THE STATUS OF MIDDLE AND HIGH SCHOOL INSTRUCTION: EXAMINING PROFESSIONAL DEVELOPMENT, SOCIAL DESIRABILITY, AND TEACHER READINESS FOR BLENDED PEDAGOGY IN THE SOUTHEASTERN UNITED STATES

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ABSTRACT

Using quantitative methods, the current study addresses the phenomenon of blended learning and the impact of professional development (PD) in blended learning on teacher practice. Two separate but complementary investigations, Oliver's (2013) focus group data for examining Oliver's Framework for Blended Instruction and Parks' (2015) national open-ended survey results, unveiled a common thread, which provided motivation for this study. A purposeful sample of 366 secondary public school teachers located in the Southeastern United States completed the Blended Practice Profile, a self-assessment diagnostic instrument, to measure their practices in blended teaching. Results indicate contradictory data, demonstrating that the majority of participating teachers who self-identify as blended educators actually fell within the novice and emerging range for competency in blended instruction, concluding that blended learning is socially desirable and not fully understood in its entirety. The data illuminate a need for personalized professional development for teachers of blended instruction to meet their specific needs and gaps in understanding of the competencies necessary for effective blended pedagogy.

The authors suggest that both formal and informal professional
development should model blended instructional practices and
techniques that focus on enhancing learning and measure for
efficacy to successfully impact and transform blended instruc-
tion and behaviors in the classroom with fidelity.

INTRODUCTION

The K-12 education model has noticeably shifted in its approach and
delivery since the start of the new century. In many classrooms, tradition-
al face-to-face, teacher-led classroom instruction has evolved into a more
personalized, learner-centric, and competency-based model of learning (Ar-
chambault & Kennedy, 2014). Through continued advancements in technol-
ogy and deeper pedagogical research and understanding, multiple learning
modalities for K-12 students have broadened the lens on education and its
various instructional delivery methods.

Around the start of the 21st century, schools began to virtually expand
their walls with online course options taught by highly qualified teachers,
providing alternatives that were not offered in the conventional school syl-
labus and eliminating physical space limitations (Staker, 2011). In the early
2000s, roughly 45,000 elementary and secondary students participated in at
least one online course in the United States, and enrollment continued to
grow exponentially every year thereafter (Horn & Staker, 2011; Setzer &
Lewis, 2007; Zandberg & Lewis, 2008). Despite several categorical limita-
tions that have been noted with an online learning environment (Berge &
Clark, 2005; Carr, 2000; Diaz, 2002; Hassel & Terrell, 2004; Horn & Stak-
er, 2011; Furey & Murphey, 2005; Roblyer, 2006; Russell, 2004; Southern
Regional Education Board (SREB), 2006), Picciano and Seaman (as cited in
Means, Toyama, Murphy, Bakia, & Jones, 2010) estimated that more than a
million K-12 students took online courses in the 2007-2008 academic year.
Further in 2014, reports indicated that 81% of school districts in the United
States utilized an online learning program for K-12 students and 33% of
these districts offered a full-time online, or virtual school program (Cavana-
ugh, Barbour, & Clark, 2009; Kurshman, 2015).

The rapid progression and perceived successes in K-12 online learning,
coupled with increased technological advancements and societal changes,
invited educators to investigate new modalities of learning that would com-
bine the best practices of traditional and online education (Horn & Staker,
2015; Kellerer, P. et al., 2014). Through this exploration, the blended, or
hybrid, learning model emerged (Horn & Staker, 2015). While utilizing
digital and technological resources to create an engaging and individualized

curriculum, along with maintaining the face-to-face interaction and collaboration of mainstream schools, blended learning became an acknowledged and socially desirable education model in some K-12 schools in the United States (Kurshman, 2015; Watson, Pape, Murin, Gemin, & Vashaw, 2014).

This surge in blended learning called for a cultural shift in instruction and mindset (Bonk & Graham, 2006) and required an enhanced set of pedagogical and practical applications for educators in these environments (Dziuban, Hartman, & Moskal, 2004). Because blended learning positions the student at the center of the learning process and utilizes advanced technology-based curriculum to create individualized and more student-centric learning experiences for each student (Powell, et al., 2015), new instructional strategies and applications need to be defined, learned, and implemented to successfully impact students (Archambault & Kennedy, 2014). Teachers also require additional layers of working knowledge for effective classroom management, synchronous and asynchronous instructional strategies, collecting and analyzing student data to assess student progress, and gaining a firm operational knowledge of technology to create individualized and student-centric learning experiences (Oliver & Stallings, 2014; Powell, et al., 2015). This shift to blended instruction has required schools and districts to provide effective, relevant, and timely professional development (PD) to new and experienced teachers. Therefore, new PD content and delivery methods have needed to be created to meet the needs of the educators working in blended learning environments.

In an effort to provide standards and quality assurance for blended educators, education experts published guiding frameworks encompassing the many facets of blended learning. At the start of the new century, Badurl Kahn developed an Octagonal framework to help "guide a plan, develop, manage, and evaluate blended learning programs" (Singh, 2003, p. 52). Kahn's theoretical framework was positioned to aid blended teachers in determining the best instructional format and time for each student based on their individual learning style to promote effective learning experiences (Singh, 2003). More recently, iNACOL published a guiding framework for blended instruction that have been used to aid in the development of effective and relevant PD opportunities for educators (Powell, Rabbitt, & Kennedy, 2014). The International Society for Technology in Education (ISTE) published teacher standards that help to define the role of a digital educator (International Society for Technology in Education, 2014). Oliver's Framework for Blended Instruction offers a support guide for best practices of practitioners in K-12 blended learning environments by providing standards and an Innovation Configuration map that is aligned with national teaching standards including the iNACOL Quality Standards for Online Teaching (2011), the ISTE Standards for Teachers (2016), and SREB

Professional Development of Online Teachers (2009). Other practical frameworks such as the Technological Pedagogical Content Knowledge (TPACK) (Mishra, & Koehler, 2006), the Substitution Augmentation Modification Redefinition, or SAMR (Schrock, n.d.), and the H.A.C.K. Model of Innovative Instruction developed by the Northwest Nazarene University Doceō Center (Doceo.nnu.edu) aid in strategic understanding and implementation of specific technology components into the blended learning environment. Many additional complementary frameworks have been created by private PD organizations and higher education institutions to help further shape content and knowledge for blended practitioners as well as guide them in their personalized professional learning journey (Dick, Carey, & Carey, 2009; Holden & Westfall, 2010).   Despite the plethora of knowledge and the many guiding frameworks that help shape the blended education approach, several overarching questions loom when examining the actual outcomes of blended learning PD and the subsequent effect of the PD on teachers. Does the PD result in producing exemplary blended educators as outlined in the many frameworks? Does the PD address the needs and desires of the blended educators and transform their instructional practices? Do educators thoroughly understand the deep pedagogical differences of blended education compared to the traditional approach to teaching (Davis & Rose, 2007)? Is blended learning recognized as a valid educational model, or is it a 'buzzword' indicating a socially desirable trend in education today? These questions required further investigation surrounding the effectiveness of PD that both meet the desires and fill in the pedagogical gaps of the K-12 blended educator. In addition, an assessment of the current practices of self-identified blended teachers may be instrumental to inform researchers of gaps in pedagogy for blended instruction and aid in effectively preparing and training blended educators.

The current study uses the findings of two separate but similar investigations over a two-year period that examine the PD needs and desires of blended educators as a base for the current study. The two studies include data from several national focus groups and open-ended survey questions that indicate blended educators, both teachers and administrators, believed they were not being adequately prepared for the unique challenges that blended learning presents in several areas, as defined by the guiding frameworks. In addition, the data indicated that blended educators believed the existing PD opportunities were not relevant to their unique needs, examples of best practices were lacking or not addressing specific situations, modeling of these practices was absent, and ongoing support was deficient or misguided. This combined data created a curiosity surrounding blended learning, its perceived beliefs among practitioners, the influence of social desirability to identify as a blended educator, and the impact of PD for the blended teacher.

PREVIOUS STUDIES

Two separate but complimentary investigations consisting of several national focus groups conducted in 2013 and open-ended survey inquiries from 266 iNACOL members in 2015 provided the motivation for this current research study. Focus group interviews conducted when developing Oliver's Framework for Blended Instruction and Parks' iNACOL membership survey on best practices for PD in blended learning, revealed a common thread. Although each investigation was conducted separately and with no knowledge of the other when carried out, the compiled data over the two-year period, summarized in Figure 1, both complemented and further supported the need for the current study.
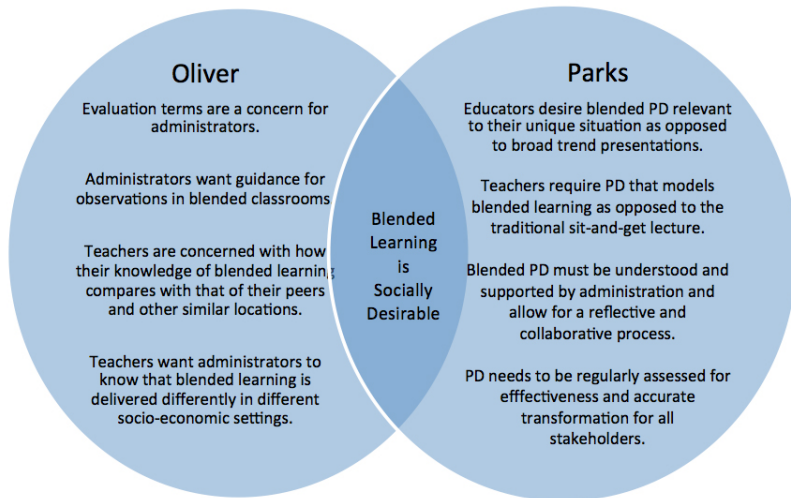
Figure 1. Comparison of Findings by Oliver and Parks.

Results of the National Focus Groups (2013)

Blended Teachers

In the fall of 2013, 21 middle and high school blended teachers responded to an advertisement at a national conference to participate in a focus group designed to provide insights and ideas for the Blended Practice Profile self-assessment tool. The Blended Practice Profile, designed by Oliver, is a comprehensive software program that allows teachers to self-assess their skills, performances, and strengths in the blended

learning environment, establish baseline data for professional growth, and compare their scores with others in similar learning environments. Closely aligned with Oliver's Framework for Blended Instruction and aligned with ISTE, iNACOL, SREB, and Common Core State Standards, the Blended Practice Profile assesses performance and understanding within six blended learning domains to identify gaps in knowledge and inform a personalized professional learning path for continual growth for the educator.

The initial focus groups, split into two, containing nine and twelve teachers respectively, assembled in Washington D.C. and were prepared to identify and self-assess their own teaching practices using examples that represented traditional, blended, and online instructional practices and pedagogy. The selections were originally phrased using an Ipsative design; a psychometric methodology where each response selection for participants is a forced, but positive, choice with no negative connotations (Fluckinger, 2014). During the process, focus group participants became exceedingly frustrated with delineating their practices with the examples given and resorted to choosing the responses that they felt closely aligned with blended pedagogy. Comments supported that the participants were selecting the blended learning pedagogy because it was the most socially desirable and supported the pedagogical framework rather than their actual practices. At the conclusion of the self-assessment, participants shared that they chose their responses mainly because they knew that they were going to be adopting these pedagogical initiatives and implementing these methods in their daily practice. They also reported that the pressure to do so from their administrators was very strong, yet they were not sure how to actually implement these beliefs and instructional constructs in their daily practices.

Further, participants expressed their desire to understand how their implementation practices of blended learning compared to those of others in similar settings. This interest was not necessarily competitive in nature. Rather, the participants wanted to know how their implementation compared to others in the field so that they could more accurately gauge their own adoption and practice as the implementation of blended instruction increases within K-12 education.

Finally, the focus group participants felt that the expectations for implementing blended learning were the same regardless of the teaching environment, demographics, location, and other factors that directly impact instruction. A teacher in a low socio-economic, urban environment indicated that the expectations and standards for her teaching are the same as a blended instructor in a suburban, upper middle class environment, yet the stakeholders and access to technology differ greatly between the two environments. Through the focus group team responses, several recurring ideas were identified that prompted a desire for a diagnostic tool like the Blended Practice

Profile to allow teachers to self-assess their understandings of blended instruction with national standards. Teachers also voiced their desire to see examples of effective blended instruction, identify individual strengths and weaknesses within various domains, use this information to create a path for personalized PD, and compare their results with a larger pool of blended teachers in similar teaching environments.

Administrators

A need for a second call of national focus group attendees arose from the responses of the blended teacher participants reviewing the Blended Practice Profile tool. In 2014, two teams of nine middle and high school administrator, all responding to an advertisement flyer at a national conference, participated in answering eight questions about defining blended learning, the need for PD specific to blended instruction, and the administrative methods of implementing standards specific to blended learning in their educational environment. The results of the administrator focus groups illuminated several additional points for consideration in the development of the diagnostic tool, as well as a broader picture concerning the lack of knowledge, resources, and understandings of pedagogy held among the majority of blended school and district administrators.

Administrators recognized the need to evaluate teachers in a blended environment with different expectations than the traditional classroom; however, they were concerned with any terms used in traditional evaluation such as "standards," "rubrics," and "evaluation" as they believed it would heighten the pressure teachers faced around assessment and raise red flags with teacher unions. Despite the concerns, administrators were highly supportive and strongly interested in exploring the possibilities of an individualized or competency-based PD tool that teachers could use to help transition from traditional to blended pedagogy, especially if it would differentiate strengths and areas of needed growth within specific areas of blended pedagogy for personalized PD. The administrators also expressed a high interest in participating in relevant PD opportunities, voicing their limited knowledge and understanding of standard expectations of blended pedagogy when observing and evaluating teacher performance.

iNACOL Survey Results (2015)

In an effort to illuminate the most common and best practices of PD for blended learning, as well as to identify the needs and desires for professional learning from the educator perspectives within these learning environments, a year-long study and review was conducted using the iNACOL membership pool in 2015. A survey collecting both quantitative and qualitative data focused on a variety of PD topics was developed and sent to

the active iNACOL membership asking for volunteers to participate in the survey process. Over 250 completed surveys were analyzed using a structured qualitative emic and progressive focus (Lett, 1990; Morris, Leung, Ames, & Lickel, 1999), drawing out embedded themes in the data surrounding PD in blended learning environments. The results indicated that educators in blended learning desire PD experiences to be (1) relevant; (2) research-based and field-tested; (3) modeled; and (4) supported for continuous growth, improvement, and efficacy on an ongoing basis. Each of these themes is discussed below.

Relevant

Survey responses clearly indicated a strong desire for educators to receive PD that is authentically relevant and personalized to their specific situation. Responses indicated that too often PD designers or district administrators follow current trends in education, overarching and broad ideas, or perceived socially desirable 'pendulum swings' in new practices and pedagogy without considering the real-time needs and opportunities within each specific environment.

Research based and field-tested pedagogy

Participant responses indicated the need for PD to be rooted in proven research and given the opportunity to implement a program through a methodologically-reflective pilot to determine the quality of the program for the school. Through a reflective pilot process and deep research investigations, educators would have the assurance that the new learning model was grounded in research-based best practices, gained authentic buy-in, and allowed the professional learning process to flourish in a collaborative growth process with peers.

Modeled

Responses strongly suggested that the offered PD must be active and modeled so as to reciprocate the learned material in real-life experiences. Respondents indicated that lecturing about best learning practices while failing to engage the professional audience actually nullified the presented material entirely. The data suggested that a hands-on and modeled PD approach allowed teachers to actively engage in the learning process and helped to create a sense of empathy for their students as they engaged in new ways of learning.

Ongoing and supported

Finally, the survey responses strongly indicated that in order to ensure that the PD was implemented effectively and with fidelity, as well as be sustained for academic and professional growth, the professional learning must

be ongoing and supported by the administration, peer teachers, coaches, and other personnel responsible for initiating the PD itself. The survey responses also indicated that the PD topics and methodology itself should be assessed to determine the efficacy of the offerings and the weight it has in truly transforming instructional practice or strengthening educational beliefs.

Data Comparison Between 2013 and 2015 Studies

The four components of desired PD identified by the iNACOL survey responses in 2015 were not unforeseen in theory, but the surprise was in the discrepancy between the desires of the blended educators and the actual professional learning that was being offered in blended communities and its impact on blended instruction. When compared to the 2013 national focus group results, a problem becomes identifiable. Over a two-year period where the overarching concept of blended learning has grown considerably in North American schools, the understandings and expectations for blended teachers have not changed. If anything, the gap has widened.

PROBLEM STATEMENT

When comparing data between the focus group investigation and the iNACOL survey, relevant themes were identified. The desire for quality, research-based, and experiential PD focused specifically in blended education seems to be at the forefront. Both investigations revealed that teachers and administrators are eager for support in blended learning and its environment, yet it appears that the deep pedagogical understandings of blended learning remain vague among educators. Finally, the socially desirable pressures to be recognized as a blended learning community seemingly inflate a widening gap in teacher and administrator expectations.

The current research study was conducted to investigate how existing PD is affecting traditional teachers' instructional pedagogy in blended learning and if this PD is making a difference in blended practice. The results help to determine whether the existing PD programs and opportunities are making a significant impact on blended instructional implementation, as well as identify specific areas where blended pedagogy is lacking among teachers. Furthermore, the results will identify any gaps between teachers who self-identify as blended teachers compared to those who actually implement blended learning pedagogy in their instruction. These results will also help to determine if blended learning is truly being implemented with fidelity in the identified secondary school settings or if the pressures of blended learning compliance within the community merely change the verbiage but not the pedagogical beliefs and habits.

RESEARCH QUESTIONS

1. Is blended learning a socially desirable phenomenon among secondary teachers in public school settings?

2. Are traditional classroom instructors prepared to implement blended pedagogy (as measured by self-reported data of teachers in traditional classrooms using the Blended Practice Profile)?

3. Is existing PD making a difference in teachers' blended practice?

4. Are there specific areas of pedagogy where traditional teachers are better prepared to adopt and implement blended instruction, thereby needing less PD to successfully implement blended pedagogy than in other areas of blended instruction?

METHODOLOGY

Study Design

The study used a quantitative design to examine the relationship between teachers' practice and teachers' readiness to teach using research-based blended pedagogy (Oliver, 2014). Secondary teachers used the Blended Practice Profile, an anonymous Likert survey tool, to self-assess their teaching practices. The self-assessment results were used to determine two underlying ideas: (1) if blended learning is, in fact, socially desirable among public school teachers in secondary settings; and (2) if traditional teachers are prepared to teach in the blended environment with existing training or if additional research-based PD is needed to teach using blended pedagogy.

Setting and Population

The current study was conducted in a large urban school district in a Southeastern state and included teachers of grades 6-12 in fall of 2015. Permission was granted by the administrative and professional development team to survey the grade 6-12 teachers throughout the district. The sample was purposive, as the participants were secondary teachers who chose to open the blanket email distributed to their school email account by the district leadership, open the hyperlink, and take the survey. As teachers elected to take the survey and received their user identifications, their information was de-identified in the administrator report so they could remain anonymous to the administration of the district and school.

Out of a possible 500 participants, 366 teachers (73%) with various years of teaching experience (Table 1) completed the Blended Practice Profile survey. Of those, 198 taught middle school and 168 taught high school,

and all 366 instructors taught in the traditional classroom as their primary assignment. Level of education, reported in Table 2, ranged from 74 instructors with beginner's licensure, 272 with professional certification, 10 with administrator licensure, and four with national certification.

Table 1
Number of Teachers by Years of Teaching Experience

Number of Years Teaching	Frequency
Less than 1 year	33
1 to 4 years	85
5 to 9 years	76
10 to 14 years	48
15 or more years	124

Table 2
Number of Teachers by Level of Education

Level of Education	Frequency
Bachelor's	119
Master	143
Master's Plus	74
EdS	10
EdD/PhD	18

Materials and Instruments

The study used the Blended Practice Profile as the primary tool to gather and assess data. The Blended Practice Profile diagnostic tool aligns its Likert survey questions to closely map to Oliver's Framework for Blended Instruction.

During 2014-2015, a national sample of subject matter expert teams reviewed and evaluated Oliver's Framework for Blended Instruction. Separate national focus groups analyzed items from the Blended Practice Profile instrument in 2013. Participant results from the current study (n=366) were used to evaluate the Blended Practice Profile instrument. Cronbach's alpha, a test used to measure the internal consistency of variables measuring the same idea, for the 33 blended items on the Blended Practice Profile was 0.95 as shown in Table 3.

Table 3
Blended Practice Profile Validity in Each Domain

Subscale	Cronbach's alpha	Number of Items
Domain I	0.92	16
Domain II	0.86	13
Domain III	0.92	18
Domain IV	0.84	12
Domain V	0.86	11
Domain VI	0.85	11
Blended	0.95	33

Summary of Instrument Analysis

The Blended Practice Profile addresses six domains of blended instruction: Instruction, Professional Responsibilities, Technology, Planning and Preparation, Curriculum, and Instructional Design (Oliver, 2014). The items within the survey tool allow each teacher to self-assess his or her teaching practices by relating their own practices with example statements that are closely aligned to national standards. Each item fell on a scale ranging from 1 to 7 as: (1) Almost never true; (2) Usually not true; (3) Infrequently true; (4) Occasionally true; (5) Usually true; (6) Almost always true; and (7) Always true. Results of the survey were collated by items addressing the standards within the six domains of blended instruction and then were converted into levels of practice as novice, emerging, expected, excellent, and exemplary.

Limitations

The request to take the Blended Practice Profile survey, in most circumstances within this study, was made by the school leadership and/or administration. Although voluntary, an influence of power was certainly in place for many participants. The Blended Practice Profile has an embedded, proprietary algorithm that reduces the opportunity for participants to select a "correct answer" based on cultural pressures, yet some participants may have still purposely skewed their responses due to the leadership request to participate.

While the study seeks to measure the link between teacher PD and its effectiveness of blended pedagogy and knowledge, additional studies need to be conducted to measure the fidelity of the PD and the teachers own practice and implementation of knowledge learned. Furthermore, the study did not delineate between in-school or in-district formal PD opportunities and

the informal self-studies of blended instruction that teachers may have experienced. Deeper investigations to the differences between mandated group and optional self-study PD is needed to understand the specific training methods that are used in both formal and informal circumstances. Finally, the researchers do not know the level of self-efficacy or desirability of the participants implementing blended learning compared to those teachers who are identifying as blended instructors due to school or district requirements. Further investigations are required to identify the level of self-efficacy of the teachers and their desire to implement blended philosophies and pedagogy into their learning environment.

DATA ANALYSIS AND RESULTS

Research Question One

In order to address research question one, "Is blended learning a socially desirable phenomenon among secondary teachers in public school settings?", a Wilcoxon rank-sum and a Pearson's chi square test were utilized. A Wilcoxon rank-sum test, sometimes referred to as the Mann-Whitney U, examines differences between two conditions when different participants have been used (Field, Miles, & Field, 2012). The Wilcoxon rank-sum test indicated the blended levels in teachers were significantly different for teachers perceiving themselves as traditional from teachers perceiving their teaching style as blended, $W = 5588.5$, $p< .001$, $r=-.282$. This generated an investigation of whether teachers' perceptions were reflective of their Blended Practice Profile results. In other words, do teachers who perceive their teaching style as blended have profiles indicating blended practice?

A Pearson's chi-squared test, a measure often used to test the null hypothesis by observing the difference in two categorical variables (Field, Miles, & Field, 2012), compared the self-identified traditional or blended teacher responses with their scores on the Blended Practice Profile as blended or traditional. Responses to the self-identified question, "My teaching style most closely aligns to…", with choices of traditional or blended, were grouped as perceived traditional or perceived blended. The chi square showed a significant association between the participants' perception of blended versus traditional teaching style and the results of the blended profile (1) $\chi^2= 29.10$, $p< .001$. This indicates that the traditional teachers' perception tends to be associated with their Blended Practice Profile scores, meaning that traditional teachers know they are traditional. However, 127 of the 366 teachers, or 35%, self-identified as blended teachers where, in fact, the Blended Practice Profile scored them as traditional. Of those who perceived themselves blended, only 27% were actually considered blended according to the diagnostic.

Table 4
Perceived Teaching Style Vs. Blended Practice Profile Results

	Blended Profile		
Perceived Style	Traditional	Blended	Total
Perceived Traditional	180	12	192
Perceived Blended	127	47	174
Total	307	59	366

Research Question Two

Research question two, "Are traditional classroom instructors prepared to implement blended pedagogy?", was investigated by comparing the distribution of teachers among the levels of blended learning from novice to exemplary based on responses to the Likert survey. The participant responses to the Likert-scale items generated a result that 83% of the respondents had indicated that their practice was traditional rather than blended. Of the 366 respondents, 155 scored as novice (42.3%), 86 were emerging (23.5%), 63 were in the expected range (17.2%), 42 were excellent (11.5%), and 20 (5.5%) responded indicating that their blended practice was exemplary.

The Shapiro-Wilk test, a common test that uses the null hypothesis to determine if the sample came from a normally distributed sample, indicated that the data lacked normal distribution, $W = 0.9824$, $p<.001$. A Levene test, used to assess the equality of variances for a variable calculated for two or more groups, indicated heteroscedasticity, $F(4, 361) = 46.67$, $p < .001$. Therefore, non-parametric tests were used to analyze the data throughout this study (Field, Miles, & Field, 2012).

Research Question Three

Research question three, "Is existing professional development making a difference in teachers' blended practice?", was addressed by an item asking teachers whether they had attended PD during the last two years in blended learning, online learning, differentiated instruction, or common core standards. Blended Practice results for teachers who participated in PD in any or all of these within the last two years did not differ significantly from those who did not participate in these areas of PD based on results of the Wilcoxon rank-sum test. The results are represented in Table 5.

Table 5

Comparison of Blended Practice Level by Participation from PD

Professional Development	Wilcoxon Rank-Sum Test
Blended Learning	W = 8208, p-value = 0.14
Differentiated Instruction	W = 8686, p-value = 0.50
Online Learning	W = 7916, p-value = 0.05
Common Core Standards	W = 9554, p-value = 0.42
None of These	W = 8820, p-value = 0.45

Research Question Four

Research question four asks, "Are there specific areas of pedagogy where traditional teachers are better prepared to adopt and implement blended instruction, thereby needing less professional development to successfully implement blended pedagogy than in other areas of blended instruction?" The responses to the Likert-scale items measuring blended practice were grouped by each of the six domains identified in the Blended Practice Profile. Results summarized in Table 6 demonstrate that a majority of respondents scored in the novice to expected range for all domains.

A Kruskal-Wallis test, often used to test for differences between several independent groups when the data are non-parametric, was conducted to evaluate differences in median level blended practice among the six domains and the overall blended scores (Field, Miles, & Field, 2012). The test was significant χ^2 (6, N=366) = 149.46, p < .001, indicating that some of the levels of blended practice by domain are significantly different. When comparing the median scores, it appears that teacher responses indicated a higher level of blended practice in Domain III, Technology (median = 3 in the expected range), while Domain II, Professional Responsibility, and Domain IV, Planning and Preparation, each were in the novice range (median = 1). The overall blended level as well as in Domain I (Instruction), Domain V (Curriculum), and Domain VI (Instructional Design) were in the emerging range (median = 2).

Table 6
Number of teachers at each level within each domain

Domain	Novice	Level of Blended Practice				
		Emerging	Expected	Excellent	Exem-plary	Total
Instruction	155	63	73	49	26	366
Professional Responsibility	205	58	45	36	22	366
Technology	81	56	87	79	63	366
Planning & Preparation	188	79	61	25	13	366
Curriculum	171	57	71	38	29	366
Instructional Design	152	59	69	53	33	366

DISCUSSION AND IMPLICATIONS

The findings from the current study concluded several findings and revealed numerous areas for deeper research in blended learning and PD, which are discussed in the following section.

Social Desirability

The data revealed that the majority of secondary teachers who self-identified as traditional in their practice were fairly accurate in their self-assessment according to the Blended Practice Profile diagnostic measurement. However, 73% of the teachers who self-identified as blended teachers had obtained profile scores indicating their practice was novice, emerging, or expected. This suggests that the teachers who self-identify as blended teachers seem to be more closely aligned to traditional pedagogy and implementation practices than blended. The skewed outcome of the self-identified blended teachers may point to underlying social pressures in education to identify as a blended instructor without understanding and changing pedagogical beliefs or practice. Pressures to stay abreast of the growing technological advancements and changing landscape of education may cloud the self-perceptions of teachers and their understanding of fundamental changes in pedagogy that support the term "blended" teacher.

The relationship between implementing technology into the classroom environment and the professional responsibilities of blended education may not be clearly identified with this cohort, and perhaps globally (Singh, 2003;

Staker & Horn, 2012). Studies indicate that 70% of school districts in the United States offer a form of blended learning to their students, employing 2.1 million of the approximate 3.1 million teachers in these schools (IES Fast Facts, 2015). Therefore, if the current study results hold true for the larger population, less than 66% of the 2.1 million teachers are ready to fully implement blended learning. Additional research needs to be conducted to measure the relationship between teacher self-identity and the pedagogical reality in blended learning environments so as to understand the magnitude of this knowledge gap. Future research, coupled with this study, will help define the level of introductory concepts and pedagogical shifts in professional learning options for the blended classroom teacher.

Teacher Preparation

The data in the study show that the majority of traditional teachers (67.8%) scored in the novice or emerging range and only 17.2% fell within the expected range for blended instruction. This may imply that, among participants, traditional classroom teachers are not prepared to implement blended instruction in their learning environment. Therefore, more directed PD focused on blended learning is needed to prepare this cohort of teachers for the blended classroom.

The fourth research question focused on specific areas of blended pedagogy that scored higher than others indicating progress toward proper adoption and implementation of blended instruction, thus indicating the areas in which there was greater need for PD. The results of the Kruskall-Wallis test confirmed that the median scores for each of the six domains fell within the novice, emerging, and expected range. Although the Technology domain (III) scored highest when comparing the median scores in all six areas, it only fell within the expected range. This may indicate that the technology integration among the participants is slightly more advanced than the other five domains scoring as novice or emerging, possibly because technology integration in the 21st century classroom is becoming increasingly abundant. However, this score does not necessarily indicate that this domain requires less PD for successful implementation of blended pedagogy. Instead, because technology is critical to many aspects of the blended learning environment, the domain would require a higher score falling in the excellent or exemplary range before the PD can be decreased in this area.

Professional Development

Impactful and effective PD can help shape the proper adoption and implementation of blended pedagogy in the learning environment (Bradshaw, 2002; Harris, Mishra, & Koehler, 2009, Hixon & Buckenmeyer, 2009,

Schlager & Fusco, 2003). An unexpected finding from the study suggests that participants who had participated in either formal or informal PD focused on blended instruction showed no significant difference (p=.45) in blended learning than those teachers who did not attend any form of blended instruction PD. This may indicate that the existing PD, either formal or informal for blended learning is not making a difference in teachers' successful implementation of blended practices.

Several assumptions can be made from these data focused on the quality and delivery of the PD. One assumption is that the overall PD is not effective in communicating the pedagogical differences in teaching among the traditional and blended classroom environment. Horn and Staker (2015) warn against the common misconceptions between the technology-rich learning environment and the blended learning environment, differing mainly on the element of some student control and personalization of instruction to meet the needs of the individual. Teachers in this cohort may not be able to delineate the difference between the adoption of technology in the classroom and the pedagogical belief of blended learning.

The improper delivery of the PD may also contribute to the lack of teacher preparedness. When teachers are not receiving applicable PD, or the delivery of the PD is focused on content delivery rather than enhancing learning, it can ultimately fail in its purpose (Webster-Wright, 2009). Yet when successful research-proven techniques are implemented in any PD program, improvement and change is evident and more widely accepted by the stakeholders (Bybee & Loucks-Horsley, 2000; Goddard, Goddard, & Tschannen-Moran, 2007; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).

The act of modeling in professional learning opportunities is one of several techniques proven to ignite sustained change and is critical to understanding new and emerging concepts in education (Glazer & Hannafin, 2006; Guskey & Yoon, 2009; iNACOL, 2011). Research indicates that modeling, in both student and teacher-as-student learning situations, is an effective instructional strategy that allows the learner to observe best practices in the learning environment and provides opportunities for deeper understanding (Guskey & Yoon, 2009). Other research-supported concepts of effective PD are also needed to support a strong blended learning environment. Examples include continuous learning opportunities embedded into the academic day, highly supported by all stakeholders, reflective in practice, and collaborative in nature (Ronfeldt, Farmer, McQueen, & Grissom, 2015; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Finally, effective PD strategies also include a strong mentoring program for new and emerging teachers (Ingersoll & Strong, 2011).

Although further research should be conducted to determine the fidelity of the offered PD in blended pedagogy, along with the delivery methods of the PD itself, the study data indicate that the PD may not be effective in changing teacher behavior in implementing blended learning. These PD offerings need to be investigated further, focusing on the way the PD is being delivered, the level of support for the change in pedagogy and practice in the classroom and school, and the overall impact of the PD for blended learning to be successfully implemented within the learning environment.

CONCLUSION

Blended learning is growing at substantial rates in K-12 education. With 70% of US school districts offering a form of blended learning, 2.1 million of the approximate 3.1 million full-time educators in the United States are directly impacted (NCES, 2015). As evidenced in this study, blended learning is socially desirable but not necessarily understood in its entirety. Specifically, 127 of the 366 teachers (35%) perceived their teaching style as blended even though their blended profile indicated that their practice was actually traditional, as indicated by their novice, emerging, or expected level rank. Of those who perceived themselves blended, only 27% were actually ranked as blended. Further investigation needs to be conducted to better understand the social drivers of the pressures for teachers to use blended pedagogies.

Current practices in blended pedagogy that are indicated in this study are ranked overall as below excellent, with the exception of Domain III (Technology) scoring in the "expected" range. The other five domains scored in novice and emerging categories, suggesting a need for research-based teacher preparation programs in order for teachers to implement blended pedagogy with fidelity.

To create a flourishing learning environment in online and blended education, many experts and practitioners agree that several factors need to be in place for educator growth and development. Strong induction and onboarding training courses for new educators, continual growth opportunities for experienced teachers, and extended professional learning options for highly effective teachers are both desired and necessary to establish a value-based system focused on continual professional improvement. Standardized training programs for new instructors would establish a universal starting point and create a common baseline for evaluations. Continued and extended PD would allow online and blended educators the opportunity to learn and implement the most current technology and pedagogy, or extend their

areas of expertise and build credibility within the education field. Various delivery modes and PD models offer educators the chance to dive deeper into areas of interest and explore new concepts both independently and collaboratively and provide another layer of sensitivity to the challenges experienced by their own students.

The researchers found no significant difference ($p=.45$) in scores from teachers who had participated in either formal or informal PD, even when specifically focused in blended instruction. Further research is suggested to measure the fidelity of both school and/or district formal PD or informal or self-study PD implementation for blended pedagogy and impacts of experiential, longitudinal PD on blended pedagogy. As blended instruction continues to increase across the United States, improved pedagogy that is aligned to research-based best practices should become the norm. At this early stage of adoption, there is great room for growth in the understanding and pedagogical practices of blended instruction.

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