

Online Developmental Education Instruction: Challenges and Instructional Practices According to the Practitioners

Nara M. Martirosyan, *Department of Educational Leadership, Sam Houston State University*

D. Patrick Saxon, *Department of Educational Leadership, Sam Houston State University*

Susan Troncoso Skidmore, *Department of Educational Leadership, Sam Houston State University*

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ABSTRACT

Using a qualitative survey research design, researchers solicited faculty input on challenges and common instructional practices applied in teaching online developmental education courses. *Online* was defined as 80% or more of the instruction of a course being delivered online. Participants of the study were faculty teaching developmental education courses online, primarily in 2-year colleges. They completed an online survey on faculty characteristics and various aspects of teaching online. The most frequently occurring challenges identified by field practitioners included technology issues, student engagement, time management, and basic literacy skills. The most commonly used instructional activities reported were discussion boards, multimedia, offering of feedback and synchronous sessions, and communication. Based on the findings, implications for practice are discussed, which can benefit faculty as they design and deliver online developmental education courses.

Keywords: online developmental education courses, developmental education, students underprepared, instructional practices

Online education continues to grow, year by year. In their research into online education in the United States, Seaman et al. (2018) reported that in 2016, more than 6.3 million students took at least one online course. This accounted for about 32% of the student population. The greatest proportion of online students (about 5.3 million) are undergraduates, and 69% are hosted at public colleges. In terms of students served and increased access to higher education, these numbers are encouraging. However, it is important to consider the challenges to effective student learning and engagement in online instruction, and especially so for students academically underprepared taking developmental education courses online.

Boylan (2002) asserted that traditional forms of instruction have not served students well who are not academically well prepared. These students are likely dealing with challenges such as low motivation, lack of study skills, and poor time management skills, in addition to low skill levels in reading, writing, and/or mathematics (Boylan & Saxon, 2012; U.S. Department of Education, 2016; Zientek et al., 2013).

Couple these issues along with challenges presented by online instruction and a further, deleterious effect is likely to occur. Instruction and teacher-student interaction filtered through time and technology is replete with challenges. Therefore, it is recommended that students are advised and prepared for these challenges. Perez and Foshay (2002) reported that students receiving orientation prior to taking online courses were more likely to succeed. Gaytan (2013) described screening students for self-direction, time-management, and computer skills as necessary for determining those best capable of succeeding in online learning environments.

Despite the growth in online education and the role that faculty play in transitioning from face-to-face to online teaching environments, research offering faculty perspectives of the challenges they

Corresponding Author

Dr. Nara M. Martirosyan, Department of Educational Leadership
Sam Houston State University
TEC 327H, Box 2119 | Huntsville, Texas 77341
Email: nxm021@shsu.edu

face is limited. Many studies of online courses have examined the course quality (Kebritchi et al., 2017), effective pedagogical practices (e.g., Bailey & Card, 2009; Chametzky, 2014; Doherty, 2016), student perspectives and expectations (e.g., Rouhani, 2017), and course dropout and retention rates (e.g., Huston & Minton, 2016; Smart & Saxon, 2015; Xu & Jaggars, 2011; Zavarella & Ignash, 2009). The purpose of this study was to garner the perspectives of a unique group of online teaching professionals—those who have been charged with developing and administering online developmental education courses. Online courses in this study were defined as courses where 80% or more of the class instruction was delivered online. This definition was developed by the researchers after reviewing several syllabi for online developmental education courses as well as consulting with those who currently teach online.

Review of Related Literature

In the last several years, research on faculty perspectives on delivering developmental education courses has been emerging. Recent studies have focused on soliciting input from faculty teaching accelerated developmental education mathematics (e.g., Saxon & Martirosyan, 2020) and integrated reading and writing courses (Martirosyan et al., 2019) delivered primarily in face-to-face settings. There is a lack of research focused specifically on soliciting faculty input on challenges and instructional strategies for online developmental education courses. After a careful and thorough search of literature, we expanded the literature review search to cover areas such as online developmental education course completion, cognitive and non-cognitive characteristics necessary for successful online learning, and best practices in online teaching. Moreover, because of the limited research availability in the field, research reviewed in this section covered a 20-year span.

Online Courses, Completion, and Grades

Though more research on this topic is in order, there is some evidence that suggests that online developmental education might not be a better option for some. Zavarella and Ignash (2009) compared technology-based and lecture-based instruction in a developmental mathematics course. They found that students were twice as likely to withdraw from the computer-based format (either hybrid or distance learning) than from the lecture-

based course. Likewise, Huston and Minton (2016) found that students in online intermediate algebra courses had statistically significantly lower course completion rates than those in traditional face-to-face courses. Smart and Saxon (2015) identified statistically significant effects of course format (i.e., face-to-face, hybrid, and online) on student performance and withdrawal rates in developmental education courses at an Alabama community college. Students ($n = 146$) enrolled in online developmental education courses were more likely to withdraw than those ($n = 317$) in face-to-face courses. Moreover, analysis of final grades showed that students performed far better in face-to-face than in online classes (Smart & Saxon, 2015). Similarly, even after accounting for gender, ethnicity, first-generation status, prior achievement, and level of student motivation of 2,411 community college students in developmental mathematics, researchers found that online students had statistically significantly lower pass rates and numeric grades than face-to-face students (Francis et al., 2019).

Xu and Jaggars (2011) also revealed performance gaps among all types of community college students in online courses. They studied 51,017 students in Washington State community colleges during the Fall 2004 semester. Students who had previously taken a developmental education course had similar noncompletion rates in online courses as the rest of the student body. This noncompletion rate was about 7% to 8% lower than face-to-face classes. For students taking developmental education courses online (online developmental English $n = 358$, online developmental mathematics $n = 1,684$), the completion rate differences were slightly higher. Students completed online developmental education courses at rates of about 10% to 12% lower than classroom-based courses.

In a similar study, Jaggars and Xu (2010) examined online learning in Virginia community colleges. They examined about 24,000 students from 23 colleges. Course completion was defined as a student earning a grade of D or higher. Online course completion was found to be 12% lower than traditional courses. For students in online developmental English classes, completion was 26% lower. For online developmental mathematics courses, completion was 13% lower. Perhaps interestingly, student variables such as age, minority status, gender, and dependency

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status showed no statistically significant effect on course completion.

More broadly, in a study of 1.2 million courses taken by students (not necessarily in developmental education) at over 1,800 U.S. institutions during 1994–2007, researchers found negative effects on grades and completion rates (Bacolod et al., 2018). On average, online course takers had course grades that were 0.19 lower compared to traditional classroom course grades. Even more concerning, for the bottom two fifths of the students, the effect was more pronounced, as much as almost a full letter grade lower (Bacolod et al., 2018).

Cognitive and Non-Cognitive Characteristics

Several cognitive and non-cognitive characteristics have been specified in the literature as helpful to online learning success. Student motivation is a much-touted non-cognitive characteristic. When students are highly self-motivated with regard to interest in a subject matter, they are more willing to engage and interact in an online learning environment (Artino & Stephens, 2009; Kerr et al., 2006). In a study of 229 college students enrolled in an online developmental mathematics course, Cho and Heron (2015) reported that motivation positively influenced student's final grades. Students with an internal locus of control (Parker, 2003) and high self-regulated learning strategies (Wong et al., 2019) tend to also fare better in online courses. In a study of successful students enrolled in online developmental mathematics, Wadsworth and colleagues (2007) identified student motivation, self-efficacy, information processing skills, and the ability to self-test as being important to predicting achievement. Kerr et al. (2006) attributed reading and writing skills as the strongest predictors of online learning success. They noted that computer literacy and time management skills are important as well. Generally, these skills benefit students in any learning environment; however, they have been identified as especially important in online courses.

Online Education Best Practices

Successful online instruction requires more than just technical proficiency; instructors need pedagogical and content expertise as well (Hickey et al., 2020; Skidmore et al., 2015). In a phenomenological study, award-winning online instructors described effective online pedagogical practices as those that foster relationships, engagement, and communication; offer timely feedback; are organized, flexible, and set high (and clear) expectations; and effectively used technology (Bailey & Card, 2009). These researchers also discussed that more experienced instructors tended to encourage students, were understanding and flexible in acknowledging online student challenges, provided timely and relevant course-related feedback, and encouraged students to engage with each other

and with the course content. Bailey and Card (2009) noted that online instructors primarily engaged students via emails and discussion boards. Similarly, in the statewide Developmental Education Technology Survey (Martirosyan et al., 2017), developmental education instructors reported emails and discussion boards as the primary communication tool.

Drawing from nearly a decade of feedback from online mathematics courses, Rouhani (2017) summarized several helpful practices that students requested, including the accommodation of learning preferences and frequent communication with faculty and peers. It was suggested that in a course spanning a semester, biweekly communication that clearly and succinctly reminded students of goals, objectives, and assignments was helpful and motivating. Students further expressed the desire to engage with video and audio media specifically related to course content. Rouhani (2017) also recommended timely grading and feedback on assignments, quick response to emails, and words of encouragement to students. In terms of organization, course content and assignments that were structured and consistently scheduled allowed students to develop a consistent routine. Finally, Rouhani (2017) offered suggestions such as videoconferencing and posting professional photos and videos of the course instructor to allow students the sense that a "real person" was behind the instruction that was taking place (p. 6).

In a literature review focused on providing an overview of necessary components for successful online developmental education courses in Europe, researchers noted that course design that emphasized interaction and communication, timely and directed feedback, and technical support made a crucial difference in students' online experiences (Brants & Struyven, 2009). Jaggars and Xu (2016) used multilevel modeling to explore the relationship between course design features and course outcomes and found that the quality of interpersonal interactions in online coursework had a statistically significant positive relationship with student grades. Using a phenomenological approach, other researchers interviewed community college students enrolled in online courses with failure rates of 30% or higher (Bambara et al., 2009). The researchers found that students expressed feelings of loneliness in the virtual environment and desired more interaction with both the instructor and their peers (Bambara et al., 2009). Other concerns with the online environment included poor course organization and technology and academic challenges (Bambara et al., 2009). Nonetheless, the researchers found that a positive disposition towards the course coupled with a commitment to personally invest in the course allowed students to take ownership of it (Bambara et al., 2009).

Xu and Jaggars (2011) reported on a community college system that provided supports to “create an environment conducive to high-quality online learning” (p. 2). These supports included a readiness assessment that offered students insight as to the likelihood they would be successful in an online learning environment, a tutorial on the learning management system (LMS) used for online courses, 24-hour technical and reference librarian support or students, and faculty training on the LMS and professional development or online teaching. Similarly, Coleman et al. (2017) highlighted the importance of providing support services and technical support along with other instructional considerations such as having a structured course, communicating frequently, and offering self-directed learning opportunities. Other researchers have suggested that the online environment be flexible enough to allow students the ability to have control of their own learning (Brants & Struyven, 2009). As instruction has shifted from that of a teacher to that of a facilitator, additional instructional support is necessary as well (Bailey & Card, 2009; Brants & Struyven, 2009). As such, supporting the training and development of faculty and staff as student-centered facilitators is necessary to stimulate, guide, and support online instruction (Brants & Struyven, 2009). To successfully move students through online developmental education courses, a concerted effort is necessary. As Castillo (2013) noted, the proper utilization and implementation of online programs is not something that will occur automatically; it will require careful thought, the utilization of research, and a spirit of experimentation on the part of faculty members, administrators, and community college students alike for this experiment in educational innovation to succeed. (p. 43)

The review of the literature demonstrates that there is a lack of research on faculty opinions regarding online developmental education courses. The purpose of this study was to solicit feedback from faculty members who were charged to teach developmental education courses online with or without adequate training. This study was an initial step to fill the gap and potentially promote more research in the field. Although having a smaller sample, this study is timely in assisting practitioners as they navigate challenges of online instruction. It offers ideas for practice and research that have the potential to support student success in a fully online environment.

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Method

For this study, we used a survey design (Creswell & Creswell, 2018) to solicit input from faculty who teach developmental education courses online. The survey was qualitative in nature (i.e., questions included in the survey were open-ended). The following research questions were addressed: (a) What challenges do faculty encounter when teaching online developmental education courses, and (b) what instructional strategies and activities do faculty use when teaching online developmental education?

Population and Sample

Participants of the study were developmental education faculty recruited through two venues: the National Association for Developmental Education (NADE) 2016 Conference and the McGraw-Hill Education’s Developmental English faculty network. A link to an online survey was placed on the NADE electronic conference program main menu, and the survey was promoted at several conference sessions where participants were encouraged to complete it. In addition, a representative from McGraw-Hill Education assisted in emailing the link to all developmental English faculty who were in its database at the time of the survey. This organization simply provided the contacts. All communication came from the researchers, and McGraw-Hill had no further involvement in the study.

The e-mail sent through the McGraw-Hill database reached 771 individuals who opened and/or read the e-mail. Of the 771 individuals, 63 (8.2%) clicked on the survey link itself. The number of participants who viewed and completed the survey through the NADE guidebook was not tracked. At the closing of the data collection window, a total of 76 responses were received, of which 67 were complete and 19 incomplete. The first question on the survey had asked participants to indicate whether they were teaching developmental education courses online at the time of the survey or not. Of the 67 complete responses, 37 participants indicated that they taught developmental education courses online and therefore were given access to the full survey. The remaining 30 participants, who did not teach developmental education courses online at the time of the survey, were thanked for their willingness to contribute to the study and did not gain access to the full survey.

The final sample (37 participants) was comprised of 31 full-time and six part-time faculty

teaching at 2-year ($n = 33$) and 4-year ($n = 4$) institutions in the United States. The majority of the participants were female ($n = 33$). Of the 37 participants, 18 taught developmental English, 14 taught Integrated Reading and Writing (IRW), eight taught developmental mathematics, and three participants taught college success courses online. It is important to note that 13 participants taught both IRW courses and developmental English or developmental reading courses at the time of the survey.

Data Collection

Data were collected through a 13-item online survey that focused on faculty characteristics and various aspects of teaching developmental education courses online (e.g., faculty demographics, challenges, instructional activities, training and support services, etc.). The survey was developed by researchers of this study who have extensive professional experience in developmental education and online teaching. The survey was then pilot tested among a group of faculty who taught developmental education courses online.

At the beginning of the survey, participants were provided with the definition of online courses. Online courses were defined as courses in which 80% or more of the instruction of the class was delivered online. The answers to two of the open-ended questions included in the survey were used to answer the research questions in this study:

1. List up to three challenges you have encountered in teaching online developmental education courses.
2. List up to three instructional strategies/activities that you use in your online course(s).

Data Analysis

Both questions included in this study were open-ended and allowed participants to provide qualitative responses. They were asked to provide at least one and up to three answers. After transferring data from the online database to Microsoft Excel, we applied a content analysis approach (Krippendorff, 2013) to analyze the data. There were 109 data points for the *challenges* question and 108 data points for the *instructional strategies/activities* question. A number of themes emerged as a result of several coding cycles (Saldaña, 2016). One of the researchers acted as the primary coder, while another researcher was responsible for cross-checking to ensure the accuracy of the coding. The researchers had prior training and experience in coding qualitative data, and each had at least 10 years of experience in online teaching. To control researcher bias when coding data, the coding researcher kept an analytic memo (Saldaña,

2016) and reflected on their own perspectives of best practices in online instruction. Additionally, participants were very specific when listing the challenges they faced and instructional practices they used, which made it even easier to control research bias when interpreting and coding data.

Findings

In the first question, faculty were asked to identify challenges they face when teaching developmental education courses online. In the second question, faculty were asked to list up to three instructional strategies/activities that they use in their developmental education online courses. Table 1 displays themes and relevant codes for each question.

Instructional Challenges

Seven distinct themes emerged from data analysis for the *Instructional Challenges* question. *Technology issues* was the most prevalent theme in the data with two distinct codes: *technology skills* and *technology access*. The majority of respondents who noted technology as an issue stated that students in developmental education lacked adequate educational technology skills to succeed in online courses. Specifically, instructors noted, “students don’t know how to use educational technology,” they “lack technology readiness” and “don’t know how to use their word processing software.”

Table 1
Instructional Challenges and Practices

	Themes	Relevant codes
Instructional challenges	Technology issues	Technology skills; Technology access
	Engagement	Student engagement; Communication; Interaction
	Time management	
	Basic literacy skills	Reading skills; Grammar skills
	Motivation	
	Dropout	
	Misconception	
Instructional practices	Discussion boards	
	Multimedia use	Video recordings; Screen captures; Annotated pictures
	Feedback	Instructor feedback; Peer review
	Communications	
	Synchronous sessions	
	Exercises/Quizzes	
	Computer software instructions	

Several faculty indicated student access to technology as a challenge. They pointed out that many students “do not have computers at home” and have “inadequate access to technology for an online class.” One faculty member noted that some students have “dial-up Internet,” while others reported students encountering “regular technology system errors” due to lack of access to technology and reliable internet.

The second most prevalent theme in the data was *engagement* with three relevant codes: *student engagement*, *communication*, and *interaction*. One faculty noted that it was difficult to keep students “working and engaged in the course.” Other faculty members emphasized the importance of “building relationships” and reported “not having the ability to connect with students on a personal level like we do in F2F [face-to-face] classes” as a challenge. Additional challenges reported were “lack of synchronous interaction,” “interaction with students” and “communication with students.” Some students do not respond to the instructors’ attempts to contact them, while others “don’t understand the importance of checking emails” and “regular participation” in online classes.

Time management was the third theme present in the data. Many students enrolled in developmental education courses have poor time management skills, which lead to missing assignments and falling behind. There is also a misconception among students in terms of online courses being easy and the time needed to complete such courses successfully. Students do not understand that taking a course online requires more work, not less. They “wait until the day it [assignment] is due to do all of the work for the week” and “underestimate the time commitment for an online class.” Moreover, “some students don’t even access the course regularly[,] which ultimately affects the on-time submission of assignments.”

The next theme present in the data was *basic literacy skills* with two relevant codes: *reading skills* and *grammar skills*. Several respondents noted the lack of basic literacy skills as a challenge. According to them, “students’ reading comprehension is already low,” they

have “under-developed reading skills” and “struggle with the basic skill that is a necessity for online learning.” Participants of the survey also emphasized the fact that “online courses are very reading intensive,” and therefore, basic reading skills are extremely important for online learning. In addition, it was noted that many students “lack many basic grammar skills” that are “absolutely necessary” for student success.

Additional challenges noted by the study participants were *motivation*, *dropout*, and *misconception*. Several faculty members stated that “motivating students to keep up with the schedule” was an issue along with student motivation in general. Attrition rates were reported to be higher for online courses. As mentioned earlier, “many [students] think taking a class online should be easier” and do not “log in often enough even though there are attendance requirements.”

Instructional Practices

For the *Instructional Practices* question, a total of eight themes emerged from the data analysis. The top-ranked instructional practice recommended by participants was *discussion board activities*. Discussion boards were used to engage students in course content and to provide students with opportunities to “interact with one another and the instructor” and “share ideas and feel like part of the course.” A number of faculty used weekly discussion boards where “students engage in discussion with a summary/response to a reading assignment, and they create a lab activity” because “...[their] textbooks sometimes do not have online lab applications.” Discussion boards were also used for weekly reflections.

Use of multimedia in online classes was the second theme in the data. Multimodal instructional units consisting of videos, documents, and annotated pictures were used to deliver instruction. Video recordings and screen captures were the most commonly used strategies within this theme. Faculty incorporated video instructions to reduce the amount of text that the students had to read. Video recordings were used to read part of the text for the students as well as to demonstrate skills necessary for the students to be successful in a course. Several of the participants used video clips for course announcements and

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for offering feedback on student papers by going “over a student’s essay and explaining what they had done well and what they needed to work on.” Others used videos for notes, weekly lesson overviews, workbook solutions, and text reviews. It is important to note that not only did faculty members use multimedia when delivering instruction, they also required students to use multimedia when completing some of their assignments. One example was a video recording of a presentation for the class. As one participant noted, “students must use a web-based program to video record an oral presentation on their future career.”

The third theme that emerged from the data analysis was *feedback* with two relevant codes: *instructor feedback* and *peer review*. Faculty offered timely feedback through “quick grading and comments/feedback so that students can keep up with their grades and learn from their mistakes and improve.” Feedback was given on rough drafts/essays before submitting the final version. Peer review was also used for providing feedback. One participant had “the students post rough drafts of their essay and make comments on each other’s essays.” Peer review was used primarily for written assignments.

Communication and *synchronous sessions* were the next themes in the data analysis. Faculty reported emailing students regularly. Personal emails were sent to students “who are behind on homework,” and phone calls and virtual office hours were used for class communication. As for synchronous sessions, participants used them for different purposes. Some examples included: live online meetings to provide individual assistance; biweekly meetings to go over posted course information; individual conferences with students, chat sessions, twice-a-week real-time meetings; and live-review conferences.

The last three themes that emerged from participant responses were *exercises/quizzes*, *computer software* and *instructions*. The quiz feature within a learning management system was used to offer learning exercises and quizzes. Reading quizzes and textbook/practice exercises were commonly used activities in addition to weekly lab exercises “to complement topic introduction and study.” To support student learning, several instructors incorporated various software programs (e.g., math lab, learning lab) into their instruction. Finally, instructions were provided to the students in various forms. Examples included a “learning guide,” “an outline of all assignments with dates and a calendar,” and “written instructions with examples.”

Discussion and Implications for Practice

As online education is becoming more prevalent, it is important to not discount the multiple challenges associated with delivering developmental education courses online. Students enrolled in developmental coursework are already underprepared, lacking basic skills (e.g., reading, writing, and/or mathematics) and non-cognitive characteristics necessary to be successful academically, which places them at an even greater risk of failure in an online learning environment.

Participants of this study identified a number of challenges they faced when teaching developmental education courses online. Consistent with previous research, dropout and retention (Huston & Minton, 2016; Smart & Saxon, 2015; Zavarella & Ignash, 2009), motivation (Artino & Stephens, 2009; Cho & Heron, 2015; Muilenburg & Berge, 2005), and basic literacy skills (Kerr et al., 2006) were among the challenges reported in addition to technology issues and time management skills. Therefore, an online learning assessment or readiness assessment, as recommended by Xu and Jaggars (2011), for students in developmental education is in order. At a minimum, students need to consider and reflect on their time management skills, access to technology, and their motivation to engage in learning through technology. On the other hand, administrators and advisors should ensure that appropriate screening and course placement procedures are in place to assist students in selecting a course modality that is best for them (Bishop et al., 2017; Xu & Jaggars, 2011). Moreover, offering institutional support once students are enrolled in online courses is recommended. The importance of academic support services for students underprepared in the traditional classroom has been well-documented (Boylan, 1995; 2002; Boylan et al., 2017), and online developmental education courses are likely not exceptions. Tailoring existing academic support services and adding extra services designed specifically for these students is necessary to facilitate the academic performance of those students in virtual learning environments.

Faculty input on the types of instructional strategies/activities used to teach online revealed a number of practices worth considering when designing and delivering developmental education courses online. Not surprisingly, discussion boards were the most commonly used activity by participants of this study, similar to those reported in existing literature on both technology integration in developmental education (e.g., Martirosyan et al., 2017) and in online education in general (e.g., Bailey & Card, 2009; Caldarola, 2014). Faculty in

this study implemented many of the best practices supported in the literature, such as the use of multimedia (Bailey & Card, 2009; Brants & Struyven, 2009; Xu & Jaggars, 2011); timely feedback and frequent communication opportunities (Bailey & Card, 2009; Brants & Struyven, 2009); and clear instructions. These practices align with student preferences as reported in a recent study by Rouhani (2017), who used years of student feedback taken from online mathematics courses to identify instructional practices that were well received/requested by students. Bailey and Card (2009) preferred the advice of experienced award-winning online instructors who reported encouraging students to engage with the course content, peers, and instructors while also demonstrating understanding and flexibility as they acknowledged the challenges students faced in the online environment.

Based on the findings of this study, where time management, engagement, and motivation were among the challenges noted, several practical implications are drawn for consideration by faculty assigned to teach online developmental education courses. Planning an online course that is manageable and engaging is extremely important. It is not possible to determine to what extent the courses taught by study participants were engaging. Designing and delivering engaged courses is crucial, especially when working with students who are underprepared. At a minimum, it is imperative to (a) provide clear instructions and communicate frequently with students by sending reminders about upcoming assignments and due dates, (b) e-mail about missed assignments, (c) provide a structured and organized course, and (d) offer synchronous and asynchronous spaces where students can ask questions and be engaged. When reporting advanced pass rates for students enrolled in online developmental education at Rasmussen College, Doherty (2016) emphasized the importance of mandatory synchronous sessions for students. Such sessions provide a space “in which online students can practice, make mistakes, receive encouragement, and collaborate with faculty and peers” (Doherty, 2016, p. 6).

Offering discussion board activities, frequent low stakes learning quizzes, and timely feedback

is also suggested for delivering engaged online courses. As many students might struggle with low self-efficacy and lack of motivation, being engaged in course material through various activities could help them become more self-regulated learners. It is worth repeating that frequent feedback and interactions with the instructor and peers are important components in an online course. Such components could potentially develop a sense of community and increase student motivation—factors that are important for being successful learners, “whether they be online or face-to-face students” (Wighting et al., 2008, p. 286).

Finally, in order to implement the instructional practices suggested above, it is imperative for institutions to provide training and professional development opportunities for faculty teaching online (Bailey & Card, 2009; Brants & Struyven, 2009; Coleman et al., 2017; Xu & Jaggars, 2011). These efforts should not only focus on the use of technology applications and pedagogy-related issues but should also consider challenges reported in this study and how those challenges could be mitigated through application of evidence-based instructional best practices. Kebritchi et al. (2017) suggested offering a “specific training on online pedagogical delivery to assure that they [faculty] understand how students learn” in an online environment (p. 20). Observation opportunities for instructors who are new to online teaching were also suggested (Kebritchi et al., 2017). As Lieberman (2019) noted, “meeting instructors where they are can be challenging” (para. 1), but it is something that should always be considered by administrators when increasing online course offerings.

Limitations and Recommendations for Future Research

This study had several limitations. First, the scope was limited only to faculty teaching developmental education courses online. Challenges reported might not be applicable for students enrolled in college-level online courses. Therefore, it is recommended to conduct a similar study that includes faculty teaching both developmental education and college-level courses online to explore the similarities and differences in challenges faced at both

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levels. Moreover, because this study was the first attempt in soliciting faculty feedback on online developmental education courses and at the time of the data collection, such courses were not as common as they have become due to the COVID-19 pandemic, the survey included all areas of developmental education. Future studies could focus on each area of developmental education (i.e., mathematics, integrated reading and writing) separately in order to identify subject-specific instructional best practices.

Second, nearly 90% of the participants of this study were faculty teaching developmental education courses in a community college setting. It is recommended that a similar study be conducted among faculty teaching developmental education courses online at 4-year institutions. Although students share common characteristics, some demographic variables might play a role when considering their level of underpreparedness and technology access/readiness for online classes.

Third, within this study, we collected only basic demographic information (i.e., teaching status, gender, institutional status) about faculty. No information on participants' online teaching experience was collected. Because it has been noted in the literature that more experienced instructors tend to be more understanding and flexible in acknowledging online student challenges and encouraging them to be engaged (Bailey & Card, 2009), it is recommended for future studies to obtain information about faculty members' experiences and expertise in online teaching. This information would add another important layer to the discussion on best instructional practices and how some of the challenges reported could be mitigated.

Fourth, the findings of this study were limited to the opinions of faculty regarding challenges and instructional activities. We recommend conducting similar studies among students enrolled in online developmental education courses. Garnering student perspectives will be helpful for both faculty and administrators as they continue making improvements in delivering developmental education courses online. Rouhani's (2017) recent study was such an attempt, and additional similar studies in the field are needed.

Finally, data collection for this study was limited to qualitative responses received through open-ended questions. When coding and interpreting responses, researchers controlled for bias and ensured that the discussion of themes and relevant codes were supported by participant quotes. Although findings presented and implications offered are intended to assist

practitioners and administrators when designing and delivering online developmental education courses, in no way should the findings be generalized. More research in the field is in order.

Conclusion

Online education will continue to grow in the years to come. At the time of this study, offering online developmental education courses was an emerging trend. However, due to the recent COVID-19 pandemic, institutions across the nation were forced to move from face-to-face to entirely remote instruction. This has created multifaceted challenges, especially for institutions and faculty less experienced in delivering online instruction. Moreover, as noted by Mangan (2020), educators are concerned about the impact of the current crisis on "already disadvantaged students" (para. 8), and it is predicted that more students will start college underprepared. Meeting the needs of these students in an online learning environment will remain a challenge. The findings of this study could benefit faculty in mitigating some of the common challenges faced when teaching developmental education courses online. Before offering online courses, administrators and advisors are encouraged to consider some of the implications offered in this study. On the other hand, faculty assigned to teach developmental education courses online are encouraged to consider the instructional activities reported in this study when designing their courses. Ongoing professional development, sharing evidence-based instructional practices with fellow colleagues, and implementing support services designed specifically for online students enrolled in developmental education courses must be an institutional priority.

Disclosure Statement

No potential conflict of interest was reported by the authors.

About the Authors

Dr. Nara Martirosyan is an associate professor of the Developmental Education Administration Doctoral Program at Sam Houston State University. Her research interests include best practices in developmental education, factors affecting international students' adjustment, and program evaluation in higher education. She has published in a variety of journals, including *International Journal of Educational Management*, *Journal of International Students*, and *Journal of Developmental Education*.

 <https://orcid.org/0000-0001-6120-6545>

Dr. D. Patrick Saxon is a professor and director of the Developmental Education Administration Doctoral Program at Sam Houston State University. He has published extensively and is coauthor of *Attaining Excellence in Developmental Education*. He is also a Council for Learning Assistance and Developmental Education Associations Fellow.

Dr. Susan Troncoso Skidmore is a professor of the Developmental Education Administration Doctoral Program at Sam Houston State University. Her research interests include statistical models in applied research. Her works have been published in a variety of journals, including *Educational Researcher*, *Educational and Psychological Measurement*, *Behavior Research Methods*, and *The Review of Higher Education*.

 <https://orcid.org/0000-0002-5731-0988>

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