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# Using Blended Teaching to Teach Blended Learning: Lessons Learned from Pre-Service Teachers in an Instructional Methods Course

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In this study, we explore the design and delivery of a blended social studies teaching methods course to examine the elements of the blended design that pre-service teachers found most constructive. In focus groups at the completion of the course, pre-service teachers were asked to reflect on their experience in the blended course, identify the aspects they found most supportive, and consider what principles of blended learning they would implement in their future classrooms. Four overarching themes were identified from the analysis, which include: organization and structure, transparency and support, community and discourse, and personalized learning.

## USING BLENDED TEACHING TO TEACH BLENDED LEARNING: LESSONS LEARNED FROM PRE-SERVICE TEACHERS IN AN INSTRUCTIONAL METHODS COURSE

As we move deeper into the 21st century, the allure of technology-based learning environments has pushed many school districts to incorporate online and blended courses into their standard curricular offerings (Gemin, Pape, Vashaw, & Watson, 2015; Toppin & Toppin, 2016; Waters, 2011). Online and blended courses have the potential to provide more personalized, student-centered approaches for K-12 students (de los Arcos, Farrow, Pitt, Weller, & McAndrew, 2016). Schools have the opportunity to use

various online and blended learning models to individualize learning by offering students some choice in where, when, and what they learn (Morgan, 2015). Online and blended K-12 programs also afford teachers the benefit of providing more individual attention to students with the greatest academic needs (Murphy, Snow, Mislevy, Gallagher, Krumm, & Wei, 2014; U.S. Department of Education [USDOE], 2016). Some states have even made it a graduation requirement that students complete one online course during their high school years (National Conference of State Legislators, 2016). Although many K-12 teachers are increasingly using technology in their classrooms for teaching and learning, few have been formally prepared to facilitate online or blended learning activities (Kennedy & Archambault, 2012; Moore-Adams, Jones & Cohen, 2016; Worthen & Patrick, 2015). Furthermore, many teacher credential programs do not explicitly prepare teacher candidates for teaching in an online or blended environment, and are not required to do so by their state credentialing/licensure agencies (Archambault, Kennedy, Shelton, Dalal, McAllister, & Huyett, 2016; Kennedy & Archambault, 2012; Moore-Adams et al., 2016; Worthen & Patrick, 2015). Therefore, to deal with this move toward online and blended learning in K-12 schools, many local school districts have taken it upon themselves to offer professional development for their teachers who want to transition from teaching in a traditional classroom to teaching in a solely online or blended classroom setting (USDOE, 2016; Worthen & Patrick, 2015). Teacher preparation programs need to follow suit (Moore-Adams et al., 2016; Williams, 2015).

To respond to these changing workforce needs in K-12 education, future teachers need to be prepared to teach in a variety of environments, formats, and platforms (Kennedy & Archambault, 2012; Moore-Adams et al., 2016). It is key that they learn pedagogy and instructional methods for online and blended teaching in addition to face-to-face instruction (Moore-Adams et al., 2016). Teachers need to be keenly aware of the affordances and constraints of face-to-face, blended and online environments, and need to develop courses for each format according to the needs of their students, schools, and districts (Keengwe & Kang, 2013). Face-to-face instruction offers the benefit of fluid, real-time interaction with instructors and peers with the advantage of immediate assistance, collaboration, and feedback, but is confined to a set time and place. Online instruction offers the convenience of flexible time and space, allows greater parity of student voices, and promotes more individualized instruction, but may restrict the ease with which instructors and peers can communicate and collaborate (Li & Irby, 2008). Blended instruction, which combines these two contexts, enhances the benefits of both face-to-face and online formats while diminishing the constraints (Alammary, Sheard, & Carbone, 2014; Benson & Anderson, 2010; Graham, 2006; Picciano, Seaman, Shea, & Swan, 2012). Blended learning

promotes active, student-centered, collaborative learning (Johnson, Adams Becker, Estrada, & Freeman, 2015; O'Byrne & Pytash, 2015; Powell et al., 2015) and may comprise multiple learning paths that provide opportunities for individualized learning. A blended course may utilize small group instruction, individual tutoring, and cooperative projects in both face-to-face and online contexts that can be customized to meet students' needs (Murphy et al., 2014; Christensen, Horn, & Staker, 2013; Johnson et al., 2015; Powell et al., 2015).

To prepare future teachers to become adept at teaching in multiple formats, teacher education programs must enhance their practices to include instruction in how to teach middle and high school students in both online and traditional contexts (Kennedy & Archambault, 2012), and ways to effectively weave these two contexts together for a fluid experience. This is precisely what is recommended in the U.S. Education Department's National Education Technology Plan (USDOE, 2016). The plan calls for teacher education programs to "provide pre-service and in-service educators with professional learning experiences powered by technology to increase their digital literacy and enable them to create compelling learning activities that improve learning and teaching, assessment, and instructional practices" (p. 37).

To best understand the principles and practice of blended learning, teachers should experience blended learning for themselves in their own professional development (O'Byrne & Pytash, 2015). In line with Kolb's theory on Experiential Learning (Kolb, 1984), which posits that knowledge is created through the transformation of concrete experience paired with reflection on the experience, teachers need to engage in a blended learning course to understand first-hand the benefits, affordances, and challenges of such instructional design.

In this article we describe the design and delivery of a blended social studies teaching methods course for pre-service teachers. The goal for the course was to provide future secondary teachers a blended learning experience to prepare them to teach in this format in the future. In focus groups at the completion of the course, pre-service teachers (who were students in the course and referred to as students in this study) were asked to reflect on their experience in a blended course and identify the aspects they found most beneficial and supportive of learning. They were also asked to illustrate the strategies of blended instruction they would implement in their future middle and high school classes. This study reports on those findings. The research questions that framed this study include:

1. What principles of blended course design and delivery do student teachers identify as beneficial to their own learning?
2. What principles of blended course design and delivery do student teachers plan to implement in their future courses?

## CURRENT LITERATURE ON BLENDED LEARNING

The term blended learning is generally referred to as a combination of online and face-to-face instruction (Graham, 2006). Many authors cite Garrison and Vaughn's (2008) definition, which asserts, blended learning "is the organic integration of thoughtfully selected and complementary face-to-face and online approaches and technologies" (p. 148). More recently, researchers in K-12 have adopted the definition offered by Christenson, Horn, and Staker (2013):

> Blended learning is a formal education program in which a student learns at least in part through online learning 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. The modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience. (p. 9)

Both these definitions highlight an emerging consensus that blended learning should be defined by more than just a percentage of online and face-to-face activities. When designed and implemented appropriately, blended learning supports some degree of personalized learning (O'Byrne & Pytash, 2015). Blended learning embraces the use of online environments to offer complementary learning experiences that allow face-to-face time and space to be used more efficiently and effectively (Garrison & Vaughan, 2008; Glazer, 2011; Hoffman, 2006; Johnson et al., 2015; McGee & Reis, 2012; Murphy et. al., 2014; O'Byrne & Pytash, 2015). The challenge for teachers is learning how to design and implement an effective blended learning course that is both efficient and effective. Teacher preparation programs have the opportunity and obligation to meet this challenge by offering formal training in online and blended instruction paired with occasions for experiential learning and reflection (Kennedy & Archambault, 2012).

### Growth of Blended Instruction

Buoyed by the findings from the U.S. Education Department's (US-DOE) meta-analysis on the effectiveness of online and blended instruction (Means, Toyama, Murphy, Bakia & Jones, 2009), the practice of blended learning has steadily increased in K-12 and higher education. In the analysis, Means et al. (2009) found students performed slightly better in 100% online courses as compared to face-to-face counterparts, but significantly better in blended courses. Due to the small number (5 out of 46) of disparate K-12 studies included in the analysis, the authors cautioned about

generalizing their findings to K-12 environments, but asserted there were implications nonetheless. A recent report by Gemin et al. (2015) identified online and blended K-12 programs in all 50 states. Additionally, the number of blended courses in higher education continues to increase as does demand (Bliuc, Goodyear & Ellis, 2007; Porter, Graham, Spring, & Welch, 2014). Many scholars consider the blended course design model to be emerging as the default for post-secondary education (Alammary, Sheard, & Carbone, 2014; Halverson, Graham, Spring, & Drysdale, 2012; Jeffrey, Milne, Suddaby, & Higgins, 2014). However, it is often not practiced in teacher preparation programs, which still tend to separate pedagogical instruction from technology training (Duhaney, 2012; USDOE, 2016) even though blended instruction is expected by many experts to be standard practice in the K-12 classroom of the future (Johnson et al., 2015; Murphy et al., 2014).

### Effective Practices

The body of research in K-12 blended learning is small but growing. Its potential for transformative change in K-12 is documented by the 2015 Horizon Report (Johnson et al., 2015) and recent foundation sponsored research (Christensen et al., 2013; Murphy et al., 2014). Blended learning promises student and teacher productivity gains by changing how face-to-face time is utilized (Powell et al., 2015). Christensen et al. (2013) identified four models of K-12 blended learning and noted that three of the models have the prospect of being disruptive to the traditional classroom environment in secondary education. Implementation of these models has begun to illustrate they have the potential for increasing individualization, equity of access, and productivity for both teachers and students (Staker, 2011; Murphy et al., 2014).

What is emerging in K-12 as effective practice is consistent with what research has found in higher education. Researchers have studied and synthesized different blended learning design practices in higher education (Alammary et al., 2014; Glazer, 2011; Graham, 2006; McGee & Reis, 2012; Means et al., 2013). Scholars consistently support pedagogical transformation, not merely a repackaging of existing course content, as necessary for effective blended course redesign (Garrison & Vaughan, 2008; Graham, 2006; Torrisi-Steele & Drew, 2013; VanDerLinden, 2014). In higher education, researchers have emphasized that blended course design needs to focus on the student learning objectives not on the technologies (Alammary et al., 2014; Garrison & Vaughan, 2008; Hoffman, 2006; McGee & Reis, 2012). Content delivery mechanisms, student engagement activities, and assessments should be based on course content, learning needs of students, and pedagogical affordances of the designated technology tools (Garrison

& Vaughan, 2008; Hall & Villareal, 2015; Massie, 2006; McGee & Reis, 2012; Means et al., 2013; Shand, Guggino, & Costa, 2013). Online and face-to-face components of the course need to be integrated into a comprehensive whole (Garrison & Vaughan, 2008; Hoffman, 2006; Glazer, 2011; McGee & Reis, 2012). This process, referred to as layering (Glazer, 2011) or weaving (Massie, 2006), provides students multiple passes through the content (often in different contexts) and, thereby improves the quality of learning experiences (Garrison & Vaughan, 2008). Blended learning in teacher preparation programs would benefit from incorporating these proven principles to increase both their effectiveness and model effective blended environments for new teachers (Kang, 2014).

### Teacher Professional Development for Blended Learning

In K-12 education, research has established a need for teachers to be trained in blended learning pedagogies and experience blended learning themselves (Johnson et al., 2015; Kellerer et al., 2014; Powell et al., 2015). Kellerer et al. (2014) found that teachers in Idaho who implemented blended instruction, after receiving professional development in blended learning using a blended delivery model, perceived improved student academic performance and engagement. Teachers also indicated that communication between parent-teacher, student-student, and teacher-teacher was the same or better after the use of blended learning. Equally important, teachers reported their ability to monitor student learning was either "better" or "much better" with blended learning. New teacher education programs have shown the viability and promise of blended programs to help teachers enter the workplace better prepared (Arnett, 2015).

Keengwe and Kang (2012) conducted a comprehensive literature review on blended learning in teacher preparation programs, and noted a lack of robust studies in the field. They attribute the paucity of studies to two issues: 1) most teacher educators believe face-to-face learning activities are more effective in providing pedagogical content knowledge, and 2) when teacher preparation programs do provide blended learning experiences, they are rarely reported due to methodological limitations.

This study is an effort to fill the gap of blended research in teacher preparation programs. It seeks to contribute to the body of knowledge on how pre-service teachers respond to a blended learning environment, what elements they find supportive of their learning, and what they learned experientially about the design of blended courses that they would use in their future classrooms.

## RESEARCH METHODS

It is widely accepted that students learn best by doing (Teclehaimanot & Lamb, 2005; Wetzel, et al., 2014), as supported by experiential learning theory (Seaman, Brown, & Quay, 2017). To teach the ways and means of planning, organizing, delivering and assessing blended learning, the authors designed and implemented an instructional methods course for teaching secondary social studies using a blended model. Both authors have terminal degrees in education, taught in middle and high schools for a combined 20 years, and spent several years designing and teaching online and blended courses in a teacher preparation program. The lead author actively researches technology in education, and the second author is currently the director of academic technology at a state university. Our aim was for teacher candidates to become familiar with the principles and best practices of blended learning from a personal perspective so they may implement these in their future practice.

### Context of Blended Course Model

Aside from the design, the overall goal of the course was to prepare future teachers to understand the purpose and practice of teaching social science in public schools – to provide future teachers with the necessary learning theories, instructional methods, engagement strategies, and resources to teach social studies in ways that promote critical-thinking, concept formation, and student engagement. Major emphasis was placed on practical aspects of classroom instruction, such as synthesizing content into units and individual lessons, working with state and national content standards, and teaching a wide variety of strategies to actively engage learners with history-social science content.

The blended course included eight learning modules implemented over a 16-week semester. Each module comprised two weeks of instruction. In the university course catalog, the class is designated as a 3-unit course, which requires 3 hours of in-class instruction per week. In prior semesters, the class traditionally met once a week for the required three hours. In the blended design, the course hours were distributed using a 2/3 to 1/3 format per two-week module (6 hours of required instruction). Two-thirds of the course was delivered online (4 hours of instruction per module), and one-third was delivered face-to-face (2 hours of instruction per module). The class met on campus for the 2-hour face-to-face session once every two weeks.

Each module began with an online component that students accessed through the university learning management system (LMS). All online modules were designed to follow a standard format and progression. They started with a module introduction which included a description of the module

topic, goals and objectives, required readings, activities and assignments, and due dates and times. Making goals, objectives, activities, and assignments for each module explicit helped students better understand the expectations of each module. It also enabled the students to plan their study time each week, to anticipate the time it would take to complete each activity, and to ensure they had reliable internet access. Research has shown that students who are aware of course expectations are more satisfied with their learning experience (Wu, Tennyson, & Hsia, 2010). Following the module introduction, an online narrated lecture or inquiry activity was provided to present the lesson content. This was followed by an online student engagement activity and resources for students to explore to help them make deeper meaning of the content. During each module, students generally completed an assignment that they created using digital tools and posted online.

The online component of each module began on Monday morning and ended Sunday night two weeks later. The on-campus meeting was scheduled on Wednesday night during the second week of the module, so students had one and a half weeks to engage with the online activities before they met face-to-face as a group. The on-campus meetings were designed to enrich, clarify, demonstrate, and reinforce the content learned online. Students were expected to come to class with an initial understanding of the topic as a result of their online learning experience and be prepared to use that knowledge in the class discussions and activities. Face-to-face engagement activities were planned to flow directly from the online content and consisted of an activity or discussion that helped students process the new content, buttress difficult concepts, engage with peers on how to apply these concepts to their own teaching, and reflect on their learning and teaching experience. Discussions ranged from whole class conversations, to peer feedback and critique of assignments, to structured dialogues between small groups of students. In-class discussions provided students with opportunities to dynamically engage with the course instructor and peers over difficult content matter and reflect on their learning. It also helped students feel part of the course learning community and encouraged socialization, an important part of the learning process. The instructor also capitalized on the face-to-face time to answer questions about the content covered in the online component and check for understanding.

Due dates for all assignments and activities were routine from week to week so students knew when things were due and could plan their engagement time accordingly. Scoring guides and samples were included as appropriate, and all work was submitted or linked through the LMS to ensure a uniform learning environment. All grades, feedback and course announcements were housed in the LMS for consistency and support.

To illustrate this blended process, the following is an example of a module dedicated to the use of primary sources in the history classroom. Students first viewed multiple narrated presentations and videos on topics such as historical thinking, reading like a historian, and the purpose and practice of sourcing, contextualizing, close reading, and corroborating sources for analysis and interpretation. Then the students explored multiple primary source databases, primary sources analysis tools, and sample lesson plans that utilized primary sources. After this exploration, they created a digital primary source toolbox in their e-portfolios that included a purposeful selection of primary source databases, video demonstration of analysis tools and sample lesson plans housed on the web. This was followed by the creation of a lesson plan that utilized primary sources and analysis tools. The students then met in the on-campus class where they engaged in structured dialogue with their peers concerning what they learned from the online activities, what they produced in the student engagement activity, and what challenges they came across in the process. They took the peer and instructor feedback they received in class and modified their primary source toolbox and lesson plan accordingly before submitting them at the end of the module.

### Participants and Research Methods

Although the course focused primarily on teaching future teachers how to design and teach social studies curriculum, throughout the course, the instructor identified aspects of the course that demonstrated principles and best practices of blended course design and delivery. The research study focused on what pre-service teachers as students learned about blended learning from participating in the experience.

At the end of the course, the students participated in small focus group discussions. Two course sections were used in the study. One section consisted of 25 participants (10 females, 15 males; 16 Caucasian, 2 Asian, 7 Hispanic) and the other consisted of 13 participants (6 females, 7 males: 6 Caucasian, 7 Hispanic). The interviews were conducted in eight focus groups with five members in most groups. The students were provided focus questions and asked to discuss their opinions on them in relation to their experience in the course. The focus group discussions were audio recorded and transcribed for analysis. The group discussions ranged from 18 to 25 minutes. Sample focus questions included:

1. Based on your experience in the blended course, what lessons did you learn about organizing a course for teaching and learning? How might you organize a blended course for your future middle or high school students?

2. What did you value most about the online and face-to-face components of the course?
3. How did the face-to-face meetings allow for peer and instructor interaction? What aspects of the on-campus meetings were most beneficial?
4. How did the blended course help you learn? What components of the course led to your success?

The focus group interviews were transcribed and then reviewed, analyzed, and coded by the two authors. During the coding process, the authors met on multiple occasions to discuss any discrepancies in their analyses and came to a mutual consensus on the appropriate codes assigned to all data. Saldaña (2009) defines coding as "a word or phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (p. 3). The process of coding requires extracting and arranging the data in a systematic order to categorize and make meaning of the content. The codes, when clustered together by similarity and regularity, form patterns in the data that were identified as categories.

Descriptive coding was used in the analysis, which is coding that summarizes the basic topic of a passage into a word or phrase (Saldaña, 2009). The initial line by line coding of the data allowed descriptive codes to be identified and reworked as the analysis progressed. In the first round of coding, several sub-categories were identified including topics such as online organization, course structure, course expectations, learning supports, community-building, discourse, personalized learning, pace, and choice. Following the initial coding, a second round of focused coding was employed to identify the most frequent and significant codes. Together, the authors searched for natural links and connections between the sub-categories which were then were grouped and regrouped into categories (Saldaña, 2009). Themes were established from the categorical structure and then subsequently refined. The final coding structured is found in Appendix A.

## LIMITATIONS

As with any research study, there are inherent limitations to our approach. This study was based on a course designed and taught by a single instructor. Student responses and reactions to the course may have differed under a different blended design or different instructor. Additionally, students were not anonymous in their interviews. Although grades were already complete for the course, some students may have reported more positive outcomes of the blended learning environment in order to gain favor with the instructor or influence future standing in the program. The results

of the study are descriptive and represent student perceptions of the blended learning course and how they might implement blended approaches in their future teachings. The results do not assess student learning outcomes, nor do they measure how pre-service teachers use the experience to inform their practice, as they have not yet been employed as in-service teachers.

## RESEARCH RESULTS AND DISCUSSION

To reiterate, the study focused on the following research questions:

1. What principles of blended course design and delivery do student teachers identify as beneficial to their own learning?
2. What principles of blended course design and delivery do student teachers plan to implement in their future courses?

The data revealed four overarching themes that helped answer these research questions. The themes comprised ways to support students and help them succeed in a blended course. The final coding structure led to the following four themes: (1) organization and structure, (2) transparency and support, (3) community and discourse, and (4) affordances for personalized learning.

### Organization and Structure

Students overwhelmingly identified course organization and structure as most helpful. All eight groups focused much of their discussion on the organizational features they valued and would incorporate into a blended course of their own. Most of the comments focused on the organization of the online components, although a few referred to the organization of the face-to-face activities as well. In a blended course, it is often the online portion of the course that can be confusing for students, so ensuring that the course structure in the LMS is clear, concise, and organized appears to be crucial.

Several students noted the importance of well-defined module opening and ending dates and times and how this feature contributed to student success. One student remarked, “I like that we knew what weeks were what modules – some professors don’t do that. They just show the modules and you have to figure out what weeks go with what modules.” Another statement, “The course was well organized – knowing what’s due and when it’s due was my favorite part,” demonstrates that students appreciated clear due dates. In fact, one student articulated how organization is critical to student success: “I think this class was really well designed in terms of organization. Not every class is like that. It makes a big difference when you can log in and tell exactly what’s expected of you and when it’s due.”

A handful of students found the icons associated with the LMS to be quite helpful. The icons, which were used to represent the different types of activities within the module, helped students readily identify the kinds of tasks they were expected to complete. One student observed, "You knew what the activity was based on the symbol...the icons next to what was due was helpful…it got to a point where you knew, you would just go to the icon that you needed." Moreover, another student expressed the following:

> The little things count. The little details. Like the little box [icon] that looks different from the other ones. You know the little things that fine tune the user interface. That is what you come to know very well. Those little details are really important.

The most widely commented on organizational feature of the course was the step-by-step sequence of activities within each module. Students frequently remarked how this design element helped their comprehension and time management. For example, a student noted, "The organization was clear, it was precise. There was a number order [and] it transitioned very well from explaining the topic to breaking it down to small baby steps where everyone could understand the material." Additional comments revealed how dividing up information into manageable chunks helped lower students' affective filters and enabled them to focus on one or two key points at a time.

> In the beginning when I saw how she had everything laid out, I just looked at it and thought "this is going to be difficult," but in the beginning it tells you what we have to do for each step. You can see it's broken apart and it makes it much easier and I can say I'm going to just work on step one now and then I'll move on and tomorrow I'll start working on that.

It also affected their time management, as one student noted, "It makes it easier because you can do it in chunks, you can do it steps one and two, and then three, four and five another night. Then you get to step six and realize it's going to take me two hours so I can save that for another night."

Some students considered the consistency of the overall course structure to be another constructive aspect of the design. Each module incorporated the same format, and students became accustomed to the rhythms and routines within each module, as noted by the following statement: "The consistency from module to module was helpful. The steps, we knew what was expected of us for every single module because everything was consistent." Establishing rhythms and routines that occur from the first day of the course until the last helped students develop habits that foster timely and consistent

engagement with the course activities. One student commented, "They [the modules] kind of built on one another so by the end of the course you were so well rounded that you kind of had a concept of everything."

Students also detailed how they would organize their future courses for improved access. They said, "Make it clear and concise, and break up the directions into smaller chunks," "Make students complete one activity before they are allowed to move on," and "Have directions step by step and within the same folder." These comments provide evidence of students' increased awareness of how the organization of a blended course can support student learning.

### Transparency and Support

Issues of transparency and support were qualities of the course that students referred to again and again. Transparency is identified as ways that course expectations and requirements were made explicit and clear to the students. Support refers to built-in features of the course that supported learning activities. Both transparency and support were achieved through clear lesson objectives, well-defined assignment directions, multiple samples of student work, detailed evaluation rubrics, and availability of relevant resources. Students recognized these characteristics early in the course and used them extensively for their own success. This was confirmed by comments such as "Each module had objectives and what you were supposed to do," and "All resources were available – sample, rubric, directions – there was always a sample so you knew what was expected." Students were more likely to keep on track and persist in a blended course when they knew the expectations. Making learning objectives, activity guidelines, and assignment directions clear helped students focus on what matters in the course - learning new content and skills. One student echoed this principle quite nicely when she said:

> What I liked about this course is at the very beginning it stated what you're going to be learning, what you're going to be doing, and what to do. And I would go back to that just to make sure that I'm not missing anything. It's nice to have bullet points breaking down the very basic essentials especially for adolescents.

Quite a few students indicated they would employ these transparency and support practices in their future blended courses, as represented in the following statement:

> If I were to teach an online course I would model the structure of the course after this course since it started with objectives and goals. We knew where we had to be in the beginning, so we had some idea of what to do during the actual content delivery part. It was easy to follow and I would definitely do something similar to it where we have goals, some examples, background information and the content that we have to create.

One student shared, "Be really explicit with what you expect, and break it down so that students can really understand it, because when you're giving a bunch of instructions at once, they're only to get bits and pieces." Another student expressed a similar sentiment:

> No matter what, the students need to have scaffolding, even if it's the way it was organized. For young kids it needs to be explicit for them, it needs to be modeled for them because you can tell them but a lot of stuff goes over their heads even when to us it's pretty obvious.

Several students recognized the supportive nature of providing online examples of student work. As one student noted:

> I liked the past student examples. I think that was kind of important in kind of allowing me to know what was expected of me and kind of guide me. When I had any trouble I could go back to those past examples and use them as a resource.

Likewise, another student added:

> In my opinion, always demonstrating or having an example of what you expect the students to do because you might think you're being clear enough in your directions, but then it's not really, at least for me, but seeing an example, clicking on this link and you'll see an example of a mindmap that she had there, and I'm like okay that's what she wants. I like that and I will totally do that.

Other students mentioned how the examples helped put them back on track and inspired creativity. As one commented, "For the student examples, if I was ever lost I could just look at them and brainstorm ideas on my own." The students not only found the examples helpful but some discussed how they would use them in their own instruction. This was illustrated by one student as follows:

> One of the instructional strategies that was used in this course that I particularly liked was the usage of examples, like examples created by other students. The fact that it was just a click away provides for extra support for students so that way they don't have to necessarily come to the teacher for any help or advice. If they need inspiration or [an] idea on how something works there is a link provided with examples and I think that's really helpful and I'll be using that in the near future in blended education.

Tutorials also supported students as they learned how to use various technology tools. A few of these demonstrations were in person when the class met on campus, but most were online screencast recordings. Students found these tutorials quite supportive, as they could access them when needed, and move forward with their work rather than waiting to speak with the instructor for assistance. For example, the following comment shows how the tutorials promoted persistence: "I like the tutorials as well because anytime I got lost it helped me to tutor myself and do it correctly in the way she wanted it done." Another comment revealed how the tutorials helped develop self-sufficiency among students who lacked certain technology skills:

> I personally found her tutorials very helpful. I'm not very good with technology, so the few times I found myself lost her tutorials were very helpful, and that helped me figure it out. I never had to email her to ask her.

The transparency and support modeled in this course clearly had an impact on how these future teachers will teach in a blended environment. These comments show how important it is to start the design of a blended course with the learning goals or objectives. The objectives then drive the selection of activities, assignments, assessments, and resources. Clear objectives linked to activities and assignments with detailed step-by-step instructions, and specific expectations in the form of rubrics and examples provided students the support they needed while allowing for individualized, self-determined learning. Technology tutorials and demonstrations also made sure that learning was not impeded or frustrated by the mechanics of using new online tools or resources.

### Community and Discourse

Students valued the on-campus meetings as time to build community with peers and discuss personal, professional, and academic issues. Meeting regularly provided enough face time for all students to get to know each other and work together. As one student noted:

> I think I had adequate time to get to know everybody. I mean it doesn't have to be every week, we got talking and it builds community, we're all doing the same things and that kind of helps us, it's not like you're dealing with complete strangers.

Another student made clear his thoughts that peer conversations were crucial to learning. He stated, "One thing that can never be replaced by online learning is that half the learning is the fact that we're talking. I've learned more from people than anything else in my life." In fact, peer interactions were so important to one student that she claimed, "In terms of activities for a blended course, when I got students there [in person] I would make them work with their peers as much as possible."

The concept of community through discourse came up often in the focus group conversations. Students perceived the face-to-face meetings as opportunities to share their student teaching experiences with their classmates. One student noted, "I just like working with my peers, hearing their stories, sharing stories, problem solving everything. It was good to have a scheduled time to meet with your peers to go over everything." Another student concurred while illustrating a key advantage of blended environments:

> Meeting, collaborating and communicating with other student teachers was very helpful and it was nice to share our experiences together to see what was going on in our fieldwork. I personally value face-to-face experiences rather than online so I was glad it wasn't all online.

The on-campus meetings were also important times for students to communicate with the instructor and clarify expectations. As one student remarked, "Although online you have everything there, I still think you need that face-to-face communication because there's nothing like talking to someone and being there and clearing something up right away...you need to have that communication." This sentiment was shared by other students. One student remarked, "Even with online education, even with precise instructions, there is a level of ambiguity involved and just having the face-to-face meetings helps resolve any misunderstandings." Another stated the following about the on-campus meetings:

> What do I value? The fact that you got to talk to the instructor because they might not get to an email on time or it might be something you thought on the spot when you were talking with somebody. It was good to have them available as a resource once in a while.

It was also just convenient, as one student noted, "If I had to talk to her it was easy to talk to her." Although meeting in person had its advantages, a sense of connectedness to the instructor was not limited to the face-to-face meetings. The online presence of the instructor also promoted community. As one student commented:

> I think she did a good job at being online, like the way that she would narrate all the presentations, it made you feel like she was talking to you. And, she said what she was expecting like how to do the lesson plans online, she went through it step-by-step.

These student comments demonstrate that the face-to-face component of a blended course meets specific student needs, namely the need for socialization and discourse. But they also illustrate that community does not happen by chance, or simply because you employ blended learning. Community must be thoughtfully established and maintained in both the face-to-face and online environments through structured discourse and online presence. The student comments here reveal that student-to-student and student-to-teacher communication was essential to learning, and needed to be enabled and encouraged in both modalities.

### Affordances for Personalized Learning

Students identified many affordances of a blended course that fostered personalized learning. Affordances ranged from the opportunities for choice in utilizing resources and technology tools, to opportunities for feedback and dialogue on specific assignment struggles, to opportunities to pace their own learning.

Several students discussed the personal learning benefits of introducing new content in the online component and then following up in the on-campus meetings with an activity that helped reinforce the concepts. One student said:

> I do an activity at home online and I think I'm doing it right, then I come here and I get your feedback and I get different perspectives on it and I'm able to make my lesson better, I'm able to alter it. I like that I'm able to do something by myself and do it to the best of my ability and then I get your feedback, I get my peers' feedback and then I'm able to fix it, mold it and perfect my lesson.

Students came to class with questions based on their personal understanding, or misunderstanding, of the online material. They were provided dedicated time to address these struggles in class and receive personal attention based on their own learning needs. One student commented:

> I feel like you struggle on your own a little bit [online] and then you come to class for reinforcement later. That's how I learn best. I struggle on my own, and then questions that I have, I come back in and I ask about what I don't get and that will be cleared for me. Struggling on my own gives me the time to think consistently about what we're doing and dive more in depth into things I need.

The readily available resources in the online environment also helped to make student learning personal. Students chose what resources to access based on their own struggles and needs. One student noted, "I liked that we were given everything before we met. So when we did meet, we were always prepared. And then afterwards we still had it to reference." This was reiterated by the following comment, "I like that you have access to the resources and tools anytime so if you do need to go back and review something, you can easily go back. It's an added benefit that you don't have in class."

Availability of resources is linked to another affordance of blended instruction for personalized learning, which is the ability for students to set their own pace in learning the online content. As one student noted:

> I have a short attention span and I like to do things on my own time. I like that I can sit there and read a little bit at a time throughout the week rather than me sitting there and having all the information given at once. I can sit there and chunk it out for myself. That works out better for me.

In agreement with this statement, a fellow student chimed in, "Yes, I can pause and rewind. You can't do that in class."

Another prominent affordance of blended learning is the supply of information and resources available on the internet, which are generally not available in traditional classrooms. More than one student explained the benefit of using internet search engines and archives to access a myriad of primary sources for history class based on their own personal need. As one stated, "There is a limited amount of primary sources that you can bring to class, and online there is an abundance of primary sources that students can look up." Another supported this statement saying, "I would use databases to make students actually do online research and choose their own primary sources."

Students also discussed the availability and use of technology tools as an important affordance of personalized learning. In fact, one student said, "What I liked about the online component of this course is all the technology that I learned. As I said, I'm not very good at technology and it taught me a lot." This was a student who took advantage of the technology tutorials included in the online environment and resources on how to use these tools in teaching. Another student acknowledged:

> Having to search [online] through stuff, you are accidentally forced to learn all these new tools. You were like, I had no idea you could do that, all the games and online quizzes and stuff, role-play activities. I was accidentally learning the whole time, whether I liked it or not.

The lessons students learned about the affordances of blended learning for personalized learning was evident in their comments on how they would implement technology in their own classrooms. Most students mentioned they would use digital presentation tools, namely Prezi and PowerPoint, in designing online lectures. Additionally, they noted the importance of narrating them as well. Several comments reflect this commitment to use technology such as, "Prezis can be recorded and put online, that would be great for blended learning." Additionally, students expressed their commitment to create and use a website for a blended class. This was evident in statements such as, "Learning how to create a website of our own was extremely helpful," and "I would use Weebly to get content out there."

Putting technology in the hands of K-12 students to make it personal was another common thread. Students mentioned student engagement activities using various applications and search tools. Some of these comments included, "You could do a Twitter feed. Kids could do a discussion using a hashtag." Another student added, "I would totally use Mindomo [an online concept mapping tool] for a class. I would assign groups and make the groups make their own mindmap on whatever topic." Other students noted, "In terms of group projects, they can use google docs and share their information online," and "There are tons of games and simulations that can help the students understand the subject matter in an engaging way."

## IMPLICATIONS

The pre-service teachers who participated in this blended course identified numerous attributes of the blended learning environment that supported their learning. They also indicated their intention to implement the same support strategies for their students in their future blended instruction for middle and high school students. As identified, the course elements that impacted their learning are grouped into four themes: organization and structure, transparency and support, community discourse and personalized learning.

Based on the focus groups, it is clear that the organization of a blended course needs to be structured in a way that is understandable and reasonable to students. In developing the course, several aspects of course organization must be considered – the order and frequency of the online and face-to-face components, the sequence of tasks for each lesson or module, the schedule of activities and assignments, time for students to meet and work in person, and the placement and availability of course resources. When these elements are clearly laid in the online component, the students know what to expect and how to precede with the course. A clear and logical structure puts students at ease so that they can focus on the course content. To ensure sound organization of a blended course, teachers can utilize the resources of several organizations to assist them with models and standards of organization. Many professional organizations, such as Quality Matters and the International Association for K-12 Online Learning (iNACOL) provide templates, checklists, standards, and rubrics to help with the organization and structure of a blended course (iNACOL, 2011; Quality Matters, 2014; Quality Matters, 2016). Instructors new to blended learning can utilize these resources to engage in training, view sample courses, and assess their own course design. The results of this research strengthen the claim by these organizations that coherent course structure is a must in quality blended course design.

Elements of transparency and support were features of the blended course that aided students in the technical aspects of using technology tools, and made assignment expectations clear. Technology tutorials and work samples enabled students to focus more on the course content than learning how to use the technology tools to produce their work. It is clear from the student comments that the availability of these features put them at ease when they encountered technical difficulties. An important tenet of online and blended learning is the ability of the instructor to recognize and identify challenges of the course design and put features in place to minimize or assist with these challenges (Quality Matters, 2014). Instructors who design online and blended courses should consider potential difficulties in the course and buttress these problems with tutorials, examples, and guidelines to ensure students have immediate access to help and support. The results of this study imply that students find these support features essential to their learning and success in the course, and blended course instructors need to make sure they develop such supports to ease student learning.

Opportunities for community discourse were identified by the students as meaningful and constructive. In blended courses, instructors often muse over what content and activities to put in the online portion, and what to put in the face-to-face portion (Torff, 2012). Student comments from this study suggest that time spent in face-to-face peer discussions is time well spent. In fact, standards for quality online and blended teaching stress the role of the instructor in facilitating and monitoring student-to-student interactions for productive learning (iNACOL, 2011; Quality Matters, 2014; Quality Matters,

2016). As evinced by the student comments, providing time for students to discuss their practice in the field and how their practice links to course content was both personally satisfying and academically constructive. Kang (2014) found that structured dialogue on course topics and informal conversations on fieldwork experiences helped pre-service teachers share how they have applied course content to the field, discussed new strategies and methods, and worked through problems collectively. Moreover, Garnham and Kaleta (2002) claim that students in blended courses engaged in more meaningful discussions of course content. The results of this study add to the evidence that plentiful peer discussions in blended environments promote student learning, and instructors should include opportunities for both formal and informal dialogue in the design of the course.

The blended nature of the course afforded students the opportunity for personalized learning. Students were able to make personal meaning of course content by working through the online modules at their own pace and with their own purpose. Personal struggles with the content forced students to venture away from the provided course materials and find new sources of information that applied directly to their specific learning needs. This is consistent with the definition of blended learning offered by Staker and Horn (2012) which states that instruction should include "some element of student control over time, place, path, and/or pace" (p. 3). In the course, this was achieved by content delivery taking place asynchronously online which allowed students to absorb and explore the material at their own pace and through their own lens. Learning was deepened when students met face-to-face and discussed application of the content to their fieldwork settings, shared their unique perspective, and were exposed to the perspectives of their peers. The student comments illustrate the importance of structuring a blended course to allow students choice in time, pace, and modality of learning. In designing a blended course, instructors should incorporate opportunities for students to approach learning in different ways according to their needs.

## CONCLUSION

The supports identified in this study were the result of intentional use of research-based design principles and best practices for blended learning. For the course described in this article, clear well-defined objectives were established that informed the selection of activities, assignments, and assessments (Alammary et al., 2014; Garrison & Vaughan, 2008; Hoffman, 2006; McGee & Reis, 2012), delivery methods that best meet the needs of the learners were utilized (Garrison & Vaughan, 2008; Hall & Villareal, 2015; Means et al., 2013), and face-to-face and online components were connected and designed to flow meaningfully from one context to the next (Garrison & Vaughan, 2008; Hoffman, 2006; Glazer, 2011; McGee & Reis, 2012).

The results of this study add to the current knowledge-base of effective principles of blended course design and implementation. It was found that clear organization and structure lead to optimal learning conditions; transparency and support facilitated student understanding of course expectations; community and discourse helped students learn from their peers; and the opportunities for personalized learning provided students some choice in how, where, and what they learned. The students in the course learned many valuable lessons regarding principles and best practices of blended instructional design and implementation. The hope is that they will take these lessons and apply them to their future teaching. However, research is needed to assess how well teachers implement these practices for student success. Key questions arise, such as "In what ways does blended learning translate into success for their future students?" and "How do the learning outcomes of students in a blended course compare to students in traditional or fully online courses?"

Other models of teaching blended learning and course design to future teachers are available, especially models that explicitly teach design and assessment of blended instruction. Further research is also needed on how successfully these models prepare future teachers to design, implement, and assess blended learning in K-12 schools. We are seeking to understand which teacher education model results in the most supportive blended education environments for K-12 students. As teacher preparation programs move forward with formal requirements of training in online and blended instruction, they will depend on research that provides models of optimal learning experiences for their teacher candidates that ultimately result in the most effective outcomes.

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## APPENDIX A
## FINAL CODING STRUCTURE

| Category | Sub-Category | Code | Frequency |
|---|---|---|---|
| *Organization & Structure* | | | |
| | Online Organization | consistency of modules | 3 |
| | | explicit module steps | 5 |
| | | module dates/due dates | 4 |
| | | | |
| | Course Structure | clear module format | 3 |
| | | icons/symbols | 3 |
| *Transparency & Support* | | | |
| | Course Expectations | goals/objectives | 3 |
| | | examples/samples | 11 |
| | | | |
| | Learning Supports | clear directions | 6 |
| | | rubrics/scoring guides | 3 |
| | | tutorials | 6 |
| *Community & Discourse* | | | |
| | Building Community | sharing | 10 |
| | | peer interaction | 8 |
| | | instructor guidance | 7 |
| | | | |
| | Discourse | talking/learning with peers | 5 |
| | | feedback from instructor | 4 |
| | | feedback from peers | 6 |
| *Affordances for Learning* | | | |
| | Personalized Learning | readily accessible course materials | 4 |
| | | technology support available as needed | 5 |
| | Pace | set own time for learning/engaging in course | 22 |
| | | re-watch/review presentations/ assignments as needed | 9 |
| | Choice | choice of technology | 17 |
| | | choice of resources for exploration/ learning | 7 |