Elements of Open Education: An Invitation to Future Research

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Abstract

This paper explores elements of open education within the context of higher education. After an introduction to the origins of open education and its theoretical foundations, the topics of open and distance learning, international education issues in open education, open educational practices and scholarship, open educational resources, MOOCs, prior learning accreditation and recognition, and learner characteristics are considered, following the framework of macro, meso, and micro levels of research in open and distance learning. Implications for future research at the macro, meso, and micro levels are then provided.

Keywords: open education, open learning, distance education, flexible learning, online learning, open educational resources, internationalization

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Research on topics of openness has been carried out for more than 30 years (Saba, 2000; Zawacki-Richter & Anderson, 2014; Zawacki-Richter & Naidu, 2016). However, openness now constitutes one area of great excitement in education, taking its place alongside big data, learning analytics, artificial intelligence, and the continuing expansion of technological affordances in learning. Because *open* is octopus-like, with so many tentacles—albeit all connected to one concept—there have been many researchers connected with its development. Wiley coined the term *open content* in 1998; the *International Review of Open and Distributed Learning* (*IRRODL*) was first published in 2000; Downes and Siemens offered the first massive open online course (MOOC) in 2008. Since those seminal innovations, open has begun to permeate every aspect of education. Its progress, however, has not been linear; rather, it has been multi-faceted and complex.

Amid the propagation of myriad MOOCs, OER, journal publications, conferences, and related blog posts, the University of Oldenburg in Germany put forward a plan for the creation of the Centre for Open Education Research (COER). A group of researchers representing global reach gathered in October 2018 to launch COER at the Inaugural COER Research Symposium. As of October 2018, COER had 26 founding members from the fields of open and distance learning, international education research, and higher education research, including 17 professors, 4 post-doctoral researchers and 5 postgraduate doctoral students from nine countries: Australia, Canada, China, Germany, Japan, South Africa, Spain, Turkey, and the USA.

To establish common ground, COER members attending the first meeting in Oldenburg discussed their understanding of the concept of open education and the elements it might entail. Based on this first exploration, consensus was reached among the COER group during a second meeting in September 2019, hosted by Maltepe University in Istanbul, that open education in the context of higher education refers to a set of educational practices, in which the notion of access is complex and has broadened over time, from the initial understanding of it relating only to university entrance. Such efforts are supported by a variety of media, learning materials, assessments, tools, and systems to provide flexible learning opportunities.

Considering the dynamic and constantly changing nature of open education, the aim of this paper is to describe and explore the elements of open education in the context of higher education in order to guide research in the various aspects of open education theory and practice.

 Following the framework of macro, meso, and micro levels of research in open and distance learning (Zawacki-Richter, 2009; Zawacki-Richter & Anderson, 2014), the topics of open education and open practices are first described from a theoretical and global perspective (origins of open education, the growth of open and distance learning, and its theoretical foundations), followed by the elements of openness on the organizational, institutional, and individual levels.

This paper is a conceptual reflection written by scholars and practitioners in the field of open and distance learning. The purpose of this article is not to conduct a comprehensive (or even systematic) literature review, but, in contrast, to evaluate the current state of the art by examining different elements of open education. The study further aims to construct a common ground upon which future research can be built and intends to inspire researchers to explore the elements of open education from theoretical and practical perspectives.

Deconstructing Open Education

To fully consider open education, its origins, history, and theory must be understood, along with its various applications, stakeholders, and its place in the field of open, flexible, and distance learning.

Origins of Open Education

The core of open education is its openness. The term builds bonds with critical pedagogy, but is also a colour with many shades, a notion with pluralistic and inclusive connotations, and a stance that defends widening participation. Throughout history, openness has been given many meanings: access, flexibility, equity, collaboration, agency, democratization, social justice, transparency, and removing barriers. However, more importantly, it is a living idea that inspires open education. Because openness is a living thing, its definition continues to evolve and become loaded with many more meanings.

When used as a buzzword, open education is often narrowly perceived to mean the recent phenomena of MOOCs and OER. In fact, there is a much longer scholarly and public discourse surrounding the opening of (higher) education. In the 17th century, John Amos Comenius proposed access to education as one of its core goals (Keatinge, 1907). His statement "teaching all things to all men" can either be interpreted as an early humanistic idea of universal education or as a challenge to make different forms of education available to everybody.

The origins of scholarly discussion of open education are seen by some to be related to the openness of teaching methods and autonomy of children's learning in schools (Hill, 1975), summarized thus:

> When one investigates this model, one finds that the referents for "open" are variously, spatial, temporal and procedural. That is, the classroom may be termed "open" because children move in, around and out of the classroom at will, or because there is little use of bells to prescribe lesson segments, or because age and sex segregation have been abolished, or because traditional school subjects have given way to integrated learning activities, or any combination of these. (p. 4)

However, Barth (1969) criticized the assumptions and beliefs about the early open education movement, stating that most "accounts of open education have been anecdotal and descriptive" (p. 29). Similarly, in a meta-analysis, Horwitz (1979) stated:

> Another reason is that many variables considered important by advocates of open education have not yet been adequately evaluated because of problems in measurement. Perhaps the most important reason, though, lies in the lingering ambiguity surrounding the definition of open classroom—particularly the confusion between "open space" and "open education." (p. 72)

Horwitz's (1979) discussion notes the difference in meaning between open education, open space, and open classroom. Open classrooms were a 1960s innovation that attempted simply to remove walls and create open physical spaces. Open education and open practice are larger, conceptual notions.

Despite the enormous growth of educational systems after World War II, a 1967 UNESCO conference warned the international community of a "worldwide crisis in education" (Coombs, 1968, p. 4), as educational systems had adapted too slowly to respond to the growing demand for higher education at

a time of economic and scientific prosperity. The report concluded that true innovation was needed to meet the needs of a much larger and diversified group of learners. Such considerations led to the establishment globally of open and distance learning systems which sustained many innovative ideas at the macro level. Establishment of open education with strong pillars at the macro level (e.g., open universities) resulted in its wide acceptance in higher education and further provided a base to explore more meso and micro levels.

Growth of Open and Distance Learning

Open and distance learning (ODL) can be considered an umbrella term that covers a wide range of open resources and practices. The Commonwealth of Learning (2015) defines ODL as "a system of teaching and learning characterized by separation of teacher and learner in time and/or place; [that] uses multiple media for delivery of instruction; [and] involves two-way communication and occasional face-to-face meeting for tutorials and learner-learner interaction" (p. 2).

The terms *open learning, distance learning* and *distance education* are often used interchangeably, and it seems there is a consensus on combining both *open* and *distance* terms in the title of the field, although they are not synonymous. Many scholars (Rowntree, 1992; Rumble, 1989) prefer to use *open and distance learning* because while the terms are not the same, they represent dynamic connections. When the terms are used distinctly, open learning typically concerns flexibility, access, and the choice of what, when, at what pace, where, and how people learn. Open learning can be offered at a distance, face-to-face (f2f), or in blended format. Distance, or distributed learning, on the other hand, refers to pedagogical aspects and a more structured and formal educational process, characterized by the separation of teachers from learners due to distance in time and/or space (Moore, 1993).

Although the roots of distance education can be traced back to the early 18th century in the form of correspondence study (Keegan, 1996), the establishment of open universities has been noted as one of the major milestones in the historical development in the field (Peter & Deimann, 2013). Following the establishment of the Open University of the UK, many open universities were launched during the 1970s and 1980s. Whilst each has its own rationale for offering ODL, these rationales can be grouped under two major concepts: convenience and necessity. In those countries where there are sufficient numbers of traditional face-to-face education providers, ODL is a convenient way of extending educational opportunities to learners unable to attend f2f learning opportunities due to personal or professional responsibilities, financial constraints, health-related issues, or disabilities. On the other hand, in those countries where there are not enough seats or alternative entry points for everyone to access higher education, ODL seems a necessity to meet demand. Besides, distance education providers can be referred to as single- or dual-mode institutions. Indira Gandhi National Open University (IGNOU), the Open University UK (OUUK), and the Open University of China (OUC) are examples of single-mode ODL providers offering conventional distance education. Dual-mode institutions are those that offer both f2f on-campus and distance education, such as Anadolu University in Turkey, or Penn State University in the USA.

It is relevant to point to several important trends that appear to be shaping the research and practice of ODL. Bates (2018) noted a rapid growth in ODL in higher education with an accompanying dramatic decrease in open and distance teaching universities' enrollments in Canada and the UK. Advances in artificial intelligence and learner analytics now allow institutions to track and learn from students' platform interactions and automatically provide personalized and adaptive learning activities, coaching, guidance, and assessment in ODL environments (Loeckx, 2016; Zawacki-Richter, Marin, Bond, &

Gouverneur, 2019). Furthermore, recent changes in the labour market are influencing higher education, including ODL. Some employers are beginning to look for personnel who have a particular skill set and do not seem to care how they acquired these skills. Such a view partly explains the emergence of the recognition of prior learning as well as micro credentials and nano degrees.

Advances in technology and expanding ODL opportunities call for new pedagogical approaches. Many scholars claim that didactic traditional teaching strategies do not capture the potential strengths of online education (Conrad & Openo, 2018). Most open universities use a similar strategy, which consists of videos and readings as conveyors of information, limited peer interaction, static quizzes and exams, and limited teacher-student interaction. ODL pedagogies should encourage interaction between participants and greater care for learners and their needs and also begin to align with changing labour markets for successful outcomes. In fact, advances in information and communication technologies (ICT) have created a greater impact on ODL at the macro, meso, and micro levels. For instance, at the macro level, ODL practices have reached a global audience, which has triggered new policies and strategies at the meso or institutional level. The most evident example of institutional response can be considered open online learning, which is becoming the new normal. At the macro level, initiatives and efforts at a global scale to provide social justice, lessen information gaps, and remove barriers stemming from the digital divide can be considered significant steps.

Theoretical Foundations of Open and Distance Learning

From a theoretical perspective, "transformation into mainstreaming requires change, adaptation, and evolution" and, accordingly, researchers and practitioners in the field of ODL adopted generic educational theories and then generated their own theories (Bozkurt, 2019a, p. 502). Rather than interpreting the change from a singular point of view, they employed different theoretical approaches to enrich their understanding, guided by openness philosophy (Bozkurt, 2019a, 2019b). The following foundational theories have greatly contributed to the understanding and development of open education and distance education (Jung, 2019). However, it should be noted that while the theories explained below have made great contributions to the field of ODL, the current perception of ODL is not limited only to these theories.

Wedemeyer (1971) conceptualized ODL as independent study, in which students are not only independent from time and space but also responsible for managing and controlling their own learning processes. In his view, openness is related to greater personalization where learners choose their own learning strategies. Holmberg's (1983) theory of guided didactic conversation suggests that independent learning in a learner-centred, open environment is promoted through constant interactions between student and teacher via pre-produced course materials.

Peters' (1983) theory of industrialized teaching and learning identified the separation of the production of learning materials from instruction, the division of labour, and the use of standardized procedures and mass production processes as essential aspects of ODL. It implies that the application of industrial practices results in higher quality education at lower costs compared with campus-based education, thus providing increased opportunities for admissions and access to education, two key aspects of openness in ODL.

More recently, new theories of open education have emerged from innovative networked technology-based learning environments. The community of inquiry (CoI) model proposed by Garrison, Anderson, and Archer (2000) focuses on the two-way online interaction between teacher and student and argues

that a meaningful online learning experience is created through a combination of cognitive, social, and teaching presence. Openness is shown through open communication, autonomous exchange, and empathetic dialogue. In this way, openness contributes to the ability of students and teachers to establish presence and build an online community that nurtures learning.

Connectivism adopts a non-linear approach to learning, where communities of knowledge are formed through connections forged in the networked learning environment (Siemens, 2005). Connectivism exemplifies openness through its use of OER and the autonomy afforded to the learner. *Heutagogy*, or the study of self-determined learning (Hase & Kenyon, 2000) is built upon principles of self-efficacy and capability, meta-cognition and reflection, and non-linear learning. It is often viewed as part of a continuum with pedagogy and andragogy, emphasizing a shift from teacher-centred to learner-determined environments (Blaschke, 2012). In *rhizomatic learning*, education is an organic process, where "the community is the curriculum," and the learner navigates an integrated, yet diversely connected learning environment by making links, negotiating the learning process, and adapting to change (Cormier, 2008, p. 16). In connectivism, heutagogy, and rhizomatic learning, openness arises from the learner-centred and non-linear design of learning spaces and curricula and the promotion of learner agency and autonomy.

The extended spatial model of e-education proposed by Jung and Latchem (2011) focuses on the expanded nature of teaching and learning spaces in recent ODL. The model highlights the interconnectedness of these spaces through the continuous loop of dialogue and reflection in both processes. By adding the notion of extended time to the model, the open yet interconnected relationship between teaching and learning online is more clearly captured. The learning ecologies approach (Sangrà, Raffaghelli, & Guitert, 2019) adds leadership and decision making to the previous learner-centred approaches. Individuals become aware of their personal learning ecologies as a set of learning opportunities that they can engage with, and they take ownership of this.

In all, the progress in the theoretical foundations of ODL indicates that there is both a tendency to give learners more agency, autonomy, and responsibility, as well as an acceptance of the nonlinear nature of learning, with specific focus on online networked learning. When considering these developments, it is necessary to acknowledge that, at the micro level, the roles of teachers and learners have changed significantly and that, at the meso level, the ways to access knowledge challenge institutional roles. Though formal learning is still important, the rise of nonformal and informal learning signals the need to redesign curricula to meet the needs of learners. Besides, diversity in learners' backgrounds (e.g., cultural, socio-economic) that comes with internationalization and globalization requires institutions that operate internationally to redesign their curricula.

The theories explained above help ODL researchers ask important questions and collect and organize data in meaningful ways in order to provide useful solutions to open education challenges. However, developments in this evolving field demand the continual revision and refinement of existing theories to more clearly and meaningfully understand, explain, and predict changing contexts of open education in the future.

Open Education Practice and Scholarship

The term openness is simultaneously comprehensive and contested, incorporating an adaptive, flexible, and evolving concept with multiple dimensions and layers (Bozkurt, Koseoglu, & Singh, 2019; Cronin, 2017). In this regard, some researchers argue that to truly realize the benefits of openness, there is a

need to focus on open educational practices (OEP) (Cronin, 2017; Naidu, 2016). OEP can be defined as "a broad range of practices that are informed by open education initiatives and movements and that embody the values and visions of openness" (Koseoglu & Bozkurt, 2018, p. 455). OEP, in this regard, can be considered as the catalyst for enacting openness into routine teaching and learning processes (Cronin, 2017).

In a similar manner, researchers have explored emerging forms of scholarship that consider openness, emphasizing not just the practice of open, but also the use of related concepts such as *networked* and *social technologies* (Veletsianos & Kimmons, 2012a; Weller, 2014). From this perspective, open scholarship (OS) is defined as "a set of phenomena and practices surrounding scholars' uses of digital and networked technologies underpinned by certain grounding assumptions regarding openness and democratization of knowledge creation and dissemination" (Veletsianos & Kimmons, 2012b, p. 168).

Though OEP and OS are grounded in the philosophy of openness, both terms have emerged partly due to the opportunities provided in the digital knowledge age, and partly due to desires to democratize knowledge and education. In line with these thoughts, Veletsianos and Kimmons (2012b) argue that "openness and sharing in scholarship are seen as fundamentally ethical behaviours that stand as moral requirements for any who value ideals of democracy, equality, human rights, and [social] justice" (p. 172). In short, OEP and OS encourage us to rethink our roles as educators and remind us that teaching, learning, and scholarly practices are about sharing and cooperation, and should resist commodified systems.

While OEP and OS offer promising and exciting opportunities, a variety of issues hinder their full potential and wide adoption. For instance, OEP face a lack of clarity, lip-service adoption, institutional resistance, and cultural norms that contrast with values of openness and quality concerns. Furthermore, Global North advocacy and narratives surrounding openness potentially marginalize concerns from the Global South. These limitations restrain the reach and impact of OEP. OS challenges include digital privacy, technocentrism, professional expectations, financial concerns (e.g., funds needed to support open access initiatives), institutional or scholarly pressures, and ethical issues. In order to be able to mitigate the impacts of these variables, it is useful to approach the development of OEP strategies at three broad levels: macro, as a national or international policy or strategy; meso, as part of an institutional, organizational, or community policy or vision; and, micro, as a personal or professional practice. From a broader view, OEP at macro and meso levels may increase awareness on openness which potentially leads to concrete results in the field. OEP and OS at the micro level, that is, personally and professionally, invite us to reconsider our roles and take on more responsibility as individuals to put the notion of openness in education into practice.

OER, MOOCs, and PLAR

OER has flourished globally over the last two decades, enjoying funding from prestigious organizations such as the Bill and Melinda Gates Foundation. In keeping with OER growth, open access (OA) has flourished as well, advocating for openness in the distribution of research to reach broader audiences.

Prior to this growth, however, open access was used in a more restricted sense to refer to the ability of learners to enter university study without the requisite high school completion or other formal credentials. In this sense, open access has been with us since the advent of open learning institutions, most notably the UK Open University (UKOU), founded in 1969. In Canada, Athabasca University adopted the OU model, as did many other institutions around the world.

The advent of MOOCs marked a further development in the world of openness. The term MOOC is well established, and its aim to challenge learners to think collaboratively through connection while learning is globally accepted.

In the context of postsecondary and tertiary education, we now understand that there are many degrees and forms of openness. Open can refer to admission requirements, registration periods, flexibility in choices, curricula, professional development, curriculum resources, assessment practices, the scholarship of teaching and learning, and research. A less obvious form of openness is Prior Learning Assessment and Recognition (PLAR), a practice that refers to the "evaluation and acknowledgment of learning that occurs outside of formal credit awarding training and educational programs" (Spencer, 2005, p. 508). PLAR is a branch of the more comprehensive term Recognition of Prior Learning (RPL): "Prior learning assessment and recognition is itself an arm of the larger umbrella term, recognizing prior learning (RPL). Under the aegis of the latter is contained, in addition to PLAR, the related (but different) processes of credit transfer" (Conrad, 2006, p. 2). Both can open the access doors and lessen barriers to entering formal higher education. PLAR/RPL, in fact, has been in operation in many global settings for years under many other acronyms, offering hope to learners whose past education has been truncated or unsuccessful for a variety of reasons. PLAR/RPL can be considered, therefore, a pioneer of openness. Spencer (2005) noted that PLAR/RPL had spread to universities worldwide: "PLAR has become a worldwide 'movement' encompassing Australia and New Zealand, Southern Africa, Europe and North America" (p. 508).

With a focus on OER and MOOCs, efforts at the institutional meso level are increasing (e.g., repositories for OER, an increasing number of MOOCs offered by universities); however, there is a need to further support these efforts to remove a greater number of barriers from inside and outside open and distance learning. The biggest challenge, perhaps, is the lip-service use of the term OER. Researchers may feel a responsibility to explain and promote the real idea behind OER and MOOCs.

Learners in Open Education

Research in the field of open and distance education shows that around 50% of studies deal with learner-related topics such as interaction and communication in learning communities, learner characteristics, and instructional design (Zawacki-Richter & Anderson, 2014). Instructional design research typically focuses on learners, their needs, potential, and patterns of usage.

Recent increases in expanded educational opportunities, globalization, and advanced technologies underpinning ODL choices have changed learner demographics. As mentioned above, real change started during the 1960s and 70s, as interest in distance learning awakened and open universities began to flourish (Peters, 2014); universities, in response, began to open their doors to broader and more diverse types of learners.

After a rapid and worldwide growth of higher education systems throughout the last 50 years, higher education institutions are facing increasing challenges, not only in accommodating an increasingly

heterogeneous student body, but also in terms of "funding, organization and governance, and of quite different conditions for teaching new kinds of students with diverse aspirations and academic talents" (Trow, 2000, p. 1).

Distance education pioneer Wedemeyer (1981) identified the importance of open and distance learning for widening access for different groups of non-traditional learners: "The new urgency respecting learning [...] signals the need for educational approaches that recognize and acknowledge the significance of non-traditional learning throughout life" (p. 206). The challenges to the education system increase when not only larger target groups are addressed for a course of study, but also when the time span in which these groups start studying is extended. Learners need flexible structures so they can manage their studies, family duties, and work in all stages of their lives.

Researchers' findings address a controversial discussion as regards defining non-traditional students (Wolter, Dahm, Kamm, & Kerst, 2015). Previous studies made the distinction between traditional and non-traditional students based on various criteria (e.g., age, form of study, university entrance qualification), depending on context (Stöter, Bullen, Zawacki-Richter & von Prümmer, 2014). Attempts at international practical definitions (e.g., Schuetze & Slowey, 2012) can serve as a starting point for further investigation into the needs of heterogenic student bodies. Finally, and from an international point of view, the respective country-specific conditions and cultures are important in defining non-traditional students.

Given greater technological possibilities and probable digital disruptions of traditional learning and working roles, future learners' needs will continue to evolve. Open universities, with their policies of flexibility, reduced barriers to learning, and access will need to explore further options to offer more choice and ease of access. This implies placing greater emphasis on the micro or individual level, and further justifies this emphasis considering that learners are at the center of open learning ecologies.

Internationalization and Globalization

Internationalization has been inherent in higher education from its inception (Enders, 2004). However, its manifestations have increased over the 20th century, especially in the form of academic mobility (Altbach & de Wit, 2015). A major driver of this development has been globalization (Knight, 1999). Over the past 25 years, internationalization has evolved "from a marginal and minor component to a global, strategic, and mainstream factor in higher education" (Knight & de Wit, 2018, p. 2), encompassing not only student and staff mobility but also program and provider mobility and internationalization at home. Knight (2003) defines internationalization as "the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education" (p. 2), thus potentially encompassing higher education as a whole. Internationalization is today widely acknowledged as providing various academic, economic, political, and socio-cultural returns to individuals, higher education organizations, and countries (Kehm & Teichler, 2007).

Open higher education, on the other hand, has always been conceived as enhancing access to higher education and increasing knowledge dissemination across society. In the past, a connection to internationalization has not usually been made in institutional strategies (Zawacki-Richter & Bedenlier, 2015). While both internationalization and open education constitute important developments within higher education, they have not been integrated into many institutions and more often simply co-exist. Yet scholars have started to acknowledge connections between the two. De Wit (2016), for instance, regarded concepts of distance education and online learning as closely connected with

internationalization. Bruhn (2017), extending Knight's (2003) definition, developed the concept of *virtual internationalization*, highlighting the potential that advancements in technology can have for internationalization: online distance education, MOOCs, and OER are borderless *a priori*, opening up "new ways to be a globally engaged university" (Kinser, 2014, p. 3). This applies to both transnational and "at-home" activities (Bruhn, 2017). A growing body of research highlights the transformational impact of technology on the internationalization of higher education.

Virtual mobility in particular is regarded as opening up mobility to students who would not otherwise have access to it. Scholars have acknowledged the role of virtual internationalization in reaching distant geographies and disadvantaged groups who have few opportunities for international movement (Könings et al., 2016). Open, in this regard, also relates to a geographical and temporal openness, enabling students to access study programs in the forms of transnational education and online distance learning. This is illustrated by the fact that the export of education is among the top service goods of Australia (Latchem, 2018) and that, worldwide, students who cannot be physically mobile turn to international study opportunities offered online. A prerequisite for students to enroll in such open offerings is, of course, that they meet credential criteria, are linguistically and culturally prepared, and have the required financial means as open does not necessarily mean free (of costs).

Given this, enhancing internationalization with information and communication technology does not necessarily lead to more open education. It does, however, provide new opportunities for those already enrolled, and thus, can tentatively be said to open education within higher education. At the macro level, globalization, an increasing number of international student profiles in higher education, international collaborations and partnerships among universities, virtual exchange, and virtual internationalization imply the need to develop new policies and strategies.

Conclusion

The spirit of open education is well established and here to stay. We have shown that the concept of open education concerns more than just issues related to access and widening participation in higher education. Archer and Prinsloo (2017) remind us that providing access also raises a number of ethical concerns. Reaching large numbers of student registration is not enough—they emphasize that widening access comes with fiduciary duties and the responsibility of taking care of and providing support for students, especially for non-traditional students without an academic background. The best intentions of opening up educational opportunities might have harmful effects: "Actually, an ethics of care proposes that providing access without providing reasonable care to ensure success is actually justice denied" (p. 274).

By using the macro, meso, and micro framework outlined by Zawacki-Richter and Anderson (2014), we can provide several topics that researchers could explore, which might result in interesting and useful advancements in open education.

At the macro level, the ongoing monitoring of the impact of national open education policies will provide insight into their appropriateness, as well as into the constraints found in fostering open strategies everywhere. Questions, such as whether ODL is evolving similarly in different countries, will also assist in clearly defining the needs that more localized policies should address, especially from a Global South perspective, where openness could have transformative effects on access, flexibility, and quality of

education. On the other hand, the impact of globalization and internationalization, as stated earlier in this text, should also be monitored, to explore how their changes are positively or negatively influencing the adoption of open education in higher education. Finally, accepting that learning is increasingly being achieved through non-formal or informal means, quantitative and qualitative research exploring how to measure and acknowledge these learning achievements is strongly needed.

At the meso level, related to institutional and organizational policy and educational management, the uses of technology in providing new opportunities for learning need to be analysed. Questions such as how machine learning, artificial intelligence, or learning analytics are being applied to ODL must be answered through rigorous research. Do they provide further opportunities? Do they really help to personalize learning? Or are they just standardizing it? Also, new ODL pedagogies have to be explored, including how the use of some forms of digital media and learning materials are supporting the creation of new and more flexible learning opportunities and learning in ecologies that are increasingly networked. The concept of learning ecologies provides us with an analytical framework both to study how institutions can play a role in enriching learners' experiences, and to determine what the changing role of teachers has to be within such a context.

Finally, at the micro level, ongoing study of the increasing number of non-traditional learners needs to continue, focusing on the needs of this very heterogeneous student profile, and relating needs to varying geographic contexts, conditions, and cultures. For example, do the students included in this profile behave differently within open education opportunities for learning? Furthermore, as a keyword for open education, can independence from time and space be balanced with the need for collaboration and interaction in formal settings?

The elements and research areas of open education discussed in this paper are intended as an impetus for further discussion, exploration, and more importantly, as a call to action for local and global parties to exploit the benefits of openness in education. Research teams are encouraged to use these ideas as a starting point, and to build upon them as we approach a new decade that will see further evolution and improvement in the field of open education. As a final remark, we argue that the change starts within, and, therefore, starts with us. Openness is our common ground; it is a core and universal value, and thus, it is time to re-explore the benefits of openness in education to respond to emerging needs, advance the field, and envision a better world.

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