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Use of Online Hybrid Supplemental Teaching in Field-Based Teacher Education Programs

Hank Bohanon, Wenjin Guo, & Christopher Dickman
Loyola University of Chicago

University faculty members who implement field-based teacher education programs experience challenges providing instruction for clinical, site-embedded university-based students. These issues can include a lack of common times to meet with students, limited access to meeting space to provide direct instruction, and changes in the school schedule. A number of these barriers may be addressed by adding elements of online instruction to traditional in-person classes, making the course, in effect, a hybrid one. In this study, the researchers analyzed the perspectives of university-based, special education focused instructors and clinical partners on the barriers, needs, benefits, and content related to implementing hybrid instruction in field-based settings. The hybrid content would supplement special education teacher education candidates' learning as they developed their skills for supporting students with special needs. Five university faculty members and two field-based PK-12 partners involved in special education teacher preparation participated in in-depth, open-ended phone interviews. Data analysis included identifying themes using a constant comparative qualitative approach. The participants recommended several supports they considered necessary for using technology to teach their students successfully. Rather than a temporary pandemic measure, the authors suggest that hybrid instruction offers a promising approach to support preservice teachers in the field going forward.

Field-based teacher education programs offer unique experiences to prepare preservice teacher candidates as future educators. These field-based models consist of professional learning communities or communities of practices that support the transformation of the candidate and the transmission of knowledge of effective prekindergarten through 12th-grade (PK-12) teaching.

University-based students learn teaching theories, methods, and techniques within these models through onsite lectures or tutorials. While helpful, there are also challenges in preparing students in field-based programs (Heineke & Ryan, 2018). For instance, field-based students encounter issues such as developing an equal understanding of the knowledge base provided by the university and the partner site (Zeichner, 2010). Additionally, field-based partners may not know university-based content in traditional textbooks and analog formats. More research may be needed to find ways hybrid instruction can alleviate some of these barriers for field-based programs.

The following section includes an introduction of the features of hybrid instruction and a description of instructors' challenges, concerns, and effective approaches for implementing hybrid learning. The section concludes with a description of the research gap related to hybrid learning and field-based teacher education.

Literature Review

Well-planned and structured hybrid instruction may effectively provide content to students and support their success in field-based sites. This type of instruction can make learning more accessible for students, as it does not lock their learning to specific times or locations (Levy, 2003; Toumpalidou, & Konstantoulaki, 2022). For this study, we defined hybrid instruction as a combination of in-person and online instruction. The online components of this study included using existing structured learning modules, online discussion boards, posting materials through a learning management system, and developing short screen-recorded video presentations to support student learning.

While evidence is strong that hybrid instruction is effective in other fields, such as medicine (Vallée et al., 2020), there are limited data about its use in field-based teacher education programs. The results of our research support the proposition that, from the perspective of PK-12 teachers and university-based instructors, hybrid instruction can be a valuable tool for field-based teacher education.

Even before COVID-19, online learning was a growing enterprise (Garrett et al., 2021). Many higher education faculty members were asked to teach online (Seaman et al., 2018) and in a variety of content areas (Dieker et al., 2009) as the demand for online programs increased (Nilson & Goodson, 2021). However, university-based instructors have reported several concerns about teaching in online formats. In some cases, instructors teaching online struggle to promptly provide helpful feedback to their students (Columbaro, 2015; Rock et al., 2009).

Regrettably, many higher education educators lack the confidence to design online instruction effectively (Darling-Hammond & Hyler, 2020; Downing & Dyment, 2013). Ongoing support and guidance from their institutions, such as training and coaching, can bolster faculty members' readiness for online learning (Cutri et al., 2020; Downing & Dyment, 2013). However, in the push to add more online courses, faculty members often have too little time to adequately learn effective online teaching practices (Meyer & Murrell, 2014).

Other challenges include but are not limited to a concern for an increased workload for the instructor (Bolliger & Wasilik, 2009; Cook et al., 2009; Marasi et al., 2021), the ability to maintain student engagement (Marasi et al., 2022; McQuiggan, 2007), limited buy-in from faculty members (Gayton, 2009; Huss, 2007; Marasi et al., 2021), and a lack of teacher educators' technology skills (Marasi et al., 2021; Mills et al., 2009; Paulus et al., 2010).

Additionally, there are concerns about supporting university-based students using online technology (Kirschner & Bruyckere, 2017). These issues include limited interactions with peers and instructors (Evans, 2013), which can affect students' academic performance (Borel, 2013; Wyman, 2012). Overcoming these challenges and creating genuinely effective online learning takes careful planning and development. The lead time for preparing a fully online course can range between 5 months (State University of New York Broome Teaching Resource Center, n.d.) and two semesters (University of Texas at Dallas Center for eLearning, 2024).

Taking this time to address challenges and create high-quality online and hybrid course designs will likely pay off for students and instructors. When designed well and facilitated using best practices, online courses may affect learning more than in-person courses (Elkilany, 2015). Hybrid courses can also be as successful and satisfying as face-to-face classes (Dziuban et al., 2018; Gerbic, 2011). Further, students enrolled in virtual or hybrid lab experiences can fully match or exceed the performance outcomes of those in on-campus settings (Darby-White, 2016).

Educators can draw upon studies based on fully online teaching in university-based teacher education to guide understanding of implementing hybrid instruction in field-based, teacher education settings. For example, online discussions based on reviewing video clips of peers' teaching practices may promote peer collaboration and reflective skills (Harford & MacRuairc, 2008). Online technology enables effective reflection for teacher education students in the final stages of their training (Chang, 2019).

For instance, student teachers can share videos and written observations of microteaching with their university supervisors. Their university supervisors can then provide feedback to the students on their instructional performance and personal reflections (Howell et al., 2020). Additionally, instructors can use video case studies to provide interactive methods of engaging PK-12 learners in activities, giving their students a sense of control (Dieker et al., 2009). Sharing high-quality video case studies of PK-12 teachers, children, and classrooms provides a vibrant and dynamic context for understanding critical special education topics and

brings the complexities of teaching and learning into teacher education classrooms.

This study expanded the literature in that we studied the use of hybrid instruction in a field-based teacher education program. While existing evidence-based resources provide online instruction for in-service and preservice educators (Hitt et al., 2022), we did not find examples in the literature of teacher educators supplementing field-based clinical experiences using hybrid instruction. Much of the research on online instruction in education has not focused on field-based instruction (Downing & Dyment, 2013). Thus, more research on online and hybrid teaching in field-based teacher programs is needed (Bicen et al., 2014).

In this study, we aimed to identify barriers and support needs, benefits, and content for using hybrid instruction in a field-based teacher education program from the perspectives of five university faculty members and two field-based PK-12 partners involved in special education teacher preparation.

Methodology

The focus of the research questions was on university-based instructors' and field-based partners' (e.g., cooperating teachers) perceptions of the barriers, needs, benefits, and content for implementing hybrid instruction in field-based teacher education. The participants supported university-based students from freshman to graduate levels. The preservice candidates were general and special education majors taking courses about teaching PK-12 students with special needs. The following were the specific research questions (RQ) for this project:

- RQ1: What were university-based teacher education instructors' perceived barriers and needs related to implementing hybrid instruction with university field-based students?
- RQ2: What were the perceived benefits for university-based teacher education instructors on using hybrid instruction when teaching preservice, university field-based students?
- RQ3: What were perceived knowledge-based needs related to online content from the perspective of field-based partners knowledgeable about PK-12 special education?

RQ1 and RQ2 addressed obstacles and motivation for using hybrid instruction. These questions focused on barriers, needs, and benefits related to using hybrid instruction to support field-based teacher education. RQ3 included information that would help university-based instructors identify the most cogent hybrid content for supporting university-based students in field-based settings related to supporting PK-12 students with disabilities.

A holistic single case study approach (Baxter & Jack, 2008; i.e., includes only one case) was used to describe unique factors defined by the research participants. These factors were related to supporting candidates in a field-based teacher education program using hybrid instruction (as also in Liu et al., 2008; Paulus et al., 2010). This project was part of a larger study

that involved the eventual implementation and evaluation of hybrid instruction. The purpose of this paper was to evaluate the implementation of hybrid instruction in a field-based teacher education program. While there were two participant groups in the study, the combined focus was on a single case example for methods and content to prepare preservice educators using hybrid instruction.

The university program selected for this study was identified using convenience sampling. Specifically, convenience case sampling (Marcu at al., 2022) was used to identify a program focused on field-based instruction for their preservice teacher preparation program. The site selected for this study allowed us to gain the perspectives of university-based instructors and field partners associated with an urban field-based preservice teacher education program. Prior to student teaching, the program held 80% of its courses in PK-12 schools with the support of university instructors and field-based partners.

While we were faculty members in the same department, we were not included in the sample for this study. The components of hybrid instruction under investigation included addressing field-based learning, instructional support needs for instructors when using additional online instruction, and recommendations for candidate development as future educators of students with disabilities.

Context

It is important to provide the context of this study to support the transferability of the data (Baxter & Jack, 2008).This study occurred in a private university in the midwestern United States. The undergraduate and graduate teacher education programs included approximately 300 students. The community partners were teachers in a large urban district in the same city as the university, where the candidates were engaging in field-based clinicals. The university redesigned its teacher education program to be field based in 2014. The goal of the redesigned teacher education program was that most instruction would occur in field-based sites within the local community.

Participants

We used purposeful sampling to identify possible participants once the program under study was identified. Purposive sampling is an appropriate technique for meaningful sense-making and in-depth understanding of a specific case. In particular, we applied key informant sampling (i.e., selecting participants with significant knowledge) to select participants with essential knowledge regarding the research questions for this study (as recommend in Patton, 2014). Based on our questions, we looked for university-based instructors with experience in special education preservice teacher training and field-based partners who knew the critical skills required for PK-12 special educators.

University-Based Instructors

The university-based participants were selected from across the developmental sequence in the teacher education program. It was also essential to balance perspectives between (i.e., maximum variation sampling) high full-time and part-time university-based instructors (as recommended in Patton, 2014). Including multiple perspectives on preparing special educators using hybrid instruction was essential to ensure the richest data possible. Based on these criteria, we identified five potential university-based participants (n = 5), all of whom agreed to participate in the study.

The university-based instructors included one former special education teacher, one language development expert, one reading specialist, one curriculum development specialist, and one school psychologist. All five university-based instructors taught courses for students in the special education teacher education program. The university-based instructors had served in the field of education ranging from 7-42 years, with an average of 21.4 years collectively. The instructors' university teaching experience ranged from 4-17 years, averaging 9.6 years. These instructors were all trained in special education or education-related content.

All instructors used the same online learning management system (LMS). University-based instructors each posted their course syllabi and contact information on the LMS. Some instructors supplemented face-to-face instruction for the university-based students by allowing them to review existing online modules (e.g., IRIS Center online modules) and post written reflections in the LMS. In these cases, the students were either given time at the clinical site or were released early to allow them to complete their online learning at their own pace. These instructors then provided feedback on the students' reflections, with an eye toward connections with the field-based learning opportunities. Other instructors held traditional face-to-face classes with in-person lectures for the university-based students at the clinical sites. The instructors who provided hybrid instruction did not mention the additional time it took them to prepare beyond their traditional face-to-face lectures.

Field-Based Partners

Field-based partners were PK-12 teachers who hosted university-based students in their classrooms. We reviewed a list of field-based partners who received students from special education-related teacher education courses to select these participants. In particular, we looked for teachers who were licensed and practicing special educators. Based on these criteria, two field-based partners were identified and agreed to participate in the study (n = 2). One field-based partner had been in the educational field for 4 years, while the other had worked for 11 years. Both teachers were licensed special educators who worked directly with students in the teacher education program in their PK-12 classrooms.

The field-based partners provided insights for identifying specific hybrid content for instructing university-based teacher education students. We hypothesized that the field-based partners' recommendations of particular

knowledge and skills would help university-based instructors select the most relevant hybrid content for their students. Further, we could not identify any studies incorporating the voice of university-based instructors and field-based partners in using hybrid instruction in teacher education. After identifying the participants, the researchers conducted structured phone interviews with the university-based instructors (n = 5) and field-based partners (n = 2).

Procedures

We relied on structured, open-ended interviews for data collection for this study. The purpose of the structured interviews was to identify specific constructs related to hybrid instruction in the field-based teacher education program (Graziano & Feher, 2016). The open-ended interview questions used in this study encouraged in-depth and thoughtful responses associated with the context of the study (Patton, 2014). We collected the interview data over a single 15-week semester.

Interview Questions

The structured, open-ended interview questions (Patton, 2014) were developed based on a literature review and framed by the study's research aims. The questions for the university-based instructors included 10 items (see Appendix A). Interview items 1-8 detailed questions related to the participants' perceptions of using hybrid teaching in their classes (e.g., Which areas of the online materials do you consider most time-consuming or most tedious?). Items 9-10 involved demographic questions about their experiences with university-based teaching.

The field-based partner questions included four items. The first three items focused on content and resources they believed were most relevant to supporting PK-12 students with special needs (i.e., What do you think would be essential for students to know about teaching students with special needs?). Question 4 focused on the amount of time they had spent in the field of education (see Appendix B).

Interviews

The project staff conducted and audio recorded each interview over the phone. The university instructors and field-based partners received a copy of the questions before the interviews. The interview process took approximately 1 month, with most discussions ranging from 20-30 minutes, and another one lasting about 1 hour based on the participant's extensive responses.

Analysis

The interview data were transcribed by staff from a research center at our university. We then coded and analyzed the transcripts for themes. The transcriptions from the audio files were analyzed using a multiple-stage process (Miles & Huberman, 1994). First, a broad set of descriptive codes was developed, based on the literature and an initial review of the

interview transcripts. We used NVivo 11 software to code the transcripts. Three researchers coded an initial interview to develop the codebook. Second, we analyzed interviews independently but met to discuss changes in the master codebook. Third, the modified coding procedure involved four operations: unitizing, categorizing, filling in patterns, and case study construction (Skrtic, 1985) described below. Coding included using NVivo to identify units of information from the interview transcripts.

The codebook's organizational scheme was formulated, reformulated, and subdivided into categories using a constant comparative model (as recommended in Bogdan & Biklen, 2007). The use of extension, bridging, and surfacing strategies allowed for continual critique regarding relationships among themes. This approach also helped us to pursue missing data and verify existing themes. Missing data meant a theme might seem to have emerged but did not initially have enough support to stand alone. Reanalysis of the data allowed us to determine if the theme could be grounded in the data. The formation of cohesive data content and common themes required multiple reorganizations of the codebook.

The case study report served as a mechanism for further analysis and synthesis of the data during the writing process (as recommended in Skrtic, 1985). The trustworthiness of data (analog to reliability) included credibility (analog to internal validity or truth value in quantitative research; Brantlinger et al., 2005; Skrtic, 1985).

We used three key features to establish trustworthiness for this study, according to the previously mentioned standards: (a) triangulation (i.e., the use of multiple data sources in the development of all themes), (b) member checking the final case study with participants for feedback and modification as necessary, and (c) an external audit of the case report. All participants received a final copy of the case report as a member check. The purpose of sharing the member check was to ensure the report was grounded in the participants' data. Only three participants provided feedback on the case report. The three respondents believed the case report accurately represented the interview data.

An external researcher conducted a conformability audit of the case study. The review involved: (a) verifying that case assertions were grounded in the data; (b) using the audit trail provided to locate and identify raw data that support selected case assertions, and noting any inquirer biases; and (c) reviewing the final case and tracing selected assertions back to the data. The audit confirmed that the data supported the claims made in the final case report, and the report was free from undue researcher bias.

Results

The results of this case study are presented based on the research questions. Each section includes the themes and subthemes that emerged from the data analysis. RQ1 and RQ2 addressed the university-based instructors' use of hybrid instruction. The focus of RQ3 was the knowledge-based needs for university-based students to support PK-12

students with special needs, as identified by field-based partners to help select online content.

Appendix C includes a summary of the study results. The first column for Appendix C contains themes generated from the data for university-based instructions (RQ1, RQ2). The themes in the second column of Appendix C include a summary of the field-based partners' recommendations (RQ3).

RQ1: Barriers and Needs of University-Based Instructors

The study participants recognized barriers to implementation, such as a lack of knowledge and strategies for effective hybrid teaching. They also identified limitations for observing their students' learning investment or engagement. Regarding technology, university-based instructors shared their insights into students' difficulty navigating different learning platforms and resources. The university-based instructors also described barriers, including a lack of stable Internet access at the partner school sites and in some students' homes. Although they acknowledged the potential benefits of hybrid learning, they highlighted concerns about technological issues and community-building in the long run.

Last, the university-based instructors mentioned the importance of ongoing support from the university. The following section includes the themes for university-based instructors regarding prior experiences with hybrid instruction, limited access to and difficulty using online resources, and faculty support.

Barriers Related to Prior Experiences with Hybrid Instruction

The university-based instructors had a variety of responses regarding barriers associated with their previous experiences with hybrid instruction. Although many university-based instructors had some prior experiences with hybrid teaching, mainly through the university's online tools, a few felt they were "restricted by [their] own knowledge." In other words, they lacked the advanced skills to provide effective hybrid instruction. Additionally, many university-based instructors mentioned their "hunger for more exposure" to online and digital tools.

Furthermore, some individual instructors felt disadvantaged because they assumed every university-based student was familiar with the online learning tools (i.e., learning management systems). These instructors stated they should have taken the time to explain the online tools first, saving them more time and overall effort in the long run. The logistical component of using online tools was also mentioned, with some university-based instructors criticizing the lack of consistency in using the technology across instructors. For instance, some instructors used the university's LMS extensively, while others did not.

The most commonly identified barrier to hybrid instruction was that university-based instructors felt they did not have a good sense of their students' investment in any given class. Without synchronous interactions, the instructors could not accurately gauge the students' involvement or effort in an activity or exercise. The lack of the ability to

measure university-based student engagement may have been due to the online strategy selected by the instructor.

Access and Use of Online Resources

The construct "access and use" had two related subthemes: difficulty navigating instructions and logistical concerns.

Difficulty Navigating Instructions. Most university-based instructors reported problems for university-based students when asking them to navigate online assignment instructions. When these students struggled with technology, the instructors believed it likely resulted from not reading the syllabus or the provided in-depth directions. The instructors also felt it was essential to communicate effectively with the students regarding the LMS's layout, especially where students should look for resources.

Additionally, one instructor discussed a complaint in which students struggled with using too many interfaces at the university, stating, "The number one complaint I get from my students [is], 'I don't know which system to upload [assignments] to even though it's on the syllabus.' They just want to have one place [to upload assignments]." Another instructor also discussed differences among students regarding learning styles or quickness in navigating technology, which may have led to some students having more difficulty following directions than others. One reason for the university-based students' problem with accessing online resources might have been a lack of clarity in the provided directions.

Logistical Concerns. The logistical concerns related to delivering hybrid instruction in field-based settings appeared to be limited. However, one instructor reported struggling to access the internet in some field-partner schools. A lack of access to the internet would be a significant obstacle in using hybrid curricula, such as online videos at clinical sites. In some cases, instructors had to bring their computers or other materials to the PK-12 schools, making teaching more laborious. Additionally, not all university-based students had internet access at home, which required them to make more effort than their peers to find needed resources. Last, one instructor noted that few students sought assistance from the university's information technology department.

Some instructors discussed areas where it became difficult to incorporate online work into their curriculum. For example, one instructor noted frustration with a dependency on online materials for the class's success when technology failed. Similarly, another instructor stated that university-based students might have difficulty transitioning to working "the old-fashioned way" (i.e., face-to-face) because they were unfamiliar with methods that did not involve technology. Finally, it appeared to be more difficult to build community or foster collaboration online than in person for these instructors.

Faculty Support

Several university-based instructors reported a lack of support for implementing hybrid instruction. One instructor stated there was support in theory but "not so much in terms of actual practices." One suggestion was to have instructional learning opportunities or lab experiences for instructors to learn how to navigate and incorporate hybrid instruction into their teaching (e.g., sitting down in a classroom environment for several hours to receive coaching on the use of technology).

Another instructor reported that, while there was support for hybrid teaching from the university, instructors needed to pursue these independently. Other instructors noted that they had attempted to seek assistance numerous times and could not resolve their issues. Two other instructors reported they felt supported in using hybrid instruction and mentioned the importance of pursuing colleague assistance.

RQ2: Benefits of Hybrid Instruction in Field-Based Programs

The focus of RQ2 was the perceived benefits of hybrid instruction in field-based teacher education programs. Many of the university-based instructors voiced the benefits of hybrid instruction. These instructors agreed that a hybrid format was an effective alternative to face-to-face instruction alone. For example, they stated that a hybrid approach met students' diverse learning styles and preferences. Perhaps the most frequent response regarding hybrid instruction in field-based settings was the convenience of online learning. As one instructor stated, "Most of [my] students have full-time jobs, and it is very difficult to commute downtown. …[the online tools] make them flexible in terms of time." In other words, instructors tended to find that the out-of-classroom experience created new flexible options concerning time for themselves and their students.

In addition to the convenience factor, the university-based instructors also valued balanced student contributions. Some university-based students tended to "dominate the discussions" in face-to-face situations. But when online tools were used, university-based students who were more introverted had "the chance to make [their] voice heard through online discussion." Thus, the hybrid class design may have given these students an opportunity for class participation that they might not experience in face-to-face scenarios. This opportunity for university-based students would be contingent upon the instructors' use of online tools.

Several instructors reported that hybrid instruction served as extra support and catered to students who required information in different formats and accommodations. One instructor stated, "It (online instruction) is a way to expose different ways of learning. … Moving beyond text-based and lecture-based or discussion-based learning, they'll (students) be accessing videos or other types of learning formats." One said that video lecture materials were also beneficial because students liked to have visual resources. The use of technology appears to have significantly expanded the resources used for learning and support for students.

RQ3: Suggested Online Content From Field Partners

The third research question for this study (RQ3) involved field-based partners' perceptions of the types of online content that candidates could access as a part of the hybrid curriculum. The following section includes the general themes from the field-based partners (e.g., teachers), including essential knowledge for university students. The goal of identifying these themes and resources was to pinpoint special education-related online learning materials to incorporate into field-based instruction for university-based students.

Essential Knowledge for Students

Essential knowledge included four subthemes related to the special education expertise the university-based students needed to support PK-12 students with disabilities. These areas of suggested expertise included providing academic support, behavior support, developing individualized education plans (IEPs) for students, and demonstrating professional social skills when working with other adults.

Academic Support. Regarding academic support, field-based partners felt it was important for university-based students to know how to develop effective instructional plans for PK-12 students. This suggestion included obtaining plans from other teachers or creating their own lessons. One participant thought preparing unit plans was also a beneficial activity. At the time of the study, the instructional and unit plans focused on face-to-face instruction. University-based students should also know about using data to make decisions around instruction, specifically for diagnostic and formative (e.g., pre/post assessments) purposes.

Behavior Support. Behavior support included the university-based students having knowledge of classroom management and developing individualized interventions for PK-12 students. The field-based partners stated that content around effective classroom management was necessary for setting the stage for academic instruction, particularly for larger groups of PK-12 students. They also shared that learning to provide individualized behavior support plans was essential. These plans included writing documents, collecting data, and knowing under what conditions to begin the intervention process. Again, the goal of these plans was to provide support for PK-12 students in face-to-face environments. However, the suggested behavior knowledge should be considered when selecting hybrid learning resources for university-based students.

Developing IEPs. One field-based partner focused on the need for university-based students to create IEPs. This need included writing a good narrative in the IEP for transition plans, teaching social skills, and teaching communication skills to PK-12 students. University-based students needed to be able to create cohesive support documents. For example, the participant stated that IEP development could initially be intimidating.

Professional Social Skills. According to one field-based partner, university-based students needed the ability to work with other adults on

their future teams. For example, these future teachers should be prepared to give practical directives and provide helpful feedback to paraprofessionals. Additionally, university students may need to address potentially awkward situations with other staff. The field-based partners also stated that learning how to work with administrators with different leadership styles was essential for university-based students to negotiate their future work environment.

Discussion

Our results indicate that university-based instructors could identify barriers, needs, and benefits of online instruction in field-based teacher education. Also, field-based partners could identify knowledge and skill sets that would help university-based instructors select online content for hybrid instruction. We developed recommendations for implementation based on the results of these data.

Barriers and Needs

The university-based instructors seemed to agree that their lack of experience using online instruction was an issue. As in previous research (Meyer & Murrell, 2014; Mills et al., 2009), the instructors wanted to improve their teaching technology skills. Additionally, they felt a shared willingness to use the technology with coaching support from the researchers. This finding aligns with previous research, in that instructors' confidence in online teaching improves as they have more opportunities to practice using the tools under supportive conditions (Curti, 2020; Downing, 2013).

Choosing the correct number of tools and learning objectives for university-based students also appeared essential for university-based instructors. As with other studies (McQuiggan, 2007), the instructors noted that their university-based students felt overwhelmed by the number of tools they needed to participate in the course. To reduce students' anxiety around project submission, instructors could identify one instructional platform where students could submit their work and receive feedback.

University instructors should consider ways to be as efficient as possible when selecting student experiences and evidence for learning. Some instructors may assign more work than they usually would for face-to-face classes because they believe online learning is less rigorous. Or instructors may underestimate the time it takes to complete an online assignment and assign more work to maintain the course's contact hours.

Instructors can avoid this trap in thinking by remembering that well-designed online and hybrid learning can be as rigorous as other learning modes (Darby-White, 2016; Dziuban et al., 2018; Elkilany, 2015; Gerbic, 2011; McCutcheon et al., 2018). Further, university-based students may need more time to complete online assignments, especially if novel technologies are involved. Selecting online resources based on the course goals may also prevent faculty from using tools and activities that might overwhelm students' ability to manage their workload.

Another challenge the university-based instructors mentioned was the university students' lack of knowledge of specific tools used in online classes for field-based instruction. It was easy to assume that university students were familiar with online learning tools, given their early life experiences using modern technology. However, the presumption that contemporary students are "digital natives" because they have not known a nondigital world has been disproven (Kirschner & Bruyckere, 2017). Many tools (e.g., LMS) have specific purposes and protocols that might be unfamiliar to students.

University-based teacher education students need explicit instruction on the purpose and use of hybrid teaching tools for their coursework. For example, university instructors can use video screen capture software to provide recorded demonstrations of online tools for students. Also, these instructors could provide links to supporting materials related to the technology used in their classes.

Additionally, online technologies are not consistently implemented across courses within a university student's field-based teacher education program. Some participants suggested that this lack of consistent use of online learning tools may confuse university-based students. One way to address this inconsistency is for program leads to discuss the various technologies that can supplement face-to-face interactions within the clinical field-based program. Instructors could showcase examples of using technology to support their teaching in field-based settings. This exchange allows instructors to provide peer coaching to support their hybrid instruction (Downing, 2013).

The university-based instructors also reported unique challenges when providing university students instruction at field-based sites (Heineke & Ryan, 2018). Lack of access to Wi-Fi and other hardware was a consideration that instructors needed to account for when onsite. Additionally, a lack of space to meet with university-based students in school settings was also a meaningful consideration. We addressed these access-related concerns by allowing the university-based students to choose if they will complete the online instruction component of hybrid learning at the clinical school site or another location. In this way, these students can use the time onsite to focus on their classroom experiences, check in with the instructor about specific questions, and collaborate with peers on a significant project.

The university-based instructors suggested that some university-based students may not have access to high-speed Internet at home. Requiring these students to view or upload large video files that need intensive amounts of bandwidth may be a factor that hinders some students' success. One strategy to address this concern is to ensure the instructors' prerecorded online lectures are shorter. Other considerations include the video's quality, the content being presented, and if the video platform can change the quality of the media to match the students' bandwidth. The students can also post shorter videos that do not require them to spend considerable time uploading content. Also, providing asynchronous opportunities for university-based students allows them to decide when and where to complete their assignments. With increased flexibility, students will have more options to complete the required course tasks.

Benefits of Online Support for Field-Based Programs

One theme that emerged from the study was the convenience of hybrid instruction for university-based students and instructors. In our program, based in a large urban setting, travel to and from campus or clinical sites can be problematic due to traffic congestion. Additionally, issues can arise when we attempt to deliver instruction at PK-12 school sites. As one university-based instructor mentioned, lack of access to technology (e.g., internet, presentation software, and projectors) can be an instructional barrier.

Finding space to meet with students can also be problematic in some overcrowded urban school settings. We have found no guarantee that an urgent meeting will not displace our classes even when provided with a meeting area such as a school's library. Using hybrid instruction to supplement field-based teaching prevents the need to plan around traffic, access to technology, and space within the PK-12 school.

The university-based instructors indicated that hybrid instruction could support university-student engagement. These instructors noted improved engagement from students who were typically reticent to share in class. This increased participation may have been due partly to university-based students' opportunities to reflect on their responses before sharing (see also, Dieker et al., 2009).

Hybrid teaching allows university-based instructors to expand their digital curricular tools for field-based instruction. By observing prerecorded videos, university-based students may improve their performance at PK-12 school sites by enhancing their ability to reflect on their teaching (Howell et al., 2020). Additionally, the field partners recommended several resources (e.g., News to You) that they used to support PK-12 students with disabilities in their classrooms. Traditional textbooks usually do not include these types of online tools. The field-based partners' recommendations also can help university-based instructors identify online content that supports the development of future teachers. For example, the advice to address academic and behavior support, IEP development, and professional social skills can help faculty identify specific online learning modules related to these topics.

Recommendations for Addressing Barriers

Multiple recommendations emerged from the data to address barriers and needs for using hybrid instruction in field-based teacher education programs. Based on our interpretation of the data from this study, providing effective online communication (e.g., prompt responses, clear direction for assignments, and consistent presence) appears to be a practical approach to address engagement barriers for university-based students in field-based settings.

Additionally, by being conservative on the number and length of responses that students must complete, instructors had more time to provide rapid and in-depth feedback to their learners. In conjunction with assignment expectations, the university-based instructors highlighted the importance

of clarity of purpose and directions for online assignments in field-based settings (Deiker et al., 2009). The participants emphasized the importance of selecting and explicitly connecting online instruction with field-based clinical activities (e.g., observations and case studies).

The university-based instructors said they needed opportunities to practice and receive feedback from the researchers about developing their online instruction for field-based settings (see also, Columbaro, 2015; Rock et al., 2009). Recommendations for supporting university-based instructors could include starting with smaller, less technical strategies (e.g., providing links to existing videos and a short discussion forum). Beginning with smaller online tasks allows the instructor to identify valuable content and develop skills with instructional tools (Williams et al., 2010). Additionally, providing these instructors with models from existing courses can allow them to see examples of proven strategies in action. Based on our data, directly teaching university-based instructors and students how to use learning technology can effectively encourage the use of hybrid instruction strategies in field-based settings.

Limitations

This study had several possible limitations. First, while not necessarily a limitation, the study's methodology allowed for a small sample of instructors and field-based partners. This research focused on identifying issues and concerns that could transfer rather than generalize to other settings (Skrtic, 1995). While the small sample size was appropriate given the study's methodology, the reader must determine if the findings might transfer to their context. Second, the research occurred at the lead researcher's institution. This convenience sampling approach could lead to issues related to the truth value of the case report. As stated in the methods section, several measures were implemented to address the data's trustworthiness concerns. Specifically, the member check and external audit support the truth value of the analysis.

Conclusion

Following is a summary of the recommendations from this study that address the barriers and needs for using hybrid instruction in field-based teacher education. These suggestions involve providing constant and effective communication, a consistent online presence, encouraging engagement, embracing and acknowledging diversity, and providing support. Future researchers can test these recommendations in specific field-based teacher education programs.

Provide constant and effective communication through

- Emails and announcements
- Web-based conferencing
- Blog posts
- Online discussions
- Phone contacts

Provide a consistent online presence

- Giving timely feedback/responses to students
    - Online discussions
    - Assignments
    - Emails (i.e., assign fewer, shorter, yet better assignments to aid in feedback)

Encourage engagement

- Provide collaborative learning opportunities
    - Critical thinking
    - Brainstorming
    - Problem-solving
    - Study groups
    - Peer assessments
- Support student motivation
    - Commend success
    - Provide stimulating activities

Embrace and acknowledge diversity (e.g., cultural, neurological, physical)

- Use culturally relevant texts, examples, and images
- Apply universal design instruction principles, flexible means of:
    - Presentation
    - Engagement
    - Expression

Support

- Provide links to documentation for using technology
- Explain the technology and its purpose
- Provide clear direction for any activities and assignments (e.g., explicit instruction)
- Link to institutional support offices
- Use a learning management system (LMS) to centralize resources (e.g., assignment instructions, submission)

Hybrid learning may allow university-based teacher educators to balance content and flexibility when providing support and instruction to their university-based students. We hope theses results provide valuable suggestions for teacher educators who support university-based students in field-based experiences.

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Appendix A
Interview Questions For University-Based Instructors

1) Have you ever had experience incorporating supplemental curriculum (e.g., online, blended, website, tech-related) into your teaching? If so, what was your experience like? If not, what is your opinion of it so far?

2) Did you or your students have any difficulty navigating the instructions on using the supplemental curriculum? If so, what were they?

3) When you deliver instructions on site, do you have any concerns around logistics (e.g., access to space, access to the Internet)?

4) What are the primary objectives of using the supplemental curriculum?

5) Do you perceive it to be helpful or irritating for you, in the long run, to incorporate it into your teaching?

6) How difficult do you feel it is for students to use the supplemental curriculum? Too difficult, about right, or too easy? Why?

7) Which areas of supplemental materials do you consider most beneficial? Least beneficial?

8) Which areas of the materials do you consider most time-consuming or most tedious?

9) How supported do you feel by other staff members when faced with challenges presented by yourself or students regarding using the supplemental curriculum?

- What would sufficient support look like? What would you need to feel more comfortable using the supplemental curriculum in your teaching on-site?

10) How long have you been in the field of education?

11) How long have you been teaching at the university level

Note: The term supplemental curriculum was used in these questions instead of hybrid instruction because the program was face-to-face, and the instructors were supplementing their instruction with online teaching.

Appendix B
Interview Questions For Field Partners

1) What do you think would be essential for university-based students to know about teaching PK-12 students with special needs? (e.g., behavior, academics, social, emotional)?

2) How long have you been in the field of education?

Appendix C
Themes for University-Based Instructors and Field-Based Partners

University-Based Instructors

Barriers and needs for implementing hybrid instruction in field-based teacher education programs

- Lack of knowledge, support, and training for online teaching tools
    - Need for hands-on learning, including peer support
- Lack of consistency with use of technology across instructors
- Difficulty in determining engagement levels in asynchronous learning
- Students difficulty navigating assignment instructions
    - Need for frequent and effective communication with the instructor
    - Too many web applications and learning platforms
- Challenges for accessing the Internet at clinical sites
- Need to transport technology
- Technology failures can be problematic when providing instruction
- Difficulties building community

Benefits of hybrid instruction in field-based teacher education programs

- Both students and instructors benefit (e.g., increased engagement)
- Convenience/efficiency/flexibility
- Increased engagement from less actively participating students
- Enrichment of curriculum
    - Technology supports differentiation
    - Expands resources for teaching
    - Visual resources support instruction

Field-Based Partners

Needed content areas for university-based teacher education students, for supporting PK-12 students with special needs

Essential knowledge for students

Academic Supports

- Develop or acquire effective instructional plans for students

- Using data for instructional decision making

- Develop academic interventions
    - Explicit instruction
    - Academic problem solving
    - Intensive instruction

Behavior Interventions

- Use effective classroom management
- Develop individualized support plans

Individualized education plans (IEP)

- Writing narrative
- Teaching social skills
- Teaching communication skills

Professional social skills

- Provide direction and feedback to paraprofessionals
- Interacting effectively with staff
- Working with administrators