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Constructivist learning practices & culturally responsive teaching: A post-secondary developmental literacy program's multimodal response to the pandemic

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Abstract: This article identifies the need for post-secondary developmental literacy programs despite historical resistance to them. COVID-19 has arguably posed the largest threat to a U.S. Midwestern university's post-secondary literacy program, compelling it to make structural and pedagogical adjustments to support its racially, culturally, and linguistically diverse populations. With the purpose of making coursework immediately more relevant and applicable, the program separated the original class into meta-majors including the humanities, social sciences, natural sciences, and general studies. The authors discuss how these new meta-majors courses helped students complete assignments within their respective majors by applying literacy strategies and metacognitive techniques to assignments given to them in their other classes with the ongoing support of a literacy expert. The article concludes by providing specific recommendations about specific culturally responsive and constructivist learning practices to adopt within in-person and online learning contexts to support student success.

Keywords: *Culturally responsive teaching, constructivist learning, post-secondary literacy, online learning.*

Yapılandırmacı öğrenme uygulamaları ve kültüre duyarlı öğretim: Bir ortaöğretim sonrası gelişimsel okuryazarlık programının pandemiye çok modlu yanıtı

Özet: Bu makale, tarihsel dirence rağmen ortaöğretim sonrası gelişimsel okuryazarlık programlarına duyulan ihtiyacı tanımlamaktadır. COVID-19, bir ABD Ortabatı üniversitesinin ortaöğretim sonrası okuryazarlık programı için tartışmasız en büyük tehdidi oluşturmuş ve onu ırksal, kültürel ve dilsel olarak farklı nüfuslarını desteklemek için yapısal ve pedagojik düzenlemeler yapmaya zorlamıştır. Dersleri hemen daha ilgili ve uygulanabilir hale getirmek amacıyla program, orijinal sınıfı beşeri bilimler, sosyal bilimler, doğa bilimleri ve genel çalışmaları içeren meta-ana dallara ayırmıştır. Yazarlar, bu yeni meta-ana dal derslerinin, bir okuryazarlık uzmanının sürekli desteği ile diğer derslerinde kendilerine verilen ödevlere okuryazarlık stratejileri ve üstbilişsel teknikler uygulayarak öğrencilerin kendi ana dallarındaki ödevleri tamamlamalarına nasıl yardımcı olduğunu tartışıyor. Makale, öğrenci başarısını desteklemek için yüz yüze ve çevrimiçi öğrenme bağlamlarında benimsenecek kültüre duyarlı ve yapılandırmacı öğrenme uygulamalarına ilişkin spesifik öneriler sunarak sona ermektedir.

Anahtar Kelimeler: *Kültüre duyarlı öğretim, yapılandırmacı öğrenme, ortaöğretim sonrası okuryazarlık, çevrimiçi öğrenme.*

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The Developmental Education Controversy

Developmental literacy coursework has been offered at "approximately 90% of community colleges and 70% of universities" within the United States (Shields, 2005), and about 20% of secondary students enroll in developmental/remedial coursework for reading while still enrolled in high school (Eagan et al., 2014). Despite the fact that US educators have deemed college students' literacy skills to be lacking for nearly two centuries (Arendale, 2010; Carter & Daraviras, 2010; Hodges & Agee, 2009; Stahl & King, 2009; Wyatt, 1992), there has been a curious resistance to developmental reading programs since their onset (Edgecombe & Bickerstaff, 2018; McGee et al., 2021). While developmental education has been defined as a holistic approach, one that nurtures student social and intellectual growth (Cassaza, 1999), efforts to support the professional field of developmental education have been consistently stymied by subsets of local and state-level policymakers, arguing that colleges should not be obligated to teach skills previously taught in K-12 settings. Conversely, developmental education advocates contest that policymakers have weaponized negative stereotypes about remedial education, ultimately promoting meritocratic ideals at the expense of student growth (Arendale, 2005; Crisp & Delgado, 2014; McgGee, Williams, Armstrong, & Holschuh, 2021). Developmental education advocates problematize their opponents' assumption that all K-12 settings equally prepare students for college and career success (Armstrong, 2020), which they refute with research about educational opportunity gaps identifying a number of structural inequities and an unequal distribution of opportunities that BIPOC (Black, Indigenous, and people of color) and students from low socioeconomic backgrounds experience before entering into college (Hayward, 2022). In the present, policy changes and financial reallocations still pose threats to developmental education across the US; however, because of its syndemic qualities (Shim & Starks, 2021), COVID-19 has arguably posed the largest threat to students' learning and secondary developmental literacy in modern history (Kafka, 2020).

COVID-19 and Student Responses to Online Learning Contexts

In the wake of the COVID-19 pandemic, university programs had to rapidly shift to online remote instruction, and in many cases, its most vulnerable populations were most adversely impacted (Karakose, 2021; Liu, et al., 2021; Schuurman et al., 2021). Some research studies have identified how students reported feeling less confident they would be ready for their careers due to the quality of online learning they experienced when comparing their courses with in-person instruction. One reason for this finding was that students noticed the absence of opportunities to make meaningful connections with peers (Kim, et al. 2020). Other studies have also revealed how students' engagement and personal goals for achievement decreased, while their perceptions about the likelihood of them cheating increased (Daniels, Goegan, & Parker, 2021). These types of findings have all been explained as byproducts abroad concept known as pandemic fatigue, a type of mental exhaustion "causing boredom, demotivation, alienation, and hopelessness (El-Sakran, Salman, & Alzaatreh, 2021; Liu, et al., 2021; Salvador et al., 2021, p. 7426). International research about best practices for remote instruction has identified how student learning is enhanced through constructivist learning activities (Babar & Hidayat, 2022; Gutier et al., 2021), while increasing the number of relational supports like improving communication accessibility between students and teachers and increasing meaningful group work as best practices within online learning modalities (Salvador et al., 2021). Despite the ubiquity of research-based, best practices for online instruction available, there is a gap in literature connecting best practices to actionable steps developmental literacy programs can take to support vulnerable student populations working within online & remote learning contexts. The following sections of this article underscore actionable steps and recommendations for best practices within developmental literacy programs with online learning contexts.

Constructivism and Online Education

Constructivism is a foundational learning theory that posits that learning is an active process including a learner's interpretation of the world (Seyyedrezaie & Barani, 2017). Although constructivism has its roots in Socrates, Kant, and Dewey's teachings, modern constructivism is generally associated with Piaget's cognitive development and Vygotsky's sociocultural

theories. Piaget asserted that human beings learn through the experiences and interactions they undertake (Rovai, 2004). According to Vygotsky (1978), the process of learning always includes more than one human being and is essentially co-constructed within human groups. Additionally, one tenet of Vygotsky's (1978) zone of proximal development (ZPD) is, "solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" (p.86). So, in spite of having the same premise, the two differ from each other in their approaches to the process of constructivism in learning i.e., Piagetian approach being more individualistic and Vygotsky's being social.

Generally, constructivists believe that in order to facilitate effective learning, it is necessary to provide the learner with an authentic learning environment. At the same time, constructivists argue that the creation of one's reality is the key element for a productive learning process. This is achieved through a learner's inquiry, repeated reflection, experimentation, and metacognition while learning. According to Lambert et al. (1995, as cited in Conceição-Runlee), to foster these, a course has to integrate activities that will enable learners to experience, reflect, think, explore, feel, and ask questions.

Distance education, particularly the online version, was predicted to become a major educational trend long before the pandemic due to the multiple opportunities it offers students and educators (Chan, 2010). A vital advantage of online learning is fostering active student interaction including peer feedback and mutual support without considerable impact and domination of instructors (Hughes & Daykin, 2002). Yet, at the same time, there has always existed a certain level of skepticism towards this model, as Koohang et al. succinctly state, "...the issue of learning in elearning environments must be given a thorough attention" (2009, p.91). In fact, research suggests that there has always existed a significant level of student and instructor dissatisfaction with online education (Koohang et al., 2009; Rovai, 2004). Student and educator discontent can be mainly explained by limited opportunities for human interaction; consequently, several scholars sought to establish an applicable theoretical framework that would enable designing more interactive courses resulting in more effective learning (Jonassen, 1994 as cited in Rovai, 2004). Accordingly, this was the context that put the theory of constructivism into the spotlight of online education. Constructivism can be a powerful influence on best practices in the development of online instruction (Babar & Hidayat, 2022; Gutier et al, 2021).

Even back in 1994, Jonassen, a prominent figure in the field of educational technology, suggested that constructivism could be a reasonable option to apply in distance education. A key element in computer-mediated knowledge construction should be, he claimed, collaboration achieved through social negotiation as opposed to competition (as cited in Rovai, 2003). Designing an online constructive course includes, but is not limited to, skillfully constructed, precise learning outcomes, substantial course content, ample feedback opportunities, meaningful course discussions as well as activities and purposeful deliverables. The most challenging aspect of this process, however, involves reflecting on how the course offers opportunities for the social negotiation of knowledge through a social dialogic approach (Soysal, 2020).

Scholarship delivers several examples of online constructivist courses with various success levels before and after the pandemic. Having been tested for several years prior to COVID-19, some constructivist online courses seemed to continue successfully and served as examples for others. The main difference, though, was the considerable stress and anxiety levels associated with COVID-19 which had to be seriously considered in designing post-pandemic courses (Harris, Ernstberger, Cox, & Watson, 2021). When the COVID-19 pandemic started, many educational institutions, departments, and individual faculty globally seemed to seek to deliver quality courses to replace traditional classes. Some gladly embraced constructivist elements to foster their online courses more effectively (Agopian, 2022; Funa & Talaue, 2021; Zuckerman, Hardesty, Denaro, Lo, & Owens, 2021). Being viewed as 'an opportunity offered by COVID-19 pandemic' for some (Funa & Talaue, 2021, p. 252), and as 'a solution' for others (Arifah & Marzuki, 2021), constructivism was accepted as a leading strategy in some state-level programs to design online courses and materials as a response to COVID-19 (ibid.). It is a widely known fact that students enrolled in online classes are not usually satisfied with the quality of them in comparison to face-to-face mode (Inman & Kerwin, 1999 as cited in Rovai,

2004). Nevertheless, contrary to the pre-existing skepticism, with the application of constructivist learning strategies during COVID-19 pandemic, relevant studies seem to report quite inconsiderable differences in face-to-face mode student satisfaction, course engagement, and interaction (Zuckerman et al., 2021). As a whole, constructivism should be a foundational approach and best practice for online educators because it underscores human interaction as a driving core element for learning. A focus on constructivist learning activities can facilitate active learning and collaborative interaction in any learning venue (Agopian, 2022; Funa & Talaue, 2021; Gutier et al., 2021; Zuckerman, et al., 2021).

Scholarship on constructivist learning, combined with documented educational fallout resulting from the global pandemic, informed a paradigm shift at a Midwestern University. Following is a description of the curriculum before and after modifications along with perspectives of students who were enrolled when these changes were implemented.

Methodology

The authors of this article engaged in a comprehensive three-phase process to refine their developmental literacy program incrementally while adjusting to the fluctuating demands of multimodal instruction (in-person and online) during the pandemic. Initially, program educators engaged in a rigorous literature review to examine trends in online education. Program educators synthesized literature related to best practices for online education and literacy acquisition. Research revealing students' sense of isolation and lack of motivation resulting from pandemic fatigue became one of our premier considerations for necessary adjustments to our coursework (Salvador et al., 2021).

The second phase of the literature review process focused on solutions to the aforementioned pandemic fatigue. Program educators' research led them to two viable solutions: constructivism to increase students' capacity to learn in online contexts (Arifah, & Marzuki, 2021; Koohang et al., 2009) and culturally responsive teaching (Lawrence, 2017) to support constructivism and development of meaningful relationships.

Once constructivism and culturally responsive teaching were identified as focal points, two key conceptual frameworks emerged to help program educators reimagine and reshape the developmental literacy program. Koohang et al. (2009) Constructivism Elements & E-Learning Design of Learning Activities framework and Hammond's (2014) culturally responsive, Ready for Rigor Framework became key conceptual tools for redesigning our program. The following sections provide an in-depth exploration of how these frameworks were utilized to resign our program.

Constructivist Changes to Our Literacy Program Curriculum

Our program is located at a Midwestern University in the United States. Formerly, our developmental literacy coursework aimed to help students cultivate effective reading, vocabulary, learning, and study techniques allowing them to excel in their academic coursework in college. The course focused on teaching students how, why, and when to study, using college text chapters from various Biology, History, and Psychology texts to practice the techniques and strategies that are taught. With the purpose of making coursework immediately more relevant and applicable, the course was separated into meta-majors: the humanities, social sciences, natural sciences, and general studies. These new courses paired constructivist literacy strategies and metacognitive techniques to improve student performance with coursework from classes within their major as they completed them, with the ongoing support of a literacy expert. This restructured, semi-paired iteration, emphasized learning activities that were both constructivist and responsive to the objectives of students' other courses. In some contexts, instructors noted how particular vocabulary and reading strategies like the Frayer model and text coding could be adapted across disciplines. However, in other contexts, instructors also emphasized how the epistemologies of particular disciplines mandated different pedagogical approaches. Social science epistemology, for example, called for students to understand concepts like sourcing and corroboration; consequently, they employed modified inquiry charts to help students document types of sources to identify biases along with the ability to confirm

consistencies and discrepancies among sources to understand corroboration. Because epistemologies in the natural sciences, by contrast, were predicated more on the scientific method, particularly observing parts and processes within natural phenomena; instructors in these courses tended to emphasize the use of variations SQ4R and Cornell note-taking strategies.

Coursework took the following forms: online synchronous, online asynchronous, and in-person synchronous. In online synchronous coursework students and the instructor logged in at a specific time and followed guided instruction with instructors; however, online asynchronous mode required no scheduled time for classes and students completed online modules without direct interaction-based instruction. Finally, in-person synchronous mode utilized a combination of in-person classes followed by scheduled online meeting times with students to follow instruction. Being mindful that we wanted to support our predominantly Racially, Culturally, and Linguistically Diverse (RCLD) student population, we viewed constructivist practices as a way to engage in a form of cultural responsivity to support student learning, particularly by cultivating space for student voice and agency through talk-task structures in digital spaces (Hammond, 2014). Constructivist alterations to our developmental literacy classes within our asynchronous course work involved inspiration from Zhao and Watterson's (2021) calls for educational changes in the wake of the pandemic, particularly involving their insights about curriculum and pedagogy, and social interactions: Their first call to prepare students to be globally and technologically competent meant that our curriculum and pedagogy needed to be designed to develop students' capacity for life-long learning habits and skills. We began to redesign our coursework by ensuring that each class allowed opportunities for students to construct and negotiate their own learning through student-centered, metacognitive, and inquiry-based activities. Another best practice according to Zhao and Watterson (2021) focuses on a balance of synchronous and asynchronous learning opportunities. To this end, we organized a balance of online videos and digital resources that required independent work, with inquiry-based assignments that required small group collaborations. The third practice Zhao and Watterson (2021) emphasized was that students should have multiple opportunities to meet instructors individually or in small groups for additional support. Due to the potential for lack of interaction between and among teachers and students in an online, asynchronous course format, we endeavored to be preemptive and responsive by instituting a number of approaches: through creating constructivist activities and assignments, increased interactions between students and instructors, and finally increased interactions between students within disciplines.

Culturally Responsive Pedagogy to Support Constructivist Online Learning

With an awareness that the pandemic exacerbated students' need and desire for meaningful opportunities to collaborate with peers and communicate with their instructors (Salvador et al., 2021), we endeavored to pair culturally responsive teaching practices, particularly those related to affording students' choice, providing diverse representation, and developing meaningful relationships (Gay, 2002; Hammond 2014), with constructive learning opportunities. The section below delineates how the application of constructivist practices can be further supported by culturally responsive pedagogy.

Combining Constructivist Literacy Strategies and Student Choice

The new meta-major courses required that students apply a combination of vocabulary, pre-reading, while reading, and test preparation strategies to construct their knowledge for chapters they studied within their discipline as they allowed along with other courses within their major. Because choice is a foundational part of the characteristics of culturally responsive teaching (Hammond, 2014; Sleeter, 2001), our program emphasized the importance of allowing students to choose and experiment with different strategies at different stages of the reading process. Students generally appreciated the semi-paired course model because it afforded them additional opportunities to study, interact, and construct their learning related to courses like chemistry, history, biology and psychology. They also acknowledged how opportunities to choose from a number of strategies motivated them to experiment and transfer what we did in class to their other course contexts. Among the most widely selected strategies students chose were concept cards, informal outlining, SQ4R, S-Run-R, Cornell notes, and text coding with

summarization. Particular disciplines used chart notes as well. Students then posted their work and were encouraged to reflect on how the strategies they chose promoted topics like metacognition, metacomprehension, intertextuality, and schema.

Increasing Models for Completing Literacy Strategies with Diverse Representation

Culturally responsive teaching advocates have long underscored how providing students with role–models who represent their racial and cultural backgrounds is a way to increase relevance and motivation among students (Gay, 2018; Sciurba, 2017). Accordingly, in an attempt to fortify students' knowledge about strategic literacy strategies and approaches, meta-major instructors shared YouTube videos of graduate student and professor influencers from various racial and cultural backgrounds as role models. For example, a video titled, "How I Study for my Biology Classes | Biomedical Science Major " introduced students to Natasha Mathurent who is majoring in biomedical sciences. Meta-major instructors encouraged students to discuss how Natasha embodied constructivist and growth mindsets as she revealed tips and tricks for students to stay organized with their literacy strategy note-taking. Videos like these revealed a culture of success to students in the course, mainly through revealing effective habits, organizational practices, and learner epistemologies of successful college students. After watching the videos, students were asked to find other diverse role models who shared various note-taking strategies to model the successful completion of literacy strategies and effective study habits. Furthermore, instructors reinforced students' understanding of concepts like notetaking, metacognition, and neuroplasticity by means of culturally responsive "sociocultural talk-task structures" inviting students to share and discuss their videos in online forums which granted them ownership over the collaborative learning process (Chavez, 2020; Gay, 2018). On the whole, these videos helped to reinforce that notetaking can make a substantial difference in the depth of student learning, which also may support an increased focus on texts, deeper comprehension, higher-order thinking, and anticipation of test questions.

Pairing Digital Modalities for Constructivism With Group Discussions

Another salient characteristic of culturally responsive teaching involves cultivating a community of learners and group work to support constructivist learning contexts (Bennet et al., 2018; Hammond, 2014). To meet this characteristic, meta-major instructors embedded Nearpod activities into lecture slides. Nearpod is an interactive classroom application that allows instructors to add group-oriented activities including drawings, quiz questions, fill-in-the-blanks, and discussion boards to their Google slideshows. Instructors, for example, asked students to draw their understanding of what learning looks like before analyzing each other's drawings as a means to explain and challenge learner epistemologies. Meta-major instructors also utilized discussion boards to ask questions like, "What ways did text coding facilitate your metacomprehension? Which part of the Frayer model requires intertextuality? and Which strategies are most useful for previewing a chapter?" Students acknowledged that Nearpod activities helped them identify study habits and strategies that work authentically for them. Because one of the affordances of Nearpod included multiple choice questions, students generally found that it helped them enhance their memory of complex concepts and topics. Moreover, because student responses could be anonymized on Nearpod, it helped create a culturally responsive environment that was both intellectually rigorous and socially safe while aiding students to take ownership of their learning (Hammond, 2014).

Assigning Culminating Projects & Portfolios with Multiple Opportunities for Student Choice

 With the goal of increasing student choice as an additional culturally responsive adjustment to improve motivation and relevancy (Gay, 2018), students within the meta-majors had the opportunity to select one of three possible culminating projects as an additional capstone to showcase their development of self-regulatory processes. Choices included the construction of a self-designed strategy to meet the academic needs of a future course within their major or the creation of a website to teach disciplinary epistemologies, literacy strategies, and effective study habits to future students in the meta-major of their choice.

Student work was assessed in a final portfolio. The use of online portfolios is well supported

in educational literature as a tool for learning and evaluation (Ciesielkiewicz, 2019; Mobarhan & Abdul, 2015; Wakimoto & Lewis, 2014). The portfolio included pre and post Metacognitive Awareness of Reading Strategies Inventory (MARSI) results (Mokhtari & Reichard, 2002) with an accompanying reflection, a course analysis (Armstrong & Reynolds, 2011), and four exemplary literacy strategies that embody their best work in the domains of vocabulary, pre-reading, while reading, and test preparation strategies. To help with engagement, students could choose between two to three different strategies to work on within their discipline. Students were also required to write a page to two-page reflection to explain why their selection embodied their best work, how the literacy strategies facilitated course concepts like metacognition and self-regulation, and finally, what contexts and classes the strategy would be most applicable.

Increasing Opportunities for Meaningful Interactions and Cultivating Student Belonging

Literacy scholars have long posited that talk is the foundation of literacy and constructivism (Fisher et al., 2008; Vygotsky, 1986), and modern interdisciplinary scholarship underscores how classroom talk-task structures that position students as co-creators of their learning is also way to enact culturally responsive teaching (Davis & Jones, 2021; Hammond, 2014). Considerations about how to structure conversations became ever more critical for program educators while considering the pandemic fatigue and loneliness we witnessed our students experiencing during online coursework (Salvador et al., 2021). The next section of this article highlights specific changes the meta-major program instructor made to support students' sense of connection and belonging. A number of individual studies identified peer-to-peer support and the quality of relationships with instructors as some of the most influential sources of meaningful connection and belonging to support student success (Allen et al., 2018; McMahon et al., 2008; Steinberg, 2001).

Increasing Meaningful Interactions Between Students and Instructors

To increase interactions between students and instructors, bimonthly check-ins in person or via Zoom were required. Students earned ten points for each check-in to discuss their well-being, class assignments, and any need for additional support or clarification. Students could complete check-ins during in-class work time or via Zoom outside of class. Students often claimed that this process helped them see the intrinsic value of the coursework. Instead of completing tasks and perceiving assignments as a form of busy work, the increased interaction with instructors helped them learn alternative ways to think and complete assignments while learning disciplinary expertise.

Instructors also periodically gave students formative feedback on their weekly strategies and engagement on Yellowdig, a Blackboard-based social media program with a similar design to Facebook. Instructors would post weekly tasks, videos, surveys, and questions to Yellowdig, which afforded increased interaction between students and instructors. Students each week were required to earn a certain amount of points through interactions and engagement on the platform. This platform allowed instructors to engage with students by commenting on posts and polls, asking follow-up questions, and advancing disciplinary topics between and among the commenters on students' posts.

Increasing Meaningful Interactions Between Students Within Their Discipline

To increase meaningful interactions between students about disciplinary content, instructors utilized Yellowdig to encourage authentic discussions. Students earned weekly points by posting an initial response, and they could earn additional points by responding to a number of their classmates' posts. The first post of the semester required students to post an introductory video or photo and then share a few personal characteristics, passions, goals, etc. The 20-word minimum response requirement prompted conversation between students from the beginning. In addition to responding to weekly instructor posts, students engaged in weekly peer review and constructive feedback about the weekly assignments that they completed. Students also discussed their insights from applying new literacy strategies to their disciplines along with how particular strategies helped them engage with their metacognition, metacomprehension,

intertextuality, and personal schema on a weekly basis as well. Since students were paired with other students who were studying the same subject, they had several opportunities to troubleshoot chapter questions while also predicting questions and content they assumed would show up on exams. Students reported that opportunities to interact with other students' opinions and feedback on their work encouraged them to think more about their interactions with texts, which deepened their comprehension.

Conclusion

Without question, teaching and learning during a global pandemic brought about unprecedented changes. Isolation resulting from the national shutdown demanded attention from a holistic front, one that was sensitive to every aspect of learning. Educational institutions had to be responsive to the ripples caused by the familiar mode of learning being replaced with what became a new educational frontier, one susceptible to unforeseen isolation and feelings of inadequacy in both students and teachers alike.

A Midwestern University sought to address this new educational frontier brought about by COVID-19 by pairing culturally responsive teaching practices with increased opportunities for constructivist online learning, peer collaboration, and multimodal interactions with instructors. Whenever feasible, students were given the freedom to choose: strategies, role-model influencers, level of engagement in learning platforms like Nearpod, projects to include in their portfolios, and wherever else appropriate. Student belonging was supported and emphasized through one-on-one engagement with instructors and communication in all course modalities. All learning activities were further infused with a lens of culturally responsive teaching and ample constructivist learning opportunities as discussed herein.

The immediacy of modality changes due to forces beyond all of our control left limited time to prepare for the new frontier of learning. Educators across the world might collectively echo the "if-we-knew-then-what-we-know-now" chant, but by and large, the pandemic likely caused all educational institutions to re-examine, and redefine, what constitutes best practices. We are all called to be responsive educators, and if there is a silver lining to teaching and learning during a pandemic, it might be the introspection that led to bringing an expanded sense of community to our students during times of uncertainty.

Implications

There is a dearth of literature about developmental literacy programmatic responses to online instruction in the wake of the pandemic. This Midwestern University's programmatic responses may serve as guideposts to other programs considering best pratices to provide students with responsive and relevant education. Because we know that institutions will likely maintain developmental literacy coursework online in some capacity, we first and foremost encourage programs to focus on constructivism and fostering meaningful relationships. We believe it is imperative that students are given opportunities to construct and negotiate their own learning and learning pathways with professors within online instruction. We recommend that programs interrogate their curricula for ways to make it more student-centered with a focus on the inquiry process. Research has also drawn our attention to the idea that communication in online formats should have a balance of synchronous and asynchronous learning opportunities. Programs should also conceptualize ways faculty can check in on their students periodically throughout the semester. Likewise, we recommend that programs consider ways to increase meaningful conversations between students both inside and outside of class to support individualized learning needs.

With an increasing understanding of the salience of student belonging, program educators are frontloading the semester with explicit messaging about the importance of student belonging to increase engagement (Scaia, 2021). We recommend that faculty ask students personalized check-in questions like, "What am I doing that is working for you? If you think of some of your favorite classes or classes you learned the most in, what might I be able to replicate in this classroom space?" To increase students' sense of belonging in these courses, we also encourage faculty to normalize feelings of imposter syndrome (Cisco, 2020) with students in addition to

teaching them about concepts like stereotype threat (Harrison et al., 2006).

Finally, while revisiting Koohang et al. (2009) Constructivism Elements & E-Learning Design of Learning Activities framework to examine the importance of self-assessment, we recommend courses engage in ways to help students engage in more metacognitive reflections to develop self-efficacy. We recommend this approach as part of a process to move students towards being strategic and independent learners endorsed by Zareta Hammond (2014) in her book, Culturally Responsive Teaching and the Brain.

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