

On the Trail of Self-Directed Online Learners

ECNU Review of Education
2024, Vol. 7(2) 406–419
© The Author(s) 2023
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/20965311231169795
journals.sagepub.com/home/roe



Curtis J. Bonk 

Indiana University

Meina Zhu (朱美娜)

Wayne State University

Abstract

Purpose: We describe a series of more than a dozen studies on self-directed online learning spanning over a decade.

Design/Approach/Methods: We incorporated surveys, interviews, focus groups, and content analyses into these research studies, which initially targeted the goals, motivations, and challenges of learners using open educational resources and OpenCourseWare and then focused on learning from massive open online courses (MOOCs). This research accelerated after creating a database of over 3,000 MOOC instructors, through which we explored cultural sensitivity and personalization practices in MOOCs as well as instructional design considerations and challenges, MOOC instructor professional development and career development, instructor motivation and engagement, and student and instructor perceptions of self-directed learning.

Findings: This study reveals that self-directed online learners (SDOLs) seek learning environments offering freedom, choice, control, and a sense of autonomy and that both learners and instructors have intrinsic motivation for engaging in open online learning environments.

Originality/Value: Based on this research with both MOOC instructors and MOOC learners, we offer instructional design guidelines to address SDOLs' needs and assist in efforts to foster a new generation of SDOLs.

Corresponding author:

Curtis J. Bonk, School of Education, Indiana University, 201 N. Rose Avenue, Bloomington, IN 47401, USA.

Email: cjbonk@indiana.edu



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

Keywords

MOOCs, motivation, online learning, self-directed learning, self-management, self-monitoring

Date received: 27 May 2022; revised: 24 November 2022; accepted: 1 March 2023

Locating the trailhead

For approximately a decade, we have jointly pursued self-directed online learners (SDOLs), asking what their goals and motivations are. What are their experiences, challenges, and barriers? What are their learning and resource preferences? How can resources, tools, and courses be designed to meet students' highly diverse learning needs? Ultimately, we aim to document life changes from self-directed online learning endeavors, such as finishing college, obtaining a promotion, or a new job. Basically, we keep asking what is going on in the world of SDOL as it dramatically shifts and expands right under our eyes and within our fingertips.

Many waves of learning technology innovations and advancements (Bonk & Wiley, 2020; Martin et al., 2020a, 2020b), including the creation of myriad forms of open online resources, have elevated the possibilities for self-directed learning (SDL) across disciplines and all aspects of life while rotating preferred learning activities from formal to informal ones. SDL has been refined over the past few decades (Brookfield, 2013). Sze-Yeng and Hussian (2010, p. 1913) view it as “a learner’s autonomous ability to manage his or her own learning process, by perceiving oneself as the source of one’s own actions and decisions as a responsibility towards one’s own lifelong learning.” SDL emphasizes providing learners with opportunities to decide what to learn, when to learn it, and how much to learn and then reflecting on whether something has been learned well enough (Brookfield, 2013). Learning is an empowering experience when engaging in SDL as most learning activities and decisions are made by learners.

As discussed in this paper, we have conducted over a dozen research studies related to open education and online learning since 2015. Most often, this research is of the massive open online course (MOOC) variety. Individually, the first author has been researching aspects of nontraditional and alternative forms of education throughout much of his 34-year career. For the past 8 years, we have been on an ongoing quest to better understand the needs and experiences of SDOLs from young to old, from the Global South to the Global North, and from those with low levels of online learning experience to heavy users of the Web for learning. We are curious about how people successfully navigate free and open online and blended learning as well as how instructors and instructional designers can craft resources and tools to scaffold learners and increase the retention and completion rates of open and online courses—especially massively enrolled ones.

This is an ongoing challenge not only for the two of us but for every educator and educational researcher worldwide. With each study, a few novel instructional ideas, insights, and innovations

emerge to enhance what we know about SDOL and garner a better understanding of the ways to design course instruction and supplemental resources for online learners to achieve success.

Retracing one's steps

However, at some point, it is time to hit the pause button on one's pursuits and ask what we have found. Millions of online learners and online instructors could benefit from some insights into key SDL principles and guidelines based on what we have learned. In addition, some educational researchers and policymakers would be better informed by knowing what successful self-directed learners do and understanding what and where the gaps in SDL research currently are.

How does one study SDOL? As online resources proliferate and access to the Internet continues to increase, whether on a desktop computer, laptop, phone, or watch, SDOL is happening all around with every step one takes in a city, including when seated at a special event, strolling through a park, or while traversing the campus of an educational organization or institution (Bonk et al., 2016). Do you ever watch online learners on their laptops with headsets when in an airport hangar or when seated in a local cafe? If so, do you interrupt these informal learners at random moments with a few interview questions or a survey, perhaps with a coupon for food or drink as an enticement to respond and not ignore you or shove you off? Perhaps.

However, we chose a different approach. After the publication of his book, *The World Is Open: How Web Technology Is Revolutionizing Education*, Bonk (2009) recruited a large team of 20 researchers to explore the human learning and development potential of more than 300 informal learning websites (Bonk et al., 2016; Kim et al., 2014; Song & Bonk, 2016). These resources are typically related to six areas: (1) language learning (which has exploded over the past decade); (2) outdoor and adventure learning; (3) social change and global forms of learning; (4) online or virtual education; (5) learning portals; and (6) shared online video. Our research at that time determined that many of these resources had the potential for life change and would enable people to continue learning regardless of whether they happened to be injured and stuck in a hospital bed, incarcerated, unemployed with limited financial resources, or needing to spend an intense summer remediating their low test scores to obtain entrance into college.

Surveying the field

In addition to documenting, categorizing, and evaluating hundreds of websites, we began surveying and interviewing people about their informal SDL goals, obstacles, and successes when using online resources (Bonk et al., 2015; Bonk et al., 2016; Song & Bonk, 2016). Notably, humanistic psychologists such as Carl Rogers (1985) predicted that the freedom, choice, and openness of these

learning resources enabled people in each of our studies to be autonomous learners in terms of the time and location of their learning. As shown in our research nearly a decade ago, people do not simply seek degrees, course credits, or some type of certificate or external indicator of success. Instead, many yearn to help their fellow humans in their local community or society at large; they are policymakers crafting an innovative call for proposals, instructors searching for ways to enliven their teaching, or recently retired individuals seeking ways to help educate the next generation of learners. Such findings energized our research efforts as we became aware of the potential immediate and substantive societal impacts of research on open education, informal learning, and SDL.

While evaluating the 300+ websites mentioned above, we decided to conduct research on the most prominent place of the open education movement, namely MIT OpenCourseWare (OCW) (Bonk, Lee, Kou, et al., 2015). With the emergence of open educational resources and open courseware from MIT and other universities worldwide two decades ago, we were fortunate to have administrators from the MIT OCW initiative sponsor a study on the learning goals and motivation of MIT OCW users, which explored the goals, achievements, preferences, and challenges of over 1,400 people accessing it. Looking back, the overwhelming number of participants who used OCW because of the freedom to learn was eye-opening. However, such individuals indicated that their success came not just from having the freedom to learn but also from living in this age of resource abundance, where they have ample choice, control, and fun in the process (Bonk, Lee, Kou, et al., 2015). Once again, such expressions are in line with Carl Rogers (1969, 1983), who long ago advocated that people learn best in learning environments that offer extended choices and are highly collaborative while genuinely being respectful of learner interests and passions. As Rogers argued, when situated in open and exploratory situations, humans can be more expressive and creative.

In parallel with this study, we surveyed participants of the first MOOC from Blackboard, which the first author was commissioned to offer in 2012. This particular MOOC concerned how to teach online and was marketed to users of Blackboard's free platform, CourseSites, at the time. The Blackboard MOOC study explored the goals, achievements, and challenges of self-directed, informal learners in open educational environments and MOOCs (Bonk & Lee, 2017). While the typical obstacles and challenges applied—including time, technology costs, difficulty of use, learner retention, and poor-quality courses and learning resources—people entered the MOOC scene because they were curious and found the topics that were available interesting to them. They also yearned for professional growth and self-improvement, whether it was learning a foreign language, obtaining needed health information, or better grasping key historical events or issues in the environment. They simply wanted to learn something new and wanted the freedom and choice to select what they wanted when they wanted.

Importantly, those in the Blackboard MOOC experienced success and gained self-efficacy as learners. Simply put, open and online resources impacted their identities as successful learners. At the same time, they were reminded that learning success no longer occurred solely in the classroom.

Formal and informal learning in the twenty-first century can take place in a wide range of settings and arenas, such as cafés, libraries, trains, and airports, in addition to home, work, and school-based environments (Bonk et al., 2016; Bonk & Lee, 2017; Song & Bonk, 2016).

The comments provided in the open-ended survey items of these studies repeatedly indicated that people's identities as learners improved as a result of open access to a wealth of learning content without having to complete make-or-break, high-stakes exams and assessments. Importantly, this learning was available to them in smaller doses than a degree program would typically require, and they took advantage of it. If someone was going to stick a test in front of them, many wanted out.

The trail widens

Since the first MOOC from Blackboard in 2012, MOOCs and MOOC-like derivatives have proliferated. Seeing these trends firsthand, our team expanded the research on MOOCs. Notably, in 2019, there were estimated to be about 110 million MOOC learners selected from 13,500 MOOCs from over 900 different universities (Shah, 2019). A year later, in 2020, more than 180 million learners were enrolled in over 16,300 MOOCs offered by 950 different universities (Shah, 2020b), and that did not even include MOOCs offered in China. Most recently, such numbers increased, with 220 million learners deciding to enroll in one or more of the 19,400 available courses (Shah, 2021), and nearly 100,000 million enrolled in Coursera MOOCs alone in 2021. Notably, 40 million of those enrolled in 2021 were new to MOOCs. With such growth numbers, there is no apparent death of the MOOCs; in fact, with MOOC enrollment nearly doubling during the first year of the pandemic (Shah, 2020a) and the continued upward trajectory in the second (Shah, 2021) and third years, the potential impact of research on MOOCs is enormous. At the same time, the ability to study SDOL in action has dramatically increased.

In early 2021, our research team published a paper that explored cultural sensitivity in terms of the design and delivery of MOOCs (Zhu et al., 2021). That paper was a follow-up to our 2018 article on MOOC instructor personalization practices in the *International Review of Research on Open and Distributed Learning* (Bonk et al., 2018). The first study showed that the personalization practices utilized by MOOC instructors were limited, with few courses employing the latest in artificial intelligence (AI) to counsel or support MOOC learners when they fell behind or flag learning problems that occurred in the course (Bonk et al., 2018).

While AI tools and support were underutilized, many MOOC instructors made attempts to address the wealth of cultural diversity found in these gigantic globally available courses called MOOCs. For instance, subtitles are often added to video content. Additionally, many MOOC courses include transcripts with video or audio content. Other cultural diversity strategies utilized by MOOC instructors and developers include being cognizant of issues surrounding hand gestures

as well as the actual language or expressions used, simplifying one's language, making attempts to be slow and deliberate in speech, designing MOOCs for easy navigation, and limiting the amount of text on the screen at any point in time. In addition to surveying MOOC instructors, email interviews in that particular study with 25 MOOC and open education experts worldwide resulted in dozens of best practice recommendations for addressing cultural sensitivity (Zhu et al., 2021). Notably, a large percentage of these recommendations can be used to help those who tend to be self-directed in their learning pursuits.

Research that humanizes MOOCs and respects the diverse cultural backgrounds of participants is critical in expanding their relevance to the world population (Gunawardena, 2014, 2020). MOOCs are truly a global phenomenon with the potential to help upskill and reskill the disenfranchised, the distraught, the recently unemployed, and those seeking new directions or career changes; the first author, in fact, has edited several volumes on MOOCs and open education that provide such impactful documentation for those who have been severely marginalized and neglected in terms of wide ranging educational opportunities (Bonk, Lee, Reeves, et al., 2015; Lee et al., 2015; Zhang et al., 2020).

For instance, farmers in India and Africa can now have vital crop fertilization, rotation, and distribution information available from agriculture-related MOOCs that are accessible from their mobile devices and low-bandwidth MOOC toolkits (Venkataraman & Kanwar, 2015; Venkataraman & Prabhaker, 2020). Similarly, teachers in the Global South can obtain timely professional development (PD) courses and credentials from one or more MOOCs (Mishra et al., 2020; Phan, 2020; Robin & McNeil, 2015). Younger learners can benefit, too. For example, Ghimire and Gautam (2020) documented how adolescent learners in Nepal earned certificates of English from prestigious universities in the United States via MOOCs, which helped prepare them for higher education pursuits and spurred them to enroll and participate in dozens of additional MOOCs (Kadirova et al., 2022). Importantly, Kim and Chung (2015) showed that when a proper ecosystem is established, MOOC learners can support each other in overcoming access, bandwidth, language, and cross-cultural communication and collaboration issues as well as many other challenges.

Given the problems of MOOC participant retention and completion, such research could have a wide and deep impact at the course design, institutional, and governmental levels (Bandalaria, 2020; Bandalaria & Alfonso, 2015; Gonzalez et al., 2020; Jagannathan, 2015, 2020; Singh et al., 2020; Thammeter & Khlaisang, 2020). For those wanting to learn about such governmental and organizational initiatives, the lifelong learning opportunities documented in the three MOOCs and open education edited volumes mentioned in the previous paragraph (i.e., Bonk, Lee, Reeves, et al., 2015; Lee et al., 2015; Zhang et al., 2020) are extensive and energizing. Such stories of hope and optimism as well as extensive caution and challenges highlight the need to increase SDL skills for all citizens of this fragile and fast-changing planet.

It is important to note that in addition to cultural sensitivity in MOOCs and aspects of MOOC personalization, during the past few years, we have studied instructional design challenges in MOOCs, MOOC instructor PD and career development, and MOOC instructor motivation and engagement. We have been able to conduct a range of studies since we painstakingly and methodologically collected over 3,000 MOOC instructor names, disciplines, emails, course titles, and affiliations across a range of MOOC platforms and vendors. As a result, our research team can always tap into this unique MOOC instructor database, which contains a potential treasure trove of timely and current data related to MOOC trends and inroads.

For example, 5 years ago, we used a mixed-method approach to explore MOOC instructors' pedagogical, resource, and logistical considerations and challenges. In that study, we found that the primary pedagogical considerations were related to deciding on the learning objectives as well as the assessment methods and strategies, while pedagogical challenges concerned learner engagement, interaction, and assessment methods (Zhu et al., 2018). The resource considerations included the affordance of MOOC platforms and support from one's institution as well as from the MOOC platform providers. Finally, the logistical considerations and challenges were mainly related to the time required to design and develop MOOCs.

As might be predicted, few instructors were fully prepared for the shift to online learning at the start of the pandemic (Hodges et al., 2020). Even fewer had likely ever thought about how to design their courses as powerful tools for SDL, let alone been trained for it (Bonk, 2020). However, how could SDOL expand if instructors lacked training in it, or worse, mere awareness of it?

In response, in one of our studies, we inquired about MOOC instructor's PD. Our team conducted research on MOOC instructor motivation and career development by surveying 142 MOOC instructors and interviewing six of these instructors (Doo, Tang et al., 2020). Not surprisingly, the research revealed that MOOC instructors were intrinsically motivated to share their knowledge and passions, reach more people than they could in a conventional course, and generally help humanity. While committed to expanding learning access through open education, they also faced significant challenges, such as the time available for creating MOOCs and overcoming the perceived lack of interaction possible in MOOCs.

Importantly, in Doo, Tang et al.'s (2020) study, we found that most MOOC instructors learned how to design and teach MOOCs informally and individually rather than from formal training programs or high-profile institutions; therefore, we observed a strong need for PD of MOOC instructors to design and develop effective MOOCs. A follow-up study concerned MOOC instructors' work engagement (Doo, Zhu et al., 2020); we surveyed 209 MOOC instructors and found that their perceptions or mindsets of openness, altruism, and instructional self-efficacy significantly influenced the work engagement of MOOC instructors.

Focusing the search

This prior research was a warmup to our current intense focus on SDL guidelines and strategies across all forms of fully online and blended learning delivery. We can no longer dance around the edges of SDOL and attempt to interpret it. Therefore, during the past few years, we have directly asked both MOOC instructors and students about how one can be a successful self-directed learner in open environments that have enormous numbers of peer learners and an array of learning paths and options. We also investigated the relationships among motivation, self-monitoring, and self-management within SDOL environments (Zhu et al., 2020; Zhu & Doo, 2021).

In one recently published study, we interviewed 15 learners enrolled in different MOOCs and found some skills and abilities that can help MOOC participants self-direct their own learning (Zhu et al., 2022). First, learners should often have both intrinsic motivations, such as curiosity, improving personal knowledge, and personal interest, and extrinsic motivations, such as taking a MOOC to support their formal education and career development efforts. Second, learners should have task strategies (e.g., taking notes and conducting further research) that foster their success, as well as self-monitoring strategies (e.g., self-assessment and self-reflection). Last but not least, learners should have self-management strategies (e.g., time management and resource management) that vary depending on their motivation. For example, learners can use a digital calendar to help them manage their online learning time.

Across our various MOOC and open education research efforts, we have found that with the open-ended nature of MOOCs, SDL skills and competencies, as well as strategically embedded instructional supports for SDL, can elevate learner performance and satisfaction, whether it relates to completing one task, one module, or the entire MOOC. Suffice to say, for those who fixate on the salient problems of MOOC participant retention and completion rates, we can now state with some degree of confidence that SDL is often a critical factor in learner success. In fact, we recently collaborated with Min Young Doo from Kangwon National University on a major meta-analysis project of SDL research in MOOC environments over the past 12 years (January 2010 to April 2022). Our results across the studies included in this review, published in *Distance Education* in January 2023 (Doo et al., 2023), indicate that in terms of SDL, all three components of SDL—self-management, self-monitoring, and motivation—have a significant effect on the learning outcomes of MOOC participants and, in turn, the ultimate success of MOOCs.

Laying out the new map

We also asked MOOC instructors and learners how to design and develop MOOCs to foster SDL online. We repeatedly beat this particular drum in a series of studies until we had more than a dozen compelling suggestions that were frequently mentioned regarding crafting

MOOCs to support SDL (e.g., Zhu, 2021, 2022; Zhu et al., 2020; Zhu & Bonk, 2019a, 2019b). Recently, we proposed a set of 15 strategies and guidelines for fostering self-directed online learning (Zhu & Bonk, 2022), and we hope that MOOCs can be designed, taught, and evaluated based on these guidelines.

Among the instructional design items recently highlighted in Zhu and Bonk (2022) are the following set of ten guidelines and strategies: (1) provide MOOC learners with reflection questions for them to contemplate their knowledge gains and install time management routines for what is remaining to learn; (2) provide flexible timelines to grant the learner more power and autonomy in making their learning decisions; (3) insert progress indicators and other visual cues or markers of progress as metacognitive aids to help with self-monitoring one's advancement within the course; (4) help learners establish personal learning goals through various activities and reminders; (5) make available optional learning materials for those who want to venture into tangential areas or examine particular topics of interest in greater depth; (6) highlight the estimated time frames for particular units and remaining activities within those units as well as offer weekly overviews that are chunked into manageable parts; (7) find ways to build a sense of learning community such as with maps of participant locations and various commonly used social media; (8) embed quizzes and quick check tasks to give MOOC learners opportunities to self-assess their learning progress and mastery; (9) find ways to offer community support, such as having community mentors, tutors, and teaching assistants who have completed the course and can moderate discussion forums, post questions, and monitor course activities overall; (10) design short learning units and keep video lectures brief to continue to motivate students and help them with time management. While MOOC instructors and learners mentioned several other instructional design items such as the use of gamification (An et al., 2021), the items listed above were among the ones most often mentioned. A full list of the 15 guidelines and the research that supports each of them can be found in Zhu and Bonk (2022).

This set of instructional design guidelines and strategies should provide valuable support for the design and development of MOOCs and other forms of online learning that are now pervasive across the world. If properly utilized, these guidelines should also help self-directed learners effectively make their way through their courses. The real hope is that they can play a role in fostering a generation of successful self-directed learners since the youth of today and tomorrow will likely spend the vast majority of their educational lives in SDL types of situations. As educational expectations and paradigms continue to rotate from traditional lecture-driven classroom structures to learner-driven ones, the entire global community will find SDL skills and competencies vital to their success. In effect, these guidelines might become part of a larger SDL ecosystem that is transforming "conventional" education as we know it.

Courses geared toward SDL and self-directed learners are vital in the twenty-first century. As educators increasingly realize this fact, we will not be the only ones on the trail of SDOLs.

Thousands of organizations and institutions could conceivably join us on the SDOL highways as they rethink their training programs according to SDL principles and philosophy. If that happens, they will likely take great pains to understand what a successful self-directed learner looks like in their community and reflect on how to foster SDL overall.

In addition to organizational support, instructors and learners can play a key role in identifying and fostering the required SDL skills. With the continued development of various emerging learning technologies, further research is needed to leverage the large datasets offered by MOOC enrollments and participation that can perhaps be used to support SDOL from an instructor, institutional and organizational, or societal perspective. Nevertheless, it is the learner perspective that remains the most critical to the ultimate success of MOOCs and MOOC-like derivatives as well as other untold forms of open and online education that will continue to emerge and evolve in the coming decade.

Please join us on the trail of SDOLs or forge one or two crisp new paths of your own. We hope to meet each of you in the coming years to compare the guide maps we have drawn with the individual stories we have been told at various points along the trails. Do enjoy the hike.

Contributorship

Curtis J. Bonk was responsible for constructing the structure of the paper and for writing the bulk of its main body. Meina Zhu contributed to the “Focusing the search” and “Laying out the new map” sections and the multiple revisions to and rethinking of this paper.


Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Curtis J. Bonk  <https://orcid.org/0000-0002-6365-9502>

References

An, Y.-J., Zhu, M., Bonk, C. J., & Lin, L. (2021). Exploring instructors' perspectives, practices, and perceived support needs and barriers related to the gamification of MOOCs. *Journal of Computing in Higher Education*, 33(1), 64–84. <https://doi.org/10.1007/s12528-020-09256-w>

- Bandalaria, M. d. (2020). OERs for development (OERs4D) framework as designed and implemented in the Philippines. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 245–255). Routledge.
- Bandalaria, M. d. P., & Alfonso, G. J. (2015). Situating MOOCs in the developing world context: The Philippines case study. In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world* (pp. 243–254). Routledge.
- Bonk, C. J. (2009). *The world is open: How Web technology is revolutionizing education*. Jossey-Bass.
- Bonk, C. J. (2020). Pandemic ponderings, 30 years to today: Synchronous signals, saviors, or survivors? *Distance Education, 41*(4), 589–599. <https://doi.org/10.1080/01587919.2020.1821610>
- Bonk, C. J., Kim, M., & Xu, S. (2016). Do you have a SOLE?: Research on informal and self-directed online learning environments. In J. M. Spector, B. B. Lockee, & M. D. Childress (Eds.), *Learning, design, and technology: An international compendium of theory, research, practice, and policy*. Section: Informal resources and tools for self-directed online learning environments (35-1, pp. 1–32). Springer International Publishing.
- Bonk, C. J., & Lee, M. M. (2017). Motivations, achievements, and challenges of self-directed informal learners in open educational environments and MOOCs. *Journal of Learning for Development, 4*(1), 36–57.
- Bonk, C. J., Lee, M. M., Kou, X., Xu, S., & Sheu, F.-R. (2015). Understanding the self-directed online learning preferences, goals, achievements, and challenges of MIT OpenCourseWare subscribers. *Journal of Educational Technology and Society, 18*(2), 349–368.
- Bonk, C. J., Lee, M. M., Reeves, T. C., & Reynolds, T. H. (Eds.). (2015). *MOOCs and open education around the world*. Routledge.
- Bonk, C. J., & Wiley, D. (2020). Preface: Reflections on the waves of emerging learning technology. *Educational Technology Research and Development (ETR&D), 68*(4), 1595–1612. <https://doi.org/10.1007/s11423-020-09809-x>
- Bonk, C. J., Zhu, M., Kim, M., Xu, S., Sabir, N., & Sari, A. (2018). Pushing toward a more personalized MOOC: Exploring instructor selected activities, resources, and technologies for MOOC design and implementation. *The International Review of Research on Open and Distributed Learning, 19*(4), 92–115. <https://doi.org/10.19173/irrodl.v19i4.3439>
- Brookfield, S. D. (2013). *Powerful techniques for teaching adults*. Jossey-Bass.
- Doo, M. Y., Tang, Y., Bonk, C. J., & Zhu, M. (2020). MOOC Instructor motivation and career and professional development. *Distance Education, 41*(1), 26–47. <https://doi.org/10.1080/01587919.2020.1724770>
- Doo, M. Y., Zhu, M., & Bonk, C. J. (2023). Influences of self-directed learning on learning outcomes in MOOCs: A meta-analysis. *Distance Education, 44*(1), 86–105. <https://doi.org/10.1080/01587919.2022.2155618>
- Doo, M. Y., Zhu, M., Bonk, C. J., & Tang, Y. (2020). The effects of openness, altruism, and instructional self-efficacy on work engagement of MOOC instructors. *British Journal of Educational Technology, 51*(3), 743–760. <https://doi.org/10.1111/bjet.12882>
- Ghimire, B. K., & Gautam, B. R. (2020). Nepali high students in massive open online courses (MOOCs): Impressive results and a promising future. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 90–98). Routledge.

- Gonzalez, E., Garcia, A., Macher, C., & Zhang, D. (2020). A glimpse of how MOOCs from IDB are impacting learners in Latin America and the Caribbean. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 212–226). Routledge.
- Gunawardena, C. (2014, March 19). MOOCs: Students in the Global South are wary of ‘a sage on a stage.’ *The Guardian*. <https://www.theguardian.com/education/2014/mar/19/cost-barrier-students-global-south>
- Gunawardena, C. N. (2020). Culturally inclusive online learning for capacity development projects in international contexts. *Journal of Learning for Development*, 7(1), 5–30. <https://jl4d.org/index.php/ejl4d/article/view/403/453> <https://doi.org/10.56059/jl4d.v7i1.403>
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020, March 27). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Jagannathan, S. (2015). Harnessing the power of open learning to share global prosperity and eradicate poverty. In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world* (pp. 218–231). Routledge.
- Jagannathan, S. (2020). Open education in the World Bank: A significant dividend for development. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 273–285). Routledge.
- Kadirova, D., Bonk, C. J., & Li, Z. (2022, October 26). Scaffolding strategies for self-directed learning: A case study of Nepali adolescent’s success in MOOC competition. Presentation at the 2022 Association for Educational Communications and Technology (AECT) International Convention, Las Vegas, NV.
- Kim, M., Jung, E., Altuwaijri, A., Wang, Y., & Bonk, C. J. (2014). Analyzing the human learning and development potential of websites available for informal learning. *International Journal of Self-Directed Learning*, 11(1), 12–28.
- Kim, P., & Chung, C. (2015). Creating a temporary spontaneous mini-ecosystem through a MOOC. In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world* (pp. 157–168). Routledge.
- Lee, M. M., Bonk, C. J., Reynolds, T. H., & Reeves, T. C. (Eds.) (2015). *MOOCs and open education*. Association for the Advancement of Computing in Education.
- Martin, F., Dennen, V. P., & Bonk, C. J. (2020a). A synthesis of systematic review research on emerging learning environments and technologies. *Educational Technology Research and Development*, 68(4), 1613–1634. <https://doi.org/10.1007/s11423-020-09812-2>
- Martin, F., Dennen, V. P., & Bonk, C. J. (Eds.) (2020b). Special issue: Systematic reviews of research on emerging learning environments and technology. *Educational Technology Research and Development*, 68(4), 1595–2001.
- Mishra, S., Cleveland-Innes, M., & Ostashevski, N. (2020). Capacity building of teachers: A case study of the technology-enabled learning (TEL) massive open online courses. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 156–168). Routledge.

- Phan, T. (2020). The emotional benefits of diversity in MOOCs: Reshaping views of online education through exposure to global learners. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 113–126). Routledge.
- Robin, R., & McNeil, S. (2015). The collaborative design and development of MOOCs for teacher professional development. In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world* (pp. 180–189). Routledge.
- Rogers, C. R. (1969). *Freedom to learn: A view of what education might become*. Charles Merrill.
- Rogers, C. R. (1983). *Freedom to learn for the 80's*. Charles E. Merrill Publishing Company.
- Rogers, C. R. (1985). Toward a more human science of the person. *Journal of Humanistic Psychology*, 25(4), 7–24. <https://doi.org/10.1177/0022167885254002>
- Shah, D. (2020a). By the numbers: MOOCs during the pandemic. *Class Central*. <https://www.classcentral.com/report/mooc-stats-pandemic/>
- Shah, D. (2020b). The second year of the MOOC: A review of MOOC stats and trends in 2020. *Class Central*. <https://www.classcentral.com/report/the-second-year-of-the-mooc/>
- Shah, D. (2019). Year of MOOC-based degrees: A review of MOOC stats and trends in 2018. *Class Central*. <https://www.classcentral.com/report/moocs-stats-and-trends-2018/>
- Shah, D. (2021). By the numbers: MOOCs in 2021. *Class Central*. <https://www.classcentral.com/report/mooc-stats-2021/>
- Singh, A. D., Abuhamdeih, S., & Raghunathan, S. (2020). Disruptive learning: Inspiring the advancement of MOOCs in the Middle East. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 256–270). Routledge.
- Song, D., & Bonk, C. J. (2016). Motivational factors in self-directed informal learning from online learning resources. *Cogent Education*, 3(1), 1205838. <https://doi.org/10.1080/2331186X.2016.1205838>
- Sze-Yeng, F., & Hussian, R. (2010). Self-directed learning in a socioconstructivist learning environment. *Procedia Social and Behavioral Sciences*, 9, 1913–1917. <https://doi.org/10.1016/j.sbspro.2010.12.423>
- Thammeter, T., & Khlaisang, J. (2020). Promoting open education and MOOCs in Thailand: A research-based design approach. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 140–155). Routledge.
- Venkataraman, B., & Kanwar, A. (2015). Changing the tune: MOOCs for human development? In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world* (pp. 206–217). Routledge.
- Venkataraman, B., & Prabhaker, T. V. (2020). Responsive innovations in MOOCs for development: A case study of AgMOOCs in India. In K. Zhang, C. J. Bonk, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education in the Global South: Challenges, successes, and opportunities* (pp. 300–309). Routledge.
- Zhang, K., Bonk, C. J., Reeves, T. C., & Reynolds, T. H. (Eds.). (2020). *MOOCs and open education in the Global South: Challenges, successes, and opportunities*. Routledge.
- Zhu, M. (2021). Enhancing MOOC learners' skills for self-directed learning. *Distance Education*, 42(3), 441–460. <https://doi.org/10.1080/01587919.2021.1956302>
- Zhu, M. (2022). Designing and delivering MOOCs to motivate participants for self-directed learning. *Open Learning: The Journal of Open, Distance and e-Learning*, 1–20. <https://doi.org/10.1080/02680513.2022.2026213>

- Zhu, M., Bonk, C. J., & Berri, S. (2022). Fostering self-directed learning in MOOCs: Motivation, learning strategies, and instruction. *Online Learning*, 26(1), 153–173. <https://doi.org/10.24059/olj.v26i1.2629>
- Zhu, M., Bonk, C. J., & Doo, M.-Y. (2020). Self-directed learning in MOOCs: Exploring the relationships among motivation, self-monitoring, and self-management. *Educational Technology Research and Development (ETR&D)*, 68(5), 2073–2093. <https://doi.org/10.1007/s11423-020-09747-8>
- Zhu, M., & Bonk, C. J. (2019a). Designing MOOCs to facilitate participant self-directed learning: An analysis of instructor perspectives and practices. *International Journal of Self-Directed Learning*, 16(2), 39–60. <https://doi.org/10.24059/olj.v23i4.2037>
- Zhu, M., & Bonk, C. J. (2019b). Designing MOOCs to facilitate participant self-monitoring for self-directed learning. *Online Learning*, 23(4), 106–134. <https://doi.org/10.24059/olj.v23i4.2037>
- Zhu, M., & Bonk, C. J. (2022, online first). Guidelines and strategies for fostering and enhancing self-directed online learning. *Open Learning: The Journal of Open, Distance and e-Learning*, 1–17. <https://doi.org/10.1080/02680513.2022.2141105>
- Zhu, M., Bonk, C. J., & Sari, A. (2018). Instructor experiences designing MOOCs in higher education: Pedagogical, resource, and logistical considerations and challenges. *Online Learning*, 22(4), 203–241. <https://doi.org/10.24059/olj.v22i4.1495>
- Zhu, M., & Doo, M. Y. (2021). The relationship among motivation, self-monitoring, self-management, and learning strategies of MOOC learners. *Journal of Computing in Higher Education*, 34, 321–342. <https://doi.org/10.1007/s12528-021-09301-2>
- Zhu, M., Sabir, N., Bonk, C. J., Sari, A., Xu, S., & Kim, M. (2021). Addressing learner cultural diversity in MOOC design and delivery: Strategies and practices of instructors and experts. *Turkish Online Journal of Distance Education*, 22(2), 1–25. <https://doi.org/10.17718/tojde.906468>