Instructional Practices and Perceptions of Special Educators in Blended Learning Environments

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THESIS

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LIST OF ABBREVIATIONS

BL	Blended Learning
CAST	Center for Applied Special Technology
CMS	Course Management System
IDEA	Individuals with Disabilities Education Act
IEP	Individualized Education Program
IRB	Institutional Review Board
LMS	Learning Management System
PIP	Pre-Interview Protocol
PPS	Post-Interview Perception Survey
RTI	Response to Intervention
SEL	Social-Emotional Learning
UDL	Universal Design for Learning

SUMMARY

The evolution of technology in the 21st century has had a profound influence on the nature of K - 12 school-based instruction. Availability, accessibility, and usability of technology in instruction and assessment has concurrently increased the diversity of instructional and assessment methods and possible outcomes for student learning. This has become even more clear within the realities of teaching during the COVID-19 pandemic.

Researchers have suggested that by embracing technology within the classroom, increased student-centered learning could take place which could effectively customize instruction (Collins & Halverson, 2010). Blended learning in high school settings has been touted for those promising possibilities. Garrison and Kanuka (2004, p. 2) defined blended learning as "…the thoughtful integration of classroom face-to-face learning experiences with online learning experiences." Students with disabilities are participating in blended learning at increasingly high rates. In fact, the largest year-to-year growth in blended learning experiences was for students with disabilities (Smith & Basham,2014). Despite early research findings and promising possibilities of blended learning in US high school settings, there remains a significant gap in our knowledge related to fundamental aspects of implementation such as actual use of learning management systems as well as instructional models and assessment of student learning (Altemueller & Lindquist, 2017; Alvarado-Alcantar et al., 2018; Bell et al., 2016; Graham, 2006; Staker & Horn, 2012).

Within these broad areas of question and gaps in research, I investigated how secondary special educators within blended learning environments plan and teach students with disabilities who are diverse in strengths and challenges. Specifically, I focused on (1) how special educators prepare to meet strengths and challenges of students with disabilities, (2) implement blended

learning educational practices during instruction, and (3) perceive the worth of using blended learning environments to support students with disabilities. I used a qualitative design to describe richly special educators' practices and perceptions. The study included surveys and interviews of high school special education teachers working in blended learning environments. I found that a lack of synchronous online instructional activities was used by the participants. Unique customizations and accommodations within the online setting were also rarely used as face-to-face settings were more commonly used when providing special education services. The knowledge teachers use to plan and their focuses, choices for instructional strategies and overall perspectives about how blending learning instruction could support the strengths and challenges of disabilities with disabilities in high school settings are explored and presented.

I: INTRODUCTION

The evolution of technology in the 21st century has had a profound influence on the nature of school-based instruction. The varied availability, accessibility, and usability of technology in instruction and assessment has concurrently increased the diversity of instructional methods and possible outcomes for student learning. This has become even more clear within the realities of teaching during the COVID-19 pandemic. Findings in the most recent reports are beginning to show reactions to the sudden pivot to remote learning in spring 2020. Most reports are based on surveys of students and teachers, with the bulk of items focused on finding ways to effectively instruct students from a remote location. Some reports describe ways to help transition students with disabilities into a remote learning environment (Darling-Hammond et al., 2020; Liberman, 2020). Some schools described having teachers report to the school, while students worked remotely from the school. The teachers in this environment would them provide synchronous online instruction in which the students would be able to see the teacher virtually inside the classroom. Mark Lieberman quoted a teacher, Kirsten Vanwagner, who has a son with Autism. VanWagner described such a setup positively. She said that her son would benefit from the "structure and repetition" of being able to see the classroom everyway (Liberman, 2020). The Brookings Institution also recently published a report calling for educators to think beyond the COVID-19 pandemic (Vegas & Winthrop, 2020). The authors proposed five actions, one of which called for educators to "…harness education technology" in order to "meet the teaching and learning needs of students and educators" (Vegas & Winthrop, 2020, para. 40).

Overall, the reports show a picture of the need for both teacher and student enhanced knowledge of technology use in educational settings. Additionally, we see issues related to questions about accessibility and availability, e.g., distribution of devices, knowledge of how to

use them, and access to broad band in homes while doing teaching and learning. By far, the major finding is the challenge of building relationships online between teachers and students (Lieberman, 2020; USTA, 2020; Vegas & Winthrop, 2020).

There is promise in the new technologies to help shape what the 21st century classroom and overall learning environments could become. Over two decades ago Hannafin and Land (1997) identified many student-centered learning opportunities that exist with implementing more technology into the classrooms. More recently, Collins and Halverson (2018) expressed an encouraging vision for how technology in the classroom could change education through enhanced capabilities for educating students. However, this new technology also brings significant challenges, and could even disrupt the status-quo of how "schooling" is defined (Christensen et al., 2008, Dagdilelis, 2018; Kearney et al., 2019). We are seeing that currently as schools and universities across the US make swift pivots to increased use of technology in several ways to implement educational opportunities.

Yet tensions between traditional classroom instruction and technology-based digital learning continued to emerge pre-COVID 19 pandemic. Several tensions exist between traditional classroom environments and technology-rich environments. Horn and Staker (2011) argue that traditional classroom environments have a deeply ingrained history of uniform learning and age-based common assessments. This factory-model of schooling was designed over a century ago to standardize the way students are taught and assessed with "one size fits all" teaching practices and common assessments. They were designed to meet the needs of students in the most cost-effective and efficient ways possible.

With that goal of identifying students of merit based on potentially biased criteria and assessment procedures, students who do not meet the idealized standards will struggle to succeed

academically and likely fall behind. Along with other researchers, Horn and Staker (2011) suggest that teaching students in this manner does not allow for the broad differentiation and customization that a student population with increasingly diverse needs would require in order to be successful (Collins & Halverson, 2010; Corry & Carlson-Bancroft, 2014; Hannafin & Land, 1997). In fact, many researchers suggest that by holding onto well-established classroom norms, structures and routines, educators and educational institutions stifle the innovation that technology could bring to the educational setting. For example, Collins and Halverson (2010) argue that bureaucratic uniform learning systems of the traditional school model are incompatible with the customization, diverse knowledge sources, and ways of presenting and learning that information technologies can bring to the classroom.

These views build from the foundation and assumptions identified by Hannafin and Land (1997). They examined learning systems integrated with technology. They found that technology could encourage a student-centered environment that is ideal for divergent reasoning, problem solving, and critical thinking. Connected with that, Corry and Carlson-Bancroft (2014) reviewed literature about online teaching as a "turnaround" tool in low-performing schools. Through their literature review they identified "turnaround" schools as those that demonstrated empirical evidence of growth in student achievement and the benefits of using online learning. They found that implementing online learning successfully broadened access for all students to educational resources and had the potential to motivate and engage students due to more flexibilities and self-paced instruction. Additionally, it was easier to individualize and differentiate instruction for all students.

The Potential of Online Learning

By infusing internet-based educational technology into classroom environments, teachers can enhance student learning in several pivotal ways that blend current evidence-based practices for learning with innovative instructional online learning technologies. These practices are especially attractive for the modern student that Marc Prensky famously dubbed the *digital native* (2001). He argued that "our students have changed radically. Today's students are no longer the people our educational system was designed to teach" (p. 1). Whether or not this statement is true is still a matter of debate (Bennet et al., 2008; Jones & Czerniewicz, 2010). However, the potential for enhancing student motivations and learning through technology-rich learning experiences could possibly hold promise. Indeed, many have begun to ponder how will education look in the post- COVID-19 pandemic, arguing that a return to the status quo pre-pandemic is unlikely. Given that, this dissertation study about blended learning takes on an even more timely rationale.

Online learning has become popular due to its potential for providing students more flexible access to content and instruction than traditional education does, providing teachers additional options for planning their instruction, and providing ways to assess student learning in a variety of ways (Means et al., 2013; Rudestam & Schoenholtz-Read, 2009; UTSA, 2020). Furthermore, students can use additional sources of constructing knowledge beyond only what the classroom teacher could offer, such as internet-based digital content resources or online collaboration with peers and knowledge experts within specific fields (Rannastu-Avalos & Siiman, 2020; Rudestam & Schoenholtz-Read, 2009).

Post-secondary schools of higher education were one of the first places where technology-rich online learning gained in popularity (Wallace, 2003). Marketed to working

adults who lacked the free-time and flexible schedules needed to attend regular on-campus classes several days a week, online learning became a widespread method for providing education at the graduate and undergraduate level. Schools such as the University of Phoenix grew exponentially in the mid-2000s largely due to their online learning programs. Currently we see non-profit schools such as Western Governors University and Southern New Hampshire University becoming more readily known. Additional universities like Walden are getting into for-profit online education, too.

Although beginning as an "extension" to the university setting, online learning has become increasingly integrated into the higher education setting (Arkorful & Abaidoo, 2015; Feenberg, 1999; Watson, 2008) and current practice in most US colleges and universities in 2020. As online learning continued to grow in popularity, traditional on-campus classes have begun to adopt components of online learning to form "hybrid" classes where both face-to-face and online components are used (Watson, 2008). The format for these programs and courses has been called many names (e.g., Blended Learning, Hybrid Learning, Mixed-classes). We seem in 2020 to have adopted the terms "synchronous" and "asynchronous". Taken together, they are describing educational environments where both face-to-face instruction and online learning are used together to teach the same content.

Blended Learning

A wide range of descriptions and definitions for blended learning have been used throughout the recent literature. In earlier studies, the term "distance learning" was used in very similar ways as the current day "blended learning". Moore (1990, p. xv) defined distance learning in various settings as

> …arrangements for providing instruction through print or electronic communications media to persons engaged in planned learning in a place or time different from that of their instructor or instructors.

Jonassen et al. (1995) found that much of the early literature aligned with this definition focused on the logistics of providing instruction to students over long distances. Around the same time, Greenberg (2002) also focused on how to logistically provide instruction to students in different physical locations by using video conferencing through the internet with K-12 students. While researchers found promise and made early suggestions for best practice in distance learning, they were operating with limited internet bandwidth and were required to rely on compressed video.

In current times, the phrase "blended learning" has been adopted, and often includes approaches and techniques used earlier in distance learning. Garrison and Kanuka (2004, p. 2) define blended learning as "…the thoughtful integration of classroom face-to-face learning experiences with online learning experiences". Another definition by Staker (2011, p. 3) was published with the Innosight Institute (today known as Clayton Christenen Institute for Disruptive Innovation, a think tank that examines how technology can bring rapid change to society) is that blended learning environments are "…any time a student learns at least in part through online delivery with some element of student control over time, place, path, and/or pace". From this, blended learning can be seen as an attempt to take the best aspects of online and face-to-face learning environments and put them together (Christenson et al., 2013). Staker and Horn recently refined Innosight Institute's preliminary definition to define blended learning as

> …a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place,

> path, and/or pace *and* at least in part at a supervised brick-and-mortar location away from home (2012, p.3).

The Online Learning Consortium further clarified the definition by stating that a typical blended learning environment would have between 30 percent and 79 percent of the class being conducted online rather than in the traditional classroom (Allen et al., 2007).

Taken together, blended learning can be operationalized as:

- A formal education class in which students learn through online delivery of content and instruction 30 to 79 percent of the time.
- Students have some control over time, place, path, and/or pace of their own learning.
- At least part of instruction (minimum 21 percent) is conducted at a supervised brick-and-mortar location away from home (usually the school).

In pre 2020 pandemic times, blended learning environments remained still a new form of teaching but was already being touted for its potential educational advantages. Means et al. in 2013 did a meta-analysis of the effectiveness of blended learning. They reviewed 45 studies. Results show that while students in online learning environments performed slightly better than those receiving face-to-face instruction, blended learning environments were found to have statistically significant advantages over the face-to-face environment in terms of overall assessments of students' knowledge and skill. Overall, the findings show that the use of flexible blended learning environments is just as effective, if not more effective, than a traditional classroom environment. In a literature review, Drysdale et al. (2013) examined dissertations and theses within the decade before publication that focused on blended learning to identify research trends. They found that the overwhelming majority of blended learning research (77%) is conducted within higher education settings. Their findings align with a statement the President of

Penn State University said in 2002; that is, that the convergence of classroom and online education was “the single greatest unrecognized trend in higher education today” (Young, 2002, p. A33).

Pivotal for my research is that of the dissertations and theses Drysdale et al. (2013) analyzed, only 8% took place in K-12 settings. They noted “We see an area wide open for K-12 blended learning research” (Drysdale et al., 2013, p. 9). More recently, Pulham and Graham (2018) conducted a review of K-12 blended learning literature. Focused specifically on teaching competencies, their review found that much of the research surrounding blended learning did not rely on teacher surveys or interviews, but rather focused more on expert opinion. In addition, the study did not provide any insight into how special educators are instructing within blended environments, nor their perceptions of those environments. What this means for special education in high school settings is what I explore next.

Meeting the Needs of High School Students with Disabilities within Blended Learning Environments

While blended learning within the K-12 environment is an area in need of exploration, specifically students with disabilities and their experiences within blended learning is an area of particular need for further research. Students with disabilities are enrolling in online learning environments at an increased rate and therefore there is critical need for investigation of best practices (Smith & Basham, 2014). This need has been intensified by the COVID-19 pandemic, which has brought about a rapid shift to online and blended instruction for students with disabilities all over the country. My efforts to find research about students with disabilities in blended learning environments showed wide gaps in our knowledge along with few publications. Of the studies I found, only five had a component examining students with disabilities within K-

12 blended learning environments specifically, as opposed to a sole online learning model. From those 5 studies, the focus is on *academic and/or social achievement* and *accessibility*.

Assessing Achievement

Earlier studies of distance learning reported overall effect sizes of near zero, indicating that learning within the online component of blended learning environments was not significantly different from the effectiveness of learning within regular classroom environments (Bernard et al., 2004; Cavanaugh, 2001; Machtmes & Asher, 2000; Zhao et al., 2005). However, when examining research about the academic achievement of high school students with disabilities within blended learning environments, I found that the research findings emerge from a shallow pool. For instance, Means and colleagues (2013) completed a meta-analysis on online and blended learning that demonstrated the limited research available. They found 45 different studies on the subject. Yet only 7 of the 45 studies covered blended learning environments in K-12 settings (the vast majority covered post-secondary settings). Of the seven K-12 studies, only one of them included students with disabilities. Findings in this single study showed that students with disabilities made more improvements in their writing composition using internet-based instruction when compared to students in a traditional environment (Englert et al., 2007). These findings about the lack of research related to secondary students with disabilities learning in blended learning settings supports the assertion by Glick and Huegel (2011) that research of this kind is clearly missing.

Franklin et al. (2015) completed a study of five school administrators and their views about blended learning programs on various aspects of student achievement. The administrators indicated that they observed students with disabilities having larger growth rates than students without disabilities. However, the assessment data and processes used by teachers were not

addressed by Franklin and colleagues; the study participants were school administrators. Given the lack of instructional focus, we have difficulty knowing ways to extrapolate the findings. Also, those findings run contrary to research by Cortiella and Horowitz (2014). Those researchers found that students with disabilities achieved higher scores in traditional classroom environments when compared to online virtual charter schools. However, recent research has cast questions on the supports and services provided to students with disabilities in charter schools (Waitoller et al., 2017). Overall access to services for students with disabilities in charter schools, including in blended environments, could affect the achievement results reported. Overall, we see quite a limited research base on not only the achievement data for students with disabilities in blended learning environments, but also the related issue of how teachers are assessing achievement growth of students with disabilities within blended learning environments.

Accessibility

Blended learning has been proposed as one way to enhance accessibility for students, including those with disabilities, through increasing the available mediums to obtain an education (Smith et al., 2016). Some findings lend support to that. Rhim and Kowal (2008) conducted a study examining the accessibility of virtual charter schools that focus exclusively on online instruction for students with disabilities. They found that virtual charter schools offered instructional methods that can be tailored to the needs of students with disabilities such as individualized pacing, feedback, and diversified instructional formats. In such learning environments, furthermore, parents had increased control and oversight to help optimize their child's learning, as most online instruction can take place at home. However, the study did not

specify how all students' needs could be met, including how students can actually use their online learning management system, particularly for students with significant disabilities.

In another study related to accessibility, Burdette et al. (2013) looked at the views of K - 12 state special education directors. Participants were state and non-state "jurisdiction directors" of special education directors. As much as 88% of responding states provide online and/or blended services to students with disabilities. This would align with findings from Watson et al. (2011) who found that there were 275,000 students enrolled in online schools full-time in the 2011-2012 school year. That was a 400% increase over the previous decade. The researchers argued that K-12 school districts are moving towards fully online learning and blended learning environments due largely to financial reasons. Online learning becomes more affordable while holding the potential for flexibility that traditional environments cannot provide. Post- COVID - 19 pandemic statistics related to affordability and what decisions are made will be important to gather and analyze.

Related to accessibility are issues of equity; that is, who has access to what resources. In a report on the issues of equity in providing students with disabilities instruction within online and blended learning environments, Basham et al. (2015) found that the majority of stakeholders surveyed believe that the use of digital and online delivery programs within elementary and secondary schools can help address the varied learning needs of all students. They argued that the flexibility of various tech-based educational materials could accommodate for the various learning styles of K-12 students with disabilities in ways hard to achieve using only non-tech materials. Yet what we see currently in 2020 are many questions about equitable access to devices, broad band and band width across a school, district and geographic region. The same

questions also remain about who has access to what kinds of software, teaching platforms (e.g., Nearpod, and at what levels a district can afford) and supplemental materials.

Statement of the Problem

Despite the promising possibilities and early research findings on blended learning in US high school settings, the research about K-12 students with disabilities within blended learning environments is very slim. There is a significant gap in the research related to multiple dimensions of blended online instruction for secondary students with disabilities. I could find little to no related research in the following key areas. We know very little about teachers' planning and preparation of instruction. We know little about how teachers in blended learning environments plan, instruct and assess students with disabilities in ways that meet the accessibility and instructional challenges with respect to student variance in abilities and their diverse backgrounds in culture and language. We know little about how teachers in blended learning draw on students' IEP goals to guide instruction. We also do not have a solid grasp of what teachers are doing to ensure that flexibility and individualization is taking place in blended learning environments. We also do not know if these customizations vary considerably from what is done in a traditional classroom environment. Additionally, we know little about how variation in actual technological resource availability may influence learning environments. The combination of special educators' knowledge and skills along with perceptions of the blended learning environment as a potential instructional pathway could affect overall implementation of blended learning for secondary students with disabilities.

How students with disabilities in blended learning environments receive instruction is also a key area of needed research. While we know that there are multiple online learning management systems (e.g., Google Classroom) and instructional models used within blended

learning environments (Graham, 2006; Staker & Horn, 2012), we do not know how blended learning teachers are using these tools to customize their instruction for students with disabilities. Though Staker and Horn (2012) attempted to classify different physical and instructional designs for a blended learning environment, their research focused on physical layouts and lesson structures of the face-to-face and online learning environments generally. While these various classifications provide us with different ways to describe how blended learning environments are physically organized, we know little about how teachers actually engage with students and deliver and revise content to students with disabilities. We also know little about the sorts of evidence teachers gather for assessing academic progress for students with disabilities within blended learning environments. Those data could focus not only on the academic achievement, but also on social-emotional learning (SEL). I found virtually no mention of SEL in the literature about blended learning for students with disabilities. Overall, documenting that as well as academic growth is essential also for monitoring students' progress toward meeting their annual IEP goals.

This study aimed to describe missing elements of our knowledge related to students with disabilities within blended learning environments. It is also timely given the realities of teaching students during the COVID-19 pandemic. In addition, blended learning is being championed as a solution to including more students within the general education environment by planning online and face-to-face instruction to meet the diverse needs of all students.

The goal of this study was to explore the experiences of high school teachers of students with disabilities in blended learning environments and their perceptions of the potential of blended learning environments to meet the needs of students with disabilities. Also, I

documented the instructional practices teachers used with their students through their planning, instruction, and assessments. This study attempted to answer the following research questions.

Research Questions

1. How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments?
2. What instructional practices do high school special educators report using in blended learning environments to meet the diverse learning styles of students with disabilities?
3. How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities?

II: REVIEW OF THE LITERATURE

In this chapter, I review the literature in three major areas: Universal Design for Learning (UDL), the current state of blended and online learning in high schools, and the current state of online and blended teaching and learning for secondary students with disabilities. I limited my search to the last 10 years (since 2010) since technology and technology-use in education changes so rapidly. I focused on studies that examined teacher actions with blended environments, since that is the focus of this study. I begin with an investigation of UDL in blended and online environments since the principles provide the foundation for my research questions. I focus on the three principles of UDL based on three primary neurological networks that impact learning, which are (1) multiple means of representation; that is, the various ways we provide to learners for acquiring information and knowledge, (2) multiple means of expression, that is, the ways we allow learners to demonstrate what they know, and (3) multiple means of engagement, that is, how educators tap into the learners' interests, offer appropriate challenges, and increase motivation.

UDL in Blended and Online Environments

Universal Design for Learning (UDL) is a teaching framework that draws from neuroscience, cognitive psychology and learning sciences. UDL began as a continuation of the universal design movement, which was taking place in architecture in the 1990s. The aim was to create buildings that focused on "access for all." By removing physical barriers that made accessing physical environments difficult for many people, modifications did not need to be made to ensure access to people with physical disabilities. UDL extended this concept to education.

The UDL framework focuses on educators helping all students to achieve by identifying and removing the barriers that exist within teaching methods and curriculum materials (King-Sears 2009; Rose & Meyer, 2002). Promising research using the UDL framework focuses on the practices that educators use to meet the diverse learning styles of various students. With developing instruction using the framework, the learning preferences of all learners, including those with disabilities, can be met through a variety of practices.

UDL was developed by the Center for Applied Special Technology (CAST) in 1984, a nonprofit education research and development organization that works to expand learning opportunities for all individuals. (Rose & Meyer, 2002) At the time, the focus was on "How can computer technology enhance learning for students with learning disabilities?" Other research has expanded upon this over the years to include not just disability, but also how disability intersects with other areas of difference that include race, gender, and language. The aim is to understand what particular historically disenfranchised groups struggle with in education (Gillborn, 2015).

There have been few studies examining the effectiveness of UDL. Carroll et al. (2008) identify UDL as a successful tool of analysis for the inclusion of students with disabilities within the general education environment. In their conceptual piece, they argued that for inclusive education environments to be places where students can achieve their desired objectives, UDL principles must be implemented along with strategies to differentiate to the learning styles of the students. Through this process, UDL increased the accessibility of the learning environment as much as possible and allowed for reasonable accommodations where needed.

Research findings also suggest successfulness within s a cross-pollinating of UDL with the concepts of culturally sustaining pedagogy in order to furthering the goals of inclusive

education for all learners (Waitoller & King Thorius, 2016). Waitoller and King Thorius highlight the troubling similarities and overlapping connections between racism and ableism in which the white and able are privileged with regards to race and disability. The consequences of the intermingling of racism and ableism leads to "hierarchies of difference" in which some students are privileged, and others are oppressed. In addition, Copeland and Cosbey (2008) identified how much of the existing UDL coursework provides for diverse collaborative working environments (individual, pair, and group work) within the general education classroom. In their conceptual piece, Copeland and Cosbey (2008) explored various instructional approaches to provide differentiated instruction to students within the general education setting using UDL principles. Their highlighted approaches included the use of evidence-based supports, Response to Intervention (RTI) frameworks to create a scaffold of supports to meet diverse needs, and inquiry learning to meet the extensive needs of students through use of existing general education practices.

Research that incorporates UDL in the K-12 online and/or blended environment is equally scarce. In examining the benefits of differentiating instruction within college courses, Bryans et al. (2010) worked to establish UDL principles within an undergraduate biology course by introducing online educational components into a traditional face-to-face environment. They used a learning management system (LMS), or as they describe it, a course management system (CMS), which essentially is an online medium for delivering course content (present day examples being Google Classroom or Blackboard) to provide additional online-based instruction and student-centered supports. Using survey results and follow-up interview questions, the researchers were able to gain valuable insight into the students' perceptions of the online environment aligned to UDL principles. The students largely felt that the online components

were a positive addition to their learning. With regards to any academic advantages to using the online CMS, the study did not lead to noticeably higher grades using the intervention. The researchers concluded that further research would be required to establish more concrete knowledge about UDL alignment to online and blended environments. Specifically, the researchers called for expanded research to identify an ideal level of supports and to provide for a broader research base. While this research was conducted within a higher education setting, the researchers believe that using supplemental online a CMS could prove beneficial to students within K-12 settings as well.

Smith and Harvey (2014) conducted a study of online learning within the K-12 environment using UDL alignment. The study was designed to examine the appropriateness of online learning for students with disabilities. In this study, the researchers adopted a "Universal Design for Learning Scan Tool", which was used to measure the alignment of lesson content and materials with UDL principles. The researchers chose to use the tool on various online courses produced by the Khan Academy, an internet-based non-profit educational program. The scan found that the online learning environments of the Khan Academy were largely inadequate to meet the diverse needs of students with disabilities. The Khan Academy materials, while popular, represent a very narrow sample of the online learning environments available to K-12 learners, including those with disabilities. As such, there exists a very large gap in research on the UDL alignments of various online and blended instructional environments. This is especially true within K-12 courses.

Blended and Online Learning in High School Environments.

In reviewing the existing literature on blended learning and online learning environments, it became clear that the vast majority of studies took place within a higher education setting. For

instance, Means and colleagues (2013) performed a meta-analysis of research conducted on the effectiveness of online and blended learning environments. Reviewing the literature between 1997 – 2011 they located 49 studies that met their inclusion criteria of empirical research using randomized experimental-control studies. Of those 49 studies, only *seven* of them took place in a K-12 environment. The researchers found very few controlled empirical studies within several subsets, including the K-12 subset. As a result, the researchers stopped short of making focused conclusions on the research on K-12 environments due to the narrow base.

More recently, Pulham and Graham conducted a 2018 review of K-12 literature on K-12 blended teaching competencies. The researchers reviewed research and reports focused on blended learning teacher competencies. In their study, they attempted to compare blended learning teaching competencies to online learning competencies. Their comparisons found several domains of comparison, including pedagogy, management, and assessment.

While they worked to compare the two environments, several important implications were made. First, the researchers found that much of the K-12 research on K-12 blended environments relied heavily on expert opinion in the reviewed reports. Therefore, the reviewed studies lacked first-hand accounts of blended learning teachers experiences and practices. In addition, their study lacked findings of how special educators perform in the blended learning environment.

Due to the limited scope and relative age of many of the studies reviewed, I did a thorough review of literature on blended and online learning in secondary school settings. Using ERIC, Academic Research Complete, and Education Research Complete, I looked at a review of studies that took place within a K-12 setting and had components of online or blended environments separate from the traditional classroom. The disproportionately low number of K-

12 studies compared to higher educational settings is also reflected in my review. Only 15 studies since 2010 met criteria for inclusion. Within these studies, several themes emerged.

Teacher Perceptions

Werth et al. (2013) investigated the impact of blended learning on students and teachers in rural school districts in Idaho. Of the 627 teachers in the state who had received professional development on using blended learning in their classrooms, 145 responded to a survey. The vast majority of those responding (86.9%) taught in the high school environment. This study had two branches of questions for two separate groups of respondents; (1) teachers that implemented blended learning after the professional development and (2) teachers that did not implement blended learning following the professional development. Based on the responses of teachers that did implement blended learning, a number of positive correlations were identified with quality of completed student work, attention level of students during teaching, overall enthusiasm of the students during class, and student diligence. In addition, teachers reported an increased capability to deliver "1:1 instruction", higher teacher self-efficacy/confidence, improved ability to supervise and assess student learning, and higher satisfaction with teaching. The second branch of the study looked at teachers who had not yet implemented blended learning in their classes. Of the teachers that did not implement blended learning, only 5.1% of respondents felt that they did not see the benefit of blended learning. Most either stated, "I want to use blended learning but haven't yet (57.1%)" or "I think it is beneficial but there are barriers I can't overcome (37.8%)." Teachers that described barriers elaborated by indicating that the biggest barriers to implementation were time (45.5%), followed by technology availability (31%), training (24.1%) and administrative support (6.2%).

Kellerer et al. (2014) conducted a study that followed up on Werth et al. (2013). This study focused on the perceptions of teachers who have had experience with blended learning environments. From a pool of 19 educators, eight consented to be interviewed on the impact that blended learning has had on their class. One major theme was that participants felt that blended learning helped meet the needs of students at various academic levels. They also expressed an emphasis on the importance of self-pacing as many students were required to be more independent when in the online environment. Other emerging themes included blended learning used to cultivating student-centered learning and as a way to differentiate for the needs of the students. In order to meet these needs, participants also expressed the importance of professional development when trying to implement blended learning. The researchers conclude by suggesting that future studies looking at the perceptions of the students in blended environments could be beneficial.

Student Perceptions

Garthwait (2014) provided a description of an online pilot program being used in a small education consortium throughout these high schools in Maine, US. In addition to providing a description of the educational process, student learning style preferences were also examined through questionnaires and interviews with 10 students. Several students identified several problems with the online environment. Specifically, they expressed issues with their own procrastination and a lack of self-discipline. Other students also argued that the lack of a physical environment and a teacher made it difficult to maintain focus for students. While the study's focus was on learning styles, issues with instruction by the online teachers and the LMS emerged. Specifically, students expressed frustration with excessive filtering of internet content

on the school networks. These technological issues were exacerbated by online teachers failing to meet the regular communication needs of online environments.

Kumi-Yeboah et al. (2018) provided an examination of various factors that promote and hinder learning experiences of minority students in an online high school in the Southwestern United States located in a large and moderately diverse (68% white and 32% minority) school district. This study documents the efforts by the researchers to interview minority students (24 African American and 16 Hispanic students) currently enrolled in online learning experiences. The researchers identified several factors that facilitated online learning that fostered positive experiences based on the interviews with students. These factors included (a) cooperative learning activities, (b) chances for building knowledge, (c) access to resources and flexible time schedules, (d) open communication, (e) student-to-teacher interactions, (f) better behavior in online education environments, and (g) parent support. Researchers concluded that the two factors found to stifle the learning experiences in online environments were a lack of social presence by the instructor and a lack of cultural inclusion in course content.

In examining the experiences of at-risk adolescent students in an online learning environment in North Carolina, Lewis et al. (2014) surveyed students in order to investigate what supports and systems need to be in place for student success. Using an open-ended survey with a Likert-scale design, students were asked to identify the benefits and challenges that they experienced in online learning environments. At risk students identified several benefits and challenges throughout the survey. Students enjoyed being able to work at their own pace and often times get ahead, they found the responsibility of time-management to be a challenge. When examining those support structures, students most often received help from a parent, relative, or a teacher. In general, students mostly took on the burden themselves. The researchers state that

"it is important that students feel supported and welcomed in the online learning environment and that technology is not a barrier to successful learning." This study echoes the reoccurring issue of students struggling in online environments without the proper support structures in place.

Harvey et al. (2014) also examined student preferences in online environments. Using an online questionnaire, students in middle and high school environments were asked questions surrounding several topics including participation in online and nontechnology-based school settings, use of special education services, involvement in supplementary activities, genuine favored interactions with teachers and other online students in the class, harassment or bullying, and overall feelings regarding online learning. Most participants said they enjoyed online classes for the most part. They also largely were able to keep up with the required classwork. However, less than half of students were satisfied with peer interactions, although many felt peer interactions were not important. More than half said they did not interact with peers at all. Despite the fact that the participants felt that they were satisfied overall with the amount of interaction from their online teachers, they only interacted with them 2-3 times a week. Very few participants indicated that they interacted more than that.

Butler and Kaler (2012) investigated the online learning environment for Native American high school students that lived on Montana Indian reservations and in one urban city. In examining the learner preferences of the eight students that participated in the study, students stated that they wanted new and interesting coursework that was different from that which was provided at their high school, which the students identified as boring and lacking in challenge. The students felt that the online course work satisfied their wants as they found the

independence, freedom and challenge enjoyable. They also noted that they enjoyed the ability to work at their own pace.

The liberating aspects of engaging in classroom discussions and activities is echoed in Tanduklangi and Lio's (2019) very recently published study that investigated difficulties with student motivation in an Indonesian high school blended learning course. Student observations and interviews were employed to investigate the affects that blended learning instruction has on student motivation. Many of the students found success in blended environments as they expressed that they were more interested in learning in "a fun way" involving technology and student motivation was positively impacted. The researchers suggest that blended learning interventions are suitable for all learners.

Siko and Barbour (2014) conducted a study in which they studied the perceptions of parents and students enrolling in a blended learning course. In the study, a large Midwestern suburban high school was introducing its first blended learning course. Researchers gave a survey to students (N = 47) and parents (N =14). Several themes emerged in their findings. Students were very excited by the opportunity to take a blended learning course, and parent's responses confirmed their child's views. The positive attitudes exhibited by the students seem to focus on the flexibility of the schedule and being able to arrive late to school on most days. In addition to the flexibility of being able to "sleep in", many students shared that they enjoyed being able to work at their own pace and spend as much time as needed on a topic based on their perceived difficulty of the material. Despite this, many students also admitted to falling behind in the course due to the tremendous amount of self- regulation required. When asked about changes that they would like to see in the course, students suggested more structure. Specifically, they requested more face-to-face time, as well as more homework and short quizzes. Parents and

students both had concerns over a lack of communication from the teachers. Parents, however, did like that the blended learning format resembled a college online course and felt that it prepared their students for a post-secondary education.

Many of the studies reviewed were conducted outside of the United States. Specifically, Turkey appeared to be a common setting for much of the recent research in online learning environments. Bardakci et al. (2018) conducted a study to investigate the insights of high school students in regard to online learning experiences. Online discussions in particular were highlighted in this study. Using questionnaires with students enrolled in online learning environments, students were asked to give their thoughts on their past experience with engaging in online discussion boards for their courses. The results found that the majority of students enjoyed discussion boards as a way to communicate and collaborate with their peers and teachers. Students indicated that they felt safe expressing their opinions within that setting. They also expressed that the online discussions were flexible in nature and the researchers suggested that the online environment can be "empowering" as the physical classroom may be intimidating to students, whereas the online setting allows students to feel more able to express themselves.

Yapici and Akbayin conducted two separate studies on examining the K-12 blended learning environment. In their first study (2012a) the researchers conducted interviews with 47 9th grade students enrolled in a blended biology course at a Turkish high school in an effort to determine high school student's views on blended learning environments, In analyzing how these students feel about blended learning environments, researchers found that students felt "highly positive" about them. Specifically, students revealed that blended environments provided them with the chance to get prepared for lessons, review lesson materials at their own pace and as many times as they liked, taking advantage of the flexible nature of blended learning and

being able to learn on their own time and place of their choosing, and being able to perform self-assessments and easily communicate with the teacher outside of school. Despite the overly positive comments, some students did express concerns with a lack of internet connection as well as issues playing videos (likely due to connectivity issues).

Much of the reviewed research reflected compelling data about student perceptions related to student likes and dislikes about the online or blended environment. In fact, throughout the recent research, there is a considerable number of studies that find that students in general enjoy online and blended learning. Students generally expressed that they liked the flexible nature of the blended environment and found it satisfying. However, common themes that emerged also show there were issues with teacher presence. Students expressing that they needed to be more independent and be able to self-motivate demonstrates a potential barrier for blended environments. Specifically, when it comes to students with and without disabilities, research show that some students may lack the ability to stay on task without physical reinforcement of teachers. Additional research on how teachers in blended environments are encouraging engagement and communicating with students would help to shed more light on this issue.

Academic Outcomes

Chang et al. (2014) presented a study with the goal of examining the effects of blended e-learning on electrical machinery performance in a vocational high school in Taiwan. The study used a randomized experimental design where participants were either assigned to the blended e-learning group or a control group which studied through a traditional classroom environment. Participants consisted of two classes of 65 total 11th grade students divided close to evenly between the experimental and control groups. A pretest-posttest nonequivalent-group quasi-experimental design was employed for a five-week study to see the effects of a blended learning

environment compared to a traditional face-to-face environment. The study found that there were no significant differences on achievement test scores between the control and experimental groups. However, there were statistically significant differences on self-assessment scores as the experimental group's self-assessment scores were higher than the control group. The researchers suggested that since this was the first time the students experienced a blended learning model, they may have scored themselves higher on the self- assessment. They also suggested that the lack of a significant difference in achievement scores could be due to the short length of the actual study (five weeks). The researchers suggested a longer-term study in the future.

Kazu and Demirkol (2014) conducted an experimental design analyzing student academic performance by comparing the blended learning environment and the traditional environment at Diyarbakir Anatolian High School in Turkey. They worked with 54 senior high school students divided into an experimental blended learning group and a traditional environment control group. During the study, pretest-posttest analysis was used to measure and compare academic achievement. According to the results, no significant difference had been found between the two group designs. However, the overall average scores of the final test grades were higher in the blended learning environment.

In another study that looked at the academic benefits of blended learning environments, Siko (2014) looked to study the effectiveness of blended learning in the K-12 environment. Using a high school biology course, Instruction was provided in a traditional face-to-face setting in the beginning, while the end of the class was instructed in a blended format. Differences in student achievement between the two different environments were not statistically significant. However, a small sample size could account for a limitation in the study.

Yapici and Akabayin's second study (2012b) used a quasi-experimental design to determine the effect of the blended learning model on high school students in a Biology course. With 107 participating students (47 of whom were in the experimental blended learning group and 60 in the traditional environment), the researchers found that students in blended learning environments had slightly higher academic achievement than the students in the traditional environment, which aligned with other studies examining academic achievement of blended learning. This study also measured students' attitudes toward internet usage. The results found statistically significant results in which student showed da much higher opinion of using the internet within the blended learning environment.

Despite the different variables of the studies examining the overall effectiveness of blended learning, all of them found that blended learning environments produce similar outcomes to that of traditional classroom environments. While these findings do not point to any significant advantage in blended or online learning environments, they do provide some preliminary evidence that they are viable options for providing differentiated instruction to students outside of brick and mortar schools.

Blended Learning and Online Learning in High School Environments for Students with Disabilities

Revisiting the metanalysis conducted by Means et al. (2013) on the empirical literature examining the effectiveness of blended and online learning environments, I found that a very few of the studies were conducted within K-12 settings. Even more unsettling, of the studies within the K-12 environment, only one of them focused on students with disabilities. Because of this gap in the research, I conducted a recent review of literature that examines students with

disabilities within K-12 online and blended environments was conducted. Through the review, some emerging themes were noted related to students, educators and teachers.

Perceptions of Students with Disabilities

Alvarado-Alcantar et al. (2018) investigated the needs of students that were in enrolled in blended learning environments. Specifically, they investigated how the accessibility and usability needs of students with and without disabilities were being met through an administered Programmatic Needs Survey (PNS). The results indicated that accessibility of the available support systems was not an issue for students in blended learning environments regardless of disability. However, students reported that blended courses were not a preferred means of instruction for the students, and students with disabilities in particular had a more negative opinion of blended learning. Due to these findings the researchers called for additional research to determine why students with disabilities were less likely to prefer blended learning environments.

Marteney and Bernadowski (2016) conducted a survey study on the perspectives of virtual teachers. Researchers investigated the beliefs that teachers held towards potential benefits and limitations of asynchronous instruction for students with special education needs. The analyses revealed the following findings: virtual teachers believe that online education has made it easier for students with various limitations to access learning activities. They feel that improvements had been made in student academic performance. Students with disabilities had success with asynchronous (self-paced) education as it allows customizable learning at their own pace. Student motivation increased; and more individualized support was available. However, there also were some negative findings. The study indicates that forms of cyber-bulling may have arisen in asynchronous learning programs. Also, some teachers expressed difficulty in

providing students with accommodations, as well as identifying problems associated with student use of online classroom resources.

Burdette and Greer (2014) expanded that further with a study designed to gain perspectives from the parents of students with disabilities in online environments. Specifically, they looked at parental roles, instruction and assessment, and communication and support from the school, and parental challenges. Largely, parents held positive views about their children's learning outcomes in the online learning. However, findings show that parents were a bit unclear about issues related to how their children learned (the methods) and what sorts of assessment were used. Nearly 40% of parents reported not seeing the use of "social media" in their child's learning even in the only environments, for example.

In another study examining parental expectations, Smith et al. (2016) investigated the perceptions and experiences of parents that had their students with disabilities enrolled in fully online environments. Finds from this study suggests that with the growth in K-12 online learning experiences, the parents are expected to become much more involved in the education of their child. In a sense, the study suggests that the parents become teachers. Parents readily expressed that they needed to be much more committed to their child's education, and results suggest that parent-teacher communication is extremely important.

Online and Blended Learning Teachers Facilitating for Students with Disabilities

In looking at the actions that teachers take to ensure students with disabilities are successful in blended learning environments, Rice and Carter (2016) conducted a study to examine how practicing teachers provided self-regulation strategies to students with disabilities in a fully online learning environment. The researchers found that when it comes to helping students regulate their own learning, teachers in general lacked strategies to help students

regulate their own learning. This led to difficulty in helping students plan and stick to a schedule remotely. This was reflected in the communication and monitoring that took place in the study. Teachers would use basic communication and monitoring to try to keep in contact with the students. But they often struggled with remote communication. The online teachers found it difficult to interact with students for various reasons including students simply not responding to inquiries. The situations where teachers were most successful were when they chose to schedule regular meetings with their students and parents in the communication as well as students. When students fell behind in the coursework of the class, they would reach out to communicate with the students, but generally this did not help students to self-regulate their learning or encourage long-term planning. However, it is worth noting that teachers found themselves increasing their communication when working with students with disabilities.

Crouse and colleagues' (2018) recent research explored general education teacher practices in teaching students with disabilities in fully online environments. In order to gain insight into what teachers do to provide quality instruction to students within the environment, semi-structured interviews were administered to the teachers. The findings were divided into (1) the online teacher's learned practices about working with students with disabilities within online environments and (2) the online teacher's sources of knowledge about "good" teaching practices when working with students with disabilities. The teachers felt underprepared to teach students with disabilities in online environments and they felt that they had little experience with this population previously. Despite the teachers' inexperience with providing instruction to students with disabilities in the online environment, they largely prided themselves on their technology skills. However, even though they felt they were technologically advanced, they could not describe ways in which technology integration should be different for students with disabilities.

Also, they were largely unfamiliar with assistive technologies to help students with disabilities gain access to educational content and environments. In addition, online teachers could not identify specific practices that they used to address the challenges that students with disabilities face.

Crouse et al. (2018) also found that while teachers felt that professional development was indispensable, they were also unable to name specific practices that they learned from professional development. This aligns with Rice's (2017) findings in their effort to use online teacher's descriptions of their online teacher professional development for students with disabilities. The study purpose was to investigate the professional development opportunities that teachers could take advantage of that focus on serving students with disabilities. They found that even though teachers had students with disabilities in their courses, most teachers and administrators could identify very few professional development opportunities for online teachers to help them provide instruction to students with disabilities.

Burdette and colleagues' (2013) study examined the perspectives that many state special education directors had on their thought regarding K-12 online learning. In the study, 46 state and non-state special education directors were surveyed. Findings demonstrated an increase in the number of states providing online instruction for students with disabilities. However, the findings demonstrated that there is much ambiguity and variety in how these environments are emerging in practice.

In examining the limited literature on K-12 online and blended environments for students with disabilities, I found a mixture of encouraging possibilities as well as troubling concerns with regards to teaching students with disabilities in blended environments. Blended learning is growing in popularity, and students with disabilities are being included in these settings. The

promise of differentiated and flexible environments is promising. While many students seemed to enjoy aspects of the blended environment, there appears to be reservations as some students express preferences towards other settings. In addition, we see that teachers felt that teaching in the blended environment came with a few issues as well. Notably, teachers felt that communicating with their students was much more difficult in blended environments, and often would get non-responses from students. Perhaps more troubling is the apparent lack of professional development in preparing teachers to instruct students with disabilities within blended and online environments. This was demonstrated in the lack of confidence teachers reported in being able to accommodate to the needs of students in blended environments. Additional research is needed to understand how teachers are working to meet the unique and diverse needs of students with disabilities within blended learning environments.

III: DESIGN AND METHODOLOGY

As Brenner (2006) claims, qualitative research can provide ways to gain rich descriptions from participants in a setting. I conducted a qualitative study in order to study the rich descriptions participants teaching in blended learning environments use to illustrate their understanding and knowledge of a particular concept. Qualitative research helps researchers answer questions related to "what, why, or how something is happening" (Shavelson & Towne, 2002, p.99). This study explored the planning, practice, and perceptions of blended learning that special education teachers have with regards to students with disabilities. Using this methodology, I strived to understand the internal structure and components of blended learning environments through the eyes of teachers. Doing so allowed me to uncover *what* are the perceptions that teachers in blended learning environments have towards teaching students with disabilities within those environments, and *how* those teachers self-report their planning and instructional practices within blended learning environments.

Using broad open-ended interview questions to experience a grand tour of the participants' cognitive construction of their blended learning environment enabled me, as the researcher, to probe deeper into each of the topics of interest laid out in the research questions. Moreover, qualitative methodologies are often used when the understanding of a particular area of research is slim (Strauss & Corbin, 1990). Because of the comparatively few research studies on blended learning environments at the high school level that have been published, and fewer yet involving students with disabilities, a qualitative methodology will allow a rich description of teacher experiences within these environments that could contribute to future research. Therefore, I am using a design that draws on qualitative methods that I detail below.

Participants

Teacher Recruitment and Sampling

Recruitment began after receiving IRB approval (Appendix A) by identifying schools via public websites and other publicly available information that the following study criteria: 1) public schools funded at least partially through the state of Illinois, 2) serving students grades 9 - 12, 3) known to offer blended learning programs or blended learning environments, 4) had over five special educators in their special education teaching staff, and 5) publicly publish on the website the contact emails for school special educators. I developed a database of all schools that fit.

I began by researching high schools within the Chicago area. Using the public websites of districts within 100 miles of Chicago and other publicly available information via Google searches, I examined, identified, and compiled a database with information about each high school in terms of how they met the five criteria above. If they met the five criteria above, I compiled the publicly listed names and email addresses for all special educators.

At the same time, I had a personal contact in surrounding county district. I followed the same process of compiling a database with all publicly available special educator emails. Through this process, I sent recruitment emails to special educators in 14 different high schools across four counties in the greater Chicago-area from the compiled database.

Phase 1. I began recruitment by choosing the first high school randomly from the database. I individually emailed each special education teacher the recruitment flier with the consent form attached (Appendix C). I continued to randomly identify additional schools and email all of their special education staff until at least 50 special educators had been emailed the recruitment flier. The first phase continued until 50 special educators were contacted. Once I had

contacted 50 special educators, I finished emailing the remaining special education staff in that school and recruitment stopped. If 15 special educators did not respond to the call for participants within the first week, I would continue recruitment into Phase 2. Since I only recruited five participants, Phase 2 of recruitment began.

Phase 2. One week following Phase 1 completion, I re-sent the recruitment flier and consent form to the special educators contacted in Phase 1 that did not respond to the initial recruitment email. At the same time, I continued working through the compiled database of schools. All school special educators of selected schools were emailed until an additional 50 special educators were identified. I repeated the Phase 1 procedure of sending IRB-approved recruitment materials via email to potential participants. Fifteen special educators were still not recruited a week after completion of Phase 2; therefore, I began Phase 3 of recruitment.

Phase 3. One week following the completion of Phase 2, I continued to work through the compiled list of schools. All school special educators of selected schools were emailed until at least an additional 50 special educators were emailed. Special educators that were initially contacted during Phase 2 that did not respond to the initial recruitment email had the email resent to them.

If I still had less than 12 participants (the minimum participants to move forwards with the study) after one week following the completion of Phase 3, I would have continued the process above and identify and contact 50 additional special education teachers weekly. However, at this point, I successfully recruited 12 participants.

Inclusion Criteria

Only special educators who taught in schools identified in my database were contacted. When potential participating teachers responded via email to express interest in the study, I set

up a phone call time to review and confirm eligibility requirements. Once the participating teacher was found eligible to participate in the study and continued to show interest, I arranged a time to conduct a phone interview with the teacher that began with the IRB-approved consent process.

Participants and Settings

Polkinghorne (1989) has recommended that researchers interview between 5-25 participants. By having 12 participants, I was able to draw on different accounts from multiple participants to shed light on the research questions. This study employed purposeful sampling (Creswell & Poth, 2016) to identify participants that are special educators who are teaching students with disabilities in blended environments.

The participants initially self-screened to determine eligibility for the study based on the following inclusion criteria (also see Appendix B):

1. You are a state licensed and endorsed special education high school teacher (grades 9 - 12) in a school district within 100 miles from the center of Chicago.
2. As a special educator of any content area within the last two years, you have either taught a blended learning class or been part of teaching within a blended learning environment for at least one class period a day.
3. You have taught within a primarily majority English-speaking environment for your blended learning environment.
4. To your knowledge, students within your blended learning environment were able to interact with the online educational environment away from the physical school.

Table 1

Participant Educational Experiences

Participant	Years of Teaching Experience	Years of Teaching Experience WITHIN Blended Learning Environments	Class Periods per day within a Blended Learning Environment	% Online vs. Face-to-Face Instruction	Subjects Taught	Online Learning Management System
Sam	16-20	2	2	85/15	Math and Computer Science	Canvas
Robert	11-15	4	5 or more	50/50	Civics and English	Schoology
Tammy	21-25	2	2	30/70	US History	Power School Learning
Sandra	21-25	4	5 or more	40/60	English III and English IV	Haiku
Brooke	11-15	5	5 or more	50/50	English 2 and Study Skills	Google Classroom
Aleah	6-10	5	3	5/95	English 1	Google Classroom
Sally	6-10	1	2	40/60	American Government and Civics	Google Classroom
Jack	6-10	6 or more	5 or more	40/60	Geometry	Google Classroom
Jessica	6-10	3	2	10/90	English	Google Classroom
Drew	6-10	3	2	25/75	Math	Google Classroom
Susan	11-15	6 or more	5 or more	70/9	US History and Consumer Economics	Google Classroom
Jennifer	16-20	6 or more	5 or more	50/50	English	Google Classroom

Table 1 shows an overview of the participants. This study excluded any participants that did not meet the inclusion criteria. If they were not special educators, or not teaching within the last two years in a blended learning environment at least for one period a day, they were excluded from the study. If they were not able to be interviewed in English, they were excluded. This language exclusion is due to me, as researcher, being monolingual.

Participants of this study were special educators that met the inclusion criteria listed above. The participants taught special education in Chicagoland high schools located in six different Chicago suburbs. Three participants taught in two of the schools. Two participants each taught in two of the other schools. A single participant each was identified in two other schools.

Participants identified their years of teaching experience by choosing a range of five years that best reflected their experiences (for example, 6-10 years, 11-15 years, or 21-25 years). For the purposes of calculating participants' average years of teaching experience, I used the mean of each interval range. I then used that to calculate to an approximate average number of years of teaching (for example, the range of 6-10 was calculated as 8). Participants' overall years of teaching experience ranged from 6 - 25 years (M = 13.4 years). Their years of teaching within blended learning environments ranged from 2 – 6 or more years (M = 3.91 years). For participants that selected "6 or more years" I calculated it as 6. With respect to teaching in blended learning environments, participants taught between 2 – 5 or more periods (M = 3.58 periods) a day in blended environments. For participants that selected "5 or more" periods, I calculated it as 5.

Participants reported on the percentage of students within their total blended environments that had an IEP. Their blending teaching environments included co-taught

inclusion as well as self-contained segregated special education environments. Each participant taught on average 35.4% of students with an IEP, with quite a wide range (12% – 60%). Finally, participants taught a range of subject matters (English, Math (e.g., geometry), and Social Science. Six of the participants taught two or more subject matters in blended learning.

In Table 2 I show data about participants' students. First, I reviewed the numbers of students with IEPs in participants' blended teaching. Participants taught between 12% - 60% of students with IEPs in blended teaching (M=35.4%). Two teachers had 60%, while at the lowest, one teacher had 12% of students with IEPs. I found no link between years of teaching experience, years of teaching in blended environments, and number of students with IEPs. Participants taught students in several different disability populations with a range of 2 - 8 (M=2.6). The three most common disability categories identified were Specific Learning Disability, Other Health Impairment, and Autism Spectrum Disorder. Overall, participants taught a higher number of students with high-incidence disabilities.

Table 2

Participants' Students

Participant	% of students with IEPs within blended environment	Disability categories	Number of categories
Sam	60%	Specific Learning Disability and Emotional Disturbance	N=2
Robert	60%	Specific Learning Disability, Emotional Disturbance, Other Health Impairment, Autism Spectrum Disorder, Speech and Language Impairment, and Visual Impairment	N = 6
Tammy	30%	Specific Learning Disability,Other Health Impairment,Autism Spectrum Disorder,Orthopedic Impairment	N = 4
Sally	50%	Specific Learning Disability, Other Health Impairments, and Autism Spectrum Disorder	N=3
Susan	40%	Specific Learning Disability, Other Health Impairments, Autism Spectrum Disorder, Emotional Disturbance, Speech and Language Impairment, Hearing Impairment, Intellectual Disability, and Multiple Disabilities	N=8
Jennifer	33%	Specific Learning Disability, Other Health Impairment, Autism Spectrum Disorder, Emotional Disturbance, Hearing Impairment, and Multiple Disabilities	N=6
Sandra	30%	Specific Learning Disability, Other Health Impairments, Autism Spectrum Disorder, and Emotional Disturbance	N=4
Brooke	30%	Specific Learning Disability, Other Health Impairments, Autism Spectrum Disorder, Emotional Disturbance, and Speech and Language Impairment	N=5
Jack	30%	Specific Learning Disability, Autism Spectrum Disorder, Emotional Disturbance, and Multiple Disabilities	N=4
Drew	27%	Specific Learning Disability, Other Health Impairments, Autism Spectrum Disorder, Emotional Disturbance, Hearing Impairment, and Multiple Disabilities	N=6
Aleah	23%	Specific Learning Disability, Other Health Impairments, and Autism Spectrum Disorder	N=3
Jessica	12%	Specific Learning Disability, Other Health Impairments, Autism Spectrum Disorder, and Emotional Disturbance	N=4

Settings

In order to answer the questions posed in this study, I intentionally located public high school settings (which by definition include students with disabilities) that currently implement blended learning environments. The demographic data of the schools is in Table 3.

Table 3

School Demographic Data

School Name	School Enrollment Size	Chronic Absentee Rate	Free and Reduced Lunch	% of IEP	% White	% Hispanic	% Black	% Asian	% Two or more Races
Anderson High School	839	18%	30.4%	10	68.2	23.5	<1	6.7	1.5
Devitt High School	1606	20%	60.9%	16	1.9	79.9	1.9	1.9	1.5
Jay High School	3082	17%	11%	12	74.5	11.8	2.1	6.7	4.7
Jones High School	2594	18%	21%	11%	45.9	16.5	12.5	20.2	4.7
Omega High School	2055	17%	24%	13%	66.4	14.1	7.3	7.8	4.3
Jackson High School	3291	34%	48%	11%	35.3	38.3	21.8	1.5	2.9

Note: All school names are pseudonyms

Participants taught in six different schools with three from Jackson High school, three from Omega High School, two from Jay High School, two from Jones High School, one from Anderson High School, and one from Devitt High School. The schools ranged in size of overall students from 839 students to 3291 students (M= 2244.5). The range of students with IEPs was similar (11% -16%) with a mean percentage of 12.1% and a median rate of 11.5% per schools.

The sample was diverse in terms of student socio-economic status, which is measured as students receiving free or reduced lunch. The range is one of the most diverse data points in the study (range = 11% - 60.9%; M=32.55%, Mdn=27.2%). Racial/ethnic diversity also showed a wide range. White students accounted for 14.3% to 74.5% of total student enrollment (M=50.7%, Mdn=56.15%). Hispanic students across all six school was the next largest population (range = 11.8% - 79.9%; M=30.68%, Mdn = 20%). Asian students across all six schools made up a range between 1.5 percent and 20.2% (M = 7.46 percent, Mdn = 6.7 percent). African American students accounted for between 0% and 21.8%; M = 7.6 percent, Mdn = 4.7 percent).

As blended learning is a structure that allows students to attend the traditional classroom environment at a reduced rate during the week, and therefore might be more accommodating to students' flexibility wants and needs, I chose to examine chronic absentee rates at each school. I saw a range of 17% to 34% (M=21%). Illinois law defines "chronic absentee" as a student who does not attend 10% of the days they should be at school within the school year. This would include students with or without a valid excuse. Jackson High School had the highest percentage of chronic absence at 34%, which is considerably higher than the other schools in the study. The other schools ranged from 17% - 20% (M=18%).

Instrumentation

Four sources provided the data for this study. These are the (1) Pre-Interview Protocol (PIP) questionnaire (See Appendix D), (2) one semi-structured interview (See Appendix E) conducted with special educators who teach high school students with disabilities in blended learning classes, (3) Post-Interview Perception Survey (PPS) (See Appendix G) to gain a better grasp of the perceptions the Special Educators have on blended learning environments, (4)Researcher Fieldnote Journal where during and after each interview, the researcher jot down notes about his reactions, thoughts, ah-has and generally anything striking.

Pre-interview Profile

The PIP was used to gather data related to teaching position, years of teaching experience, disabilities/characteristics of students' participants taught, and school information. Additionally, through the PIP I gathered information about the blended learning environments in which participants worked, such as time spent teaching online/face-to-face, number of students. Data from the PIP was used to gain information prior to the interview. From it, I was able to identify variations that existed within each BL (blended learning) environment that the participants discussed in their interviews, which helped me create individualized probes to use potentially to gain additional information from participants during the interviews. (See Appendix E)

Teacher Interviews

As Gill et al. (2008) suggest, interviews with participating teachers and data analysis can provide insiders' insights and experiences. This study used semi-structured interviews that allowed the conversations about participants' experiences to flow naturally and unencumbered by a strictly structured interview template. The semi-structured interviews were designed with

probes and prompts guided by the Universal Design for Learning framework (UDL). I wanted to see how the planning, practice, and assessment teachers chose allowed for customization and adjustment to meet individual needs of students with disabilities. Those are basic parts of UDL (CAST, 2018).

The purpose of the teacher interview was to gain understanding of the self-reported experiences of special educators teaching students with disabilities within blended learning environments. The semi-structured nature of the interviews allowed for the interviewer to begin with each of the overarching interview questions, and also funnel-down to more specific insightful information freely explored through the natural conversation and detail probes.
I designed the interview questions for this study to be in alignment with research questions. (See Table 4.) To design the interview, I wrote the questions and then conducted a pilot (Yin, 2003). I piloted the interview with three current special educators who also taught in blended environments. I did three pilot interviews. After each, I asked teachers for feedback related to any confusions with the wording. I made changes in phrasing to ensure wording is phrased positively, clearly, and to be supportive of the educator. In the final protocol (see Appendix E), the questions therefore were worded in a way that reflects the feedback. I also attempted to avoid making assumptions about participants' teaching practices.

Table 4

Alignment of Research Questions and Interview Protocol

How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments?	• Tell me about the different ways that you plan. customize, and prepare for your class in order to meet the unique learning styles of students with disabilities. Specifically, how do you plan for the online portion of your blended learning classes when you are not physically present with your students? • Tell me about the different ways that you plan, customize, and prepare for your class in order to meet the unique learning styles of students with disabilities. Specifically, how do you plan for the face-to-face portion of your blended learning classes when you are able to be physically present with your students?

What instructional practices do high school special educators use in blended learning environments to meet the diverse learning styles of students with disabilities?	• Tell me about the different ways that your students demonstrate learned information. Specifically, what are students with disabilities actually doing within the online portion of your blended learning class?
	  ○ How are you assessing student academic progress through the ways they demonstrate learned information in the online environment?
	• Tell me more about the different ways that your students demonstrate learned information. Specifically, what are students with disabilities doing within the face-to-face portion of your blended learning class?
	  ○ How are you assessing student progress through the ways they demonstrate learned information in the face-to-face environment?
	• Think about how your students interact with their peers as well as their interactions with the teacher. How are students demonstrating social-emotional growth in the online environment?
	• How are students demonstrating social-emotional growth in the face-to-face environment?
	• Tell me about the different ways that you present information and instruct students within

	blended learning environments. Specifically, what teaching practices are you using to provide instruction to students with disabilities within the online portion of your blended learning class? • Tell me about the different ways that you present information and instruct students within blended learning environments? Specifically, what teaching practices are you using to provide instruction to students with disabilities within the face-to-face portion of your blended learning class? • Tell me about your procedures for communicating with your students through the online environment. How do you maintain contact with your students when you're not physically with them? ○ Do your communication procedures for students with disabilities differ? If so, can you describe how your communicating with students with disabilities is different in the online environment compared to students without disabilities?
How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities?	• Tell me about your perceptions of the blended learning environment. What are your views on blended learning environments' potential to meet the diverse learning styles of students with disabilities? • With regards to student motivation, do you see or hear students with disabilities having issues with self-motivation in blended learning environments? ○ Can you identify ways that you encourage self-discipline for students with disabilities within your blended learning environment?

The interview had four parts: teacher planning, teacher assessment, teacher instructional practices, and teachers' overall perceptions about the potential of blended learning to support students with disabilities. In addition to the focus on parts of teaching practice (planning, teaching, and assessment), the interview questions also emerged from the major themes in my literature search, which were promoting student motivation, teacher-student online communication, and accommodating diverse learning styles within the blended environment. The interview questions differentiated between the face to face and online environments in order to ensure the wide scope, depth, and complexity of teaching in a blended learning environment is thoroughly explored. (See Appendix E)

Post-interview Perception Survey

The PPS was used to gather additional data on the perceptions of blended learning environments held by the participants. the focus was on participants' perceptions of blended teaching. I also wanted to learn if you had additional realizations or ideas after our interview. The PPS included the following domains of questions: teacher competency, appropriateness for students with disabilities, perceived strengths of blended learning, and perceived weaknesses of blended learning. The PPS had 12 stems and questions. The PPS used 10 Likert scale responses (e.g., Within blended learning environments, I feel prepared in my ability to plan/design lessons for students with disabilities.) and two open-ended questions (e.g., What do you believe is the biggest strength of blended learning environments?

The PPS allowed for further understanding of the perceptions held by the participants by providing an alternative medium to share their thoughts. If participants felt unable to fully express their perceptions of the BL environment in the interviews, the PPS allowed for the

participants to not only share additional thoughts, but they were able to reflect on their interview responses for two weeks before completing the PPS. (See Appendix G)

Researcher Fieldnotes Journal

In addition to the interviews and questionnaires, I used a researcher journal. During the interview, I marked questions or comments I had and occasionally added them as a probe. After each interview, I wrote for 10 minutes about my impressions, interpretations and questions. Then, I recorded key thoughts and connections I made related to what the teacher was saying with regards to the research questions.

Procedures

Upon obtaining consent from participants, an online hyperlink to the PIP Qualtrics survey was emailed to the participants to complete. Participants each completed a PIP. I reviewed each before doing the interview in order to develop individualized potential probes

Once the completed PIP was received, participants were contacted to schedule their interview. Participants were asked to choose a time that works best for them to complete a phone interview. All interviews were audio-recorded, and a location of minimum noise was requested. I asked each participant to set aside 60 - 90 minutes for the interview. Each interview ranged from 31:00 – 44:30; M=36:16 minutes). Each question had several detailed probes and expanders to obtain a complete and detailed picture of the teachers' planning, teaching practice, assessment, and perceptions within the blended learning environment for students with disabilities.

During the interview, I marked in my fieldnote journal any interesting observations, e.g., when a participant hesitated a lot or seemed unsure or unclear about my question. After each interview, I spent 10 - 15 minutes considering the overall interview and marked down any particular words or thoughts that seem at all striking or anything that was unclear. After the

interview audio recording was collected, it was transcribed to text using an online transcription service. Upon completion of the transcription, the audio was destroyed.

After the transcription service completed and delivered the interview transcripts, I emailed it to the participant for a “member check”. In the directions, I asked them to check it for accuracy and to add or edit anything they felt needed to be changed. I also attached the Member Check Questionnaire I created. I told participants they could use it if they felt they were unable to convey any additional thoughts during the interview. The questionnaire consisted of five questions in which I asked specifically about their ideas in the research questions: planning and preparation for students with disabilities in blended learning, teaching students with disabilities in blended learning, assessment practices for those same students and contexts, participants’ perspectives about how blended learning could enhance learning for students with disabilities and if participants noted potential issues in using blended learning to teach students with disabilities. Of the 12 participants, only one used the Member Check Questionnaire. Nine replied via email saying some form of this participant’s response: “The transcripts look good. I don't need to edit or add anything". In those cases, those 9 didn't make any adjustments, and therefore, also did not use the questionnaire. As for the other three, all added thoughts directly onto certain parts of the transcript. The additions consisted mostly of restatements and elaborations upon previously expressed thoughts.

Once participants returned the transcript with any changes and, if they chose, the Member Check Questionnaire, each participant received the PPS via an emailed Qualtrics link. Typically, I sent that within two weeks of completing the interview. Once the PIS was completed and submitted, the participant received a $100.00 Amazon gift card to compensate them for their participation.

Data Analysis

I began my analysis by using qualitative content analysis methods to interpret the data (Creswell, 2014). Hsieh and Shannon (2005) identify content analysis as a widely used technique in which three distinct approaches are used: conventional, directed, or summative. For this study, I employed a conventional content analysis approach. Conventional content analysis is generally used with a study design that is drawing on limited theory or research literature. In analysis, I avoided using pre-designed categories and instead chose to allow themes and categories to emerge through the process described as inductive category development (Mayring, 2000).

I began analysis by reading all of the transcribed interviews once as a group and made notes about ah-has and ideas that struck me. I then read the group of interviews again and did the same thing. I kept track of ideas and questions that struck me, and I compared that with the fieldnote journal entries I had made while giving the interviews.

I wrote four research and analytic memos, sharing and discussing each with my Chair to gain feedback. In each memo, I built on what I had learned as I read the interviews. In each, I took one or two "hunches" I had gathered and started to write examples from the interviews. For example, in my first memo I focused on "online instruction" and the varied ways participants said they planned for it. In the next, I noticed that participants talked a lot about student motivation. I explored that idea in the same way. The memoing enabled me to note first impressions and build on them in a recursive way, moving between my impressions, the data, my reflections, and conversations with my Chair. Through this process, I was able to begin framing the emerging hunches that developed across several participants.

After that phase of memoing and interview analysis, I looked at the PIP results. I arrayed the PIP responses in a spreadsheet. I compared and contrasted responses by looking across

participants and identifying similar and different teaching contexts. I wrote two memos and discussed patterns and clear differences. That analysis provided me with an overview of how contexts could affect planning and teaching. My initial analyses tables yielded multiple tables in this chapter and in Chapter 4.

I then returned to interview analysis with those overviews in mind. In this second phase of interview analysis, I randomly chose one participant, and read and reviewed the 3 data sources (PIP, Interview, and PPS) for that participant. While reading, I noted initial hunches that emerged as I read the "set" of their responses. Then I took a second participant and did the same process. I then compared and contrasted the initial hunches between the two data sets. I marked down the initial hunches gathered evidence from each data source to support each hunch. I continued to read through the data until I felt I had a grasp of how robust the hunches were becoming. I returned to memoing about those initial hunches. I began to see those hunches as possible initial themes related to planning and to teaching.

I then read and analyzed another data "set" with those hunches in mind. I looked at evidence that confirmed or disconfirmed my hunches. This enabled me to check if the hunch was robust enough to warrant becoming a theme. When I thought it was, I tested it by writing a one - two page memo drawing on other interview data. I continued to look at the interview data, the hunches I had, and then write memos in which I gathered evidence from the interviews across all participant interviews. The analytic memos helped me fleshed out the findings into possible emerging themes, e.g., a possible theme about planning in online versus face-face, another about assessment and realizing that participants saw that as part of instructional practice. I wrote out the memos to determine if the hunches were supported by the data.

While writing my memos, I use data to either support or refute my hunches. As the process continued and I looked at more interview transcripts, I began the process of categorizing themes based on how they related to each other. Eventually three categories seemed to emerge: *Planning and Customization*, *Instructional Practices,* and *Perceptions of Blended Learning.* These categories were able to hold, like bins, 17 "lumps" of meaningful smaller units (codes) derived from the interviews (Saldana, 2009). I developed a codebook in which I defined the categories and codes or "lumps". This allowed me to compare the similarities that were shared across all participants in the ways they planned for and instructed within the blended learning environment, as well as their overall perceptions of teaching students with disabilities within the blended learning environment. I then worked to define each code with examples from the evidence, aiming to make sure each code was its own with no overlap in order to support reliability and validity of the coding process (Huberman & Miles, 1994).

In order to ensure that all 17 codes across the three defined categories were clear, comprehended, and appropriately applied, I had a second coder (a graduate student with experience in qualitative code practices) code 40% of the data pool. I shared the codebook I created (see Appendix H). We discussed the goals of the study and the coding process. We then went through a transcript that I coded earlier using the defined codes of the study. I read the transcript aloud as I clarified my reasoning for applying codes for each "lump" of text. Any and all questions, confusions, or misunderstandings we discussed and addressed. From the second coder's feedback, I altered some definitions and examples. Using the revised codebook, the second code independently coded a transcript. We met a second time to discuss our agreements and disagreements. Intercoder agreement for the transcript was established at 91.6%, which fits within the percentage recommended to ensure intercoder reliability - 85% (Miles & Huberman,

1994). After reaching that, the second coder then coded an additional 3 transcripts independently. Intercoder agreement was established at 86.2%, 88.9%, and 87.7% for the additional transcripts. Overall agreement was then at 88.6%. The method for determining intercoder reliability was to divide the number of codes in agreement by the number of codes in total and multiply by 100 (Miles & Huberman, 1994).

PPS survey results provided additional thoughts on the participants perceptions of blended learning environments. I compiled the results of the Likert scale items into a spreadsheet. I then compared and contrasted the two open-ended responses. The questions focused on participants' perceptions of strengths and drawbacks of teaching students with disabilities within blended learning environments. The responses are presented in Table 9 within Chapter 4.

Validity

To ensure credibility in qualitative research, four approaches are recognized as essential: member-checks, triangulation, peer review, and checking for bias (Creswell, 2008; Glesne, 2006; Mertens, 2014). In order to maintain the trustworthiness of the researchers claims, these procedures have been incorporated into this study. I explain each below.

Member Checks

Member checks are often administered in order to ensure that the thoughts and beliefs of the participants are expressed accurately by sharing the collected data with the participants (Creswell, 2008; Glesne, 2006). In this study, I shared transcripts of interviews with the interviewee in order to ensure accuracy of their statements. The transcription service *Landmark Associates* was used for this study. During the member check, participants had the opportunity to check for accuracy, typos, incorrect transcriptions, or simply their misspoken words. If any

issues are found with the transcripts, the members had an opportunity to amend any statements to better reflect their answers. Upon reviewing, participants marked any changes that they felt should be edited, deleted, or added for clarity. Participants completed their review of the interview transcript, using the Member Check Questionnaire (see Appendix F) if they chose.

Triangulation

Triangulation is the process of using multiple sources to check information in order to support the conclusions of the researcher (Mertens, 2014). This can be achieved by triangulating sources, methods, and even theories (Patton, 2002). For this study, triangulation was achieved by using multiple sources through a large number of interview participants as well as through a journal for memoing ideas, responses, thoughts, and feelings that emerged from the data. By having this large number of interviews (n=12), I checked for consistency of information and strength of the claims made from the collected data (Patton, 2002). I consulted my field note journal notes throughout, which also helped.

Peer Review

Peer review was used to ensure the interrater reliability of the study by having an external reviewer provide their feedback on the data (Glesne, 2006). The peer review process was done in order to provide the researcher with important feedback on the interview transcripts (Mertens, 2014). I sought out an outside coder to confirm emerging themes in the interviews. I also developed categories and codes over discussions with my advisor throughout the analysis process. Interrater reliability data was collected on 33.3% of the interviews. The second coder selected four of the 12 interviews to code independently in order to verify emerging codes, categories, and themes. As disagreements emerged, the second coder and researcher came to a

consensus on the data until interrater agreement reached a minimum of 85%. Overall, we reached 88.6%.

Researcher Bias

Researcher bias refers to the researcher's own options and beliefs as it relates to the study (Glesne, 2006). Qualitative researchers are tasked with designing research questions and interview questions, as well as identifying themes and working to make sense of the information (Patton, 2002). Researchers rely on their own understanding and world view in order to form conclusions from the data (Brantlinger et al., 2005). In order to confront the biases and perceptions held by researchers, I continuously explored my own subjectivity throughout the duration of the study. I kept fieldnotes during the study. I did both research and analytic memos during analysis with feedback from my Chair. Through those, I aimed to promote awareness and self-reflection of biases held by myself (Glesne, 2006).

IV. RESULTS

The following research questions guided this study: 1) How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments? 2) What instructional practices do high school special educators report using in blended learning environments to meet the diverse learning styles of students with disabilities? 3) How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities? To address the research questions, I draw on the PIP, interviews, and the PPS. Using the data collected, I sought to clearly frame the planning and teaching practices of the participants, as well as their overall perceptions of the blended learning environment.

Contextual Factors in Participants' Blended Teaching

In order to understand the practices and perceptions of the participating special educators, I first shed light on characteristics of the blended learning environments in which they teach. Teachers in blended learning environments spent varied amounts of time teaching within the online only environment versus face-face. Additionally, the nature of the online environment varied in multiple ways. One reason is the learning management system (LMS) participants used based on what their school adopted. Teachers and students have opportunities to interact differently within those, albeit all LMS share the idea that students and teachers can create and review documents and video, and that teachers and students can interact within it. Another set of influences is from school structures. By this I refer to the special educators' assignments to blended learning environments (e.g., number of classes taught per day, subject matters they taught). Also, within the blended learning itself, the amount of face-face instruction that was structured in and expected, the ways that happened (e.g., full meetings, office hours, teachers

meeting with certain individuals) In Table 5, drawing on data from the PIP and the interviews, I show the variance of contextual factors.

Table 5

Contextual Factors in Participants' Blended Teaching

Participant	Blended Courses per Day	Days per week students meet Face-to-Face	% online vs. face-to-face instruction	Subjects Taught	Online Learning Management System
Sam	2	Meet 5 days, but also have days where they can work independently	85/15	Math and Computer Science	Canvas
Robert	5+ *	Does not state, but it's implied they meet 5 days per week.	50/50	Civics and English	Schoology
Tammy	2	Online 2-3 times per week	30/70	US History	Power School Learning
Brooke	5+ *	Meet 5 days per week	50/50	English 2 and Study Skills	Google Classroom
Sally	3	3 days online usually. 2 days Face-to-Face	40/60	American Government and Civics	Google Classroom
Jack	3	Unclear, but appears 5 days per week based on context clues	40/60	Geometry	Google Classroom
Sandra	2	Varies. Around 2 days per week online.	40/60	English 3 and English 4	Haiku
Jessica	5+ *	Unclear, but appears 5 days per week based on context clues	10/90	English	Google Classroom
Drew	2	Unclear, but appears 5 days per week based on context clues	25/75	Math	Google Classroom
Aleah	2	Unclear, but appears 5 days per week based on context clues	5/95	English 1	Google Classroom
Susan	5+ *	5 days per week	70/30	US History and Consumer Economics	Google Classroom
Jennifer	5+ *	Unclear, but appears 5 days per week based on context clues	50/50	English	Google Classroom

* (+) indicates that the participants taught five or more periods per day.

All participants taught traditional five-day weeks (Monday through Friday) with a full schedule of classes. All participants taught at least two periods of blended learning instruction per day, and as many as 5 or more throughout the day. However, participants - the teachers - were not all physically present with their students every day. Some participants saw their students all five days for face-to-face instruction, while online instruction also took place within the classroom. Other participants saw their students less than five days for face-to-face instruction and have online instruction for the other days. Whether or not the participants met with their students on a daily basis was not expressly asked in this study. Yet is became evident to me that how often teachers met with students, and that addressing under what conditions were to key factors for interpreting the data.

For the online instruction, all participants used a learning management system (LMS) for the assignments, assessments, and other instructional activities. The most popular LMS is Google Classroom, which was used by 8/12 participants. Operating in a similar fashion to a bulletin board, teachers are able to post agendas, assignments, and assessments so that they are accessible to all students. Integrating with other Google Suite products (Google Docs, Google Slides, Google Forms, etc.), Google application tasks can be individually assigned to students, and subsequently, individually returned to the teachers for grading. Assignments can be shared with other students in order to easily collaborate on activities while not physically present in the face-to-face environments. Other Google Suite products like Google Forms also allow for quizzes and tests to be easily created and administered.

Summary

The structure of the instruction within these blended learning classrooms was designed in varied ways related to online vs. face-to-face instruction. The subject areas, instructional

environments, and number of blended classes taught each day varied between participants as well. Sam states in his blended classes that 85% of his instruction takes place online, however, he also stated that he sees his students on a daily basis. On the other hand, Tammy stated that her students are not physically present with her 2-3 days a week, yet she still stated that 70% of her instruction takes place in the face-to-face setting. These variations indicate how the blended environment is carried out in diverse ways that seem to meet a wide array of contextual factors, e.g., the needs of students, schools, and the resources available to them.

The use of the Google Classroom LMS is also evident across 8/12 participants. In their interviews, many of the participants also used the varied Google applications within their instruction as well. These included Google Slides, Google Docs, Google Sheets, and Google Forms. The consistency and ease of using and integrating these programs together are likely contributors to the high use of Google Classroom adopted across the participants' schools.

Research Question 1: Planning and Customization for Students with Disabilities

I explored the first research question: How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments? Five themes emerged throughout the interviews: *Planning for access to educational resources, Planning for differentiated instruction, Planning for grouping, Planning to reduce difficulty of the content, and Planning for students' speed of work completion.* (See Table 6).

Table 6

Coding for Planning and Customization

Codes	# of Occurrences	% of Total
Planning for access to educational resources	44	31%
Planning for differentiated instruction	38	26.8%
Planning for grouping	34	23.9%
Planning to reduce difficulty of content	16	11.3%
Planning for students' speed of work completion	10	7%
TOTAL	142	100%

Planning for Access to Educational Materials

This was the strongest theme to emerge related to planning and customization; 31% of comments about it related to access to materials. Planning to make certain that students with disabilities are able to have access to educational materials was the most common theme that emerged from the participants planning and customization of their learning environment. When working within the face-to-face and online environment, ensuring that students not only have access to the educational content, but also have tools and other materials that students may need in order to successfully interact with that content. The LMS that teachers use were often seen as foundational resources in order to provide access to educational materials. Through the LMS, the participants discussed being able to ensure that their students could access materials within the medium that they found to be the most comfortable and easily accessible. Jennifer discussed how Google Classroom allowed for her to ensure that all of her students could engage with the class:

> I think with the Google Classroom, it's very easy and quick to get things on there and for the students to find it. With the other platform that was provided by the school, it was different sites, and you had to preset it up. I liked the calendar that was in there that they could click on trying to find documents. There would be like go to the calendar or go underneath. I just find that Google Classroom is easier to manipulate and post assignments and finding things for the kids.

Jennifer's discussion of Google Classroom's ease of use demonstrates her belief that the versatility of this LMS ensures that the diverse learning styles of her students can be met. Robert spoke in similar ways. Even though he doesn't use Google Classroom, he also discussed using his LMS as a tool to provide easier access to educational materials:

> I do use Schoology as our instructional platform, so I always put all of our assignments and make sure that I have printed copies for students if they prefer to handwrite. Then everything is also on Schoology. In the self-contained English class, whenever we do an assignment, I will show them—I'll size the SMART Board and then will pull it up on my screen, show them where in Schoology they need to go and specifically what assignment they're working on.

As he described, Robert not only discussed using the LMS to provide his students with access to content. He also provided printed out copies of his materials to ensure that students' online competency did not hinder their abilities to engage with the content. So, in this way, Robert ensured that students that did not prefer online delivery of content could still be able to work with a more tactile and tangible paper copy.

Echoing the practices of Robert, Tammy also used the LMS to provide content, but noted that some of her students did not prefer engaging in the online environment. Therefore, Tammy planned for paper copies for her students when needed:

> We'll take different assignments that she is either creating or has already created and try and figure the best way to present the material. That might be highlighting different portions, or even something as simple as instead of having the student do it online, we'll print it. Sometimes we have students with some of those executive functioning issues, and they have trouble going from one page to another page, so we'll print the assignment. Some of that planning happens.

Another area that students with disabilities may struggle is with organization. Being able to keep track of materials and other classwork can be challenging for some students. In this way, the online LMS can help students to maintain control of their educational materials. Sandra spoke about this importance of providing students with materials online:

> We will post everything online, so it's all accessible because we realize, like some kids, again, whether they're gifted, regular, or have special needs, they forget stuff, and they're like, "Oh, I forgot," or "I left it in the classroom," so we realized, "You know what? Some kids will pick up something and keep it and not lose it. Some kids, again, lose it." As opposed to Haiku—so when they go home at night, they still have access to it. We did make everything accessible online as well as there's always paper copies. Again, if we didn't have any, they could stop by our room any time during the day, "Hey, I need a copy of this." Then, we just shoot it to the printer, and we give them a copy, so it's not a big deal. Not very often we run out, but we have, and that's just what we do.

Participants demonstrated throughout their interviews that while the LMS can provide more accessibility and organization to students with disabilities, it does have its limitations. Some participants acknowledged that online LMS platforms will not completely replace paper and other physical forms of materials. However, the use of diverse instructional materials is evident across the online and face-to-face settings of participants.

Planning for Differentiated Instruction

A significant part of planning to meet the diverse learning styles of students with disabilities within blended learning environments involves providing differentiated instruction. This was another common theme identified as the participants; nearly 27% of comments related to using varied instructional approaches to meet student needs, including across online and face-to-face settings. With the exception of only one participant, all participants discussed planning different ways to instruct for students who have diverse learning needs, preferences, and/or interests. Sandra expressed in detail how she differentiated instruction using their IEP accommodations:

> Depending on the student's needs or when we get the students accommodation sheet. Some student will not advocate for themselves so when we see what their accommodations are, we may make necessary changes. Each kid will get an accommodation form, and so we sit, and we go over their accommodation form, and that drives a lot of, "Okay, hey. We got a bunch of kids who have a reading disability, so we'll modify our curriculum where we can change for those kids to come in on certain days." We'll modify days to fit their needs. It just depends on each individual student each year and how we can change things.

In this excerpt, we see that Sandra and her co-teacher planned ahead of time where they would have altered their instruction and curriculum to meet their students' learning styles. Sally also emphasized giving her students options based on the individual preferences of her students, but she expanded it beyond just her students with disabilities: "It's just having a couple of different options for the students to complete, whether they have IEPs or not has been how we move forward with that for planning purposes".

A number of participants stated that they used technology to differentiate their instruction and teach their students in the most effective way they can. This is understandable since given the nature of the blended environment, technology would play an important role in instruction. Robert talked about how he wanted to make sure his students had the option to use their Chromebooks or other tech tools if they felt it helped the students express their learning more effectively:

> Sometimes I'll have them—I give them a choice actually in my English as to whether or not—if they have to take notes or are writing down vocabulary, if they want to write down their vocabulary or if they prefer to use their Chromebooks to type whatever we're working on. Then whenever we have individual assignments, usually, I give them the same option.

Identifying students that are more comfortable expressing their learning though the digital medium is common amongst participants. In addition, providing differentiated instructional activities was one of the more common themes that emerged. Many participants talked about how use of technology and online learning provided them with more options for diversity in their teaching than they would have in a traditional face-to-face setting.

Planning for Grouping

Classrooms are often a collaborative learning environment where students learn with the assistance of not only the teacher, but also their fellow students. Nearly 27% of comments related to planning and customization were about grouping and organizing the instructional environment so that students could be grouped in a way that helps struggling students develop and improve in the skills, content, and overall academic success. A majority of the participants discussed how they planned to divide up students into smaller groups in order to provide a more individualized or specialized instructional approach. This was also done to facilitate other forms of small group collaboration. Aleah expressed using this grouping approach to provide additional support to her students that needed more assistance:

> Maybe one of us is going to have to take a small group into another room and just kind of reaffirm or go over what we needed them to do, or maybe with other group, if we're "hey it seems like they probably were okay with independently doing what they needed to online" we might have them do something different in that face-to-face day. We really kind of just kind of personalize it for the two learning level groups in our class, I would say.

In this excerpt, Aleah conceptualized her students within different learning groups, where one group might need more assistance. Aleah also elaborated that while this grouping often involved students with disabilities in her class that would split off, she mentioned that it didn't necessarily always include them exclusively and would often use their assessments to guide the grouping:

> Yeah, absolutely, and we actually more recently been doing more groups and we didn't want our students with disabilities to feel like they were always the only ones getting pulled out to be with me, so we tried to switch it up more maybe based on how students

> how they perform on maybe these online quizzes we give them, and we'll kind of put them in groups based on that, too.

This grouping method, based on which students would benefit, was common throughout the interviews. Like Aleah, Sam also discussed using assessments to group his students based on their needs. He discussed using exit slips at the end of class to formatively assess which students might be in need of further instruction if they're falling behind the pace of the rest of the class.

> Then those exit slips are used to group the next day's class. That way all the students on module two, section five, they could be grouped together. Or maybe there's a group that has a question about something specific, so then they can be grouped together the next day in class.

While the majority of the participants discussed using grouping to accommodate their students within the face-to-face portion of their blended learning environment, Robert shared how he would group his students and encourage collaboration. He described doing this within the online environment as well.

> Yeah. There are, it's not every single assignment but there are assignments where they work together on the Google Classroom page where they're expected to share the assignment with either the one or a small group of other students in class. On those online days, they're either finding time to work together, or they're just sharing the doc together and working on it that way. Essentially, there's still the expectation to work with peers. Not every single assignment, like I said, but a lot of them, we try to encourage either a partner pairing or a group pairing so they're still getting that interaction either through sharing a Google doc or actually meeting together.

Robert's discussion of using the Google Suite for students to collaborate demonstrates that his students are comfortable with the online portion and are capable of communicating between themselves. In addition, he mentions that when he splits groups up, he is able to work face-to-face with students that may struggle and need that assistance.

> Sometimes we'll split the class up into two. Students that have that concept or have shown mastery in an objective will then move on and do something in their group while there's a bit more face to face instruction in the other group.

Jack also discussed using the online portion as a time for students to collaborate when given the time outside of the classroom:

> However, for 100 percent online, they're working together. Like I said, we're Google, so Google Docs are shared with everyone. Google Slides are shared with everyone if they're creating a presentation. Yeah. They all have access to the same doc, and they're able to work on it outside of class together when they're not in the same location.

Therefore, while grouping for students appeared to primarily emerge when discussing student interactions in the face-to-face setting, there were occurrences of collaborative work taking place within the online settings. However, it did appear that much of the online grouping was limited to working on documents together. It is not clear how much grouping in the online environment is being done with the primary goal of providing support to students with disabilities.

Planning to Reduce Difficulty of the Content

When the actual content is adjusted to meet the needs of students with disabilities, this often includes reducing the difficulty of instructional activities or other assignment that students must complete. Slightly over 11% of comments about planning and customization related to this

theme. Participants discussed reducing the rigor and/or amount of work that their students were expected to complete. The approach to customization was brought up by a majority of the participants several times. Often times this involved reducing the amount of work that their students would have to complete for a particular assignment. For instance, Tammy discussed how she would address difficult content with her struggling students:

> Sometimes I will try and cut it down, or sit with the students if they're really struggling, especially with the online component of it. In my opinion, sometimes it can be very long and overwhelming for the students, because there's a lot there and we're expecting the kids to learn on their own.

Tammy's approach involved reducing the amount of work that her struggling students had to complete. She reiterated this point later in the interview when she stated, "Sometimes, we'll break down the assignment or we'll shorten the assignment. It depends on what it is."

Some participants expanded on the idea of "cutting down" the work and described "reducing difficulty" in different ways. For example, Sally talked about changing how students express their learning rather than just reducing the amount of work needed to produce:

> For instance, some of my students only do multiple choice answers, like reading and then answering multiple choice, rather than students that would be writing a short answer. That's accommodated that way. Some students that have reading comprehension deficits, we'll give them a multiple choice, you know, a few questions at the end of a reading that they're doing on their own instead of basically free writing their responses.

Unlike Tammy, Sally changed the required work that students needed to complete. Students who may struggle with writing composition were given the opportunity to answer multiple choice questions instead.

Drew echoed many of the same thoughts that Tammy and Sally had as he discussed reducing the amount of work as well as accommodating ability levels within his math classes:

> The problem is, you can see the higher learners in my classroom, the middle learners, and then the lower learners. Obviously, the higher learning students will get more problems, some problems to challenge those students. Middle of the road, we'll pair those students at the very end, once they understand and they've completed their goal or objectives. The lower students, honestly, we always challenge them. But they're probably not going to do the harder problems in their class time or on their own at home.

Drew demonstrates how he conceptualized the abilities of his students who are at different levels. He discussed expecting more from his "higher learning students". Students that he sees as "lower" may not be given the more difficult problems. Overall, while not the most frequently used forms of customization documented in the study, this theme did appear consistently and did not appear to be dependent on the online setting, nor the face-to-face setting.

Planning for Student's Speed of Work

A number of the participants shared that when students with disabilities struggled to complete assignments, they would work to accommodate for the varied rates with which students completed activities or assessments. While this theme was identified in half of the participants' interviews, it was the least identified theme throughout all 12 participants (only accounting for 7% of talk related to planning and customization). While this was the least identified

accommodation that was noted as being planned for when assisting students with disabilities, "extended time" as an aid is an exceedingly common accommodation in special education. It's possible that flexible timelines are such a normal part of their everyday instruction that participants did not even think to mention it as a planned "customization" for students with disabilities.

Sam discussed how he views his job as the teacher to be focused on presenting and organizing the information for students to engage with rather that instructing it from a teacher-led perspective. This is notable since 85% of Sam's instruction takes place online. However, Sam identified accommodating for student's pace as a primary tool in his class customization for students with disabilities: "Other students are not capable of moving at the pace that we're at in the class. Those are where, again, readjust what you want them doing".

In addition, Sam discussed how he felt that people might think that blended learning environments are environments without deadlines at all in an effort to meet student needs. He however took the time to point out that while he often will adjust student timelines, there *is* a deadline that students must meet:

> I think it's also that there's a perception that there are no deadlines. That the kids are all working at their own pace. That "when they finish, they finish", but there are deadlines. Maybe you adjust that for certain students, but for the most part you have a schedule of when they should have things completed and they still need to finish a course by the end of the year.

Jessica reiterated the pacing beliefs of Sam expressed in her interview. She discusses teaching a novel study in her English class and how to adjusts to her student's speed: "If I have to—more or less I just accommodate it by slowing it down, slowing down the pacing of the book".

Susan also discussed how she needed to re-evaluate how much her students were going to be able to complete within a given time. She discussed how her students might take longer to complete a lesson and therefore must adjust accordingly:

> Yeah. And then, I also do a lot ... I'll shorten assignments because, a lot of times, they'll say, "Oh, there's a 55-minute lesson," and it's actually a two or three-period lesson for my students. So, I do a lot of ... "Okay. What's the objective of this lesson? How can I get there in 55 minutes?" and modifying from there.

Other participants also briefly mentioned merely providing their students with extended time, but whether it is adjusting the pacing of the instruction or adjusting *how* its instructed in order to meet the students pace, this was a common accommodation used by the participants.

Summary

Planning and customizing to meet the needs of students with disabilities were regularly discussed in the interviews by all participants. Five themes emerged related to participants' planning and customization. The two most major theme were *planning for access to educational resources* and *planning for differentiated instruction***.** Those accounted for 58% of participants' comments about planning and customization.

Although not all of the customizations demonstrated overly specific practices that would exist exclusively within the blended environment, I saw several occurrences in which participants acknowledged the strengths of alternate settings and took advantage appropriately.

Participants used their LMS to provide materials in diverse and varied ways, but also to assist students with organization and structure. While collaboration strategies were shared when describing how they planned to group their students, the extent of that collaboration in the online teaching setting remained unclear. Overall, participants seemed to use diverse methods and approaches to customize their learning environments to meet the disparate styles of their students.

Research Question 2: Instructional Practices

Participant's instructional practices were documented in their interview responses. Eight themes emerged: *facilitating class discussions, implementing teacher-led discussions, providing practice/review activities, providing individualized feedback, providing individualized support, providing instruction using audio/video, doing assessments, and building student-teacher relationships.* See Table 7.

Table 7

Coding for Instructional Practices

Codes	# of Occurrences	% of Total
Doing assessments	90	30.8%
Implementing teacher-directed teaching	45	15.4%
Providing individualized support	43	14.7%
Providing practice/review activities	42	14.4%
Providing instruction using audio/video	26	8.9%
Providing individualized feedback	24	8.2%
Facilitating class discussions	12	4.1%
Building student-teacher relationships	10	3.4%
TOTAL	292	100%

Doing Assessments

Participants used formal, informal, formative, and/or summative assessments and other tools to measure student knowledge. Assessments varied considerably across participants as well as the face-to- face or online environments of blended learning. However, *doing assessments* emerged as the single most common instructional practice by a wide margin (accounting for 30.8% of talk related to teacher practices). Assessments differed considerably across the different participants. Some also took different approaches within the online or face-to-face settings. Jack discussed how he assessed in the online environment using an online instructional and assessment software called Quizizz for his formative assessments:

> Yeah. I usually use formative assessments. Sometimes, I'll use them in class, and sometimes, I'll use them outside of class. I really like the—because I'm gauging their understanding. I really like to keep it limited to three to five questions. Nothing that's going to kill them. It's either you know what you're doing, or you don't. I don't make the questions too tedious. Pretty basic. We do that two to five times a week. It's basically like giving you a question, and then it'll give you four or however many responses I choose.

Jack praised Quizziz for its user-friendliness, quick feedback to the students, and even the "funny memes" that it provided. When participants reported using formative assessments in the online setting, they emphasized ensuring that students could receive feedback on their work that is so apart of formative assessment. In another example, Drew shared how he used Khan Academy and IXL to conduct formative math assessments for his students.

> For Khan Academy and IXL, they're only formative assessments. But I can see how hard they're practicing. I can see—based on timing—I can tell they logged in at 9:30. At 10:00

> they tried only three problems. Therefore, I know that these students were not working very hard. I give them a couple of points for assessments. Otherwise if they're working at home, they've tried 20 or 30 problems, their score is still not 100 percent. Obviously if I knew they were working so hard, I will give them most of the points.

As discussed above, while Drew talks about the importance of seeing growth and working towards mastery in his interview, he used his formative assessments to see how much effort his students were putting in. He also awarded them points based on the practice and time put into the assessments. Jennifer echoed this idea of not focusing on mastery for formative assessments, but looking for effort and growth:

> So, when it's online, obviously, you can't give immediate feedback. Like I have a question, and it's online, I can't ask them right away, so typically I'm assessing like maybe a project, and especially kids with disabilities, it'll be growth as opposed to overall mastery. It's based on who the student is and what their academic goal was attached to their IEP. If I know it's somebody who's working on proofreading, and they have difficulty with punctuation and spelling. Do I see growth in their assignments? A lot of it's like—especially the online writing-based part is usually progression.

While formative assessments were used extensively in the online setting, for these participants summative assessments were not used nearly as much. With regards to summative assessments, most of the participants seem to complete those within the face-to-face environment. Perhaps that is because the integrity of the tests was easier to control when they are physically present with the students, as Tammy remarked.

> The assessment component comes in when they actually do the summative assessment—so, when we give their content check to make sure that they know the information. The US History's very skill-based now. We do a lot of writing. What they're doing online is practice for that summative assessment that they're eventually going to take.

Not all participants were averse to using the online environment to provide summative assessments, though. Robert discussed using the online environment to give his summative assessments:

> Okay. For English, typically, the types of assignments they're turning in are comprehension questions regarding a text we read or a chapter if we're reading a novel. Sometimes they're working on things like a character chart or definitions of new vocabulary. They also then—sometimes as a summative, but also, I use a little bit of formative. We'll do short paragraph essays. They'll do that kind of work online. I think that's mainly the type of things that they turn in on Schoology that shows me that they're understanding the content or where they're at with things.

It became clear that most participants understood the importance of providing assessments throughout their instruction. However, there was considerable variability in how they conducted them. Possibly the subject areas of the classes played a role in how the participants conducted their formative and summative assessments, but what is clear is that all participants used assessments for a variety of purposes.

Implementing Teacher-Directed Teaching

Instruction that is provided directly from the participating teacher was an exceedingly also a common theme throughout the study. All but one participant discussed providing teacher-

centered instruction and/or some form of modeling in order to teach content to their students (accounting for 15.4% of talk related to teacher practices). Robert shared how he would use modeling in his class when working with them face-to-face.

> It's a lot more just walking them through things. I do a ton of modeling, so when we learn about plot diagrams—it's scaffolding, I guess, within the modeling. When we did plot—when we talked about plot diagram, which is probably one of our favorite topics for first semester, the first one I literally went step-by-step with them. We did every single portion together. Then I lessened and lessened the support I gave them. Then the next time we did a plot—we actually probably did a couple together.

In this example, Robert discussed how he began by providing step-by-step instruction for his students and slowly reduced that overtime as he judged fit. In this way, Robert was able to control how much support his students would receive and adjust according to the individual requirements of his students. Tammy reiterated this, and also demonstrated a pattern where much of the teacher-led instruction took place primarily within the face-to-face setting.

> In that face-to-face portion, we also do a lot of the content teaching. That's where we'll actually specifically teach them the information they need to know in class. For example, we're in the middle of Gilded Age right now. We've done a PowerPoint presentation already, where the students are taking notes. A lot of that happens in the face-to-face portion.

Tammy's language use of "where we'll actually specifically teach them" when referring to the face-to-face setting suggested a more teacher-directed approach in her face-to-face instruction. Brooke was asked directly how she instructed her students within the online environment, and

she also repeated the idea that the face-to-face environment is where most of her teacher-led instruction takes place.

> I don't know if I'm answering your question, but the majority of my instruction, I feel, is the face-to-face part. It might be then supported or *transition* into them working on something online. I'm still engaging and speaking to the group before it transitions into the whole online part. In terms of instruction online, again, at least my role, the majority of instruction would be the face-to-face. The online part would be more of a supported role versus my instruction.

While teachers may provide assignments or other types of work for students in the online environment, synchronous instruction where they are engaging with the students in real-time was not identified. There were no examples of teachers providing real-time teacher-led instruction to their students over the online environment. Later in this chapter I will show evidence of teachers using videos of themselves providing instruction, but those were pre-recorded media and not used as a way for teachers to directly instruct students. They were used more as a supplemental material.

Providing Individualized Support

Echoing the findings surrounding practice activities, similar themes emerged with regards to participants providing individualized assistance to their students in the online setting as compared to the face-to-face environment (accounting for 14.7% of talk related to teacher practices). Often times, the participants discussed having to provide additional support to their students who are struggling, whether its one-on-one or in a small group. In Tammy's co-taught

classes, for example, she discussed using face-to-face time to individualize instruction for her students that required it:

> The face-to-face portion's a little bit easier because I actually have access to the student, and I can sit down with them, and I can break the material down into smaller chunks if I need to. I can re-explain. If I need to highlight, I can do the highlighting. That portion's a little bit easier.

Sally also discussed how she would provide individualized support to her students. Specifically, she discussed how on days where she was not meeting with them, she would encourage her students who needed additional help to come see her for assistance in a face-to-face capacity.

> On any given day where I—that we're not scheduled to have one on one instruction, those students can still come and meet with the teacher face to face, either myself or the co-teacher, and they do quite regularly. I would say, on the days that—if the students with IEPs need that—the extra help on the online learning days, they can still come and ask questions.

Similar to Sally, Jessica discussed how she would have to personally "check-in" with students. Specifically, she lamented that sometimes her students struggled to engage within the online environment, so she would provide them the opportunity to express themselves verbally.

> Sometimes that's the hardest thing with the online thing is the—sometimes, depending on the students' ability, especially the special ed. students, their ability, sometimes, their knowledge doesn't come through online. Sometimes it's really hard for them to get their ideas out, especially if you ask them for an extended response typing question, but if I verbally ask them, they've got it. Then that's what I'm trying to work on with them is

> getting their response out in written form. That's why sometimes I have to check in with them verbally, because sometimes they can get their point across verbally.

Even though Drew would use IXL and other online practice programs, he also talked about helping his students with their practice problems primarily within the face-to-face setting.

> The main thing for me is, after we do all the examples, after the students participate on the board with small groups, as teachers, as well as my para-pros, we always walk around and do a couple of problems one-on-one or face-to-face. I would look over as they try to solve it using the steps, and we're just watching. We'll give little hints. Like examples, what you've done here, maybe you should have added instead of subtracted.
>
> Face-to-face, add examples, watch the students, smaller groups, one-on-one, explain what we should have done, correct their error, looking for the correct answer for each individual problem.

Collectively, providing students with individualized support was identified primarily within face-to-face interactions. This was noted specifically with Sally, where she would have students come in for assistance face-to-face even though it was an online day. This perhaps speaks to an uneasiness (e.g., with technology knowledge, or student engagement with the feedback) to provide assistance and individualized instruction to students online and the lack of synchronous online instruction between the teacher and the students.

Providing practice/review activities

As students worked individually or in small groups on activities, another commonly observed theme involved participants providing activities for students to complete in order to refine content knowledge and/or review what had been taught (accounting for 14.4% of talk

related to teacher practices). Often times, the activities would be assignments that the students would complete individually, but not necessarily all the time. It's notable that a many of these activities were about online activities. Aleah discussed some of the online activities that she would provide for her students:

> So if we're doing a novel study, the students are usually doing some online activities related to the book we're reading, so either answering some questions either in a Google form or just on a Google document, and then on the days that we are face-to-face, we're really just going over those answers and making sure that everyone really understood what the assignment was.

Drew also talked about the practice activities that his students would complete in his math classes. Similar to Aleah, many of these were online assignments. Specifically, he discussed using programs Khan Academy and IXL, which are practice software that provides instant feedback and scores on attempts at completing work:

> Normally online it's either Khan Academy will give you probably 10 to 15 problems, the objectives, and the answer will be there once they're done. IXL, there are numerous problems. Your goal is to probably get 100 percent. What they do is, you have one right, you're counting six percent, all the way to 100. If you get one wrong, your score will drop down, so then you're getting one extra practice to complete that goal. IXL and Khan Academy are the best way to practice.

In Jessica's class, where she actually only spends 10% of her instruction within an online setting, discussed how she tries to make sure that her online assignments require minimal assistance from the teacher:

> We try to find something that is either review or it's an introduction to whatever skill we're learning so that it's a pretty independent activity for them that they wouldn't need a ton of guidance or support from us.

The act of ensuring that online practice/review assignments were easy enough for students to complete on their own echoes additional evidence in this study that much of the teacher-led instruction takes place in the face-to-face setting. As more teacher assistance is likely required, there appears to be more of an effort to have students complete practice/review within the face-to-face setting. For these practice activities, the heavy focus on ensuring that students can complete without teacher assistance demonstrates that many of the participants view the online environment as a setting where their students will have less support.

Providing Instruction Using Audio/Video

Participants using audio or video sources in order to teach content or skills was another theme that emerged (accounting for 8.9% of talk related to teacher practices). This was primarily found in the online portion of the blended learning environment. For example, Sam discussed using Khan Academy videos to instruct his students in content. He said, "In our videos we want to make sure they stay simple without distractions for the students". Sam's class is primarily an online class, but he does see his students every day, so he uses videos to supplement his in-class instruction.

Jessica also took advantage of using videos to teach new content. She used a program called EdPuzzle in which students would watch a video and answer questions throughout:

> We use a lot of videos, and video notes, or the videos where they have to stop and interact with it. Part of the reason that we use that instruction is because then those videos

> are there. When students might need to go back and re-watch those videos, and they're there for them.

Jessica explained that her EdPuzzle videos were often depicting content found elsewhere or from secondary sources. Rather than use pre-made videos, some of the participants actually produced their own videos. Jack, for example, decided to film his lectures that he would complete with a SMART board.

> What's really nice is that my smartboard lessons, I can put my Google Classroom and give them that way too. I can't remember. Ah, jeez. What I've done in the past—I've kept them, so I send them out on Google Classroom too—is I've filmed myself teaching lessons and completing work so they can see step by step how to do it.

While these videos that Jack provided may be similar to teacher-led instruction, they do not provide students with real-time interaction with their teacher. Jennifer also used videos to supplement in her English class. When discussing plays, they would look at the same clip from various versions of film adaptations to analyze. She would have her students analyze moments in film in her class.

> It could be videos to watch and then a graphic organizer that makes them—for example, if we were doing a play and we might be trying to talk about a director's choice. We might give them different versions of that same scene or sometimes a small snippet of it and what choices are being made that's going beyond the text that weren't interpreted on the director's part. If we're doing something like Ethos, pathos and logos. We're looking at how people are persuaded, so having them look at different videos and being able to identify those characteristics.

In addition, Jennifer also would encourage the use of audio in her class. She saw it as a useful accommodation for her struggling students:

> If it's a play or it's a novel, there will be an audio attachment that will play for the class to follow along with, but say that they are sick, or they missed a class for some reason, they can also go back and use that audio that's linked. Typically, those things are free domain or are on YouTube, so there's a link to where they can go to get that so they can listen along while they're reading.

Jennifer used both audio and video to present new information and to make it more accessible to her students. Many of the participants were comfortable providing this instruction within the online and face-to-face setting, which is understandable as video and audio tools go hand-in-hand with the technology needed for online instruction. Also, Jessica's discussion of allowing students to go back and re-watch videos could be helpful for students that need to hear content several times.

Providing Individualized Feedback

Within the blended environments of the participants, providing students with feedback on their work was commonly used amongst most participants (accounting for 8.2% of talk related to teacher practices). Whenever students were completing assignments, whether online or face-to-face, most participants took time during their instruction to provide them with comments. Jack discussed how he made sure that he was able to provide input for his students' work over the online environment.

> Right off the bat, I have—the kids with disabilities, they have to share their organizer, and then I think that writing—they share their doc with me immediately, and I'm

> commenting on their docs all the time. If we have a regular student in the class say, "Oh, I've got my doc, will you comment on it?" Absolutely. We will do it for everybody, but, right off the bat, we have those kids with disabilities share it with us right away.

As Jack noted, using the Google Suite of applications that allowed him to easily provide comments and feedback directly onto the assignments for his students. Sam also discussed using online applications to provide feedback, including using programs like IXL, but he also discussed trying to provide more face-to-face individualized instruction to students with disabilities: "With those student I will try to talk with them in person. Our students with disabilities have a common advisory period that I can meet with them when needed".

Jessica also discussed the advantages of using the Google Suite to provide instant feedback to her students.

> When they're working on their projects or their end of the unit assessments, we can interact with them through Google leaving comments and that sort of thing. We usually do that. We usually have them put in a draft, and then we give them feedback online. The nice thing is that on Google Docs it can just be done right there. You can highlight it and add comments, what needs to be changed, and fixed, and they can also comment back if they have questions. That would be how we interact with them.

Participants identified several examples of how they provided feedback to their students over the online environment. However, when discussing the earlier theme, they struggled to identify examples of ways they provided individualized support to students in the online environment.

Facilitating Class Discussions

Facilitating class discussions was a theme that did not emerge as often as others in the interviews (accounting for only 4.1% of talk related to teacher practices). However, there were still several points that carried across participants related to facilitating discussions. Several participants discussed using discussion formats such as Socratic seminars in order to have their students participate in class discussions. Sally shared her experiences with using this approach in her face-to-face lessons.

> Also, participating in class discussions even if it's just raisin' their hand. At the end of each unit, we do a Socratic seminar with our students where we literally sit in a circle and we discuss and share their opinions on what was learned, whether it's a novel or a topic or concept. They're interacting pretty regularly when we're in the face to face environment.

Likewise, Jessica also discussed using Socratic seminars in her class.

> A lot of group discussions, we do a lot of Socratic seminars where students are leading the discussion and then having to comment, and respond back, and pull people into the conversation who may not be as willing to share. We do that a lot in our classroom, and just trying to be as positive as we can for our freshmen.

Amongst the participants, there were not many examples of class discussions taking place in the online setting. Sandra briefly mentioned using online discussions, but it was only a passing mention. She said, “If we’re reading a novel, they’ll post questions, and then they’ll have to answer somebody’s question and then post their own questions.”

Susan spoke to the struggles she experienced trying to have class discussions in the online environment as well.

> That's something I'm growing in. I haven't done well with that. I've tried discussion boards. I've tried journal entries. They're just not ... It hasn't been what I want it to be yet.

Building Student-Teacher Relationships

Though less robust than other themes, some participants talked about making efforts to build student-teacher relationships (accounting for 3.4% of talk related to teacher practices). A number of teachers expressed concerns over being able to build relationships with their students within the online setting. For instance, Tammy expressed her concerns.

> The one thing that I don't like—that I think is challenging with the students with this—is because you are not with the kids all the time, there are certain students I still don't know who they are because they're always blended. They don't come into class. They're physically present on our whole-group days, but you never get to know them. That's the downside of the blended is you don't get to know some of the kids. The positive is you do get to know some of the kids really well, if that makes sense.

Even though Tammy saw her students a few times a week in her classroom, she still struggled to build relationships with her students outside of the classroom when they were working online.

Jennifer also found that it was important to build relationships with her students within the face-to-face portion before moving online.

> I think this a bridge of obviously I need to know my students. I like having that day to work with the face-to-face level so that when it goes to online, I can gear what we're doing. The things that are pertinent to them but also relatable because obviously the longer I teach, the bigger the gap is. Examples that I might have thought were appropriate 10 years ago may not work in this generation.

Similarly, Susan echoed the challenges that Tammy and Jennifer faced in forming relationships with her students in the online environment. In addition to teaching high schoolers

in blended environments, she also taught blended classes as an adjunct professor at a local university. In comparing the two, she expressed difficulty in effectively forming relationships with her high schoolers online.

> I don't know if the issue is I'm comparing what my 15-year-old high school students are doing to what my 35-year old professional teachers are doing. You know? But it just hasn't been as effective at the high school-level yet. So, building that social/emotional portion online ... So, I'm just still playing with that.

Susan also discussed the professional development experiences she had in “building circles” to build relationships with her students:

> I go to restorative practices training. And it's all about building relationships with your students. And there's also a portion about running circles in your classroom. And circles are a discussion format where you push all the desks against the four walls of the classroom. And you create a giant circle of chairs in your room. That's the circle. There's nothing in front of them, so that they're just, literally ... It's them in a chair in a circle. And there's a lot of different ways to run it, but what essentially happens is ... I read some sort of quote or song stanza or something to set the tone. And then, there's a discussion prompt and there's a talking piece, and kids can choose ... When the talking piece is handed to them, they can choose to answer the question or they can choose to pass it. No one is forced to share. But it's hard, the talking piece. So, you're expected to be respectfully, actively listening. And there's no technology allowed in the circle. No phones, no computers, no headphones.

When asked if she thought these strategies of “building circles” could be performed within the online environment, she expressed uncertainty.

> I'm not sure. I would be really interested to try it in a year-long class. Especially after my first semester, our last circle was so deep in all of the classes. The discussion was, "What do adults need to understand about teenagers?" And it was the first time all year that we had to cut our circle short because we ran out of time. And we had to cut it short in every single class. And kids were just being very vulnerable and just really opening up. It was the last circle of the semester, and we had two weeks left. And I mean, for those two weeks, they wouldn't stop talking about that circle and how they wish they could have it again and they still had so much more to say. And I wonder if I could've taken that momentum and moved it into the online platform once they had established that level of openness with one another, but the class ended.

Susan worked to build her relationships with her students, but even she was unsure of how effective the strategies could be in the online setting. This is notable as none of the participants expressed using any forms of synchronous online instruction where they might engage with the students in real-time.

Summary

Like for planning and customization, the instructional practices within blended environments also varied widely. The overall role of context in which participants taught seemed quite influential. How teaching a particular subject matter, such as English versus mathematics, mattered in the kinds of instructional practices used in the blended environment is not clear. The role of the LMS and how the platforms and functions might have influenced instructional practices and choices could be another factor contributing to the variance.

One common note was the lack of synchronous teacher-led instruction within the online environment. This lack raises questions as to the abilities, capacities and perhaps motivation of

teachers to engage with their students in real-time over the online medium. These concerns are only exacerbated by the unique learning styles of students with disabilities. If participants were not comfortable providing certain forms of instruction within online settings, then it raises questions as to the limitations of the online environment and/or the professional development given to teachers to effectively teach online instruction.

Research Question 3: Perceptions of Blended Learning

Participant's perceptions of the blended learning environment were documented in their interview responses as they shared their beliefs and the experiences that helped shape them. Four themes emerged throughout the interviews: *Perceptions of student and teacher interactions, noticing student motivation, views on student's online competency, perceptions of students' social/emotional learning.* (See Table 8.)

Table 8

Coding for Perceptions of blended learning

Codes	# of Occurrences	% of Total
Viewpoints of student's online competency	41	32.8%
Perceptions of student and teacher interactions	39	31.2%
Noticing student motivation	24	19.2%
Perceptions of student's social/emotional learning	21	16.8%
TOTAL	125	100%

Viewpoints of Student's Online Competency

Participants expressed perceptions of their student's ability to effectively participate within an online setting (accounting for 32.8% of talk related to perceptions of blended learning). These responses were differentiated from *noticing student motivation* in that these deal specifically with participants' views students' abilities to be productive in an online setting as opposed to their drive to be productive in those settings. Brooke shared some of her thoughts about this.

> I think it has a lot of potential to meet the diverse needs of students with disabilities in terms of flexibility, in terms of—a lot of these students do like to use technology. They find it an easier way for them to share information and to dedicate their mastery. I definitely think it has a lot of potential when you have a teacher who still holds their students to very high standards.

While she did praise the potential to meet the diverse needs of her students, she also did have reservations

> I, personally, find this to be a huge drawback in terms of social-emotional growth, because—that's as a teacher and a parent. I struggle with kids constantly having a screen up. I have found it to be incredibly distracting...Their eyes are constantly on the screen. There are different tabs that are open. A class of 30, it's nearly impossible to always be monitoring are we working on our assignment? Are we watching something on YouTube? Are we playing cool math games?

Sandra also discussed issues related to students' maturity causing issues with their ability to be successful.

> Our kids that we have in English IV now, I had them last year in English III, and I was like, “Oh, my gosh. I don't know how I can recommend them to do a blended class for English because they did so poorly in English III.” I don't know if it’s maturity or if it’s—they’ve realized, “Wow, this is it. I’m almost done.” Then, they decide to really step up their game ‘cause in our English III classes we have—English III has 28 kids, and we have a section of 26 kids. We actually have, right now, have 19 failures. In our English IV, we have a class of 30, a class of 32, and a class of 28, and we have 3 failures, so a huge discrepancy—and what that is. We bring that up all the time. What are we doing differently? Absolutely nothing. They’re the same structure in both classes.

Jack did not mention any negatives. He perceived several benefits that blended learning had for students with disabilities.

> Well, when I think about blended learning for those students with disabilities, one thing I really like about it is the opportunity for supplemental materials. That individualized education outside of the classroom, I think is awesome. I also like how it’s instant feedback, and how I can also see in real time what they have completed and what they’re struggling on, things like that. And the other thing is that the organization piece is huge.

Perceptions of Student and Teacher Interactions

Interactions within the blended learning environment vary considerably. Participants expressed diverse perceptions interacting with students in the blended learning environment (accounting for 31.2% of talk related to perceptions of blended learning). They also expressed perceptions over how students interact with each other in the blended environment. Jennifer shared several positive opinions on interacting with her students in the blended environment.

> One of the reasons I like Google Classroom is because they can also write specific questions in the specific assignment that they're talking about, like private messages that I can see when they're turning in an assignment so that I know exactly what assignment they're talking about and what their question is. Then I can just send them back an answer in the same thing, in the same assignment specifically. Because sometimes if it's a student asking you random questions, it's like, okay, what are you specifically talking about? I do like how that's very specific.

Jennifer also discussed student-to-student interactions. She talked about giving them the freedom to interact in the ways they are most comfortable. But she added:

> I have sophomore level students, so they are familiar with each other a little bit. Sometimes they don't know each other so much. I think with interaction, so at the beginning of the year trying to pair them up, but then toward the end of the year, giving them a little more freedom and seeing how they interact. Looking at like you are responsible for—if you're picking your group, your responsible for what you're doing in that group, and you need to try to work out conflicts you may have, and there are disagreements before coming to us. You need a chance to do it. "Well, I can't' do this, so we're not working together." It's like, "That's not working real well."

Brooke also discussed positive aspects of student-to-student interactions. Here she discusses how often students work together:

> Yeah. I would say at least once a week, one to two times a week. Firstly, our daily work we encourage kids to find a friend to work with. If it's daily work, we're good with them working on something together, so they're interacting, answering comprehension

> questions about what they're reading, doing character charts on what they're reading together in with the text, and them filling out their information online typically, with partners, at most in groups of three usually.

Despite these promising testimonials, Aleah, had a bit more of a problematic perception. Specifically, when working with her students with disabilities, she discussed not always having success communicating directly with her them for a variety of reasons. She mentioned that she often will have more communication with the parents of her students with disabilities than with the students themselves.

> Yeah. It was definitely the communication for students with disabilities is usually sometimes facilitated through their parents. Sometimes that is directly to me. I feel like if it's through email or commenting I'm probably more direct in giving them assistance than I am with the students who don't have disabilities. The students who don't have disabilities, I probably kind of more prompt them what to do or guide them with some directions, and when it's a student with a disability, I'm probably more forward and direct of what they need to do on the assignments.

Speaking further on this, Aleah seemed to be reasoning with herself; that is, somewhat trying to problem-solve.

> I guess it just kind of depends on the student, but I would say the students with disabilities might just kind of be, like, "Oh, I didn't know how to do it," and they don't say anything and don't reach out to me through online and will just wait and come the next day and be, like, "I didn't know how to do this," and they need me to kind of walk it through face-to-face.

Sally also echoed the idea that students with disabilities were not preferring online communication. Sally saw a lot of her students preferring to just talk in person. She shared this reflection.

> You have certain, specific students that—with IEPs and disabilities—that tend to not prefer communicating through email or on the Google Classroom page, and I always—they know where to find me on the days that it's stuff online. They usually come and speak to me face to face if they're having an issue. Generally, most kids find that communicating through the Google Classroom page is easy. It's actually faster, and they usually get their answer quicker than coming to my other—myself or my co-teacher.

Overall, participants seemed to perceive that their communications with students with disabilities seemed varied and potentially based on the preferences of the students. Further, participants seemed to believe that some students could thrive communicating within the online setting, but it overall appears to be based on their preferences.

Noticing Student Motivation

When students are working in an online capacity, especially away from the classroom, staying on task becomes an important aspect of the environment. Participants expressed perceptions of students' drive, enthusiasm, and inspiration within blended learning environments (accounting for 19.2% of talk related to perceptions of blended learning). For example, Tammy expressed her perceptions of student motivation in her blended learning classes:

> Blended learning at my school has blown up. It is almost to the point where it's, I think, in my opinion, too big. Students use blended to get out of school, to go to Starbucks.

> They don't use it for the purpose that it's meant for. I think it needs to be wrangled back in again.

Yet like other participants, Tammy also expressed a view that was less pessimistic toward blended learning. She noted the positive aspects that influenced her students' motivation:

> At the same time, I've found that my students who are in the blended learning program, especially with that co-taught support, they're doing better than my traditional students are that I have in class every single day. They just seem like they're more motivated by it. They are more comfortable reaching out and getting help. They like that smaller environment, that they know if they come into class, they can sit down with me for 10 minutes. We can go over whatever we need to go over. They don't have to try and come before school or after school. I think that's provided a lot of positive to the program.

Aleah also discussed how her students with disabilities - in some circumstances - might be more comfortable and motivated to complete work in the online setting:

> I feel like our students who have emotional and behavior disorders are more likely to have the motivations *to do the* blended learning 'cause they don't necessarily like talking when we're face-to-face in the classroom, but when they're able to just kind of do their thing at their own pace they're more motivated to do that work. When it's the students who have the learning disabilities, they really need the time in-class with the teacher.

Many of the participants argued that students with disabilities will often have motivation issues regardless of their learning environment. Brooke described this briefly in her interview.

> Yes. The nature of the beast is that a lot of these kids have motivational problems across the board. I don't know if it's necessarily motivated to do well or if they're enticed thinking that it won't have to be as much.

However, several other participants mentioned that issues of student motivation were exacerbated by the blended environment. For example, Jack shared this.

> I think students have motivation issues. I think the students that have motivation issues, have motivation issues no matter what. However, with blended learning environments, I think it puts more ownership on the students. Because of the accessibility, not only does it give them the opportunity to do it whenever and on their time, it takes some of the excuses away that a lot of their lack of motivation comes from, so I think there's less of a motivation issue in blended learning.

Furthermore, Jack elaborated further about the specifics of high school students' lives in 2020, and the instant diversions and gratifications they have.

> Again, I think that's a huge piece of blended learning, and/or the online environment for that matter, is being disciplined. When you have a computer in front of you or any sort of technology, when your friends snapchat you, or ESPN.com is just a click away, are you being able to be disciplined as far as how much you need to do? I really think that's a taught skill because, as much as teachers try and remove those things or any authority tries to remove those things, at the end of the day, for the rest of their lives, the kids are going to have a phone in their pocket or accessible to a distraction, so it's not so much removing them. It's teaching them how to be disciplined and use technology for productivity.

Perceptions of Students' Social/Emotional Learning

Participants expressed their views about students' well-being, stress, trauma, and overall mental health as they engage with the blended learning environment. Participants had several varied responses accounting for 16.8% of talk related to perceptions of blended learning. For instance, Jennifer discussed how her students might feel less fearful about sharing within the blended learning environment. Specifically, she felt they were more comfortable in an online setting where there was a perception of safety.

> I think it also helps with some of our students with disabilities who have processing issues that it gives them a safer platform for asking questions online where not everybody can see them. Whereas in a face-to-face classroom, they may not speak up because they don't want to be seen by other students as asking something that they should know or something that they might be embarrassed by. Whereas it gives them a little more freedom with the online to reach out and be like I need help, or I don't get this or what this was supposed to be. Then just giving them that extra time as well. If we're working on an assignment that they know that they have that time at home and it's not the pressure to just get it done.

Robert also expressed his perception of how working online eased anxiety for one of his students:

> I have a student, for example, who I had last semester who was diagnosed with selective mutism. She was not as comfortable speaking face-to-face. It caused anxiety for her. We set up she would e-mail me if she had a question, or if I needed something from her, I would e-mail her, even about a classroom assignment, because she had selective mutism.

> We did a lot of presentations, and I was like, "Do you want to do this presentation?" or "Here's your options for how you can do this presentation if you're not comfortable getting up in front of the class."

However, Brooke expressed a different view in which she saw the drawback of reduced face-to-face contact and her concern.

> I think the drawback is sometimes it does decrease some of that face-to-face communication. Students can start to lose that human interaction and find themselves attached to a screen a lot.

Likewise, Aleah also reported that a number of her students with disabilities were often frustrated in the online environment.

> So I know we we've got some teachers where they'll put an assignment on there, and it'll be, like, "Click this link, and it'll take you to here, and then click this link, and it'll take you to here, and then come back to the Google doc and type in your answer, but then click this," sometimes it's too much and they can really get frustrated, and they're, like, "I have no idea what this has asked me to do," and they need even more the face-to-face, depending on how it's presented.

Overall, participant perceptions of their efforts and students' responses to their efforts to differentiate and provide students the flexibility to learn in a less restrictive manner showed tensions. Several articulated both positives and negatives in using the online environment for students with disabilities. They perceived varying kinds and degrees of distraction, frustration and motivation on the part of their students. Their own perceptions seemed to show ambivalence at times with how they and their students with disabilities perceived the conditions and contexts

of the blended learning environment. Perhaps that aligns with the overall uncertainties that are a central part of teaching and of learning for all students and teachers.

Post-Interview Perception Survey

I administered a survey to participants after the interview, reasoning that the interview discussion might have raised additional thoughts and perceptions. I show the results in Table 9.

Table 9

Post-Interview Perception Survey Results

On a scale between 1 - 5, 3 = neither agree nor disagree 4 = agree 5 = strongly agree)	**Average rating**
Within blended learning environments, I feel prepared in my ability to plan/design lessons for students with disabilities.	4.25
Within blended learning environments, I am comfortable in my ability to provide instruction for students with disabilities	4.33
Within blended learning environments, assessing the learning of students with disabilities is something I feel able to do.	4.33
Blended learning environments are a more rigorous instructional placement when compared to a face-to-face classroom environment.	3
Within blended learning environments, I am confident in my ability to provide accommodations.	4.167
Instruction can be beneficial within blended learning environments regardless of disability.	4.4167
Within blended learning environments, I can make general adaptations to help each student with a disability.	4.33
Within blended learning environments, I can adapt the curriculum materials to help each student with a disability.	4.33
Within blended learning environments, I am limited in the adaptations I can make to the curriculum materials I use.	3.083
Even if they struggled in face to face environments, students with disabilities may thrive in a blended learning environment.	3.75

The PPS focused on participants' perceived comfort about their competence for teaching within the blended learning environment as well as beliefs about their preparation. On a scale from 1 - 5, with 1 as "strongly disagree" and 5 as "strongly agree", participant responses ranged from 3.0 - 4.41 (M = 4.0). In 7/10 items (range of 4.167 – 4.4167, M = 4.31), participants chose 4 or above. Six of those seven items focused on participants' perceptions of their confidence about their abilities to provide instruction within the blended learning environment to students with disabilities. Participants have high opinions of their abilities to teach within blended environments. They felt very knowledgeable and prepared in how to instruct students within the blended learning environment.

Of the three responses in which participants marked a "3", the item about participants' perceptions of students struggling in the face to face with the possibility that they might thrive in blended learning received an average of 3.75. Participants seemed close to "agreeing" (4.0) that struggling students might find more success in the blended learning environment than in the face-to-face. The other two items that were a "3" focused on the nature of the blended environment for students with disabilities. Participants appeared to be less willing to agree that blended placements are inherently more limited or more rigorous than face to face.

When asked about their preparedness, all responses were either *agree* or *strongly agree* for all three questions. When asked if they felt that the blended learning environment was more rigorous than a traditional face-to-face classroom environment, the responses were not strongly one way or another (M = 3). In general, participants felt prepared and able to provide accommodations to students with disabilities within blended environments and felt that there was not a particular reason why blended environments cannot be appropriate placements and supports.

The survey included two open-ended questions. In the first, participants responded to a question about what they thought was the "biggest strength" of the blended learning environment. All participants responded to this question by reiterating many of their instructional practices. For example, Sally reaffirmed the importance of differentiated instruction. She stated, "The ability to provide each student a unique learning opportunity based on their strengths as a student." Jack also mentioned the importance of the individualization as well as pacing by saying "The individualization of curriculum and pace for each student." In other words, they all appeared to see their instructional practice(s) as a strength.

Participants also responded to a question about what they thought was their biggest concern about blended learning environments. Participants predominantly expressed concerns about student motivation and issues dealing with students' abilities to be successful without face-to-face support. All comments focused on either one or both of those ideas. For example, Susan said, "Some students do not have the executive functioning skills to initiate tasks, maintain focus, and keep their work organized and prioritized." In another example, Sandra said,

> The biggest concern is the student who truly does not care to be successful and does not do work in class or on blended days. Nothing seems to motivate them. They are not students with disabilities. This does not pertain to any of our seniors; they are all doing great. This is a concern with our juniors.

V. DISCUSSION

The focus of this study was to examine within the blended learning environment two core teaching practices of planning and instruction, and perceptions of special educators about blended learning. I examined three forms of instruction: face-to-face, online synchronous/real-time, and online asynchronous instruction. Through high school teachers' self-reports, I investigated their viewpoints about their practices, and perceptions of their confidence and competence in blended teaching. Through surveys and interviews, I sought responses to three research questions: (1) How do high school educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments?, (2) What instructional practices do high school special educators report using in blended learning environments to meet the diverse learning styles of students with disabilities?, and (3) How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities?

Contexts

Though all participants taught in what they labeled a "blended learning environment" which also fit with the selection criteria for this study, findings show that teaching contexts and conditions for participants' blended learning varied considerably. For instance, participants taught different subject matters. They taught a range of grade levels. Participants taught in both collaborative teaching in inclusive environments and small group segregated teaching to only students with disabilities. Though the majority used Google Classrooms as their learning management system (LMS), that also differed with some using Canvas or other LMSs. LMS use adds to the variability since they have different capacities and methods for sharing learning materials, resources, and teacher feedback.

By far, the greatest variation in findings about the context was the percentage of time participants taught face to face, synchronous online, and asynchronous online. One participant noted that 95% of instruction occurred in the face to face, and therefore 5% online. On the other hand, another participant reported that 15% of instruction happened face to face, and therefore 85% online.

Another part of that variance in instruction was the percentage of time students were scheduled to be physically present in the classroom at the school. While I did not ask participants how many days they were scheduled to see their students face-to-face each week, several participants offered the information. They explained that they had several scheduled days where they do not see their students during the week. For example, Tammy noted that her students worked online 2-3 days per week, but she instructed within the face-to-face environment 70% of the time. Several other participants saw their students five days per week, akin to traditional high school teaching and learning. However, those teachers still described their classes as "blended learning" because of their use of online instruction within classroom environment. For example, Sam reported teaching 85% online, and saw his students daily. Within his teaching face to face, he used online modules. Students worked individually or occasionally collaboratively. Sam saw his role as a facilitator there to lend support to students as needed. What became clear is that how much time students were scheduled to meet with the teacher face to face did not necessarily correlate with the percentage of face to face instruction since within face to face, students worked online at times.

From those findings, I see that the definition of "blended learning environment" is quite broad and encompasses multiple structures and instructional methods. That also aligns with prior research that the blended learning environment includes a broad range of instructional

components (Allen et al., 2007; Christenson et al., 2013; Staker & Horn, 2012). Gaining information about the factors in instructional contexts is important. A teacher instructing in a blended learning environment where they see their students daily will likely plan their instruction differently from a participant that may only see their students face to face two days a week. An online activity that takes place in a brick and mortar environment still under the supervision of the teacher is going may yield different learning outcomes than an activity being done in an online environment away from the school. In addition, teachers will develop perceptions of the blended learning environment emerging from their unique experiences. Overall, contextual factors matter and need to be considered when investigating the broad educational opportunities, we call blended learning.

Planning and Customization

Smith and Basham (2014) called for investigations into online learning instructional practices amid rapid enrollment of students with disabilities within online and blended settings. Graham (2006) and Staker and Horn (2012) found that there is very limited knowledge on how blended learning teachers use tools to customize instruction for students with disabilities. We do have some evidence, however, that blended learning can help meet the diverse learning styles of students with disabilities through accommodations and customizations (Vasquez & Straub, 2012).

The findings in my study can contribute to that work. I sought to learn ways that participants customize while planning for students with disabilities in blended learning. Close to 60% of occurrences they reported dealt with planning for *access to educational materials* (31%) and *planning for differentiated instruction* (26.8%). All of the participants took advantage of an online LMS in order to facilitate the instruction in the online environment. This included

providing access to materials digitally, encouraging online engagement within the class activities and assessments, and even assisting students with their organizational skills. Notably, however, "access to materials" seemed largely about ensuring that materials were accessible on the LMS or ensuring that paper copies were available to students who did not prefer the online only environment (and potentially did not have access to print themselves.) Yet still overall, those findings align with those of Basham and colleagues (2015) where stakeholders argued that the flexible access to digital learning materials along with appropriate online instruction could help to meet the unique needs of students with disabilities.

Participants shared their experiences planning for diversified instruction to their students with disabilities both in online and face to face blended teaching. During the online component of blended learning, several participants discussed using various strategies. That finding echoes empirical work by Rhim and Kowal (2008) who found that there are instructional strategies and accommodations in online instruction (specifically virtual charter schools in this case) that are used more automatically than in the traditional environment and provide for a more equitable education environment for students with disabilities. Those accommodations included extended time and varied activity formats. In related work, Basham et al., (2015) reported on promising views and beliefs related especially to the flexible nature of blending learning. Various stakeholders agreed to the potential power of using digital learning to meet the diverse challenges students with disabilities might face in different ways.

Also, participants discussed how they provided differentiated instruction by providing additional face-to-face time when they thought students needed it. That perhaps demonstrates a wider kind of flexibility that might exist within blended environments; that is, seeing students face to face might itself be a kind of differentiation method. By using a variety of instructional

strategies across all settings the blended environment, this diverse instruction could also provide greater equity for students with disabilities by providing greater availability and access to resources, different ways to understand ideas, and an array of supports.

However, I saw variance in the forms of customization. Some did not appear nearly as much as others, and some were largely confined to the face-to-face setting. For instance, accommodating for the speed with which students complete work was a reoccurring intervention, but it was not nearly as common as others. This was surprising initially as providing extended time to complete assignments or assessments is a fairly common and easy accommodation to provide to students with disabilities (Elliott & Marquart, 2004; Thompson, 2010). It is possible that providing extended time is such a common accommodation that it has simply become part of normal instruction for the participants. Therefore, when asked about the ways they customized instruction for students with disabilities, participants simply did not see it as customization.

Reducing the difficulty of the content was another customization planned by several participants. However, it also did not occur as often as other customizations. Occurring across the online and face-to-face environments, participants discussed situations where they either reduced the amount of work that students were required to complete, or modified how students could respond through a simpler process (i.e., answer multiple choice questions as opposed to short answer). It is possible that the comparably limited use of reducing difficulty of assignments could be tied to the specifics of the participants' instructional contexts. While I did not directly ask participants about their instructional delivery models for teaching, many described their blended environments as "co-taught" classes. The literature is full of accounts about insufficient use of adaptations in general education for students with disabilities. Leafstedt et al. (2007), also added literature about students and their perceptions that general educators within co-taught

environments did not always provide sufficient accommodations. Given that, possibly participants in my study believed that more extensive curriculum modifications within those settings were less likely to happen as compared to a self-contained special educational setting.

Planning the use of grouping as an educational tool to provide students with disabilities customized instruction came up. While working in groups may be a greater decidedly in-person kind of instruction, we also know that students could collaborate with others online. However, participants identified very little of that kind of planning or instructional practice. In fact, only one example emerged (sharing online documents and making edits together). As such, there is little evidence to suggest that online grouping was used to provide accommodations to students with disabilities and/or to assist struggling students. If small group collaborative work is used only face to face, then students with disabilities may be losing opportunities for accommodations that are collaborative and practicing collaboration skills when they are learning in online environments only.

Overall, while many of the customizations were used across the online and face-to-face settings, it is notable that aside from using the LMS to provide additional access to educational materials away from the classroom, very little of the customizations were unique to online environments (whether in synchronous or asynchronous settings). Also, I saw no evidence of participants distinguishing between synchronous or asynchronous online instruction. I further found that none of the participants engaged in any form of synchronous instruction/real time instruction with the students. Perhaps participants felt most at ease in engaging with the strengths and challenges of students with disabilities in a face-to-face setting as compared to an online setting.

As reported by some of the participants, like all students, students with disabilities have a higher degree of choice in choosing to attend the class, how to do so, or request extra support in blended learning. Learning skills to determine best ways to help oneself and to advocate is important for all high school students. Research about self-determination and self-advocacy for students with disabilities points to the need to teach those skills explicitly as part of the support some students with disabilities may benefit from having (Palmer et al., 2004; Pierson et al., 2008; Shogren et al., 2017). If and how participants saw that as part of their planning and teaching is not clear.

A lot of the work of special educators is providing accommodations to students face to face and in online environments. The extent to which providing accommodations, which can be complex in traditional teaching and learning contexts, is made even more complicated online is unclear - both in empirical research through the findings in this study. Additionally, gaining student feedback is much easier in the face-to-face setting because it is immediate and present. Seeing facial expressions and gestures, being present for in-the-moment check-ins, and checking on the effectiveness of instructional revisions is easier to ascertain when a teacher is physically with students. Therefore, overall planning for customization and individualization in the online environment might be more complex than doing so face-to-face.

Finally, a clear finding is that participants defined the online environment as asynchronous. They reported hardly any examples of differentiating planning for the synchronous versus asynchronous online environment. (except for one limited practice about planning for using google docs). They also made no distinctions in provision of supports or differentiated instruction between the two.

Instructional Practices

Special education has emphasized the importance of evidence-based practices over the last few decades (Cook et al., 2020; Horner et al., 2005; Maheady et al., 2016; Odom et al., 2005). However, we have much less empirical research about evidence- based practices of special educators in blended learning, including specifically within the synchronous and asynchronous online environment. Though not evidence-based or research-based, Staker & Horn (2012) tried to define certain components and structures in blended learning (e.g. station teaching, flipped instruction). Though they could list the practices, they could reach no conclusions about the most effective practices nor which one are being used most frequently. Recent research by Pullham & Graham (2018) aligns with this void of research about practice in blended teaching. They argue that much of the research on competencies is not built on practitioner surveys and interviews, but instead on expert opinion. The field needs more research documenting practice in blended learning environments as well as research about effective practices.

Four major findings about instructional practice emerged from this study. The first is about use of assessments in instruction. Slightly over 45% (46.2%) of occurrences of identifying instructional practice dealt with *doing assessments* and *implementing teacher-directed teaching*. Providing assessments were among the most common instructional activities conducted by the participants, which is a practice commonly advocated in special educator. Conducting assessments have long been considered a key component or effective instruction (Tyler, 1949). In special education, assessment has long been considered pivotal for revision to teaching and achievement of IEP goals (Fiedler & Knight, 1986; Pierangelo & Giuliani, 2012). In this study, participants made clear that providing informed instruction for students required conducting

assessments to understand where students needed assistance. The participants did this in both the online and face-to-face setting. However, most of the formal/summative assessments were conducted in the face-to-face settings. Participants suggested they wanted to make sure that their students are being intellectually honest regarding their tests and therefore, the assessment data are accurate representations of students' content knowledge and skills. There were instances of teachers using assessments in the online setting. However, these were much more formative in nature. In some cases, these assessments were done for student reflection rather than to guide the teachers' instruction.

A second major finding related to instruction in blending learning is how teachers distinguished face to face and online teaching within the blended environment. Participants seemed to see blended learning as two forms of instruction: face to face, and online. The online environment seemed to be independent work on the computer without teacher presence. Across all of the participants, there were no examples of teachers providing online synchronous real-time instruction to their students. Moreover, participants did not ever discuss providing different supports through a synchronous online teaching more. While blended instruction is often a focus of online vs. face-to-face instruction, we need to examine the nature of the instruction that takes place in those environments.

This demonstrates a stark area of concern when providing instruction to students with disabilities who may require as array of supports and differentiated instruction. When participants discussed ways that they would provide their students with individualized support when they struggled in the online setting, they would often discuss providing additional face-to-face instruction by having the students come in after school or during days they would normally be away from the classroom working online. On the one hand, blended learning by its nature

allows for more face-to-face time with struggling learners, as students who are more successful academically could potentially work with less support from the teacher. However, similar to the findings of Rice and Carter (2016) who found that many of their students with disabilities lacked the self-regulation strategies needed for the online setting, it also raises questions about the appropriateness of the blended placement if students are struggling online. Specifically, do students have the social and academic skills to know when and how to reach out for help?

A third finding related to that is about rigor. The emphasis on using the face-to-face instructional model to provide the majority of the instruction raises concerns about the overall rigor of the online activities participants used in their classes. From their self-reports, participants understood that much of the work in the online environment was taking place without readily available teacher support. It appears they managed that by keeping learning activities intentionally simple.

The BL environment and instruction are important constructs to consider in development of the IEP and revisions. How educators view *least restrictive environment* (LRE) and *free appropriate public education* (FAPE) will have different consequences when students are taught online in either synchronously or asynchronously modes. The actual instructional practices, such as what interventions can be used and how curricular modifications can be made, will hinge greatly on teachers' knowledge of the LMS capacities and their knowledge of how to use it. For instance, what resources could they load into the LMS for students? Furthermore, teachers will enact differentiated instruction according to the IEP goals and accommodations. They will need to know what individual students can do and actually do through ongoing assessments (formative and summative) to monitor students' progress toward goals and achieving them. Consequently,

they will need to make individualized adaptations. The extent to which participants in this study recognized that responsibility and acted on it remains unclear.

A final finding related to instructional practices is about relationships. Over 20 years ago Kirby (1999) examined student and teacher interactions in online and distance learning. She addressed research that showed how interaction was the single most important factor in online learning identified by students. Borup et al. (2013) conducted a study of at an online charter high school focused on implementing the paradigm of "caring" by Nel Noddings (2013). Using interviews and surveys, they learned that teachers could put into place all aspects of the model, and the authors argued that maybe the online environment allows for greater ease of "caring". In my study, participants expressed their insights into about relationship-building. They expressed difficulty in building relationships with their students through the online environment. In fact, some even suggested the importance of building a relationship with students in the face-to-face setting *first* before engaging with them in the online environment. Perhaps clear intervention strategies, like studying a framework or paradigm to enact caring and build relationships, could be helpful.

Perceptions

Participants in this study expressed their perceptions and beliefs on the blended learning environment based on their experiences. Over 60% (64%) of their expressed perceptions focused on students' online competencies and on student and teacher interactions. Most of the participants largely had positive views on the appropriateness of the blended learning environment for students with disabilities. Specifically, participants felt that the blended learning environment allowed for greater flexibility to meet students' needs. Participants' concerns included student distractions coming from other internet-based activities. Some felt that

maintaining a well-managed classroom generally in the blended environment was more difficult because they could not effectively monitor what students were doing during class.

Participants' perceptions on both teacher-students and student-student interactions within blended environments were diverse. Several participants enjoyed being able to communicate with their students through the LMS and also enjoyed using other technology tools to keep in touch with their students. However, many also found issues with online communication. Some participants expressed frustration with encouraging students to interact and collaborate within the online setting. According to some participants, students also had frustration about that. Several participants found that their students preferred communicating with the teacher in the face-to-face setting. With respect to communications, interestingly one participant stated that she is more connected with parents than students when communicating online through email.

Addressing students' social/emotional learning (SEL) also emerged as a positive perception. Participants shared how students with disabilities benefited from having online platforms where they felt safe and less fearful of participating when they might otherwise be in the face-to-face setting. Participants felt that the anxiety of participating within the class setting appeared to be mitigated by working online. However, it's unclear if more synchronous online instruction would also be a more stressful environment compared to the predominantly asynchronous experiences shared by the participants. In addition, any social/emotional benefits that may exist working online would hinge on the students' comfort with technology and effectively utilize online communication tools.

Overall, participants spoke of limitations to their capacities to provide online instruction, or at the very least, felt the online environment itself had limitations as compared to the face-to-face instruction. They voiced concern about their knowledge of technology and the limitations of

the LMS they used. Overall findings collectively suggest participants are instructing their students with disabilities very differently in the face to face and online settings, and furthermore not accounting at all for possibilities in the synchronous online setting. Beyond the scope of this study is the extent to which participants had professional development opportunities and/or the quality of those experiences to do blended instruction. Teachers are limited by the LMS their school and/or district supplied, also. They are influenced as well by their fluency with technology and various software. Another factor is participants' confidence and competency to teach their academic subject matters and to identify and teach with the most effective materials - in face to face, synchronous and/or asynchronous environments.

The self-perception connects, too, with participants' overall views on students' online competency and students' abilities to function successfully within the online setting. Perhaps demonstrative of the limitations of the instruction within the online setting, participants were mixed on how prepared students with disabilities are to work within the online environment effectively. Along those lines, students' knowledge and skills related to self-determination and self-motivation can be influential in ensuring learning away from the classroom in the online environment. In the online environment, we expect and assume the students have the self-advocacy to request help. Teachers repeatedly said that self-motivation in the blended environment was a challenge for many students with disabilities. Characteristics of the online blended environment could provide chances for students to practice and enhance their abilities to be self-determined in fact. In this study, it is unclear how teachers saw that opportunity and/or thought about teaching students with disabilities useful skills to seek support when needed.

Tensions

Three major tensions emerged from this study. The first tension stemmed from teachers appearing to show confidence about their competence to plan and instruct students with disabilities within the blended environment. They expressed beliefs that their instructional practices were strong in all areas of the blending environment, which they defined as face to face and online (meaning, asynchronous online). Yet participants suggested little about their confidence or perceived competence in synchronous online teaching.

Two participants did mention their synchronous teaching. They spoke of using collaborative practices on Google Suite applications. Students would be instructed to work on documents together in real-time, and students were also able to communicate and collaborate through the chat feature on Google Docs. However, these were the only examples of participants using online synchronous teaching with their students. Most often, the online instruction was used to prepare students for face-to-face activities so students might be more engaged. For example, one practice that came up several times were Socratic Seminars, where students would prepare discussion questions in the asynchronous online environment in order to share them in a face-to-face activity the following day. In this example, we see how the participant linked asynchronous and one synchronous learning activity.

It is possible that the participants did not bring up synchronous because maybe they do not see synchronous teaching as part of blended learning. Perhaps because they are more comfortable face-to-face, they would avoid doing synchronous online instruction due to perceived difficulties. They have years of experience in face-to-face, have the option to teach certain activities face-to-face, and are more comfortable doing that. Perhaps confidence in their competence in the asynchronous environment is because it is an instructional model that can be

seen as mirroring independent practice, which is often a common of practice gives students time to practice a skill or review learned content. Participants talked about providing students work in asynchronous online settings that they could do on their own. Yet it remains less clear in this study how teachers provided individualized feedback and support to students in the asynchronous environment.

A second tension emerged from the ways that contextual factors mostly beyond the participants' control influenced learning and teaching opportunities. Multiple contextual dynamics influenced participants' views on blended learning. For example, there were student contextual dynamics (e.g., distraction at home, friends' influences to skip an office hours or meeting) that influenced teachers' views about blended learning. Some of the participants had mixed feelings about students' use of materials and participation in the online environment.

Other tensions from the contextual factors came from the larger circumstances of teaching. For example, participants had little to no say in which LMS their school adopts for blended instruction. Yet participants' knowledge of the platforms, their skills in executing tasks within it, and the breadth and depth of the LMS itself could influence teachers' views and practices. Along those lines, the general technology knowledge and skills of a teacher could influence how much of their instruction takes place within which kinds of online setting. In addition, it could strongly influence what kinds of activities a teacher chooses to use in different learning opportunities. Another contextual dynamic is the school's scheduling structures and possible revisions. For instance, a number of the participants saw their students every day, and others had only certain scheduled days throughout the week (e.g., students could stay home or go somewhere else besides the classroom). Teachers that give online activities they expect to be completed within the classroom (e.g. working on their laptops at their desks) could plan and/or

instruct differently than those giving online assignments to students that they may not see in person for a few days.

Yet another factor is the subject matter that teachers are assigned to teach. What teachers teach, how, and in what settings matters. Different teachers have varied conceptions of how students might come to learn a particular academic subject and what concepts and skills are core. They might vary in what materials they use, find, and/or have access to. They may have varied beliefs and capacities to provide adaptations in online synchronous or asynchronous learning.

Moreover, curricular content and instruction can be configured and implemented in a number of ways. It must be linked, also, to students' IEP goals. Some might point to increasing use of the Universal Design for Learning (UDL) framework as potentially a way to plan and teach. The framework of three interlocking principles correspond to brain networks. Those are the 1) recognition networks, in which we can focus on representing information and content in a range of ways; 2) affective networks, in which we can focus on stimulating interest and motivation; and 3) strategic networks on which we can focus on differentiating how students can show what they know (CAST, 2018; Parker-Katz & Passi, in press). Teachers could draw on UDL guidelines (which is the language of UDL) to build curriculum and instruction and student support in all subject matters.

A third tension is the mixed feelings that the participants had about online instruction and how that might have contributed to their lack of synchronous online learning. A complicating factor in how participants defined the blending environment. They seemed to see it as face-to face or online with no real-time synchronous interaction. Within face-to-face interaction with their students, participants' opportunities were quite varied in the number of times they met face-to-face, and they even varied how often they requested to meet with students during office hours

or during instructional periods. Yet they did not refer to the possibility of meeting students not face to face, but still "see" them synchronously online. I refer to this as "the digital screen door". Students may work in real-time and communicate in real time with people in the class, but even though they are in the online environment together, only so much synchronous interaction can take place using a Google Doc. Unlike a Zoom call or other online video broadcasting platform, we cannot see people real-time to note facial expressions or hear a tone of voice. We also cannot share a screen so that teachers can focus students on particular ideas in the content or be responsive in real-time through a discussion. These barriers divide our students in a way that keeps them present and together but restricts how much they can do together - much like the barrier of a screen door.

Participants did discuss meeting with students. For example, some told students that they are available during asynchronous online days and were told they were able to come in for face-to-face individualized support. Some participants stated that additional face-to-face instruction was mandatory if their grades dropped below a certain threshold. Participants provided varied face-to-face individualized support opportunities. Yet, in all these "extra meetings", students with disabilities needed to self-advocate and ask for help, or physically attend the classroom for assistance. Many participants expressed the tensions in this. They recognized that high school students may not take advantage of add-on not mandatory individualized support opportunities. As mentioned earlier, students' choices to reach out for support or feedback call on the skills of self-advocacy and self-determination (Roberts & Zhang, 2016; Wehmeyer et al., 1998). This is a complex set of skills that need to be taught, and often is even more complex for students with disabilities.

Limitations of the Study

Several limitations emerged in this descriptive study. Glesne (2006, p. 169) explains, "Limitations are consistent with the always partial state of knowing in social research, and elucidating your limitations helps readers know how they should read and interpret your work." The first limitation to the study is geographical. All of the participating teachers in the study were from various high schools in Chicago suburbs. Although recruitment encompassed all schools and school districts within that area, the study is still limited to particular schools in a particular geographic area. In that area, furthermore, most school districts could afford the robust and costly technology needed to efficiently create a blended environment.

A second limitation is that the study did not distinguish student populations with disabilities. Any teacher within a blended learning environment who had taught a student with an IEP would have qualified. Therefore, we do not know specific teaching practices and perceptions used for certain student populations with IEPs, and how planning and instructional practices along with perceptions might have been different given the different populations. WE do not know how participants in general used the IEP goals to guide instruction in their blended teaching. Some of the participants offered information and anecdotes pertaining to certain students and their disabilities. Yet we cannot reach conclusions about what role disability labels played in this study with respect to planning, instruction and perceptions from teachers about their blended learning.

Another area of limitation was the variability of the sample and therefore limitations on data interpretation. The sampling criteria were very wide, which limited conclusions. I had not anticipated the wide variability that could emerge from district size, demographics and policies toward blended learning. Many factors are beyond teachers' control, like the LMS, number of

periods taught in the BL mode, subject matter taught in it, and delivery model. In the future I would manage that more tightly to have a greater cohesive sample from which to draw conclusions. Also, asking about instruction in which particular delivery model (collaborative teaching versus segregated small class settings) is something I would add to the screening criteria. The quality and quantity of resource availability and potential for subject matter expertise could also affect how teachers conducted themselves in the blended environment.

A final limitation is the focus on teacher interviews and surveys exclusively for data collection. The data are all from self-reports. Observations of the classroom or the online LMS were part of the data collected or analyzed. The reliance on teacher reflection through interviews and surveys has limits on seeing and documenting what special educators within blended environments actually did. Clearly the blended environments varied considerably in schedule, instructional models, coursework, grade level, and demographic makeup of special education and general education students. Using additional sources for data about that may affirm or challenge the findings of this study. However, despite these limitations, these findings will allow for description of the planning, instructional practices, and perceptions special educators have within blended learning environments have with regard to students with disabilities.

Implications

As the world of blended learning rapidly expands, especially during the 2020 COVID-19 pandemic, special education services have had to change. I liken that to how towns built along a railroad had to change over time as train schedules and stops changed. Or we can liken this to the current pandemic and how hundreds of businesses have had to change to keep pace with changing times. As blended learning expands, the routines and norms have and will change and evolve. Along with teachers changing, students face challenges as educational environments

provide greater choices and varied instructional approaches, and therefore place upon the student greater challenges to self-determination.

Implications for Research

Future research about blending learning is clearly timely and necessary. Even after additional searches of the literature, little research pre COVID-19 pandemic had emerged. Findings from this descriptive study show great variance in the contexts of blended learning, and teachers' perceptions and practices on how online instruction is best enacted. Additional research related to the factors in educational settings that can be manipulated to support greater depth and breadth in planning and instruction could be helpful. For example, to what extent and how things like school scheduling and structures, subject matters taught, and instructional delivery model used might support greater teaching and student learning would be important to explore - including the dynamics of those factors.

Participants largely felt very confident and competent with their online instructional practices though they expressed some tensions and contradictory perceptions. To shed light on that, gathering observational data in face to face and both kinds of online instruction could be of worth. Teachers seeing their instruction and commenting on it could help as well. Interviews and conversations about blending learning with administrators could further describe, from another viewpoint, blended learning instruction.

Those sorts of data collection and analyses could also reveal what kinds of professional development special educators teaching in blended learning are offered, participate in, and value. We could investigate ways that professional development is designed and assessed, too. This research can help to determine how special educators are prepared to know about and implement

best practices of providing accommodations to students with disabilities within the online setting. Additionally, the research could inform new kinds of professional development as the field seeks to support blending learning as effective practice.

One major area that needs research is to learn more about a pronounced and clear finding in this study; that is, the lack of synchronous online instruction taking place within the online settings of blended environments. How do teachers and students define blended learning, and what do they expect? Participants seem to use the online environment to inform or provide practice for learning face-to-face. What ways can different online instructional approaches and interventions improve the educational experience? How can more knowledge with ways to manipulate the LMS and other software provide better instructional opportunities for special educators? In what ways is student success, both academically and in term of social/emotional learning, affected through different forms of online blended instruction?

Researchers could investigate potential reasons why special educators at least in this study were not incorporating real-time synchronous instruction into their classes. Perhaps special educators in other settings are using synchronous teaching, also, and we could document those planning and instructional practices along with teachers' rationales. For these reasons, it would be helpful for researchers to less broadly define *online learning*, and research the synchronous and asynchronous teaching practices of educators in blended environments separately.

Implications for Practice

To enhance both the quality and quantity of synchronous instruction, we might learn from some of the participants in this study. For example, some participants tied the work that they completed in the online asynchronous environment with future in-person face-to-face activities.

Although participants discussed using asynchronous activities to prepare students for face-to-face activities in their class, asynchronous activities could also be used to prepare students for synchronous online activities. This kind of preparation could help students with disabilities in several ways. Through asynchronous learning activities, students with disabilities could practice ahead of time to participate and contribute to constructing new knowledge. Within synchronous learning, teachers could also allow potentially differentiated instruction and provide for accommodations to support students to meet their IEP goals and learn the general curriculum. Possibly then students would be able to work at their own pace asynchronously and prepare to engage successfully using teacher-planned interventions within the synchronous environment. Doing this is also in line with direct teaching of self-advocacy and self-determination skills to students with disabilities, (e.g. learning problem solving, learning how to study). By doing this, the importance and significance of the asynchronous activities could support students to be successful in the online synchronous environment.

Participants in this study seemed to use very little synchronous online instruction. This phenomenon could have emerged due to teachers finding it easier and more effective to teach in real-time using a face-to-face approach. However, synchronous online environments could be a powerful alternative to offer support and provide differentiated instruction to students with disabilities. It's possible that there are significant missed instructional opportunities that could be realized with more synchronous instruction and many students with disabilities could thrive in a synchronous online environment. The brick and mortar school could have more distractions, be physically limiting, and could even be a stressful and anxiety-inducing setting for some students. This further begs us to re-examine how we define an "educational placement" for a student with

a disability. Online synchronous instruction is framed as an instructional practice in this study. Perhaps, it is also an intervention.

Moreover, synchronous and asynchronous online learning overlaps with traditional framings of "learning environments", which for students with disabilities could have implications for a students' LRE placement. IDEA (2004) calls for students with disabilities to be taught within general education to the maximum extent that is possible. While synchronous online instruction could be a beneficial instructional model to differentiate instruction for students, we should be careful to ensure that students from marginalized communities are not disproportionally placed in synchronous online settings with reduced contact with general education students. Also it's unclear how these wide ranging variables impact how (and if) school special education administrators assign IEP minutes for these placements. IEP teams should be cognizant of these issues and be cautious when choosing blended placements for students with disabilities.

Another implication of practice arising from this study is the kinds of professional development that might emerge. The content, processes and outcomes of learning in blended environments could be aligned with teachers' contexts, e.g., how to teach a particular subject matter, what resources for both synchronous and asynchronous environments might be of worth. What needs to be learned, and how, about the capacities and use of the LMS needs exploration. That all could also help administrators put into place useful teacher learning.

Staff at schools generally could also gain from findings herein. They could explore how scheduling matters. They could explore how choice of the LMS matters. They might consider holding focus groups or other ways to check-in with teachers and students - especially students with disabilities who are at times are disenfranchised.

Conclusions

I aimed to provide a look into the planning and instructional practices along with perceptions of special educators within blended learning environments. I wanted to investigate and describe the varied availability, accessibility, and usability of technology in instruction and assessment in relation to increased diversity of instructional methods and possible outcomes for student learning. Through this study, I hoped to understand how special educators approached the instructional model of blended learning to meet the needs of students with disabilities. I welcomed special educators to share their thoughts on the realities of being a special educator within a blended environment. The major findings are that even within a school, we see great variability of planning, instruction and perceptions. Multiple contextual factors, working in concert with each other, affect that. Secondly, teachers are not using synchronous online teaching, and perceive of online teaching in asynchronous ways. Finally, new definitions of blended instruction could prove useful, especially given the use of remote learning in the 2020/2021 COVID-19 pandemic.

APPENDICES

Appendix A. IRB Approval Letter

Approval Notice

Initial Review – Expedited Review

RE: **Protocol # 2019-1081**
"Instructional Practices and Perceptions of Special Educators in Blended Learning Environments"

Dear Mx. Fowler:

Members of Institutional Review Board (IRB) #2 reviewed and approved your research protocol under expedited review procedures [45 CFR 46.110(b)(1) on October 15, 2019. You may now begin your research.

Your research meets the criteria for review under expedited review procedures [45 CFR 46.110] Categories: 6, 7

Please note the following information about your approved research protocol:

Please remember to add research assistant(s), via amendment, prior to their involvement in the research.

In future, when using online screening mechanisms, please ensure that the eligible/not eligible pathways and messages to the ineligible subjects are included in the screening materials submitted for review, as well as reflected in the recruitment/screening procedures outlined in the Initial Review application.

Protocol Approval Date: October 15, 2019

Approved Subject Enrollment #: 15

Performance Site: UIC

Sponsor: None

Research Protocol:

a) Instructional Practices and Perceptions of Special Educators in Blended Learning Environments;10/08/2019

Documents that require an approval stamp or separate signature can be accessed via OPRS Live. The documents will be located in the specific protocol workspace. You must access and use only the approved documents to recruit and enroll subjects into this research project.

Recruitment Materials:

a) PIP; Version 1.1; 10/13/2019
b) Recruitment Script Email; Version 1.1; 10/13/2019

Informed Consents:

a) Instructional Practices and Perceptions of Special Educators; Version 1.1; 10/13/2019
b) Exceptions to informed consent for recruiting, screening, or determining the eligibility of prospective subjects has been noted under 45 CFR 46.116(g)
c) A waiver of documentation of consent (electronic/verbal consent/no written signature obtained) has been granted for this research under 45 CFR 46.117 (minimal risk)

Additional Determinations for Research Involving Minors: Not approved for the inclusion of minors as research subjects.

Please remember to:

→ **Use only the IRB-approved and stamped consent documents when enrolling new subjects.**

→ Use your **research protocol number** (2019-1081) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with the policies of the UIC Human Subjects Protection Program (HSPP) and the guidance *Investigator Responsibilities*.

Please note that the UIC IRB has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

Sincerely,

Sandra Costello
Assistant Director, IRB # 2
Office for the Protection of Research Subjects

cc: Michelle Parker-Katz (faculty advisor), Special Education, M/C 147
Norma Lopez-Reyna, Special Education, M/C 147

Appendix B. Email Recruitment Script

University of Illinois at Chicago

EMAIL RECRUITMENT SCRIPT

FOR PARTICIPATION IN RESEARCH

Instructional Practices and Perceptions of Special Educators in Blended Learning Environments

Participants will be contacted via email. In the email the following will be written:

Subject Heading: Paid University study. Interviewing Special Educators that meet the criteria.

Hello, my name is Doug Fowler, and I am a special education doctoral student at the University of Illinois at Chicago. I am asking you to take part in a research study to learn more about the perceptions and practices of blended learning teachers working with and designing instruction for students with disabilities. We would schedule one phone interviews that would take about 60 minutes in addition to a pre-interview protocol (PIP) questionnaire and post-interview perception survey (PPS) that will take 20-30 minutes each to complete. You will be compensated $100 upon completion of these items. To be eligible to participate in the study you must answer **YES** to the following criteria:

1) **Are you a state licensed and endorsed special education high school teacher (grades 9-12) in a school district within 100 miles from the center of Chicago?**

2) **As a special educator, have you taught a blended learning class of any content area within the last two years and/or been part of teaching within a blended learning environment?**

3) **Have you been the teacher of record within a classroom environment (including co-taught) that contained students with disabilities within the last two years?**

4) **Have you taught within a primarily majority English-speaking environment for your blended learning environment?**

5) **Does your blended learning environment meet the following descriptors?**

a.) **Do your students learn through online delivery of content and instruction?**

,

30 to 79 percent of the time?

b.) **Is at least part of instruction (minimum 21 percent) conducted at a supervised brick-and-mortar location away from home (usually the school)? YES or NO**

DID YOU ANSWER "YES" TO ALL THESE QUESTIONS? Then you qualify for this study!

If you fit the criteria and agree to be in this study, prior to beginning the interview you will give permission to be part of this study and use your responses during the interview. Consent to be a part of the study will be given prior as part of the PIP survey. The interview will be audio recorded and you are agreeing to have your responses recorded and transcribed. After the interview a summary of your responses will be sent for you to review and you will be able to add or edit as you deem necessary. After the post-interview perception survey (PPS) there are no further activities that you will need to complete to be part of this study.

We will be careful to keep your answers private. Your name will not be used in any part of the study.

If you do not want to be in this study, you do not have to participate. Being part of this study is up to you and no one will be upset if you do not want to participate or even if you change your mind later and want to stop.

Attached you will find a copy of the Consent Form, please review and feel free to email me (dfowle5@uic.edu) with any questions or concerns. By replying to this email, you are not giving consent to participate in the study. Consent will be given at the start of the first survey (PIP).

If you are interested in participating you can reply to this email, state that (1) you are interested in participating, (2) you have read and reviewed the consent form and inclusion criteria and that you give consent to be a participant in this study, and (3) provide a telephone number and best time to contact you. Once you respond expressing interest and give consent, I will email you the Pre-Interview

Protocol (PIP) survey link. Once you complete the PIP survey, I will contact you to set up a time to conduct the interview over the phone.

Thank you for your time, looking forward to hearing from you soon.

Douglas Fowler

Special Education Doctoral Student

University of Illinois at Chicago

Appendix C. Letter of Consent

University of Illinois at Chicago
Research Information and Consent [Parental Permission] for Participation in Social, Behavioral, or Educational Research

Instructional Practices and Perceptions of Special Educators in Blended Learning Environments

Principal Investigator/Researcher Name and Title: Douglas Fowler Doctoral Student
Faculty Advisor Name and Title: Michelle Parker-Katz
Department and Institution: Department of Special Education

Address and Contact Information: [redacted]

About this research study
You are being asked to participate in a research study. Research studies answer important questions that might help change or improve the way we do things in the future.

Taking part in this study is voluntary
Your participation in this research study is voluntary. You may choose to say "no" to this research or may choose to stop participating in the research at any time. Deciding not to participate, or deciding to stop participating later, will not result in the loss of any services, class standing, and/or professional status to which you are entitled, and will not affect your relationship with the University of Illinois at Chicago (UIC) and/or University of Illinois, or any of the agencies or organizations collaborating in this research.

This consent form will give you information about the research study to help you decide whether you want to participate. Please read this form and ask any questions you have before agreeing to be in the study.

You are being asked to participate in this research study because you **are a licensed special education teacher with experience teaching students with disabilities and you have worked within a blended learning environment within the last two years.**

Approximately 15 subjects will be enrolled in this research study.

Important Information

This information gives you an overview of the research. More information about these topics may be found in the pages that follow.

WHY IS THIS STUDY BEING DONE?	Blended learning is a rapidly growing form of instruction in educational institutions across the nation. Blended learning is an attempt to merge "Computer-mediated instruction and traditional face-to-face instruction" into a hybrid model of education (Graham, 2006 pg. 6). This hybrid model creates an educational environment where the classroom is no longer the primary location where learning is taking place. In fact, in a blended learning model, the students may spend the majority of their time away from the physical school as they work online. The Sloan Consortium expand on Graham's definition by defining the time spent in each environment. According to the Sloan Consortium's definition, a typical blended learning environment would have between 30 percent and 79 percent of the class being conducted online rather than in the traditional classroom ((Allen, Seaman, & Garrett, 2007). The aim of this study is to gain an understanding of how high school special educators in blended learning classes provide diverse instruction to students with disabilities. In this study, the questions that we hope to answer are: 1. How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments? 2. What evidence do high school special educators gather and interpret to assess their effectiveness in terms of students' academic and social learning outcomes in blended learning environments? 3. What instructional practices do high school special educators report using in blended learning environments to meet the diverse learning styles of students with disabilities? 4. How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities?
WHAT WILL I BE ASKED TO DO DURING THE STUDY?	This research will be performed via telephone and emailed online survey links. You will need to complete one interview over the phone and two surveys/questionnaires (one before the interview and one after the interview). The interview will take approximately 60 minutes and each survey will take approximately 20-30 minutes to complete.

	After the interview, you will also be contacted by email to in order for us to provide a transcript of the interview for you to confirm/clarify any answers, but no additional phone interviews will be required of you.
HOW MUCH TIME WILL I SPEND ON THE STUDY?	The two online surveys, Pre-Interview Protocol (PIP) and the Post Interview Perceptions Survey (PPS) will take approximately 20-30 minutes each, and the total time estimated to complete all online questionnaires will be 40-60 minutes. The interview will last approximately 60 minutes. Following the interview, you will contact you via email to provide a transcript of the interview and request that you review and confirm and/or correct any of your responses. This should take approximately 1520 minutes.
ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?	This study is not designed to benefit you directly. This study is designed to learn more about how teachers design instruction in blended learning environments. The study results may be used to help other people in the future.
WHAT ARE THE MAIN RISKS OF THE STUDY?	The primary risks presented by this research study are breaches of privacy (others outside of the study may find out you are a subject) and/or confidentiality (others outside of the study may find out what you did, said, or information that was collected about you during the study).
DO I HAVE OTHER OPTIONS BESIDES TAKING PART IN THE STUDY?	This research study is not designed to provide treatment or therapy, and you have the option to decide not to take part at all or you're your participation at any time without any consequences.
QUESTIONS ABOUT THE STUDY?	[redacted]

Please review the rest of this document for details about these topics and additional things you should know before making a decision about whether to participate in this research. Please also feel free to ask the researchers questions at any time.

What about privacy and confidentiality?

Efforts will be made to keep your personal information confidential; however, we cannot guarantee absolute confidentiality. In general, information about you, or provided by you, during the research study, will not be disclosed to others without your written permission. However, laws and state university rules might require us to tell certain people about you. For example, study information which identifies you and the consent form signed by you may be looked at and/or copied for quality assurance and data analysis by:

- x Representatives of the university committee and office that reviews and approves research studies, the Institutional Review Board (IRB) and Office for the Protection of Research Subjects.
- x Other representatives of the State and University responsible for ethical, regulatory, or financial oversight of research.
- x Government Regulatory Agencies, such as the Office for Human Research Protections (OHRP).

A possible risk of the study is that your participation in the study or information about you might become known to individuals outside the study. Your Personal information and

Survey/interview data will be coded and assigned a pseudonym numerical code and stored electronically in a password-protected storage to prevent access by unauthorized personnel.

The data will be confidential and any identifying information will be changed as data are collected. Each participant will be assigned a pseudonym and numeric code after all data are collected. All identifiers will be removed. A master list with names and code numbers will be created and stored electronically with password protection. All data will be coded and data will be stored in such a way as to protect the identity of the participants. Once all data has been collected and member checks have been completed, identifying information will be destroyed.

When the results of the study are published or discussed in conferences, no one will know that you were in the study. During the study audio recordings will be collected. Your identity will be protected or disguised by assigning a pseudonym and numeric code. Your name and any other identifiable information will not be used in the audio interview. If you "self-identify" yourself, the identifier will be removed in the transcripts. All audio records will be destroyed following transcription.

What are the costs for participating in this research? There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research? You will receive A $100 Amazon gift card upon completion of the study. You will receive your payment immediately upon completing the Post-Interview Perception Survey (PPS).

Can I withdraw or be removed from the study?

If you decide to participate, you have the right to withdraw your consent and leave the study at any time without penalty.

The researchers and/or funder also have the right to stop your participation in this study without your consent if they believe it is in your best interests.

If you choose to no longer be in the study and you do not want any of your future information to be used, you must inform the researcher Douglas Fowler in writing at the address on the first page. The researcher Douglas Fowler may still use your information that was collected prior to your written notice.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Consent of Subject

I have read the above information. I have been given an opportunity to contact the researchers and ask questions, and my questions have been answered to my satisfaction. I agree to participate in this research, and I will complete the online consent via the Pre-Interview Protocol survey.

PLEASE PRINT OUT A COPY OF THIS DOCUMENT FOR YOUR RECORDS.

Appendix D. Pre-Interview Protocol

Start of Block: Inclusion Criteria

Q1 **Are you a State of Illinois licensed and endorsed special education high school teacher (grades 9-12) in a school district within 100 miles of Downtown Chicago?**

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If Are you a State of Illinois licensed and endorsed special education high school teacher (grades 9... = No

Q2 **As a special educator, have you taught a blended learning class (Blended Learning is where part of the regular class time takes place outside the classroom and in an online environment) of any content area within the last two years?**

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If As a special educator, have you taught a blended learning class (Blended Learning is where part o... = No

Q3 **Have you been the teacher of record within a classroom environment (including co-taught where a special educator works collaboratively with a general educator in the classroom) that included students with disabilities within the last two years?**

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If Have you been the teacher of record within a classroom environment (including co-taught where a s... = No

Q4 **Have you taught within a primarily majority English-speaking environment for your blended learning environment?**

- ○ Yes (1)
- ○ No (2)

Skip To: End of Survey If Have you taught within a primarily majority English-speaking environment for your blended learnin... = No

Q5 **Does your blended learning environment meet the following descriptors? a.) Do your students learn through ONLINE INSTRUCTION of content/instruction 30 to 79 percent of the time? b.) Is at least part of instruction (minimum 21 percent) conducted at a supervised brick-and-mortar location away from home (usually the school)?**

- ○ Yes (4)
- ○ No (5)

Skip To: End of Survey If Does your blended learning environment meet the following descriptors? a.) Do your students l... = No

End of Block: Inclusion Criteria

Start of Block: Consent

Q6 You are being asked to participate in a research study. Researchers are required to provide a consent form such as this one to tell you about the research, to explain that taking part is voluntary, to

describe the risks and benefits of participation, and to help you to make an informed decision. You should feel free to ask the researchers any questions you may have.

University of Illinois at Chicago Research Information and Consent [Parental Permission] for Participation in Social, Behavioral, or Educational Research

Instructional Practices and Perceptions of Special Educators in Blended Learning Environments Principal Investigator/Researcher Name and Title: Douglas Fowler Doctoral Student

Faculty Advisor Name and Title: Michelle Parker-Katz

Department and Institution: Department of Special Education

Address and Contact Information:

About this research study

You are being asked to participate in a research study. Research studies answer important questions that might help change or improve the way we do things in the future.

Taking part in this study is voluntary

Your participation in this research study is voluntary. You may choose to say "no" to this research or may choose to stop participating in the research at any time. Deciding not to participate, or deciding to stop participating later, will not result in the loss of any services, class standing, and/or professional status to which you are entitled, and will not affect your relationship with the University of Illinois at Chicago (UIC) and/or University of Illinois Hospital and Health Sciences System (UI Health), or any of the agencies or organizations collaborating in this research. This consent form will give you information about the research study to help you decide whether you want to participate. Please read this form and ask any questions you have before agreeing to be in the study. You are being asked to participate in this research study because you **are a licensed special education teacher with experience teaching students with disabilities and you have worked within a blended learning environment within the last two years.** Approximately 15 subjects will be enrolled in this research study.

Important Information

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WHY IS THIS STUDY BEING DONE?

Blended learning is a rapidly growing form of instruction in educational institutions across the nation. Blended learning is an attempt to merge "Computer-mediated instruction and traditional face-to-face instruction" into a hybrid model of education (Graham, 2006 pg. 6). This hybrid model creates an educational environment where the classroom is no longer the primary location where learning is taking place. In fact, in a blended learning model, the students may spend the majority of their time away from the physical school as they work online. The Sloan Consortium expand on Graham's definition by defining the time spent in each environment. According to the Sloan Consortium's definition, a typical blended learning environment would have between 30 percent and 79 percent of the class being conducted online rather than in the traditional classroom ((Allen, Seaman, & Garrett,

2007). The aim of this study is to gain an understanding of how high school special educators in blended learning classes provide diverse instruction to students with disabilities.

In this study, the questions that we hope to answer are:

1. How do high school special educators prepare to meet the diverse instructional preferences of students with disabilities within blended learning environments?

2. What evidence do high school special educators gather and interpret to assess their effectiveness in terms of students' academic and social learning outcomes in blended learning environments?

3. What instructional practices do high school special educators report using in blended learning environments to meet the diverse learning styles of students with disabilities?

4. How do high school special educators perceive the potential of blended learning environments to support the diverse learning styles of students with disabilities?

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You will need to complete one interview over the phone and two surveys/questionnaires (one before the interview and one after the interview). The interview will take approximately 60 minutes and each survey will take approximately 20-30 minutes to complete. After the interview, you will also be contacted by email to in order for us to provide a transcript of the interview for you to confirm/clarify any answers, but no additional phone interviews will be required of you.

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you review and confirm and/or correct any of your responses. This should take approximately 15-20 minutes.

ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?

This study is not designed to benefit you directly. This study is designed to learn more about how teachers design instruction in blended learning environments. The study results may be used to help other people in the future.

WHAT ARE THE MAIN RISKS OF THE STUDY?

The primary risks presented by this research study are breaches of privacy (others outside of the study may find out you are a subject) and/or confidentiality (others outside of the study may find out what you did, said, or information that was collected about you during the study).

DO I HAVE OTHER OPTIONS BESIDES TAKING PART IN THE STUDY?

This research study is not designed to provide treatment or therapy, and you have the option to decide not to take part at all or you're your participation at any time without any consequences.

QUESTIONS ABOUT THE STUDY?

For questions, concerns, or complaints about the study, please contact the researcher Douglas Fowler at 708-253-2313 or email at dfowle5@uic.edu or Michelle Parker-Katz at mparker@uic.edu If you have questions about your rights as a study subject; including questions, concerns, complaints, or if you feel you have not been treated according to the description in this form; or to offer input you may call the UIC Office for the Protection of Research Subjects (OPRS) at 312-996-1711 or 1-866-789-6215 (toll-free) or e-mail OPRS at uicirb@uic.edu.

Q7 Please review the rest of this document for details about these topics and additional things you should know before making a decision about whether to participate in this research. Please also feel free to ask the researchers questions at any time. What about privacy and confidentiality?

Efforts will be made to keep your personal information confidential; however, we cannot guarantee absolute confidentiality. In general, information about you, or provided by you, during the research study, will not be disclosed to others without your written permission. However, laws and state university rules might require us to tell certain people about you. For example, study information which

identifies you and the consent form signed by you may be looked at and/or copied for quality assurance and data analysis by:·

Representatives of the university committee and office that reviews and approves research studies, the Institutional Review Board (IRB) and Office for the Protection of Research Subjects.·

Other representatives of the State and University responsible for ethical, regulatory, or financial oversight of research.·

Government Regulatory Agencies, such as the Office for Human Research Protections (OHRP).A possible risk of the study is that your participation in the study or information about you might become known to individuals outside the study. Your Personal information and Survey/interview data will be coded and assigned a pseudonym numerical code and stored electronically in a password-protected storage to prevent access by unauthorized personnel. The data will be confidential and any identifying information will be changed as data are collected. Each participant will be assigned a pseudonym and numeric code after all data are collected. All identifiers will be removed. A master list with names and code numbers will be created and stored electronically with password protection. All data will be coded and data will be stored in such a way as to protect the identity of the participants. Once all data has been collected and member checks have been completed, identifying information will be destroyed. When the results of the study are published or discussed in conferences, no one will know that you were in the study. During the study audio recordings will be collected. Your identity will be protected or disguised by assigning a pseudonym and numeric code. Your name and any other identifiable information will not be used in the audio interview. If you "self-identify" yourself, the identifier will be removed in the transcripts. All audio records will be destroyed following transcription.

What are the costs for participating in this research?

There are no costs to you for participating in this research.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

You will receive A $100 Amazon gift card upon completion of the study. You will receive your payment immediately upon completing the Post-Interview Perception Survey (PPS).

Can I withdraw or be removed from the study?

If you decide to participate, you have the right to withdraw your consent and leave the study at any time without penalty. The researchers and/or funder also have the right to stop your participation in this study without your consent if:

They believe it is in your best interests; You were to object to any future changes that may be made in the study plan. If you choose to no longer be in the study and you do not want any of your future information to be used, you must inform the researcher Douglas Fowler in writing at the address on the

first page. The researcher Douglas Fowler may still use your information that was collected prior to your written notice.

Remember:

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

Consent of Subject

I have read the above information. I have been given an opportunity to contact the researchers and ask questions, and my questions have been answered to my satisfaction. I agree to participate in this research, and I will complete the online consent via the Pre-Interview Protocol survey.

Q8 Please make a selection below

- ○ I have read the above consent form. I DO understand and agree to participate in the study. (1)
- ○ I DO NOT agree to participate in the study. (2)

Skip To: End of Survey If Please make a selection below = I DO NOT agree to participate in the study.

End of Block: Consent

Start of Block: Your Teaching

Page Break

Q9 Pre-Interview Participant Profile Please complete the following survey. You may need to check with your Special Education Department Head or other administrator to answer some of these questions. You may save and continue this survey in multiple sessions.

Q10 How many years of teaching experience do you have?

- ○ 1-5 (1)
- ○ 6-10 (2)
- ○ 11-15 (3)
- ○ 16-20 (4)
- ○ 21-25 (5)
- ○ 26+ (6)

Q11 How many years of teaching experience do you have in a blended learning environment?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6+ (6)

Q12 How many periods per day do you teach in a blended learning environment or program?

- I'm not currently teaching in a blended environment (1)
- 1 (2)
- 2 (3)
- 3 (4)
- 4 (5)
- 5+ (6)

Skip To: Q13 If How many periods per day do you teach in a blended learning environment or program? != I'm not currently teaching in a blended environment

Q13 Since you are not currently teaching in a blended learning environment please respond to the remainder of the survey based on your most recent BL environment.

In you most recent blended learning environment, how many periods per day did you teach in a blended learning environment the last time you did?

- ○ 1 (1)
- ○ 2 (2)
- ○ 3 (3)
- ○ 4 (4)
- ○ 5+ (5)

Q14 In your most recent teaching placement within blended learning environment, what subject matters or areas do/did you teach?

_____

Q15 Do you have an online learning management system (a program/application/website used to provide online instruction to students) that you use?

- ○ Yes (1)
- ○ No (2)

Skip To: Q17 If Do you have an online learning management system (a program/application/website used to provide o... = No

Q16 Which learning management systems do you use?

_____

Q17 In an average week, what % of time do you spend teaching face to face or online?

_____ Face to Face % (1)
_____ Online % (2)

End of Block: Your Teaching

Start of Block: Your Students

Q18 On average, about what percentage of the students within your blended learning environments have an IEP?

Percentage : _____ (1)

Total : _____

Q19 To your knowledge, do any of your students participate in additional blended learning settings in school?

- Yes (1)
- No (2)
- Unsure (3)

Q20 To the best of your knowledge, what % of time do you estimate your students spend in face-to-face/online environments in an average week?

_____ Online % (1)
_____ Face to Face % (2)

Q21 With regards to the students with disabilities in your blended learning environment, what disability categories are present to the best of your knowledge? Click all that apply

- ☐ Specific Learning Disability (1)
- ☐ Other Health Impairment (2)
- ☐ Autism Spectrum Disorder (3)
- ☐ Emotional Disturbance (4)
- ☐ Speech or Language Impairment (5)
- ☐ Visual Impairment (6)
- ☐ Deafness (7)
- ☐ Hearing Impairment (8)
- ☐ Deaf-Blindness (9)
- ☐ Orthopedic Impairment (10)
- ☐ Intellectual Disability (11)
- ☐ Traumatic Brain Injury (12)
- ☐ Multiple Disabilities (13)

End of Block: Your Students

Start of Block: Your School

Q22 Approximately how many students attend your school?

_____ # of students (1)

Q23 To the best of your ability, what percentage of your school's student body is enrolled in at least one blended learning class?

_____ % in Blended Learning (1)

Q24 Approximately how many special educators/diverse learning teachers work at your school?

_____ # of teachers (1)

Q25 How are your blended learning environments classified when assigning "IEP minutes?" You may need to ask your Special Education Department Head for this answer.

_____

Q26 School Demographics

_____ To the best of your ability, what % of the students in your school receive free or reduced lunch? (1)

_____ To the best of your ability, what percentage of your school's student body have IEPs? (2)

Q27 Student Body Demographics at your School

_____ % of students Asian/Asian-American (1)
_____ % of students African-American (2)
_____ % of students Hispanic/Latinx/Hispanic-American (3)
_____ % of students Native American (4)
_____ % of students White (5)

End of Block: Your School

Start of Block: Contact

Q28 The next step will be to schedule the phone interview. **Please enter a phone number and the best time to reach you.** Upon receiving, I will call you in the near future to schedule the next step.

_____

Q29 Your survey is now completed. Thank you for your participation.

End of Block: Contact

Appendix E. Interview Protocol

My interest as a special educator doing research is to better understand the experiences and perceptions of special educators who have taught students with disabilities within blended learning environments. You have a unique perspective and I wish to hear your insights that you have gathered from your experiences. Please feel free to answer questions as thoroughly as you see fit. The interview will be broken into four parts, with each part focusing on a specific aspect of your experiences.

Introductory Questions

1. Take me through a typical week in your class. How are the Face to Face and Online portions presented? What are you doing? What are your student's doing?

2. What LMS do you use for the online portion of your class?

3. Is the curriculum made by you and/or your school district, or is it a vendor program that your school purchased? Are you able to modify the content on the LMS for students with disabilities?

4. How much input/control do you have over the curriculum/modules in your blended learning class? Were they created by you? Your school district? Outside vendor?

Part 1.

I would like to start by asking about how to prepare you lessons and other educational plans in your blended learning classes.

1. Tell me about the different ways you PLAN, CUSTOMIZE, AND PREPARE FOR YOUR CLASS in order to meet the unique learning styles of students with disabilities. Specifically, how do you plan for the ONLINE portion of your blended learning classes when you are not physically present with your students?
2. Tell me about the different ways that you PLAN, CUSTOMIZE, AND PREPARE FOR YOUR CLASS in order to meet the unique learning styles of students with disabilities. Specifically, how do you plan for the FACE-TO-FACE portion of your blended learning classes when you are able to be physically present with your students.

Part 2.

Next, I would like you to think about what your students would typically do in a typical week in your class. I'm going to ask you a few questions related to student work and how you assess their academic learning and social-emotional growth.

1. Tell me about the different ways that your students DEMONSTRATE LEARNED INFORMATION. Specifically, what are students with disabilities doing within the ONLINE portion of your blended learning class?
    a. How are you assessing student academic progress through the ways they demonstrate learned information in the online environment?

2. Tell me more about the different ways that your students DEMONSTRATE LEARNED INFORMATION. Specifically, what are students with disabilities doing within the FACE-TO-FACE portion of your blended learning class?
    a. How are you assessing student progress through the ways they demonstrate learned information in the face-to-face environment?
3. Think about how your students interact with their peers as well as their interactions with the teacher. How are students demonstrating social-emotional growth in the ONLINE environment?
    a. How are students demonstrating social-emotional growth in the FACE-TO-FACE environment?

Part 3.

I would like you to now tell me about your instructional practices. The next few questions are related to what you are specifically doing to engage with your students.

1. Tell me about the different ways that you PRESENT INFORMATION AND INSTRUCT STUDENTS within blended learning environments. Specifically, what teaching practices are you using to provide instruction to students with disabilities within the ONLINE portion of your blended learning class?
2. Tell me about the different ways that you PRESENT INFORMATION AND INSTRUCT STUDENTS within blended learning environments? Specifically, what teaching practices are you using to provide instruction to students with disabilities within the FACE-TO-FACE portion of your blended learning class?
3. Tell me about your procedures for communicating with your students through the online environment. How do you maintain contact with your students when you're not physically with them?
    a. Do your communication procedures for students with disabilities differ? If so, can you describe how your communicating with students with disabilities is different in the online environment compared to students WITHOUT disabilities?

Part 4

For the final section of questions, I would like to ask you to share your personal perceptions on blended learning environments.

1. Tell me about your perceptions of the blended learning environment. What are your views on blended learning environments' potential to meet the diverse learning styles of students with disabilities?
2. With regards to student motivation, do you see or hear students with disabilities having issues with self-motivation in blended learning environments?
3. Can you identify ways that you encourage self-discipline for students with disabilities within your blended learning environment?

Thank you for your time. Now I know some of things we talked about my have allowed to you have additional ideas. In a week I will send you a short survey in case you have any additional thoughts that you feel that you were unable to convey in the interview. Then, in about 2-3 weeks I will send you a copy of the transcript. That will give you a chance to reflect on your answers and give given the opportunity to edit or add anything.

Appendix F. Member Check Questionnaire

Thank you for taking the time to participate in my study. After you read your interview transcript and suggest any changes you would like, please also respond to the following questions.

1. Do you have any additional thoughts to share about your planning and preparation for teaching students with disabilities in blended learning environments?

2. Do you have any additional thoughts to share about your teaching practices linked to teaching students with disabilities in blended learning environments?

3. Do you have any additional thoughts to share about assessment practices you use for teaching students with disabilities in blended learning environments?

4. Identify any ways that you think blended learning could enhance learning for students with disabilities.

5. Identify any potential issues you see emerging when using blended learning environments to teacher students with disabilities.

Appendix G. Post-Interview Perception Survey

Start of Block: Directions

Q1 Thank you for your participation in my dissertation study called "Instructional Practices and Perceptions of Special Educators in Blended Learning Environments". So that I can further understand your perceptions as a special education teacher within the blended learning environment I ask that you complete a short Post-Interview Perception Survey. The survey should take about 5-10 minutes.
Once you complete the survey, you will receive your $100 Amazon Gift Card as compensation for the study.

End of Block: Directions

Start of Block: Post Interview Perception Survey (PPS)

Q2 On a scale between 1 (strongly disagree) and 5 (strongly agree), indicate what most closely represents your opinion.

Within blended learning environments, I feel prepared in my ability to plan/design lessons for students with disabilities. (1)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, I am comfortable in my ability to provide instruction for students with disabilities (2)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, assessing the learning of students with disabilities is something I feel able to do. (3)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
blended learning environments are a more rigorous instructional placement when compared to a face-to-face classroom environment. (4)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, I am confident in my ability to provide accommodations. (5)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)

Instruction can be beneficial within blended learning environments regardless of disability. (6)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, I can make general adaptations to help each student with a disability. (7)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, I can adapt the curriculum materials to help each student with a disability. (8)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Within blended learning environments, I am limited in the adaptations I can make to the curriculum materials I use. (9)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)
Even if they struggled in face to face environments, students with disabilities may thrive in a blended learning environment. (10)	○ Strongly disagree (1)	○ Disagree (2)	○ Neither agree nor disagree (3)	○ Agree (4)	○ Strongly agree (5)

Q3 What do you believe is the biggest strength of blended learning environments?

_____

Q4 What is your biggest concern with blended learning environments?

_____

End of Block: Post Interview Perception Survey (PPS)

Appendix H. Codebook

Study Overview and Second Coder Directions

Thank you for agreeing participate in my research study by serving as the second coder. This qualitative research study is an investigation of the practices and perceptions of 12 special educators in blended learning environments. Each participant was interviewed once. After collecting the data, I worked with my doctoral advisor on creating codes. We coded one-third of the transcribed interviews in order to complete the codebook.

This codebook will direct you in the procedures of coding the transcribed interviews. I request that you code 4 of the 12 transcripts. The first transcript will be coded collaboratively with the PI and you. We will discuss reasoning as we conjointly code. After finishing the first transcript, the PI and second coder will independently code another transcribed interview. After that, we will discuss our responses and reason through any discrepancies. If intercoder agreement through those discussion is at 80% or higher, the second coder will then code three randomly chosen transcripts independently. After those three are completed, the PI and second coder will meet to discuss our responses and reason through any discrepancies. Intercoder agreement must remain at 80% agreement or above. If that level is not reached, the second coder will code two additional transcripts. After those three are completed, the PI and second coder will meet to discuss our responses and reason through any discrepancies. That process will continue until we reach over 80% reliability.

The PI's instructions are detailed below. This guide will assist you during coding for help or clarification.

Directions for Second Coder

1. The codebook lists 17 codes with short descriptions and two examples per code

2. The method of chunking or "lumping" (Saldana, 2009) to detect chunks of text that have shared meaning will be used during this process. The coder will find "lumps" from the transcribed interviews that line up with the codebook.

3. With the second coder, one fully coded transcript (by the PI) will be evaluated as an example when talking about the book and the complete coding system.

4. With the second coder, a transcript without codes will be coded. The PI and the second coder will compare their coding. In line with guidelines expressed by Miles & Huberman (1994), intercoder agreement will be at least 80% before beginning the next phase. As each coder might not have included the same amount of context in their coding, lumps including most of the same excerpt and the same code will be considered an agreement between coders.

5. If required: Additional transcribed interviews shall be coded and evaluated until 80% intercoder agreement is reached between the PI and the second coder.

6. Three additional transcribed interviews will be coded individually by the PI, as well as the second coder. Coders will then talk about disagreements that came up in their evaluations. They will come to agreement on their coding.

CODES	DESCRIPTION	EXAMPLES
PLANNING AND CUSTOMIZATION		
1) Planning to reduce difficulty of content	Participants discussed planning to lessen the rigor and/or amount of work that students must complete	"We have also adjusted the depth and difficulty of the problems and performance task the students with learning disabilities have to complete." (Sam Interview, p. 2-3) "For instance, some of my students only do multiple choice answers, like reading and then answering multiple choice, rather than students that would be writing a short answer." (Sally Interview, p. 4)
2) Planning for access to educational resources	Participants discussed planning for the use of educational materials that could help facilitate student engagement with content.	"For example, asking the students to watch a video to learn a concept does not work unless we provide them a note sheet for them to fill out, that way you know they are supposed to be learning from the video." (Sam Interview, p. 3) "Sometimes we have students with some of those executive functioning issues, and they have trouble going from one page to another page, so we'll print the assignment." (Tammy Interview. p. 3)
3) Planning for student's speed of work completion	Participants discussed planning accommodations for the varied rates with which students completed activities or assessments	"If I have to—more or less I just accommodate it by slowing it down, slowing down the pacing of the book." (Jessica Interview, p. 2)

		"I already modify during that planning time, but then modifications are made pretty much daily for those students from—that need it. It could be anywhere from extending a due date to completely modifying the actual assignment." (Sally Interview, p. 2)
4) Planning for differentiated instruction	Participants discussed planning different ways to instruct for students who have varied learning needs, preferences and/or interests.	"It's just having a couple of different options for the students to complete, whether they have IEPs or not has *been* how we move forward with that for planning purposes." (Sally Interview, p. 4) "I try to make sure that I give them the option, once again, of if they want to do it on the computer or on paper." (Robert Interview, p. 2)
5) Planning for grouping	Participants planned to divide up students from a class into smaller groups in order to provide more individualized instruction or to facilitate small group collaboration	"Then those exit slips are used to group the next day's class. That way *all the students on* module two, section five, they could be grouped together. Or maybe there's a group that has a question about something specific, so then they can be grouped together the next day in class." (Sam Interview, p. 1) "Maybe we'll have them create a Google slide presentation with other members in their class since they are able to collaborate with each other." (Aleah Interview, p.4)
INSTRUCTIONAL PRACTICES		
6) Facilitating class discussions	Participants facilitated a class discussion between or among students	"The reading comprehension, we did a Socratic Seminar where I gave them different topics based on the literature.

		They had to develop questions to ask with the Socratic Seminar. They had to respond within the Socratic Seminar." (Brooke Interview, p. 6) "If we're reading a novel, they'll post questions, and then they'll have to answer somebody's question and then post their own questions." (Sandra Interview, p. 4-5)
7) Implementing teacher-directed teaching	Participants provided teacher-led instruction or modeling to the students	"If we do do reading, because of some of the needs of certain students, we might chunk the reading. We'll do one section and say, "Okay. Read this." We'll tell them, "When you're reading this section, you should be looking for the definition of a liberal." Then we make sure that after we read that section that we go over it and say, "Okay. What did you guys find?" (Robert Interview, p. 13) "We also do a lot of the content teaching. That's where we'll actually specifically teach them the information they need to know in class. For example, we're in the middle of Gilded Age right now. We've done a PowerPoint presentation already, where the students are taking notes." (Tammy Interview, p. 3)
8) Providing Practice/Review activities	Participants provided student-centered activities for students to complete in order to refine content knowledge and/or review what had been taught before.	"Either pull out your worksheets at home or IXL or Khan Academy, log in, and try it on your own." (Drew Interview, p. 8) "A lot of things that we do are almost like a web class, where

		they have to go search out information, like if we're talking about elections, they might have to go and look for who was in the last election." (Robert Interview, p. 13)
9) Providing Individualized Feedback	Participants provided input on individual students' work	"The one thing I really like is I have more time to meet with students one-on-one when they need it. I can have them attend class, even if their grade's fine. I can sit down with them and work on skills that they need to work on in class, that maybe they're not understanding. They can get some extra one-to-one time." (Tammy Interview, p. 7) "Even if they're working independently on something, checking in and making sure they're on the right track." (Robert Interview, p. 9)
10) Providing Individualized Support	Participants provided individualized assistance to students.	"The majority of instruction would be the face-to-face. The online part would be more of a supported role versus my instruction." (Brooke Interview, p. 10) "It'll be working with me on material." (Jack Interview, p. 1)
11) Providing Instruction using Audio/Video	Participants used audio or video content in order to teach content or skills	"we use a lot of videos, and video notes, or the videos where they have to stop and interact with it." (Jessica Interview, p. 9) "The audiobook is also available on there. Then, we would send that to an email to them, so they would have that." (Sandra Interview p. 7)

12) Doing assessments	Participant used formal, informal, formative, and/or summative assessments and other tools to measure student knowledge	"The test would be like, "Tell us what you've learned," or, "Fill in any details here that we haven't added." We try to give them very structured, formal assessment opportunities for those students that test best that way." (Sally Interview, p. 5) That kind of thing is another way that I do formative assessments." (Robert Interview, p. 9)
13) Building student-teacher relationships	Participants developed connections with their students in order to understand their interests, cultures, and/or personalities.	It also really helps build that teacher-student relationship, because you have time to actually sit down and get to know the students. "I go to restorative practices training. And it's all about building relationships with your students." (Susan Interview, p. 7)
PERCEPTIONS OF BLENDED LEARNING		
14)Perceptions of Student and Teacher Interactions	Participants expressed perceptions of student interactions between each other (student-student) and with the teacher (Student-teacher) in BL environments	The fact that I can remind them over the weekend or check in with them through e-mail, like, "Hey, are you doing this?" "Hey, here's some articles to help support what you're doing" or whatever, I think is really great. (Robert Interview, p. 15) "Students can start to lose that human interaction and find themselves attached to a screen a lot. (Brooke Interview, p. 12)
15) Noticing student motivation	Participants expressed perceptions of students' drive, enthusiasm, and inspiration within BL environments	"Some students might not do any work outside of class. That's when we got to contact the parents and let them know

		the expectations." (Sam Interview, p. 11) "I think students have motivation issues. I think the students that have motivation issues, have motivation issues no matter what. However, with blended learning environments, I think it puts more ownership on the students." (Jack Interview p. 10)
16) Views on student's online competency	Participants expressed perceptions of students' ability to effectively participate within an online setting	"Well, when I think about blended learning for those students with disabilities, one thing I really like about it is the opportunity for supplemental materials. That individualized education outside of the classroom, I think is awesome. I also like how it's instant feedback, and how I can also see in real time what they have completed and what they're struggling on, things like that." (Jack Interview, p. 9-10) "The majority of my students that I teach that are in my co-taught class really struggle with work completion and time management. With a class where they weren't having to meet every day, I would be apprehensive about them getting done what needs to get done outside of the class." (Brooke Interview, p. 13)
17) Perceptions of students' social/emotional learning	Participants expressed views over students' well-being, overall mental health, stress, and trauma as they engage with the blended learning environment	"I think some of it might be connected to what I was saying about the struggles with navigating the online environment. I think sometimes it overwhelms them maybe, and so it may cause a

		decrease in motivation." (Robert Interview, p. 16) "I think when it's face-to-face, that's more than being able to talk to somebody face-to-face, and if you don't like their idea, you don't have that time or being to write it out to say to them in an appropriate way. Making sure that when they're face-to-face, being able to say things that are getting your point across, but yet still respectful and agreeing to disagree." (Jennifer Interview, p. 8)

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LICENSURE

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PRESENTATIONS

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