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# Open Education: Towards Epistemic Sustainability

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Keywords: Open Education, Epistemic Sustainability, Diverse Knowledge, Care, Knowledge Society, Lifecycle of a Course.

Abstract: Conducted in a scholarship of teaching and learning approach (Boyer, 1990), this position paper shares a scholar's reflection on epistemic sustainability. Conceived as a philosophy for Humans living harmoniously with the many ecosystems they are involved in, it is nurtured by values encountered in Open Education – freedom, transparency, sharing, universal ownership. It aims at reconsidering knowledge so that each individual can identify with it, resulting in a process of engaged learning and caring for knowledge environment. It rests on the diversity of knowledge systems (UNESCO, 2021) and contributes to the growth of the knowledge society. Discussed with the backdrop of a framework composed of social learning theories (Wenger, 2018) and the sociology of absences and emersions (Santos, 2016), it offers two examples of concrete changes in the praxis of scholars in computer-supported education. The first resides in programming algorithms for AI considering the diversity of knowledge systems and Open Education values. The second invites to reconsider the lifecycle of a course beyond academic borders.

## 1 INTRODUCTION

It is today agreed that Open Education (OE) is an umbrella term (Jung, 2019; Otto & Kerres, 2022; Weller, 2020) exactly as Open Science (Fecher & Friesike, 2014) is. A variety of conceptions, approaches and practices qualify as OE and this wealth of understandings is one of its essential intrinsic characteristics. With this position paper, we discuss epistemic sustainability which considers the diversity of knowledge systems (UNESCO, 2021) to contribute to collective human intelligence (Farmer, 2019; Innerarity, 2015).

With regard to the richness of OE perspectives, we will illustrate it with three non-exhaustive examples: Weller's, Baker's and Otto & Kerres'. In Weller (2020)'s perspective, three main components of OE concentrate its fundamental features: MOOCs, Open Universities and Open Educational Resources (OERs). All three work towards removing barriers and rendering quality education accessible to people who are deprived of it for one reason or another. Weller underlines that each of these OE initiatives currently ignores the others, whereas each focuses on an interesting feature (e.g. sharing, access) and invites for cross-fertilisation.

On his side, Baker (2017) tries to understand underlying strategies adopted to define different approaches to openness in education. First it is a strategy of affiliating openness to historical periods and movements characterised by openness like the Middle Ages when knowledge went out of churches (Poulter & Al, 2014 - to present; Raucent et al., 2019) or the Open Source Software movement where code source is openly shared and co-constructed (Ubuntu, No date). Second, it is a strategy of granting openness as a philosophical ideal underlying a given context, like the common good for example. The third strategy consists in negotiating openness at an operational level to leverage possible affordances like the creative commons licences. "Commonalities between all of these efforts to define openness emphasize a variety of constructs. These include the role of freedom, justice, respect, openness as attitude or culture, the absence of barriers, promotion of sharing, accessibility, transparency, collaboration, agency, self-direction, personalization, and ubiquitous ownership" (Baker, 2017, p. 131).

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Finally, Otto and Kerres (2022) highlight a "normative paradox" (Deimann, 2019, p. 40, citing Honneth, 2004) of the Humboldtian university. The political agenda of opening up with the aim of overcoming educational inequalities is conducted within a system based on organising selection. In other words, how can a university pretend to work towards openness when the entire system works on an opposite conception of education (i.e. financial barrier, admission barrier, administrative barrier, etc.)?

To what extent are these components, strategies and paradox informative of societal changes towards education? Universities usually have 3 missions – research, education and service to the community. Openness arrived from its main mission and is changing the landscape of research with Open Access, Open Research Data, and other open practices that enables scholars to renew past practices (Langlais, 2015). Beyond questions of access to multiple services – which is vital for participating, UNESCO calls for a "dialogue between different knowledge holders, that recognizes the richness of diverse knowledge systems and epistemologies and diversity of knowledge producers" (UNESCO, 2021, p. 15). In a knowledge society, science and education can be regarded as two sides of the same coin. Openness achieved in research will sooner or later lead to openness in education.

We will first explain concepts and present underlying theories that frame this reflection. Then, we will show through a historical overview of OE in the Global North why the Covid 19 crisis contributes to a new momentum for Open Education. Finally, we will give two concrete examples on how to work towards epistemic sustainability as computer supported education scholars.

## 2 METHODOLOGY

The methodology developed within this position paper is based on a Scholarship of Teaching and Learning (SoTL) approach (Boyer, 1990). It shares a reflection that stems from work conducted on OE from different perspectives and with different stakeholders in the recent past (e.g. Class, 2020; Barbara Class et al., 2021; B Class et al., 2021).

## 3 EPISTEMIC SUSTAINABILITY

Going back to basic definitions of concepts can be helpful, especially when two of them pertaining to different spheres are combined, which is the case in this text. Epistemic "comes from *epistēmē*, Greek for "knowledge", itself coming from the verb *epistanai*, meaning "to know or understand," a word formed from the prefix *epi-* (meaning "upon" or "attached to") and *histanai* (meaning "to cause to stand")[1]".

Sustainable refers to something "capable of being sustained - maintained at length without interruption or weakening". It also refers to "using a resource so that the resource is not depleted or permanently damaged[2]".

What we retain from both definitions is the simple idea, related to transparency, of being aware of processes behind the choice of labelling something as knowledge. This awareness and transparency should help to trace knowledge, understand its philosophical orientation and its evolution throughout History. Making this traceability easy should increase trust and leverage sustainability mechanisms.

Santos (2021, Chapter 5) explains how, in his interpretation, the discipline of sociology was born to analyse the problems arising in Western societies at the time of industrial revolution - which started around 1760. The discipline has been founded without considering previous scholars like Ibn Khaldun and without acknowledging their methodological contribution.

Some centuries later, after the second world war, the concept of *development* has been disseminated as one of the most important sociological concepts. Development addresses several aspects of a society and of an individual human being: the economic, the social, the cultural, the religious and the political to name the most obvious ones. The issue with this concept is that it has been problematised by Western actors who defined the line between what qualifies for "developed" and what qualifies for "underdeveloped". It resulted in placing "the majority of countries on the wrong side of history, the world of underdevelopment" (p. 291).

Time has passed, scholars from these so-called "underdeveloped countries" have studied in Western universities, mobilities have contributed to interacting, disentangling epistemic injustice and calling for new avenues. Santos (2021) urges to decolonise the social sciences in responsible and sensitive ways. To do so, he invites to consider knowledge originating from other time, space and

[1] https://www.merriam-webster.com/dictionary/epistemic

[2] https://www.merriam-webster.com/dictionary/sustainability

contexts to understand our own time and take informed decisions. For example, while current research method epistemologies usually revolve around post-positivist, constructivist, transformative and pragmatic worldviews (e.g. Creswell, 2014), what about opening up to African, Asian, South American, Indigenous and other epistemologies?

In the domain of computer-supported education, we find it particularly interesting that Ubuntu, an African philosophy, is omnipresent through the eponymous operating system. "Epistemology of Ubuntu, translated as humanness, "suggests both a condition of being and the state of becoming, of openness or ceaseless unfolding" (Ramose, 2015, p. 69). Ubuntu considers "the universe as a complex wholeness involving the multi-layered and incessant interaction of all entities" (Ramose, 2015, p. 69) – human beings, physical or objective nature. The three driving insights of Ubuntu are: 1) constant motion of "wholes" from generation to death to regeneration; 2) human dignity; 3) mutual care and sharing between human beings and physical nature (Ramose, 2015)" (Class, 2021).

Epistemic sustainability is conceived as a philosophy, in the sense of "most basic beliefs, concepts, and attitudes of an individual or group"[3], for Humans. Not Humans who dominate Nature as in the modern perspective (Latour, 2006), but rather Humans who live harmoniously and respectfully with the many ecosystems they are involved in (Pelluchon, 2021). Nurtured by values encountered in Open Education – i.e. freedom, transparency, justice, respect, sharing, care, access, traceability, trust, collaboration, agency, self-direction, personalization, ubiquitous ownership, it aims at co-constructing knowledge, finding consensus to decide what qualifies as knowledge and work towards the building of a collective human intelligence (Farmer, 2019; Innerarity, 2015). To reach this goal, within a collaborative effort, it invites to revisit, reconsider, revise, review and more generally contribute to knowledge conceived as a common good (Hess & Ostrom, 2007). The outcome being that any human being can identify with this knowledge, resulting in engaged learning endeavours and caring for knowledge environments (Funk, 2021).

[3] https://www.merriam-webster.com/dictionary/philosophy

# 4 THEORETICAL FRAMEWORK

The values of Open Education rest on two essential features – freedom and transparency (Baker, 2017, p. 132), from which remaining values spread. We choose the theory of social learning (Lave & Wenger, 1991; Wenger, 1998) and the sociology of absences and emersions (Santos, 2016) to apprehend OE because both go back to OE values.

With regard to social learning, necessary components to turn social participation into a process of learning, knowing and creating are meaning, practice, community and identity. *Meaning* refers to experience the world as meaningful, e.g. how to design computer-supported learning environments that promote diversity and critical thinking. *Practice* refers to some grounding (Clark & Brennan, 1991) in the praxis[4] (Freire, 1994) to provide sustained mutual engagement in action, e.g. refer to the literature and practices to experience innovative ways of teaching and learning with ICT. *Community* refers to a social configuration where participation is seen as competence and/or expertise, e.g. share experiences with colleagues at conferences. *Identity* refers to changes operated by learning experiences and informs about becoming in the future, e.g. changes in the professional identity of the scholar committed to computer-supported education (Wenger, 2018). Value creation at different levels underlies any learning enterprise conducted from a social perspective (Wenger-Trayner & Wenger-Trayner, 2020).

The sociology of absences and emersions (Santos, 2016) is particularly adequate to discuss knowledge in the rising knowledge society. As a reminder, a knowledge society is a task to be accomplished. By questioning norms and knowledge production systems, it calls for genuine creativity. A knowledge society is foremost a society of ignorance that acknowledges it (Innerarity, 2015).

"Sociology of absences focuses on social experiments to explore what exists of the South that is independent from the North/South constructed dichotomy. It is about researching, with non-modern mindsets and epistemologies what exists beyond the abyssal line (Santos, 2016, p. 251 and following).

Sociology of emersions aims to symbolically increase the importance of knowledge, practices and actors to identify future trends, on which it is possible to increase the probability of hope against the probability of frustration. It acts on possibilities

[4] Praxis in the sense of deeply dependent discourse / theory and practice / action.

(potentials) and capacities (legitimate authority, power) and focuses on care, without being deterministic" (Class, Submitted).

Both movements – recognise what has been deliberately considered as non-valid scientific knowledge and offer a supportive ecosystem for it to emerge – contribute to epistemic sustainability. The first helps to restore damaged and depleted resources and the second to support them in a strengthening long-term movement. Combined with a social learning perspective that reaches out to a variety of stakeholders, e.g. involved communities, it provides a robust theoretical framework to discuss OE.

# 5 OPEN EDUCATION: A NEW MOMENTUM

Why is the context of post Covid 19 crisis a new momentum for Open Education to thrive? In Greek, the word "krisis", means "judgement" and "decision" and thus implies discernment in the critical analysis of the situation and choices that guide actions. In Chinese, the word "crisis" describes a critical moment or situation, but the threat is clearly combined with the idea of openness and opportunity (Laulusa, 2009).

In our roles of scholars committed to computer supported education, we agree that distance education and emergency distance education are two different things. While the first is a robust discipline that has been investigated for several decades (e.g. Bishop et al., 2020 and all previous editions, the first dating back 1996; Hodges et al., 2020), the second has been experienced recently worldwide with more or less success.

Peters et al. (2020) are very direct about the crisis and how it has to be interpreted for the future of education, taking the metaphor of a gateway between two worlds, qualified in this position paper of modern society on one hand and knowledge society on the other. "We can choose to walk through it, dragging the carcasses of our prejudice and hatred, our avarice, our data banks and dead ideas, our dead rivers and smoky skies behind us. Or we can walk through lightly, with little luggage, ready to imagine another world. And ready to fight for it" (Peters et al., 2020, p. 1).

The crisis has offered unheard of opportunities of learning that remind us of Freire's and Blikstein's lessons of education (NORRAG, 2021). While people from the "developed" part of the world, no matter their geographical location, could work and learn on-line, people from the "underdeveloped" part of the world fought for daily survival. In the vein of the sociology of emersions, how could the former learn from the latter's experiences?

While many reports indicate that students suffered from isolation and lack of human interaction during the peak of the crisis, these students' "experience is one of intense engagement with the existing resources and infrastructures of their environments. They are engaged in informalised, context-mitigating, and socially engaged processes of learning to survive, and to keep body, mind and soul together. They acquire contextually engaged critical literacies that are vital for their survival and adaptation. Their intellectual engagement and practices of mitigation have foregrounded intensified relational pedagogical engagement" (Peters et al., 2020, p. 28). They have engaged in a "pedagogy of care" that we can humbly acknowledge and that some scholars have already put into practice.

Funk (2021) reports the restructuring of a curriculum around new concepts in the academic landscape: indigenous knowledge authority, consent, collaboration, situated knowledge in communities of practice, caring pedagogy and cognitive compassion. She concludes, recommending several directions for universities. One is about embedding cognitive compassion for knowledge in a sustainable way amongst the different stakeholders involved to install care for knowledge authority and collaboration on knowledge (and move away from a "competition-centric mastery" approach to knowledge). Another is about developing Open Pedagogical Practices and convening many stakeholders to the design of curriculum so that each stakeholder can retrieve his or her reality and grounds collaboration and consensus to actually face the "many forms of distance" (Funk, 2021, p. 11) that have to be dealt with on a daily basis.

This is only one example but others are flourishing throughout the world (e.g. Chan et al., 2020; Godrie et al., 2020).

# 6 OPEN EDUCATION HISTORY

Open Education has been conceptualised in the Global North. It may exist in indigenous cultures under a variation of forms but we are not aware of any source that goes in that direction yet. Being in the decade of indigenous languages, which slogan reads "Nothing for us without us", interesting knowledge in this regard may emerge (UNESCO, 2020). At present, we are restricted to Western-centred writings on OE history. It is principally on the basis of three sources

that we summarise the story of openness in education from the Middle Ages to the present day, focusing on values and not on enabling technologies (Baker, 2017; Peter & Deimann, 2013; Weller, 2014).

In 1373, as the population became more literate, in Florence, people asked for public lectures on Dante. The universities of Paris, Bologna, Oxford and Cambridge thus emerged, shaped by their students and their demands for lectures. At this time, openness was driven by internationally mobile students and scholars and was based on a growing curiosity and awareness of the value of education. In addition, in the years 1450, the book was socially perceived as a way to bypass state and religious authority, which allowed the printing press to develop rapidly.

By the late 1500s, access to knowledge and study was quite different and restricted. The pope and the king changed the nature of the university to a controlled institution under their authority. A transfer of power took place in addition to collecting fees from students. Universities became increasingly tied to a permanent location and a state, gradually losing their international scholars and students.

In the 17th century, cafés were places where knowledge was shared and discussions on science, religion, economics and literature took place. In these places, ideas related to the scientific revolution spread, while universities continued to teach the old doctrines. This discrepancy gave rise to a distrust in public institutions.

The 18th century was characterised by men's increasing literacy. Among the lower social classes, mutual education was established, which gave rise to self-learning associations. It is in this social context that in 1836 the University of London opened its courses to all social classes, without distinction, to disseminate liberal education. From the end of the 19th century until the end of the Second World War, miners established "workmen's institutes" (Peter & Deimann, 2013, p. 10) in each village, with a library as central place. And "the 20th century continued to see education "open" as the belief in the people's right to access society's knowledge grew" (Peter & Deimann, 2013, p. 10).

In the late 1960s, the concept of Open Education surfaced strongly in the United States. Openness and freedom guided discussions about the role of education in society because public school was seen as oppressive and perpetuating racism, elitism and other authoritarian social norms. In the 1960s and 1970s, the classroom was a place under the authority of the teacher who had full power. An open society was called for in which all cultures would be nurtured. The mainstream approach is that learners learn in interaction with others and their environment. In addition, learners' interests should dictate their own education and they should be trusted and encouraged to think by themselves. By the mid-1970s, the open movement had lost momentum for a number of reasons – e.g. confusion about the approach, unaligned research results, scholars promising results beyond reality.

In the 1980s, technology starts to override values. It is in those years that an acceleration of change has been observed, driven in particular by technological developments. In various reports of leading organisations, e.g. World Bank, OECD, WEF, changes are systematically presented primarily as the product of digital technology and capitalist economy. This agenda is today reinterpreted as the one of a small group installing "digital feudalism" (Morozov, 2016 quoted by Deimann, 2020).

Throughout these 700 years, we can see periods of freedom and transparency in the dissemination of knowledge animated by empowered learners alternating with periods of public and/or ecclesiastic control on knowledge. Technology, e.g. print, railway, computers, internet, played a role in both movements – freedom and control.

In education, the media debate (Clark, 1994; Kozma, 1994) remains significant with regard to technology. This debate was initiated by the famous "the medium is the message" buzz phrase by McLuhan (1964). In his visionary work with regard to technology and humans, McLuhan conceives of each medium as an extension of the human being, thereby introducing a new scale into human affairs. He contrasts the divisive activity of industrial mechanics, i.e. Fordism with human activity which is essentially integrative. This debate remained significant for the crystallised positions of Clark and Kozma, one arguing that technology is a mere conduit and that pedagogy must take precedence, and the other insisting on the pedagogical affordance of technology and therefore the need to choose it carefully.

## 7 HOW TO CONTRIBUTE TO EPISTEMIC SUSTAINABILITY?

Refocusing on values and looking for enabling technologies to empower humans and their ecosystems in sustainable ways seems timely. To make this discussion concrete, we will give two examples of changes in the praxis of scholars that can

contribute to epistemic sustainability. The first refers to AI and the second to the lifecycle of a course.

As scholars, when programming algorithms on which AI relies, make sure to acknowledge the diversity of knowledge systems should become best practice. This would help to avoid excesses as reported in the Coded Bias film (Kantayya, 2020) and somehow echoes the oppressive days of the 1960s in US public schools. Acknowledging, translating and localising the diversity of knowledge systems in algorithms can be reached through collaborative and consensus processes such as those Funk (2021) explicates. In addition, generalising open-source computing and open-source praxis will enhance transparency, traceability, contribution, trust and freedom. Overall, AI should be considered an ally, advising and supporting human beings 24/7 (Murgatroyd, 2021) in their quest for openness.

Have you ever reflected on the lifecycle of a course you teach and the academic culture it vehicles? What if the beginning of a course would come from the call of students / communities / citizens to learn more about a given topic (as in the early Middle Ages)? Elaborating on this idea, different parties involved would co-create the course, define its learning outcomes and how to reach them. During the course, through renewable assignments (Wiley, 2016), they would work on tangible artefacts to learn through social approaches[5] (Wenger, 2018). They could value the learning experience and contribute to the re-evaluation of knowledge in the perspective of the sociology of absences and emersions (Santos, 2016). Created knowledge and artefacts would be available for future elaboration, in a sustainable fashion (Schneider et al., 2019), and by a wide range of stakeholders. In fact, the slogan of the decade of indigenous languages, "Nothing for us without us" is inspiring for current educational contexts and nurturing societal aspirations.

# 8 CONCLUSION

The crisis has shown that the modern society can no longer exist. It lacks sustainability at all levels. For instance, dichotomising nature and culture does not make sense in a knowledge society where each artefact is in its essence a continuity of nature, culture and technology. It is widely known that any digital device has some extract of gem stone in it. It is also widely known that our digital consumption is being pointed out for drastic revision because of its impact on the planet (e.g. Ghernaouti, 2021).

The etymology of the concept of *university* - "from the Latin *universitas* ("body, company, corporation, college, association") as an abbreviation of the medieval *universitas magistrorum et scolarum* (association/body of teachers and students)[6]" is full of insights. It represents a first step to reconsider our praxis as scholars in an associative perspective to contribute to knowledge as a common good.

Guided by UNESCO's (2021) recommendations for Open Science and overall sustainability approaches, values of Open Education can contribute to change our relationship to knowledge. Rehabilitating, revisiting, questioning, welcoming any type of knowledge, with care, to understand the challenges of our time appears as a promising move forward. In addition, connecting OE with other open movements, i.e. Open Science, Open Galleries, Libraries, Archives, and Museums, Open Institutions, etc. (Stacey, 2018), all based on essential values of freedom, transparency and justice, can try to repair what the concept of development has damaged.

As scholars, it is up to each of us to leave our comfort zone, seize this opportunity for change, take risk and engage in new praxis. This will not always lead to successful outcomes but can be turned into productive failure (Kapur, 2015) from which we can learn. Supporting open praxis initiatives with design based research approaches (McKenney & Reeves, 2019) for example can contribute to the building of a sustainable, collective human intelligence.

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[5] Here are some examples from personal teaching experiences: https://doi.org/10.5281/zenodo.5810448 ; https://edutechwiki.unige.ch/fr/Catégories_et_codes_dans_l'analyse_qualitative

[6] https://fr.wiktionary.org/wiki/universit%C3%A9

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