and spiritual knowledge, and engage systemically and respectfully with existing knowledge and wisdom?

> **INSIGHT 1: Learning to know is learning about the unknown, understanding the dimensions of known and unknown, the diversity of ways of knowing, and the socio-emotional dimensions of living that are crucial to the formation of knowledge.**

DEVELOPING SOLUTIONS AND EXPERIMENTING WITH CHANGE

Despite progress made in the past 25 years, educational engagement with the idea of a possible future that is both inclusive and equitable is still largely problem-oriented and geared towards predetermined learning outcomes. Where this concept has entered educational settings, it remains mostly at a level of teaching about sustainability, rather than engaging all aspects of our education systems to address the purpose of education for multiple possible futures. Knowledge about natural, social including cultural and economic systems and their interaction is crucial as is understanding both individual and collective needs, wants and resulting behaviours. The process of envisioning, exploring and negotiating well-being for all within the natural limits of our planet means taking

into account future generations. Education cannot be limited to communicating our understanding of the world today. It must play an active role in the search for solutions and paths into the future that we do not yet know. Learning in this context means not only knowing but being capable of taking an active role – both as an individual and a citizen – in the search for a sustainable future. This will entail engaging with others with differing worldviews and perspectives in discourse about how to achieve it. Education for sustainable development as a purpose of education respects yet intentionally goes beyond the ideas, concepts and worldviews that we inherited.

> **INSIGHT 2: Learning to do means being engaged for an inclusive and equitable future with education as a common public and global good. It is learning to be engaged as an individual and a citizen.**

PURSUING PLANETARY STABILITY AS A PURPOSE OF EDUCATION

Educational approaches traditionally focus on the development of the individual: our ability to develop our knowledge, talents and capabilities to emancipate and liberate ourselves from the living conditions into which we were born, to lead a self-determined life in participation, solidarity and dignity. The development of these capabilities is linked to preconceived conditions of planetary stability that no longer exist for the expanding population. Collectively, we must address the abject poverty of so many humans, while recognizing the pressure we exert on climate change, biodiversity and the recognition of a looming unsustainable future for all. New human worldviews that are concerned with learning and well-being for all must therefore put planetary stability at the heart. These must be inextricably linked to the advancement of the common good for an equitable, collective and peaceful development trajectory.

Within this understanding, education is not solely limited to act as an instrument to achieve specific formal individual needs and levels, but to serve as the integrated process and operating mode of a sustainable path of life. How would we meet well-being in ways that are less harmful to others and the planet that sustains us? Many cultures and Indigenous societies have existing insights to share. How future societies could sustainably function is a goal that requires collective yet diverse pursuits. We have to question together as societies how we can best sustain the planet while striving for development individually and collectively. We have to learn to trust and engage with others in deliberative discussions over values, ethics, goals and ideas. We each need to contribute our knowledge to help us understand systems and gain an understanding of how transformation occurs. Education systems must discover, produce and transmit these multi-fold talents and foster the best of collaborative skills if we as humans are to develop the necessary solutions. This will also require thorough re-examination of existing testing, assessment and grading schemes.

> **INSIGHT 3: Learning to live together today means to coexist peacefully and in balance with all life on the planet, and it means learning to become sustainable in an ever-changing world.**

EDUCATION FOR AN EQUITABLE FUTURE FOR ALL

In closing, new visions of education for an inclusive, equitable and positive future requires us to rethink education fundamentally. To achieve this new purpose of education, we need to:

- Build on cognitive learning to gain a comprehensive understanding of learning in all its dimensions, including socio-emotional, behavioural and spiritual aspects;
- Explore, anticipate and learn to live with the unknown in complex systems on the basis of secured knowledge;
- Expand formal learning spaces to fluid non-formal learning settings, engaging the world;
- Create testing systems that are culturally appropriate and include locally relevant and meaningful indicators of human development and well-being;
- Expand on traditional transmission pedagogies to achieve full participation in appropriate transformative learning processes; and
- Focus on holistic, relational and Indigenous models of learning that are intergenerational and intercultural.

Giving voice and stakeholder status for the learning and teaching process back to students, teachers and community members will enable them both as learners and teachers in seeking a sustainable future. Education must enhance such opportunity for all to contribute in a lifelong process. Addressing sustainability in its many forms ranging planetary stability to equity and inclusiveness should evolve as a purpose of education. This means to fundamentally redesign educational institutions into places that offer culturally appropriate place-based, solution-focused, real-world learning experiences (e.g. living labs, Kominkan). It is time to effectively address the roles and responsibilities in education that rigorously ensures that all learners will have the necessary knowledge, skills, values, perspectives and motivation to act. Any new vision of education must purposefully work towards an inclusive and equitable future for all with individual, collective and planetary well-being at its heart.

TOWARD A VISION FOR ARTS EDUCATION

Lawrence O'Farrell and Benjamin Bolden
UNESCO Chair in Arts and Learning
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The authors argue that arts education has the potential to make a substantial contribution to the lives of learners as a means to communicate, heal, construct culture and build community, irrespective of the context and the new technologies that may emerge.

UNESCO and advocates around the world have long called for universal access to quality arts and learning experiences for children, youth and lifelong learners, citing a range of personal, social and academic benefits to learners, the environments in which they learn and the communities in which they live. Such advocacy continues to be imperative within existing educational structures and under the economic conditions that sustain the status quo. At the same time, the world in which we live and the channels through which we learn are changing radically and irreversibly.

The era in which teaching and learning could be confined to a prescribed and linear curriculum delivered within a closed system is approaching the point of irrelevance. Such a curriculum can no longer adequately reflect the diversity of student experiences nor the overwhelming impact of proliferating technologies. Thus, educators must prepare for a future in which the arts will inevitably play a key role within a technology-enabled educational process that will take shape under uncertain economic, societal and environmental conditions. At the same time, the field of arts education will need to look beyond merely advocating for itself to intentionally and thoughtfully re-conceptualizing its goals and methods in ways that will realize its full potential.

The era in which teaching and learning could be confined to a prescribed and linear curriculum delivered within a closed system is approaching the point of irrelevance.

SHIFTING EDUCATION GOALS IN A WORLD DEFINED BY RAMPANT TECHNOLOGICAL INNOVATION

If our planet continues to warm at the current rate, governments will be confronted with unprecedented levels of mass migration and accompanying civil unrest. As automation and artificial intelligence continue to supplant human labour, young people are likely to be left to build personal and social identities in the absence of sufficient permanent or reliable employment. Further, as digital technologies increasingly dominate the ways in which people live their daily lives, the relevance of our current, industrial model of schooling will continue to diminish.

Not all aspects of technological progress foretell a bleak future. On the bright side, we can look forward to positive developments in medicine, communications, travel and other aspects of human life. Knowledge in every field of scientific study will expand and deepen. Isolated communities will gain access to amenities that are currently available only in urban areas. The potential for intercultural exchange and appreciation will be facilitated by improvements to communications and sustainable means of transportation. Nevertheless, even these advances will bring fresh challenges.

As human life expectancy increases, so will demands on geriatric services. As machine learning continues to assist in medical diagnosis, public safety and fraud detection, so will it increasingly challenge concepts of privacy and human agency. For some, the advantages of technologically-mediated living will be compromised by increased social isolation, cyber-bullying and the digital facilitation of socially destructive activities.

Taken together, these changes will be powerfully disruptive. The status quo will not endure. Educators at all levels and in all contexts must ramp up efforts to develop new ways to provide learners of the future with the knowledge, skills and resilience they will need to succeed in whatever conditions they find themselves. Given the opportunity, arts education could make a substantial contribution to the lives of these learners not only as a source of personal satisfaction but as a means to communicate, heal, construct culture and build community in whatever context and using whatever technologies may emerge.

A PLACE FOR THE ARTS AS OUTLINED BY THE SEOUL AGENDA

Arts educators already have at their disposal a universally recognized plan of action, one that identifies priorities for the sector and offers a range of strategies to achieve these objectives. *The Seoul Agenda: Goals for the development of arts education* was unanimously endorsed by the General Conference of UNESCO in 2011. The *Agenda* outlines specific action items designed to achieve three overriding goals: 1) ensuring universal access to arts education; 2) ensuring high quality in arts education programmes; and 3) applying arts education to help solve serious social and cultural problems facing the world. Given its comprehensiveness and global acceptance, the *Seoul Agenda* provides an excellent foundation on which to build a vision of arts and learning for the future.

While recognizing that arts education must achieve its objectives within the context of a rapidly changing world, the *Seoul Agenda* is by no means intended as a futuristic projection. Rather, it assumes a level of stability within educational and social structures, offering concrete actions whereby arts educators can make a contribution to issues of access, quality and relevance within those structures. A vision of arts and learning for the future will need to address these same issues – not from the perspective of how they may be made manifest in the schools and community initiatives of today, but rather with a view to pursuing these intentions in a world that will be vastly different from our current reality. In developing such a vision, stakeholders will need to ask how arts education can make a difference in a world that may be untethered from the institutions and practices that anchor our current understanding.

Some salient questions to consider and guide the stakeholders of today as they envision the status and role of arts education a full generation into the future include:

- In twenty years, how will arts education be accessed?
- In twenty years, what will quality in arts education look like?

- In twenty years, how will arts education be applied to resolving social and cultural challenges facing the world?
- In twenty years, what will be the role of the arts educator?

THE ARTS HOLD THE KEY TO ADAPTING TO AN UNFORESEEN FUTURE

In charting a route through these untested waters, it will be useful to review the ways in which forward-thinking countries, districts and organizations have introduced innovations that suggest a progressive route for arts education. We will need to see how they have stretched the perception of education to embrace digital and out-of-classroom experiences along with lifelong learning. We will be interested to study the impact of individualized, holistic and cross-disciplinary learning. It will be important to seek out examples of increasingly interactive, student-directed and intergenerational pedagogies. Equally important will be to discern how learning in the arts can contribute to sustainability goals related to physical and mental health and well-being; social justice and reconciliation; intercultural understanding; social cohesion; democracy; and conflict resolution. Moreover, we should look for ways in which arts education can contribute to the articulation of a humanistic world view – one that will reflect our changing context and bring the clarity and conviction needed to validate newly constructed identities and to guide the ethical behaviour of citizens of the future.

The conviction that arts and learning must inevitably play a central role in any future educational paradigm derives from evidence that the roots of artistic practice stretch deep into human evolutionary prehistory – as illustrated by discoveries of flute fragments in Neanderthal settlements dating from 43,000 years in the past. We are, in an essential way, an artistic species. For millions of years, we have communicated and learned through the arts. We have turned to the arts as a way of ritualizing and thereby mythologizing human experiences. Also, through the arts, we have explored our deepest humanity and our highest spiritual aspirations. A world without the arts would be a world without humanity.

While specific examples of artistic practice clearly reflect the cultural and economic conditions in which they are created, it is equally true that the arts have the capacity to adjust to changing circumstances; to speak to future generations under previously unimagined circumstances; to serve as a model of interactive, learner-directed pedagogy; to promote a deep and lasting development of social and emotional skills; to enhance learners' well-being; and to foster the kind of creative capacity needed by all those who will be coping with issues and opportunities that cannot yet be foreseen.

Note from the authors:

The authors would like to thank the Board of Directors of the Canadian Network for Arts and Learning for undertaking steps to follow the principles outlined here, in collaboration with partners across Canada and around the world, with the objective of constructing a vision of how the arts may contribute to education in an unknown but imminent future.

STRENGTHENING OUR CONNECTION TO NATURE TO BUILD CITIZENS OF THE EARTH

Liette Vasseur and Christine Daigle
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The authors elaborate on the dangers of rampant consumerism and attempt to explain why most humans are disconnected from the realities of our depleting planet and are not taking action to instigate change to ensure a more sustainable future. They argue that education for sustainable development will play a key role in transforming citizens of this Earth to assume fully their roles as environmental stewards.

The Sustainable Development Goals adopted in 2015 encourage socio-economic transformations while protecting the environment. However, governments, corporations and citizens are slow in answering the call for transformative changes to reduce environmental degradation in any significant way. Most are aware that the current way of living is unsustainable, yet very few are willing to make drastic changes, favouring instead the status quo, which focuses on economic growth and profit. Changing lifestyles – especially in industrialized countries – also poses a barrier as most people have grown comfortable in their current mode of living.

What are the reasons for inaction? Scientists working on sustainability have been reflecting on this for quite a while and have proposed solutions that mainly focus on the external world of socio-economic structures, technological advancement and/or policies. We claim, however, that changes need to be more fundamental. As James Gustave Speth states "The top environmental problems are selfishness, greed and apathy… and to deal with those we need a spiritual and cultural transformation." This implies that we need to change the mindsets of citizens and their current worldview that is materialistic and purely economic. We acknowledge that a large portion of the world population is still struggling to ensure their survival and are thus not able to partake in materialistic pursuits. However, we contend that their fate is ultimately connected to the materialist mindset that drives consumerism and economic pursuits dominating the thinking of those in positions of power in the business and political spheres. As long as consumption and growth are the guiding principles of the decision-makers in power, significant transformative change will not occur.

THE DISCONNECT BETWEEN HUMANS AND NATURE

Along with the increased importance given to economic growth and consumerism, the disconnect between humans and nature has been growing. The intensifying advancement of technologies and industrialization has led to the damaging belief that we can fix every problem we face with science and technology – be it deforestation, desertification, soil erosion, climate change, etc. Our faith in our technological skills and scientific know-how leads us to think that we need not worry about the health of our ecosystems as they currently stand. This blind faith is dangerous as it leads us to ignore concrete actions we could undertake now to limit the escalation of existing problems and the development of new ones.

In May 2019, the draft report of the United Nations' Intergovernmental Platform on Biodiversity and Ecosystem Services entitled the ***Global assessment report on biodiversity and ecosystem services,*** captured strong media attention. Headlines such as "One million species at risk of extinction" populated the media. However, as shocking as the data of the report may have been to the media and audiences, the effect was short-lived. After a few days, the message lost momentum and the media moved on to other stories. People resumed their daily lives and preoccupations. The disconnect between humans and nature is felt by most people and when combined with the pragmatic concerns of daily life lead us to overlook the extent of the crisis we are alerted to in the report. Most people are unable to appreciate the critical functions that biodiversity and the natural environment play in their lives and grasp the extent to which their well-being is directly impacted by ecosystem degradation.

What is the cause of this alarming disconnect? Many factors come into play, a key one being the materialistic life championed by social media along with pressures to consume more. The value systems we share with family and friends in industrialized societies hold to the strong belief that a life guided by consumerism and economic growth is the only valid path. We lend credence to the belief that more economic wealth constitutes more power and therefore, higher social status. At an early age, we learn very rapidly about fulfilling our needs. The first needs children learn to fill are basic and relate to survival, such as nourishment and shelter. However, soon they also learn about less essential needs, such as having the best toys and any possession that may please them. Families attempt to fulfil those needs as much they can but as soon as children start connecting to others and go to school, their demands increase as they compare their belongings to those of their peers. As a result, greed, individualism and materialism rapidly become the guiding principles of their own world. These children adopt attitudes, mindsets and behaviours that are difficult to unravel.

The question is pressing: given how early in life one acquires fundamental beliefs and values, how do we shift the current mindsets and values to avoid exhausting the planet's capacity to support us?

Unless children learn to value the natural world instead of material possessions at an early age, it will become increasingly difficult to undo the damage caused by consumerism, and to truly reshape their appreciation and value for their relationship to nature. We need to rediscover ways of engaging with nature that are not merely exploitative and must nurture our connection to the ecosystems of the Earth in which we live. In this endeavour, education is fundamental to transforming the current destructive path.

BECOMING ADVOCATES FOR TRANSFORMATIVE CHANGE

The question is pressing: given how early in life one acquires fundamental beliefs and values, how do we shift the current mindsets and values to avoid exhausting the planet's capacity to support us? The answer is education for all – and especially starting at a very early age. We argue that without a new way to educate children while still trying to change the attitudes of older people through lifelong learning, it is very doubtful that we will succeed in implementing meaningful change. We need a new educational approach that focuses on nature, our place in it and a mindfulness of the interrelations among all living organisms. Curricula and learning activities must be built and geared toward this goal.

As acknowledged by Leicht et al., ''education must change to provide the knowledge, skills, values and attitudes that empower learners to contribute to sustainable development" (Leicht et al., 2018, p. 7). However, there are obstacles that challenge us along the way that must first be removed. Teachers are trained in post-secondary education institutions where emphasis is rarely placed on reflecting on their own lifestyles and values as well as the fundamental linkages between humans and nature. Under most current systems, the focus is on technologies and their use with little reflection on what it means to be techno- dependent and the dangers of our over-reliance on technologies. Unfortunately, unless teachers themselves relearn their connection to nature and embrace the use of pedagogies to enhance the experience of children to connect with nature and learn about the current world, these changes may not occur rapidly enough. To effectively transform the educational system, teachers will have to embrace changes in their instructional practices, pedagogies and even the way they guide students to interact with the school surroundings and its environment. The new generation of teachers must be trained completely differently. This requires postsecondary institutions to move beyond slightly modifying the current curriculum to accommodate a connection to nature and calls for fundamental change in the way teachers are trained, adding courses in subject such as the environment and global mindfulness to encourage stewardship.

Norms and rules currently dictate that children often do not go outside to connect with their environment and understand their relationship with and dependence on nature. While this shift may appear difficult to implement in urban settings, many alternative modes of teaching, such as bringing nature to the classroom or the classroom to nature, can be adopted. Access to the outdoors alone may not be sufficient to bring about changes in attitudes, hence other activities should be integrated to enhance student interest and engagement to foster environmental stewardship. Indeed, "there is an important difference between lack of nature experiences (a decrease of time outdoors) and low levels of connectedness (the psychological construct)" (Enrst and Theimer, 2011, p. 595). We argue that both are needed to instigate transformational changes.

BECOMING CITIZENS OF THE EARTH

Since education is considered a public good, it has primarily and initially been placed under the jurisdiction of the state. However, with a greater diversification of education systems (e.g., private, home-schooling), it may be time to rethink education as a common good (UNESCO, 2015). Under this condition, all of us have a role to play and share in the responsibility to learn and educate for the common good of the planet. "[Education for sustainable development] is not confined to schools but applies to all levels of formal, non- formal and informal education as an integral part of lifelong learning" (Leicht et al., 2018, p. 8). This must extend to the media as well. Indeed, for most people, nature is not directly experienced but mediated. Media coverage of natural disasters often present nature as a threat. Nature documentaries often portray it as distant and even alien to us. Thus, the media have a huge role to play in changing how we think and value nature. "Disconnection begins young," argues Weston, "In a recent survey of U.S. fifth and sixth graders, 53 percent of the children listed the media as their primary teacher about nature, 31 percent cited school, and only 9 percent cited learning at home and actual experience outside"(1999, p. 172). While this survey and

its numbers are somewhat dated, there is no compelling evidence that much has changed. Weston's ensuing call to seek direct experiences with nature is even more urgent now.

Unfortunately, education for sustainable development (ESD) is often premised on improving awareness of sustainability issues with the hope that people will change their behaviours. Meanwhile, the proponents of greater environmental awareness tend to adhere to the traditional growth model where the term 'green consumption' is promoted while retaining the same market mechanisms. Decoupling well-being and quality of life from current rampant consumerism will require a monumental effort and commitment to truly educate on the human-nature relationship through the development of mindfulness and spiritual development. In essence, a much-needed critical analysis and overhaul of the current socio-economic norms are called for. ESD programmes must accept the fact that the traditional growth paradigm cannot continue. This, we argue, will have to be grounded in a radically transformed educational approach.

Transformational changes require rethinking the entire education system from pre-school to lifelong learning.

Transformational changes require rethinking the entire education system from pre-school to lifelong learning as well as ensuring that intra- and intergenerational equity is rooted in values and mindsets that do not perpetuate traditional consumerism based on infinite economic growth, which has been our guiding principle thus far. Indeed, there is only one planet Earth with finite resources and infinite growth is an impossibility. Environmental stewardship is the responsibility of all – from children to elders. Through a new educational approach, we can help remove potential intergenerational conflicts and individualistic views as people gain a new appreciation and understanding of their relationship to nature. Truly becoming responsible citizens of the Earth means transforming the 'I' to 'we with nature'.

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REINVENTING THE WORLD THROUGH LANDSCAPE READING

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The author proposes that we adopt a 'landscape reading' of a place to reimagine, in a structural manner, the environments in which we live and bring sustainability practices to territories through education. The piece advocates that learners be taught to develop a sense of affinity with places and territories which will translate into a sense of belonging in order to improve the conservation of global cultural and environmental resources.

Given the fragility of global ecosystems and climate change, how can we reinvent or adapt and promote an education that provides viable responses to serve the common good of the living world? There is an urgent need for action in all parts of the world. This issue is linked to our behaviours and attitudes in our contemporary societies, where experiencing places (i.e. discovering landscapes and places in the world) is an increasingly important and positive vector for new generations who are themselves committed to well-being, dialogue and the desire to rebuild collective societies. It seems essential, therefore, that we focus especially on values that are supported and shared by all, which constitute a potential for the reconfiguration of democracy and social cohesion, without losing sight of the fact that this attitude must focus on the intergeneration of knowledge, expertise and cultures.

HISTORY OF TRAVELLING AS A MEANS TO LEARN

The quest to experience places motivates new generations. It is part of a historical continuum reminiscent of the slow initiatory journeys of nineteenth century writers, painters or travellers, who contributed to the origination of mountain landscapes in Europe and then the innovation of seascapes. Occupying places and employing perspectives that help root us there to change perceptions and shape new representations of territories and societies will help to reinvent, preserve, enhance and develop the world.

This experience of the places in question is not one of the bewildered traveller on a frenetic journey, constantly on the move in search of multiple selfies. The experience that we wish to promote is that of the investment of the body in the territory, whether it is plural or singular. This stems from the idea that the inclusive reconnection of all the human and biophysical components of a space requires time and patient commitment. It can be exemplified in our daily lives, whether urban or rural.

In our increasingly nomadic societies, places and lifestyles are manifold and fleeting. The superficiality of the knowledge of our living environment has become the norm. Particularly since urbanization, the architecture of cities around the world has become banal. We live in an era where generic and insipid architectural and urban forms and expressions are all too common. This has the effect of erasing territorial singularities, or even their identities – one of the many consequences of globalization.

RECLAIMING OUR KNOWLEDGE OF PLACES

In the wake of the industrial era, we have witnessed a breakdown of knowledge of territories. Societies have forgotten about their places as over time, their memories have faded. Owing to unbridled urbanization, the reading of territories is proving to be unintelligible in most cases. The intelligence of places is being rapidly lost and no region is spared. This is a global phenomenon that is increasing daily. It is particularly evident in recurrent flooding incidents experienced by some riverside or coastal communities owing to current climate change phenomena. The development of urbanization in flood-prone areas is a striking illustration of the lack of knowledge of hydrological systems – and more broadly of ecosystems – and the commodification of the land tenure system in these vulnerable areas in many regions of the world.

Intelligence must be revived in regions to solve local and global environmental problems in a sustainable manner. This involves education and research in schools and universities. However, it must be conducted in a sustained and intergenerational way with the involvement of elected officials, economic decision-makers, Indigenous knowledge keepers and environmental experts.

It must also be creative and inventive. Our capacity for wonder is surely a means to focus our attention on the quality of a place and decide if it is to be preserved or enhanced. We must develop our ability to read the territory and understand its palimpsest. We must imagine what it might have been, what it is and what it could be. We must evoke, draw, narrate, tell, write about and transmit it. We must also become attached to the place, to feel a part of it, for a while or for a whole lifetime. We currently lack close contact with territories where a universe of polysensory and emotional sensitivities can be tapped.

Intelligence must be revived in regions to solve local and global environmental problems in a sustainable manner.

Essentially, what is required is a landscape reading of the territory – i.e. a qualification of our viewpoint. In doing so, we are participating in building social and cultural representations to renew our perspectives in a changing world. From this point of view, there is no limit as it becomes a matter of creativity. Thus, by paraphrasing the extreme point of view of the famous landscape architect Bernard Lassus, we can make (or imagine) artificial constructions that approximate the natural or can be perceived as such. Such statements demonstrate the infinite and sometimes dual interpretations of our relationships with nature and Others, which can be multiple and varied. We must accept a wealth of viewpoints as this diversity reflects our plural world that we must safeguard and promote. It is one of the key characteristics required to gain a fuller understanding of the place. This approach makes the process a melting pot and a tool to imagine and provide answers to local and global environmental issues.

A COLLECTIVE PROJECT TO REINVENT LIVING ENVIRONMENTS

This landscape attitude that we are evoking carries with it the prospect of a collective project as it also relies on the social and cultural aspirations that we have for a place. The idea of landscape as a structural element of our values and projects in the territory is one of the key tools used to accompany the transformations and fundamental shifts of our contemporary societies.

We must promote an educational future that encourages wonder, the development of diversified and shareable imaginations of the territory and our living environments that contribute to the development of a viable future. In light of this, the fields of the arts, sciences and humanities are invited to engage in a meaningful interdisciplinary and intercultural dialogue reflecting on teachings open to humanist values in order to reinvent the world.

OPEN EDUCATIONAL RESOURCES AND GLOBAL ONLINE LEARNING

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This article highlights how Open Educational Resources (OER) can help bridge the knowledge divide to achieve equity in education. The author discusses the different digital barriers set in place to prevent free access to content and explains how these serve to erode efforts to achieve universal learning and education for all.

Open educational resources (OERs) are materials in various formats and media, that reside in the public domain or have been released under an open license that permits them to be accessed at no-cost, reused, repurposed, adapted and redistributed by others (UNESCO, 2019). OERs can help shrink the knowledge divide that separates and partitions societies.

GROWING RELEVANCE OF OERS FOR TEACHING AND LEARNING

Educators worldwide continue to face significant challenges in their efforts to provide increased access to high quality learning opportunities while containing or reducing costs. New developments in information technology, especially with the introduction of mobile computers on phones, tablets and other devices, can help surmount these challenges faced by the traditional education community as well as flexible providers such as open universities. Newer technologies have the potential to aid in increasing access and flexibility in education by rendering it ubiquitous. Basic education for all continues to be a goal that poses great challenges for many countries. OERs twined with mobile learning technologies can be used to overcome many of the obstacles faced by both learners and educators in the quest to achieve basic education for all. This growing trend toward ubiquitous computing using the power of networks and mobile devices has opened the door for learners and instructors to access the world's knowledge from almost anywhere and at any time.

The world's knowledge is a public good that should be made available to everyone. Currently, the internet serves as the world's intellectual commons and OERs render this knowledge accessible to all. The role of OERs in providing learners and teachers with free learning content, including application, games, etc., is becoming increasingly more relevant.

OPEN LICENSING IS KEY TO UNLOCKING ACCESS TO OERS

OERs encourage the sharing of educational resources though the provision of open licensing. Ultimately, this serves to reduce the costs associated with lesson and course development as it facilitates access to quality learning opportunities. The open licensing afforded by the Creative Commons or by releasing the materials into the public domain provides authorization to adapt, assemble, distribute, mash, re-mix and republish OERs. Open licensing is not the same as obtaining separate authorizations to view content freely – as is sometimes the case when accessing commercial content. This is not enough to support true open access and public sharing as even the simplest requests for permissions can take weeks and even months to confirm. Instructors and institutions must be able to make use of the content freely without having to request permission. When accessing content, true open access means that instructors and students can make effective use of the materials without any barriers or conditions in place. OERs are becoming essential in supporting online learning and is supported on various platforms in diverse scenarios – dedicated devices in the home, smart phones while commuting, on tablets during meetings, in the office on laptops and foreseeably, on any future devices as they become available.

TECHNICAL CONTROLS WIDEN DISPARITIES

Digital rights management (DRM), more commonly known as 'digital locks,' are used by major publishers to enforce their Intellectual property (IP) rights. Digital locks protect their "property" by controlling the conditions under which their content is used. These 'locks' can deliberately 'cripple' devices to limit the affordances of the users' devices. Using DRM, publishers can technically control how, when, where and with what specific brands of technological assistance licensees are able to access content and applications. Similarly, many commercial systems use these locks to disable important features essential to online pedagogies when learners review content, such as highlighting, annotating, hyperlinking and accessing a digital dictionary.

Digital locks are particularly problematic for disabled users. The visually impaired, for instance, are denied use of a text-to-speech function and in many cases, cannot even increase the text size. Publishers also insert DRM 'time bombs' in e-textbooks that delete the course content after a set period of time and use methods to block users who attempt to make use of prohibited features.

DIGITAL LICENSES FURTHER HINDER ACCESS AND DISADVANTAGE USERS

Digital licenses for commercial e-books prohibit not only copying and printing but also modifying, removing, deleting, augmenting, improving or adapting content in any way. Most significantly, the licenses legally prohibit any removal or tampering with the DRM. Given that the breaking of locks is illegal, users cannot tamper with the DRM – even if for legitimate reasons, such as archiving or fair dealing. Realistically, digital protections, no matter how robust, can always be broken. As hackers have been able to consistently break any DRM inserted in software, the legal restriction of digital licensing poses a much more formidable problem than digital locks. DRM is protected by legislation in most countries and reinforced by the digital licenses that come into effect when users click on "I Agree" when they access commercial content.

Digital licenses also prohibit the transfer of content to other students when teachers wish to use a variety of devices with different groups of students in later semesters. These legal restrictions combined with DRM along with the "sole device" stipulation effectively block any attempts at mobile access to learning – even if institutions are prepared to pay, pay again and keep paying for the same licenses until they expire. In many cases, if institutions don't continue paying, they risk losing access to data or records linked to a particular product or provider.

Even more unacceptable, software licensing exempts publishers from all liability under consumer protection law as there is no physical 'product' to purchase. Not only does the purchaser have no rights, no requirements are placed on the publisher to ensure that an application even works. Further, the publisher incurs no liability when they deny access to the content or software for whatever reason, legitimate or otherwise. They can also alter clauses in the contract at any time. In fact, whenever software is upgraded, the contract can be changed and often is, often not for the benefit of the user (Brown, 2012).

GEOGRAPHICAL RESTRICTIONS DRIVE PIRACY

The predicament of a citizen in Luxembourg puts the question of geographical restrictions under scrutiny. In this case, even though the user wanted to legally purchase content, he could not as it was not available in his country. A commentator who reviewed the case deemed that geographical restrictions using DRM are a "most pressing issue" (Wolf, 2010). Users typically receive an error message for attempting to access books or videos that are not licensed in their country. Google's "Geographical Constraint" error message along with YouTube's "This video is not available in your country" are notorious examples of geographical restrictions. This restriction may drive demand for pirated sites to enable users to access content. For instructors, a legal purchase is mandatory, so in many countries, they are effectively excluded from accessing much relevant content (Woodwarth, 2011). Likewise, for borderless online courses offered by institutions that deliver lessons to many different countries, these restrictions effectively prevent institutions from using this content. As noted, copyright owners, in an effort to secure profits and safeguard their content, are inadvertently encouraging piracy through these geographical controls that prohibit legitimate uses.

These restrictive licenses that users must accept to access content or applications constitute a violation of privacy and pose a serious impediment to online learning.

BREACHES OF PRIVACY ABOUND WITH DRM

Online learning is also premised on reasonable levels of trust between students and instructors. As they share resources, participants should be provided with assurance that their personal information will not be used for purposes other than those of learning and sharing with other students and the teacher. Publishers have a history of engaging in an open-ended and indiscriminate collection of private information for unauthorized purposes, using DRM to help persuade users to their disclose personal information (The Canadian Internet Policy and Public Interest Clinic, 2007; Schneier, 2005). In many – if not most jurisdictions- companies use restrictive licenses to obtain the right to invade personal computers and private networks without notice and without permission; and to disable software for any real or imagined license infraction. These restrictive licenses that users must accept to access content or applications constitute a violation of privacy and pose a serious impediment to online learning.

OERS: AN ESSENTIAL FOR GLOBAL ONLINE LEARNING AND THE FUTURE OF 'EDUCATION FOR ALL'

DRM accompanied by legal restrictions can seriously cripple an educational environment, make it problematic and even impossible to introduce future technologies, new pedagogies or new methodologies for learning. Learners must be supported in their right to education with unrestricted access to OERs and allowed to flourish in an open environment that includes the right to use content under licenses that favour access over commercial limitations on any technological platform. The portability of devices supports learning flexibility and the sharing of educational resources, and is thus paramount to the future of education. When reviewing content, learners require the rights to highlight, annotate, print, share content and link to websites. Other rights that should not be restricted digitally include the right to receive a file that is not locked or otherwise crippled and subject to recall by the publisher; and the right to convert files to different formats for use on a variety of devices and computer platforms (UNESCO. 2019). Kroszer coins this state of access as "trouble free and device agnostic"(Kroszer, 2008).

An essential right for ubiquitous learning would be to allow other users to access content either for shared learning or for future use in additional classes. OERs, by definition, fit this description. They come with minimal, if any, restrictions. They are technologically neutral, transmittable on different platforms and when built using commonly accepted or open software, they conform to international interoperability standards and can be transported with little effort or concern by users. Presently, there is a large and growing body of OERs, supported by open source applications. These resources arguably represent a crucial pre-condition for the implementation of systems to enable global online learning, which can effectively lower the barriers to accessing knowledge universally. Education for all will remain only a concept unless and until we can ensure the long-term viability of OERs through the active support of educators and educational institutions and through governmental policies encouraging their creation, adaptation and dissemination.

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