Blended Learning Research and Practice

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Contents

Abstract

The strategic integration of online and in-person learning modalities (referred to as blended learning) is becoming increasingly popular in primary, secondary, post-secondary, and corporate contexts. Some have even called blended learning (BL) the "new normal" in education. This chapter addresses five important questions for scholars interested in contributing to research in this domain. First, how are scholars defining BL? Second, what are some of the common models of BL being used in higher education and K-12 learning environments? Third, what is happening with BL research and practice in different regions of the world? Fourth, what research frameworks have been developed by BL scholars and what are other common frameworks that scholars have borrowed from other

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domains? Finally, the chapter overviews some of the current BL research around institutional, faculty, and student issues. The global pandemic from 2019 to 2021 has increased administrator, instructor, and student awareness and familiarity with many online learning options. It is likely that blended practices that combine both online and in-person instruction will become increasingly prevalent. Scholars will need to better understand how different blended models and pedagogical practices within those models work to improve learning outcomes, increase access and flexibility for learners, and impact cost efficiencies.

Introduction

The purpose of this chapter is to introduce you to current research and practice in the area of blended learning (BL), which has become widespread in secondary schools, higher education, and corporate training environments. Attempts to accurately quantify the growth of BL were frustrating because institutions lacked formal mechanisms for labeling and tracking BL in addition to the fact that much of the BL was being implemented by individual instructors without institutional oversight (Graham, 2019; Graham et al., 2007). However, some institutions like the University of Central Florida were early adopters of BL and have been tracking its growth and impact on student learning and satisfaction for decades (Dziuban, Graham, Moskal, Norberg, & Sicilia, 2018; Dziuban, Hartman, Juge, Moskal, & Sorg, 2006; Dziuban, Hartman, & Moskal, 2004; Dziuban & Moskal, 2011; Moskal, Dziuban, & Hartman, 2013). Despite the challenges with accurately quantifying all of the BL that is happening, it is clear that the combination of online and in-person learning is becoming the norm for many institutions. Therefore, it is important to understand the research being done in this area and where it intersects with and differs from research related to fully online and fully in-person learning contexts.

The chapter content will be organized around the following questions of interest to researchers who want to study BL contexts.

1. What is blended learning?
2. What are common models of blended learning?
3. What is happening with blended learning internationally?
4. What blended learning frameworks are being used by researchers?
5. What are some important areas of research in blended learning?

What Is Blended Learning?

The term blended learning (sometimes also called hybrid learning) was popularized in the early 2000s. Since then, there have been many commentaries and academic discussions about how to define the term. In particular, a group of interested scholars associated with the Alfred P. Sloan Consortium (now the Online Learning Consortium) met repeatedly with the specific intent of creating a working definition that would help institutions of higher education and researchers navigate this new space between fully online learning and the in-person learning typically happening on campuses (Picciano, 2011). Definitional issues were complex because each institution seemed to have a slightly different model of what they felt was important for their own context and environment. At the same time, researchers trying to study this emerging phenomenon were interested in less ambiguity and clear definitions and descriptions of the boundaries of blended learning. Yet many were frustrated (Oliver & Trigwell, 2005). Many of the most popular definitions focused on issues related to the modality, media, and method of different blends (see Table 1).

Despite the conceptual fuzziness, the term "blended learning" continued to grow in popularity, but with a slightly different meaning for each institution. Hrastinski (2019) referred to it as an "umbrella term" while Dziuban and colleagues (Dziuban, Shea, & Moskal, 2020; Norberg et al., 2011) referred to the term as a "boundary object" that is "plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites . . . weakly structured in common use . . . strongly structured in individual site-use" (Star & Griesemer, 1989, p. 393). In previous publications, Graham (2006, 2013, 2019, 2021) argued for a broad definition of BL focused primarily on combining modalities and allowing innovations in method and media to distinguish

Table 1 Blended learning definitions media, method, and modality

3 Ms	Description	Examples
Modality	The physical instructional setting or environment	Definitions focused on a mix of online and in-person instruction. Often definitions tried to define percentage thresholds that would change an environment from "fully online" to "blended" in order to meet institutional needs (Allen & Seaman, 2007; Watson et al., 2010).
Media	Physical tools or technology used to deliver or mediate instruction	Definitions focused on using a combination of different technology tools like "the combination of different training 'media' (technologies, activities, and types of events) to create an optimum training program for a specific audience" (Bersin & Associates, 2003, p. xv).
Method	Teaching strategies and practices used in instruction	Definitions included pedagogical requirements by including things like "integrating . . . in a planned, pedagogically valuable manner" (Picciano, 2009, p. 10).

Definition: Blended Learning is the strategic combination of online and in-person learning.

Fig. 1 Parsimonious definition of blended learning

between the models and quality of the blends. Figure 1 shows this broad definition that will be used throughout the article.

What Are Common Models of Blended Learning?

Early researchers in K-12, higher education, and corporate training sought to categorize and classify BL models that were observed in practice. Twigg (2003) identified higher education models such as supplemental, replacement, emporium, and buffet. Staker and Horn (2012) identified rotation, self-blend, enriched virtual, and flex models among others that have become popular in K-12 environments. Many of these classification models emphasize the physical features of the blend rather than the pedagogical features (Graham, 2021). For example, blends might focus on rotating between online and in-person instruction (rotation models) or providing both online and in-person instructional choices to students (buffet model) without specifying the pedagogical practices to be used in each modality.

More recent models developed have provided design guidance related to relevant pedagogical practices. For example, the Multimodal Model (Picciano, 2009, 2017) matches instructional approaches in different modalities with a range of pedagogical objectives, and Farmer (2020) recently identified six common models in higher education that add some high level pedagogical descriptions to the typical structural description of blends. In a recent research-driven planning guide for educators, Joosten et al. (2021), emphasized pedagogy as one of four important dimensions to consider in creating effective blends.

The 2019 global pandemic increased the number and variety of blends being explored at all educational levels. In order to keep operating, many K-12 schools and universities implemented technology-mediated forms of instruction with very limited faculty training and resources. Commonly referred to as *emergency remote teaching* (Hodges, Moore, Lockee, Trust, & Bond, 2020), many of the online practices attempted to preserve the more familiar synchronous nature of traditional teaching through the use of online conferencing systems. Therefore, in the last couple of years we have seen an increase in a unique form of BL sometimes referred to as blended synchronous instruction (Bower et al., 2015) or HyFlex (Beatty, 2019) that concurrently involves both synchronous online and in-person students in learning experiences (Irvine, 2020; Osguthorpe and Graham 2003). Additionally, the term "bichronous" online learning has surfaced as the combination of synchronous/asynchronous instruction (Martin, Polly, & Ritzhaupt, 2020). This is a form of *online learning* when both synchronous and asynchronous elements are fully online and considered *blended learning* when the synchronous element takes place in-person.

Within the larger umbrella of BL, we see that there is a wide range of blended models that varies in *physical* and *pedagogical* dimensions. It is important for researchers to clearly specify both the *physical* structure and *pedagogical* elements of a blended model or design. Research that just looks at the physical structure of the blend as a treatment effect without considering the pedagogical dimension of the blend will have limited usefulness because there is a significant body of research that suggests pedagogy (method) is more influential than modality or media in terms of student learning (Dziuban et al., 2020; Clark, 1983; Clark, 1986; Cunningham, 1986; Kozma, 1991; Clark, 1994a, b; Kozma 1994).

What Is Happening with Blended Learning Internationally?

Research published in 2012 (Halverson et al.) and 2013 (Drysdale et al.) showed very little international focus in the most frequently cited articles discussing BL, and in the theses and dissertations on the topic. In order to learn more about BL outside of North America, Spring and Graham (2017) investigated the most frequently cited articles on BL in each region of the world. They determined which articles from each region were the most cited, how the regions compare in terms of citations and which journals publish these highly cited articles. One of the authors' findings was a large disparity in citation patterns of BL research around the world, "a gap that was greater than expected" (p. 35): "North America exceeds the others, with twice as many citations than the next highest, Europe. Oceania (3rd) and Asia (4th) each garnered about half as many as Europe" (p. 31). The authors called for more in-depth research to be done in every region.

In the intervening years, BL research has advanced internationally. Galvis (2018a, 2018b) studied how Latin American universities were strategically developing virtual and BL environments. Using case studies of five countries, Galvis explored the challenges that institutions of higher education encounter when trying to adopt and specified guidelines for adoption, particularly in Latin American settings.

Research from the Asian and Pacific areas has particularly flourished. Tham and Tham (2013) investigated challenges to BL adoption and implementation in the countries of China, Japan, Singapore, and South Korea. Supported by UNESCO Bangkok, Lim and Wang (2016) gathered case studies throughout the Asia-Pacific region to "explore the potential of blended learning, including its impact on the role of teachers, the relationship between teachers and students, and the nature of educational institutions themselves" (p. xiii). UNESCO gave a regionally specific explanation for the view that BL was a valuable approach to promoting inclusive education: "especially important in Asia-Pacific – the world's most populous and most disaster-prone region – so that learners can continue to study without a physical classroom or campus" (p. xiii).

Lim and Graham's (2021) *Blended Learning for Inclusive and Quality Higher Education in Asia* expands upon the work done in Lim and Wang (2016). Motivated by the importance of equitable access to quality higher education for all, they argued

that "institution-supported rapid innovation is more critical than ever" (p. v) and see blended and online learning as "a fundamental principle for action" (p. vi) in enabling this access. Using research from six Asian countries – Cambodia, China, Hong Kong, Korea, Malaysia, and Sri Lanka – they examined both university-level initiatives (examining the support mechanism for successful BL in Asian universities) and disciplinary-level practices (documenting promising practices and lessons learned). Disciplines included general education, English language, visual arts, linguistics, STEM, and teacher education, and topics researched included learning design, academic integrity, interactive BL, professional development, and augmented reality.

In the final chapter of *Blended Learning for Inclusive and Quality Higher Education in Asia*, Zaugg, Graham, Lim, and Wang (2021) evaluated the previous chapters according to a framework devised to guide higher education institutional strategic planning when driving, sustaining, and scaling up BL practices (Lim, Wang, & Graham, 2019). The framework itself is the result of collaboration across higher education institutions in the Asia-Pacific regions, and proposes seven strategic dimensions to be considered in institutional strategic planning, namely (1) curriculum; (2) vision and policy alignment; (3) infrastructure, facilities, resources, hardware and support; (4) professional development; (5) student learning support; (6) partnerships; and (7) research and evaluation. The authors synthesized the discussions of each previous chapter as they related to the dimensions of the framework. Finally, the authors identified gaps in the synthesis and made six key recommendations for universities in Asia to develop their capacity for BL. First, they argued, while Asian HEIs can learn from other BL research, many issues may be unique to the learning culture in Asia. Second, programs would benefit from better alignment between BL and current theories of learning. Third, HEI leadership and BL practitioners must together make concerted efforts to build congruence between institutional shared vision and individual practices of BL. Fourth, HEI's capacity building will benefit from prioritizing pedagogy and teacher professional development. Fifth, libraries can support the advancement of BL if HEIs re-envision their roles as support hubs and resources. And finally, sixth, HEIs can learn from the expansion of BL in and lessons learned from the K-12 sector while also providing resources for students, while still in high school, to earn advanced university credit or take apprenticeship instruction through blended opportunities.

What Blended Learning Frameworks Are Being Used by Researchers?

McDonald and Yanchar (2020) identified two types of research frameworks: *originary* and *imported*. Imported frameworks are borrowed from other domains (say psychology) for use within the domain. Originary frameworks are developed within or adapted for use within a specific research domain. Because BL as a domain is fairly young, there are a limited number of originary research frameworks available for researchers to use. BL models presented earlier in the chapter are a

few examples of originary frameworks within BL. A recent model that has received significant attention during COVID has been the HyFlex model (Beatty, 2014, 2019) that provides design guidance for supporting student-directed learning paths across multiple modalities. Shea (2010) built on the "how people learn" framework (Bransford et al., 2000) to identify elements that influence decisions in a blended environment in order to provide design guidance for developing instructional strategies for particular learners in particular contexts. This section of the chapter will share a few additional originary frameworks used in BL. A more extensive coverage of BL research frameworks can be found in Graham (2021, in press).

By far, the most referenced framework in current BL research is the Community of Inquiry framework (COI; Garrison, Anderson, & Archer, 2000). The COI framework emphasizes the importance of cognitive, teaching, and social presence in building a powerful educational experience. Though this framework evolved from online work with text-based computer conferencing, it was quickly adapted to a BL environment (Garrison & Kanuka, 2004; Garrison & Vaughan, 2008; Vaughan, Cleveland-Innes, & Garrison, 2013). Hundreds of studies, including foundational work on the COI framework, are being archived by Athabasca University at https://coi.athabascau.ca/. Another framework related to blended teaching competencies is the Blended Teaching Readiness framework (Graham et al., 2019). This framework was developed initially to support primary/secondary education blended teaching professional development. It identifies and elaborates on four core blended teaching competency areas: (a) online integration, (b) data practices, (c) personalization, and (d) online interaction (Archibald, Graham, & Larsen, 2021; Graham et al., 2019; Pulham & Graham, 2018; Pulham, Graham, & Short, 2018).

One of the early areas where BL researchers have developed frameworks is related to institutional adoption and/or transition to BL. Many researchers have used imported frameworks such as Everett Roger's Diffusion of Innovations (1962) or the Technology Acceptance Model (Davis, 1989). Others have tried to create frameworks more specific to institutional adoption of BL. The Framework for Institutional Adoption of Blended Learning (Graham, Woodfield, & Harrison, 2013) identifies three stages of institutional adoption: (a) awareness/exploration, (b) adoption/early implementation, and (c) mature implementation/growth. Indicators for each of the stages related to institutional strategy, structure, and support are described. The Framework for Transition to Enhanced Blended Learning (Adekola, Dale, & Gardiner, 2017) characterizes stakeholder roles, organizational preparedness areas, institutional considerations, and change agents to help institutions manage the transition to BL. Two other originary frameworks were developed at the systems level to help institutions plan for transitions to BL: the Framework for Strategic Planning of BL in Institutions of Higher Education (Lim et al., 2019) and the Framework of Complex Adaptive Blended Learning Systems (Wang, Han, & Yang, 2015).

Finally, student engagement has been an important area of research for traditional learning environments. It is natural that researchers would try to import and adapt frameworks from educational psychology research to blended contexts. Halverson and Graham (2019) developed a conceptual framework for blended environments

with constructs and indicators for cognitive and emotional engagement. Borup et al. (Borup, Graham, West, Archambault, & Spring, 2020; Borup, Jensen, Archambault, Short, & Graham, 2020) recently developed the Academic Communities of Engagement framework intended specifically for looking at affective, behavioral, and cognitive dimensions of student engagement in blended and online learning environments. The framework posits that students have a zone of independent engagement that is extended through support from actors in personal and course communities. Support elements for each dimension of engagement can be distributed across different community actors and communities that mix virtual and in-person support.

What Are Some Important Areas of Research in Blended Learning?

This section addresses some of the BL research related to institutional issues, faculty issues, and student issues.

Institutional Issues

According to Smith and Hill (2019), BL research and practice has been, to this point, "predominantly an individual rather than an institutional endeavour," with projects that are small in scale that provide a "snap-shot in time evaluation" (p. 391). This "methodological individualism" (Brown, 2016, p. 5) means that researchers are missing the "network of socio-technical interactions in higher education organizations [which] would get us closer to unpacking the black box of situated faculty decision-making" (p. 7). We need more research being done at the institutional level to unpack this "black box."

Research on the nature of institutional BL adoption has begun to be done. Graham, Woodfield, and Harrison (2013) developed a framework (the Blended Learning Adoption Framework) identifying the three stages of institutional BL adoption, namely (1) awareness/exploration, (2) adoption/early implementation, and (3) mature implementation/growth. Later, Porter and Graham (2016) applied that framework to examine how institutional *strategy*, *structure*, and *support* decisions facilitate or impede BL adoption among higher education faculty. They found that faculty adoption was most influenced by the availability of sufficient infrastructure, technological and pedagogical support, evaluation data, and the alignment of faculty and administrators' purpose for adopting BL. They followed this quantitative research with qualitative analysis in Porter, Graham, Bodily, and Sandberg (2016), where the authors explored how higher education faculty's innovation adoption category affected which measures facilitate or impede BL adoption. Additional research into institutional adoption of BL can complement what we are beginning to understand.

Research is also being done into the institutional support necessary for adoption of BL practices. Rasheed, Kamsin, and Abdullah (2020) noted that the biggest institutional challenges to adopting BL were technological provision challenges – the high cost of producing electronic content, the cost of online learning technologies, overly complex technology causing distractions to students, the creation of tools that are flexible and compatible with other systems, the complexity of technology, and the implementation of LMSs to suit student learning styles – as well as the need to train faculty in effective online and blended practices.

However, when focusing on low-budget institutions, Abusalim, Rayyan, Jarrah, and Sharab (2020) found that faculty training had a significantly higher influence on satisfaction with blending practices than did IT infrastructure. "Therefore," the authors argued, "low-budget institutions should focus first on helping instructors shift to student-centred styles of pedagogies before making large investments in IT infrastructure" (p. 1203). Such training support was also deemed important by McGee, Windes, and Torres (2017), who found three kinds of support to be most influential to the development of the online expertise that is necessary to BL: Formal training of the instructor (including skills-based training, training in best practices, and course rubric strategies), provision of external supporting mechanisms (including instructional design help, external course review before implementation, opportunities to consult with others about online instruction, help desk availability for just-in-time support, and institutional recognition and/or rewards), and prolonged experience (including recognition and rewards for that experience). Further research into how to best support faculty in blended instruction can enrich our understanding of this important area.

Faculty Issues

The expansion of technology's usage in K-12 and higher education classrooms, whether through planned blended and online learning programs, or emergency remote teaching during the COVID-19 pandemic, has created new teacher training and professional development (PD) needs (Cavanaugh & Deweese, 2020; Philipsen, Tondeur, Roblin, Vanslambrouck, & Zhu, 2019; Short, Graham, Holmes, Oviatt, & Bateman, 2021). This is particularly true because teaching online requires new attitudes, knowledge, and skills for success (Salmon, 2011). Thus the 2016 National Education Technology Plan (U.S. Department of Education, 2016) noted that "effective use of technology is not an optional add-on or a skill that we simply can expect teachers to pick up once they get into the classroom. . . . Schools should be able to rely on teacher preparation programs to ensure that new teachers come to them prepared to use technology in meaningful ways" (p. 32). The 2017 National Educational Technology Plan (U.S. Department of Education, 2017) added that faculty need "continuous, just-in-time support that includes professional development, mentors, and informal collaborations" (p. 28). Below we review some of the current research into teacher training and professional development for blended instruction.

Short, Graham, Holmes, et al. (2021) found few articles (7 of the 58 initially reviewed) and no systematic reviews of current peer-reviewed research on PD or training for blended learning teachers for primary/secondary age children. To fill this gap, their research reviewed works that focused on intentionally preparing these teachers for blended teaching. Articles on the topic proliferated in 2016 and thereafter. A significant portion of the results (40.9%) came from international contexts, an improvement from the finding in Halverson, Graham, Spring, Drysdale, and Henrie (2014) that BL research originating from regions other than North America and Europe were underrepresented in the most impactful BL publications. Short et al. (2021) also identified the most impactful articles and authors according to citation count, the most prolific journals publishing such research, and the most common research methods used in the studies. They also determined broad themes based on the articles' research questions and findings. Those themes included articles which were reviews, models, and theories; articles focused on training through university coursework and PD; articles proposing competencies for blended teaching; and articles that provided metrics to evaluate readiness for blended teaching.

Practitioners and administrators seeking insights into what will help most in the classroom can look to Philipsen et al. (2019), who used a meta-aggregative approach to analyze qualitative research into faculty PD in blended and partially online settings. The authors identified six broad areas for creating successful PD. First, such PD should be crafted so that teachers receive just-in-time support, feedback, and clear pedagogical rationale across the entire professional development process. Second, faculty want training that takes into account their unique institutional context, through planning that acknowledges the institutional characteristics, existing programs, and any financial components. Third, successful PD for blended instruction recognizes and gives participants time to reflect upon the psychological or mental changes that these nontraditional methods of instruction can have upon one's professional identity and educational beliefs. Fourth, faculty need clarity about the specific goals and procedures of the PD, and the relevance of that training to teachers' own personal and professional goals. Fifth, successful PD uses strategies for reaching their overall goals, including encouraging teacher reflection, enabling teachers to experience blended and online instruction in an active way, inspiring teachers' confidence and motivation, and facilitating peer support. Finally, PD should encourage knowledge-sharing within the institution as well as continuous evaluation of processes to best tailor further initiatives to existing contexts and needs.

Another important element for practitioners is to understand which competencies must be mastered for effective blended teaching. Short, Graham, Holmes, et al. (2021) found few peer-reviewed articles on the competencies in blended teaching (4 of the 58 reviewed) and mentioned the need to look beyond peer-reviewed articles to online resources and white papers from professional organizations in their analysis (Pulham et al., 2018; Pulham & Graham, 2018). Among the pertinent articles, there does not appear to be agreement on what should constitute BT competencies. Some competencies adapted existing frameworks (Huett, Huett, & Ringlaben, 2011;

Pulham & Graham, 2018), while others created entirely or partly new frameworks (Al-Doseri, Elgazzar, & Nouby, 2016; Bjekic, Krneta, & Milosevic, 2010; Foulger, Graziano, Schmidt-Crawford, & Slykhuis, 2017). Research can be done to test the efficacy of these competencies in improving student learning in blended settings.

In addition to competencies, new research is emerging on how to evaluate teacher readiness for blended teaching. Graham, Borup, Pulham, and Larsen (2018, 2019) created and empirically validated instruments to measure K-12 Blended Teaching Readiness. Archibald and colleagues (2021) took the instrument one step further, validating its ability to show that the blended teaching readiness model and accompanying instrument are reliable for use with teacher candidates both before and after going through a blended teaching course. Graham, Borup, Short, and Archambault (2019) created a professional development guidebook organized around the K-12 Blended Teaching Readiness model. Short and colleagues have done further validation research around the readiness model with analysis of hundreds of artifacts used for K-12 blended teaching professional development as well as dozens of interviews with experienced teachers using blended approaches (Short, Graham, & Sabey, 2021; Short, Hanny, Jensen, Arnesen, & Graham, 2021).

Student Issues

Many issues face students participating in BL, including motivation, self-direction, and time management as well as preparation in basic digital skills and sufficient internet service. But one of the most researched (Azevedo, 2015) relates to student engagement. Student engagement, or the involvement of the student's cognitive and emotional energy to accomplish a learning task (Halverson & Graham, 2019; Schunk & Mullen, 2012), correlates with important educational outcomes (Conrad, 2010; Wang & Degol, 2014). Such correlations have led some to refer to learner engagement as "the holy grail of learning" (Sinatra, Heddy, & Lombardi, 2015, p. 1). Spring, Graham, and Ikahihifo (2018) give a good introduction to the issues in the field.

Halverson and Graham (2019) reviewed models, definitions, and constructs of learner engagement, delineating challenges with prior research, including lack of clarity surrounding definitions (Fredricks, Blumenfeld, & Paris, 2004; Henrie, Halverson, & Graham, 2015), muddling of indicators and facilitators of engagement (Skinner, Furrer, Marchand, & Kindermann, 2008), and a focus on institutional rather than activity or course-level factors (Ainley, 2012; Wang, Bergin, & Bergin, 2014). The authors then suggested factors for a conceptual framework grounded in existing engagement literature and contextualized for blended settings, specifying cognitive indicators of engagement (attention, time on task, effort and persistence, cognitive and metacognitive strategy use, deep concentration or absorption, and individual interest or curiosity) and emotional indicators (enjoyment, happiness, confidence or self-efficacy, confusion, boredom, frustration, and anxiety). Follow-up research (Halverson, 2016) operationalized and tested this model of BL engagement using exploratory and confirmatory factor analysis and developed a new instrument, the Blended Learning Course Engagement Survey, to take into account

context (online or face-to-face) and the cognitive and emotional aspects of learner engagement in such settings. Results showed the related yet distinct nature of face-to-face and online engagement and that indicators of engagement considered behavioral in some alternative models of engagement are empirically indistinguishable from cognitive indicators.

Another attempt to expand the theory base in BL research includes Borup, Graham, West, Archambault, and Spring's (2020) investigation of the Academic Communities of Engagement (ACE) framework. The ACE framework suggests that a student's ability to engage is facilitated by support from both personal and course communities, which must function together to increase students' affective, behavioral, and cognitive engagement (Fredricks et al., 2004). Just as in Vygotsky's (1978) zone of proximal development, ACE proposes that a student's zone of independent engagement can be extended with support from the personal and course communities. The authors identify actors from these communities that provide such support. Martin and colleagues have also investigated the relationship between facilitators and student perception of engagement (Martin & Bolliger, 2018; Martin, Wang, & Sadaf, 2020).

Conclusion

The 2019 global pandemic has increased the number and variety of blends being explored at all educational levels. By April 2020 some 190 countries across the globe closed their schools and universities. This forced an estimated approximately 90% of the world's learners (almost 1.6 billion) to stay at home (UNESCO, 2020). A year later, close to half the world's students still faced partial or full school closures (UNESCO, 2021). In order to keep operating, many primary/secondary schools and higher education institutions implemented technology-mediated forms of instruction with very limited faculty training and resources.

In the best cases, quarantine situations were accompanied by quality online learning and an excitement for the changes underway. As British professor of the philosophy of higher education Ronald Barnett stated in regard to the impact of the pandemic on higher education institutions, "Perhaps no-one institution is so interconnected with the world as the contemporary university," whose powers of self-reflection he felt would create of this interconnectivity a new emphasis on cross-disciplinary and even cross-national work. For Barnett, this result would be "nothing short of a completely new theory of the university" (Barnett, 2020).

Many, however, felt unprepared for the challenges, including but not limited to "creating content for online spaces, learning new delivery tools, understanding online pedagogy, engaging parents, addressing student mental health issues, and attempting various pedagogical strategies to address both synchronous and asynchronous teaching and learning" (Hartshorne, Baumgartner, Kaplan-Rakowski, Mouza, & Ferdig, 2020). As schools scrambled to adapt to the new situation, teachers experienced "appreciably different learning and performance contexts" (Lockee, 2021, p. 17) depending on each nation's, state's, district's, and school's unique responses and solutions.

Cavanaugh and Deweese (2020) examined educators' search terms and their use of support content during the initial weeks of the pandemic. From February to March 2020, they found, total content views on the educator support website http://support.office.com/education increased from 640,000 to 4,145,000 (a sixfold growth) while video views changed from 4000 to 120,000 (a 30-fold increase). Clearly educators were embarking on a learning curve. The authors feel that the preference for synchronous video "signals that educators sought quick and authentic instruction and demonstration of the skills they wanted to apply immediately in their teaching" (p. 235).

Nonetheless, the strategic blending of face-to-face and online that is seen as "the best of both worlds" (Bele & Rugelj, 2007) sometimes went missing during the pandemic's emergency remote teaching (Hodges et al., 2020). One group of researchers described a particularly dystopian view of the "rushed online migration" (Watermeyer, Crick, Knight, & Goodall, 2021, 638). Their survey of 1148 academics working in universities in the United Kingdom reported that the COVID-induced changes to online education resulted in "a depressing abundance of afflictions" (639) exacted upon the educators. Their descriptors included: "hesitancy and suspicion," "trauma," "profound professional and personal disruption," "vulnerability and helplessness," "disempowerment, displacement and marginalisation," and educators feeling "bruised" and "distrustful" (p. 637–638). "Overall, [their findings] suggest that online migration is engendering significant dysfunctionality and disturbance to their pedagogical roles and their personal lives."

But there is an abundance of new research coming out of the vastly varied experiences of educators during COVID, and most research findings are not anywhere near as bleak. Ferdig, Baumgartner, Hartshorne, Kaplan-Rakowski, and Mouza (2020) published an e-book of 133 chapters and over 850 pages, divided into seven sections that address pedagogy, collaboration, field experiences, preservice education methods, professional development, digital tools, and equity issues. Journals published special issues devoted to the issues of teaching during the pandemic (see, for example, Reynolds & Chu, 2020). Borup et al. (2020) investigated how the Academic Communities of Engagement framework might be particularly relevant during the pandemic. Two of the four major findings in Gillis and Krull (2020) focused on the importance of how instructional strategies and digital tools were implemented – in other words, on the pedagogical nuances – in determining whether students found those strategies to be effective, accessible, and enjoyable (p. 296). Oyarzun et al. (2019) similarly found that methods were more important than media.

Despite the wide variance in experiences with emergency remote teaching, it is likely that blended practices that combine both online and in-person instruction will become increasingly prevalent across all educational sectors. Scholars have an opportunity to help institutions, instructors, and learners to understand research that can guide and improve blended learning practices. Additionally, there is still much research to do as we need to better understand how different blended models and pedagogical practices within those models work to improve learning outcomes, increase access and flexibility for learners, and impact cost efficiencies.

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