Veletsianos, G., Childs, E., Cox, R., Cordua-von Specht , I., Grundy, S., Hughes, J., Karleen, D., & Wilson, A. (2022). Person in environment: Ecological aspects of online and distance learning. *Distance Education, 43*(2), 318-324.

Person in environment: Focusing on the ecological aspects of online and distance learning

Abstract

Online and distance learning is a practice situated in environments—places, spaces, and times, with particular people, in particular contexts, with particular technologies, within particular institutions. In other words, the practice of online and distance learning is not wholly individual: it is situated within broader environments. In this reflective article, we argue that to understand learning in online contexts, it is important for researchers to understand the broader environments in which learners are located. We illustrate this argument by presenting a narrative of a fictitious learner pursuing a degree in decentralized finance.

Keywords: systemic issues; online learning; ecological framework; contexts; speculative fiction

Introduction

What comes to mind when you hear the terms *distance education* or *online education*?

Do you think about the pedagogical strategies and learning materials that instructors use in online courses? The technologies that learners use to access online courses? The quality assurance processes used by an institution or a government body? The ways that admissions policies or instructional activities can be modified to address concerns surrounding equity and access? The human and technological support systems employed by the institution to support faculty and students? The global nature of online education? Perhaps the ways that distance education may address efforts towards decolonization or the ways it may reinforce privilege?

The field of online and distance education is rich and complex. Navigating the breadth and depth of its scholarship can be daunting. Some researchers have therefore developed ways to enable us to think about and traverse the existing literature in productive ways. For instance, Zawacki-Richter and Anderson (2014) and Tamin (2020) noted how systems thinking can be applied to online and distance education by viewing and investigating the field through micro, meso, and macro levels. In this reflective article, we urge researchers and practitioners to consider the ways in which our scholarship and practice may be improved by adopting an ecological perspective and attending more closely to the interactions between micro, meso, and macro levels. Bronfenbrenner (1979) argued that such an approach "requires examination of multiperson systems of interaction …and must take into account aspects of the environment beyond the immediate situation containing the subject" (p. 514). Ecological models therefore provide ways to think of people in the context of their broader environments and systems, highlighting how experiences and behaviors are not exclusively localized to the individual (see Figure 1).

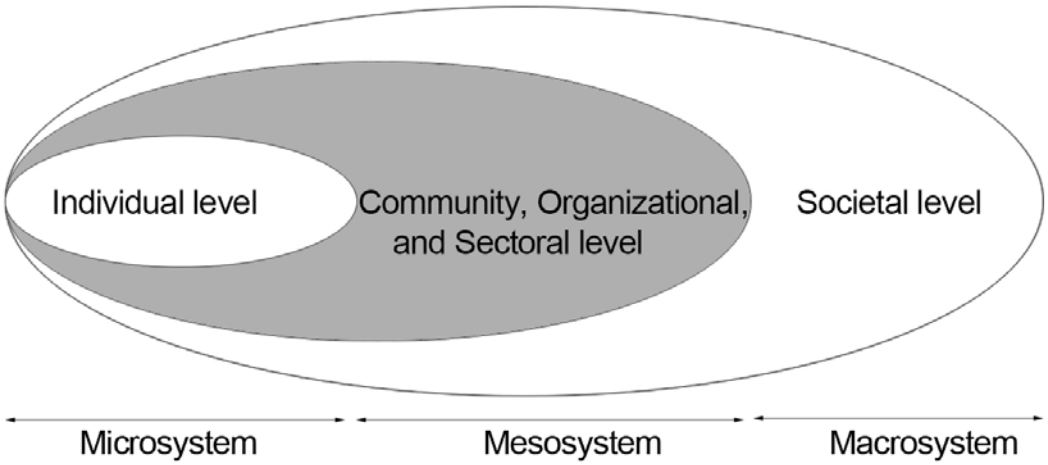

Figure 1. The ecological model (adapted from Cukier et al., 2014, p. 264).

Attending more closely to the interactions between levels means attempting to make sense of how each level impacts, reflects, shapes, and is shaped by other levels. For example, let's assume that an investigation of the times during which online learners study identified that a majority of students study at night. An ecological framework may be valuable in understanding why online learners study at night, as it might reveal that beyond individual preferences (microsystem), forces that impact study times may also include work schedules and relationships with family (mesosystem), and in some instances gendered stereotypes and expectations around family responsibilities (macrosystem). By expanding our lens relating to the forces which impact upon individual students, we are also able to expand the scope of possibility in identifying antecedents and solutions to problems.

To consider individual behaviors in the context of broader systems is to contemplate a negotiated relationship between individual and systemic forces, to consider that individual actions impact systems, that systems impact individual actions, and that our online and distance learning activities are situated within a "systemic backdrop of existing relations and tensions" (cf. Perrotta & Evans, 2013, p. 267). Ecological frameworks have been employed in research endeavors related to our field in the past. For instance:

- Zhao and Frank (2003) used an ecological metaphor to explore technology integration in schools, highlighting, for example, how teachers influence how a technology is used, but technology impacts the teacher as well.
- Veletsianos et al. (2019) and Carpenter et al. (2021) explored how scholar and teacher participation in online social networks changes over time, noting that participation is influenced by factors beyond individual actions (e.g., changes in jobs, technology).
- Houlden et al. (2021) identified the different ways that academics cope with online harassment, and how they are and are not supported at different levels (e.g., at the individual level by receiving assistance from friends, at the meso level by receiving support by their institutions).

It is urgent and significant to consider the myriad, ongoing, and pressing forces that are impacting and shaping higher education. Challenges and issues such as digital

transformation, the COVID-19 crisis, rising wealth inequality, financial pressures, climate catastrophe, new pedagogical models, and global experiences with remote learning impact both the system of higher education and our individual behaviors and experiences. Importantly, social, cultural, economic, and environmental forces have rippling effects into numerous aspects of distance and online learning. They shape and impact the topics that we teach, pedagogies that we are able to develop, ways that students are recruited, and the teaching and learning models that we develop to foster learning in an ever-changing world. For instance, the degree to which an individual faculty member is or is not able to transition to remote learning during the most recent COVID-19 wave is situated not only within that individual's skillset and abilities but it is also situated within the policies of their department and institution, politics of the state, as well as their own power and positionality. The degree to which an institution of higher education develops climate change adaptation plans that consider online learning as a predominant strategy, is not solely situated within the abilities and desires of leadership, staff, faculty, and students but is also shaped by politics, the needs and desires of the broader community surrounding the institution, perceived risk, geographic location, institutional reputation, and other socioeconomic and sociocultural factors. In short, these challenges impact individuals and systems.

To illustrate further, below we present a fictional story of a learner to prompt reflection into how various parts of an online education ecosystem interact and intersect. We are not offering this story as an exemplar, nor are we presenting it to advocate for particular technologies or practices that ought to be adopted or rejected. Rather, we are offering it as a way to make more visible some of the ways in which teaching and learning are situated within the broader systems which we find ourselves in 2022.

The story of Magda

Magda has recently become interested in decentralized finance. Like many others in 2021, she first came across cryptocurrencies in the local newspaper. She explored the topic a little by reading a book about the history of Bitcoin and enrolling in $59-course by a self-proclaimed crypto millionaire. Both the book and the course left her yearning for more. Maple Syrup University's (MSU) online outreach reinforced some of the critiques she encountered about the technologies associated with cryptocurrencies and convinced her that there is more to decentralized finance and blockchain technologies than trading and profit-making. She wants to learn how this trend relates to the future of banking, how and why governments respond to it, how digital currencies relate to climate change, and how the technologies underlying it relate to notions of freedom of privacy. More broadly, she wants to gain a greater understanding of the politics and social ramifications of these technologies.

Magda is a paid subscriber to MSU's "Big Ideas" discussion series, where she also encountered the topic of decentralized finance. She turns to the university for guidance, and through an online scheduling app, she identifies a convenient time to meet with a program adviser. She completes an online onboarding evaluation which generates actionable data for the adviser to review prior to the meeting. During the meeting, Magda and her adviser develop a personalized program of study that is based on her current knowledge, skills, and competencies; her aspirations; the adviser's expert knowledge of the field, learning outcomes associated with the topic; and input from an institution-wide recommender system that makes suggestions by comparing Magda's profile to the profiles of learners who share her characteristics. Neither Magda nor the

adviser quite know how the algorithm that powers the personalized recommended system works, but they both seem to trust it, or at least use it. Based on the results of the onboarding process and MSU's current programming, she can earn prior-learning assessment credits for the first two courses of the Bachelor of Science in Cryptocurrency Studies and enter the program in Course 3, starting in the fall of 2023. In the meantime, if Magda would like to begin pursuing her studies, she is able to enroll in a series of open and self-paced microcourses offered by MSU and elsewhere that will eventually transfer into her program and function as her electives. Prior to making such decisions though, she needs to seek permission from her faculty adviser and confirm that her intended courses are approved for transfer.

Once Magda enrolls in her program of study, her study plan is available in her student portal, and she can already see some information about her first MSU course: the course outline, assignment due dates, and the names and bios of two instructors and student success professionals who support the course. At that time, she will also be contacted by one of the student success professionals to review her expectations and needs. Prior to the meeting, this person consults a digital dashboard that provides relevant data about Magda. The adviser updates the dashboard during the meeting, and the data are instantly available across MSU and to Magda through a customized feed.

Magda's first course is online. Instructor and students meet synchronously every other week. In-between the live sessions, Magda works with peers asynchronously using a variety of technologies that instil a sense of presence and connectedness. This signature institutional pedagogy aims to develop a culture of community and support among learners. The course is 12 weeks long, but courses at MSU vary in length to accommodate the needs of each course rather than allowing a predetermined number of weeks dictate course content and shape its design. So, Magda might take a course that is 3 weeks long and another that may be as long as 19 weeks. At the same time, this institution-wide practice creates organizational nightmares: shared electives are difficult to coordinate, and because of varied course lengths, student and instructor workloads vary dramatically across the institution.

Magda has a host of options to connect with students, alumni, and professionals related to her area of study, be it with regards to research, business, or other vocational interests. She can join networks that span institutions and sectors, thereby expanding her own personal and professional connections. She can also participate in additional learning opportunities (e.g., webinars and workshops), which are automatically sourced for her based on her thematic interests. She keeps track of these offerings via her portal, and her digital learning passport is automatically updated with not just courses but with her developing skills and competencies, mapped against evidence of achievement and the evolving body of knowledge required in the field.

Learners in this program are also encouraged to participate in online social networks related to their topic of study and to keep journals of their participation and reflections. Magda joined a few Reddit and Discord groups related to decentralized finance and came across a work-integrated learning opportunity with a blockchain start-up in another country that she decides to pursue. She contacts her program adviser, who puts her in touch with an experiential learning adviser who will facilitate the application primarily via a review of her digital learning passport. In the meantime, the program adviser, who is kept informed of developments, works with Magda to adjust Magda's learning plan and schedule. These changes, along with an update on tuition and fees, are immediately reflected in her student portal. When Magda completes her experiential learning goal, she will once again meet with her program adviser to examine her plan. Courses, learning objectives, and desired skills and knowledge may or may not change,

but once she is ready, she will enroll in the next course, and the process described above will start all over again. As with the first course, Magda's learning experience will be "high touch," encompass the same kind of frequent interactions with her peers and instructors and invite her to engage actively in her learning.

Conclusion

In which ways does the above narrative reflect the ways in which systemic factors impact online learning? Importantly for this special issue, what are some of the systemic implications instructional designers and researchers should consider for online and distance education environments? Some ecological aspects that need to be considered in, say, investigations of learner experiences and supports at this institution include possible tensions between the institution's signature pedagogy and pedagogical approaches adopted by instructors or advocated by instructional designers; tensions between student interests and options provided by the institution to pursue those interests; the role of human (e.g., advisers) and non-human actors (e.g., algorithms) in guiding student learning paths; and the role of noninstitutional social networks in impacting and influencing learning experiences. Systemic thinking in online and distance learning may seem to significantly expand the scope and complexity of our investigations; but it adds a level of breadth and richness that is necessary to understand the whole picture. By adopting an ecological perspective, we can recognize more fully the diverse nature and complexity of the human experience—the persons within the environment. A fuller and more complex picture of teaching, learning, designing, and managing online learning environments, programs, and systems may enable us to develop a broader repertoire of ways to tackle educational problems. Such approaches ought to go beyond technology, beyond developing individual skills and abilities, and beyond our institutions. Such ways may further connect us with communities beyond our universities. Expanding the scope of our scholarship and practice in these ways would be a worthwhile endeavor in the service of learning and community-responsive and community-engaged scholarship.

Disclosure statement

No potential conflict of interest was declared by the authors.

Funding information

This work was in part supported by a grant from the Social Sciences and Humanities Council to Veletsianos.

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