# Attempts Toward Blended Teaching and Personalized Learning in School-Based Agricultural Education


## Abstract

*The purpose of this study was to explore school-based agricultural education (SBAE) teacher beliefs about personalized instruction and blended teaching and their experiences with implementing personalized learning within their blended teaching practice. The specific research questions that guided our study were 1) what are SBAE teachers' beliefs about personalized instruction and blended teaching? and 2) how have they personalized instruction within their blended teaching practice? We utilized a hermeneutic phenomenological research design while relying on theoretical research on teacher beliefs to illuminate the experiences of SBAE teachers in blended classrooms. Participants included five in-service agriculture education teachers representing four states in the United States. These participants were identified by post-secondary agriculture education teacher educators through a state database of SBAE teachers. All self-identified as SBAE teachers that practiced blended teaching. Three themes emerged from data analysis: time, place, pace, and path; empowering students; and reality check. Our findings indicate that the beliefs SBAE teachers hold influence their classroom practices and personalized learning and student choice were important. Recommendations for future research include conducting observational research on personalized instruction in blended settings as well as the impact contextual factors have on the relationship between teachers' beliefs and practice in blended classrooms.*


## Introduction and Literature Review

Throughout 2020 and 2021 teachers across the United States were forced to facilitate remote learning through a variety of asynchronous and synchronous methods, mediated by online learning platforms (Cahapay, 2020). School-based agricultural education (SBAE) programs were not immune to the impacts of COVID-19 government responses (McKim & Sorensen, 2020), and just like other areas of education, SBAE classes shifted to reduced, modified, or remote teaching and learning through asynchronous and synchronous instruction. During this time, many K-12 teachers and teacher educators discovered that they were unprepared for the challenges of online teaching, lacking both the skills and resources they needed to effectively use the technology and online learning platforms (Short et al., 2021).

Roberts et al. (2016) noted that effective teaching can be obstructed by pedagogical constraints, such as technological advances. The technology used by teachers to enhance classroom instruction and student learning is constantly changing due to rapid and continual technological advancements (Coley et al., 2015; Kotrlik et al., 2003; Martin & Carr, 2015; Stewart et al., 2013). Educational technologies and online communications are ever-present in society, and as a result, 21st-century students, parents, and teachers are demanding an education that reflects the 21st century (Roberts et al., 2016). It is through technological integration that students can engage with content and curriculum in ways that are more meaningful, with a greater connection to the real world (Hechter & Vermette, 2013). As students develop and demonstrate digital proficiency through their constant contact with technology, it is worth considering how technology can be purposefully adopted and implemented in learning environments to facilitate personalized learning. However, technology adoption and

implementation must be supported by pedagogical practice (An & Reigeluth, 2011; Ertmer & Ottenbreit-Leftwich, 2010; Graham et al, 2009; Kotrlik et al., 2003; Ottenbreit-Leftwich et al, 2010). One way to explore the connection between technology and pedagogical practice is by examining the role that both play in blended learning.

Blended learning instructional design has been widely adopted by institutions of higher education (Bonk & Graham, 2006; Bruggeman et al., 2021; Dziuban et al., 2018), and subsequently, a wide variety of empirical and conceptual literature regarding adoption and implementation at the post-secondary level exists (Anthony et al., 2020; Bonk & Graham, 2006; Borup et al., 2011; Brown, 2016; Graham et al., 2013). However, empirical research focusing on the K-12 setting is considerably less prolific, although the body of this literature is expanding (Graham et al., 2019). Poirier et al. (2019) asserted that K-12 blended learning research has been primarily exploratory, focusing on defining blended learning and investigating the various models used in classrooms (e.g., flex, station rotation, a la cart). Furthermore, much of the empirical research on blended learning in the K-12 settings has focused heavily on STEM subjects (Attard & Holms, 2020; Borba et al., 2016; Seage & Türegün, 2020), and English language acquisition or reading (Kazakoff et al., 2017; Macaruso et al., 2020; Prescott et al., 2018; Schechter et al., 2015;), with little addressing other content or subject areas. Despite an abundance of research on blended learning in both the K-12 and post-secondary settings, blended learning has remained absent from SBAE research.

Defining blended learning in light of current educational and instructional technologies (e.g., computers, internet, learning management systems) is challenging, as it has been ill-defined and there is no commonly agreed-upon definition for a complex learning and teaching system (Dzuiban et al., 2018; Norberg et al., 2011; Oliver & Trigwell, 2005). Garrison and Kanuka (2004) defined blended learning as "the thoughtful integration of classroom face-to-face learning experiences with online learning experiences" (p. 96) while Graham (2006) noted that there were three commonly mentioned definitions of blended learning: the combination of instructional modalities, the combination of instructional methods, and the combination of online and face-to-face instruction. Although both of the widely cited definitions above identify a foundational component of blended learning, the combination of online and face-to-face learning, neither definition describes the full potential of implementing blended learning in classroom settings.

Horn and Staker (2015) expanded on these commonly used definitions of blended learning and argued that three distinct components must be present in a blended learning environment. These three components are 1) a formal education program that facilitates student learning, at least in part, through online learning, and provides an element of student control over time, place, path, and/or pace, 2) student learning happens, at least in part, in a supervised brick-and-mortar location away from home, and 3) learning experiences for each student are purposely coordinated between the modalities (brick-and-mortar and online). Much like other prominent definitions found in empirical literature (Garrison and Kanuka, 2004; Graham, 2006), Horn and Staker (2015) addressed the importance of face-to-face and online learning while also bringing to light additional details and components that help to operationalize blended learning and highlight the potential for personalized learning.

*Personalized learning* is when learning experiences are tailored to the individual student and their unique needs (Horn & Staker, 2015). These needs might include learning preferences, relevant learning goals, personalized experiences, and student-specific support (An & Reigeluth, 2011). The pedagogy of personalized learning is situated in learner-centered pedagogy and relies

on teaching methods that encourage students to actively participate in the learning process as they investigate, inquire, discover, and create personal meaning through their learning (Krahenbuhl, 2016; Tahirsylaj, 2017). McCombs and Whisler (1997) define *learner-centered instruction* as a focus on the specific experiences, perspectives, talents, interests, backgrounds, and needs of the individual learner coupled with the best teaching practices that prompt high levels of motivation, learning, and achievement for each individual. In learner-centered instruction, the teacher is no longer the purveyor or transmitter of knowledge, or the voice of intellectual authority (An & Reigeluth, 2011; Knowlton, 2000; Schiro, 2008). The learner takes on an active role in the learning process, becoming a participant in developing and understanding the learning materials. Additionally, students in a learner-centered classroom actively engage in the learning process and work at a pace that supports their individual needs. Students then have the ability to develop a sense of agency and ownership for their learning through the ability to guide their own learning (Horn & Staker, 2015, Knowlton, 2000).

Horn and Staker (2015) identified four key elements, or means of engagement, essential to defining blended learning and allowing learners to have some form of control or personalization over their learning, which is critical to blended learning. These four means of engagement are time, place, pace, and path, and have been identified by other researchers as key to creating an environment suitable for blended learning to occur (Basham et al., 2016; Graham et al., 2019; Norberg et al., 2011). Pulman and Graham (2018) conducted a literature review of online and blended learning teaching competencies and concluded that the number one competency for teaching in K-12 blended learning and online learning contexts was flexibility and personalized pedagogy. (Pulman & Graham, 2018). This supports the need to focus attention on the four means of engagement of blended learning identified by Horn and Staker (2015) that addresses student choice, personalization, and student control over learning.

*Time* refers to when students will have access to learning materials and activities to learn (Graham et al., 2019; Horn & Staker, 2015). For example, a student may access the learning materials and activities during assigned class time, prior to, or after class. Often teachers may utilize lectures or other time-sensitive activities that students cannot retrieve or access if they are not present when the activity occurs. Students who are absent, for any reason, miss out on these time-constrained elements of the learning experience (Graham et al., 2019; Horn & Staker, 2015). Given enough time with quality instruction nearly all students will learn (Bloom, 1968); when students, or the instructor, are absent, time becomes a limiting factor (Norberg et al., 2011). *Place* refers to where students can access the course materials and participate in learning activities (Graham et al., 2019; Horn & Staker, 2015). Place is closely linked to time (Norberg et al., 2011). With current technologies, learning can occur in a variety of settings and locations (Horn & Staker, 2015). For example, students can access course content and participate in learning activities in a wide variety of settings including face-to-face instruction in the assigned brick-and-mortar classroom or outside the classroom via virtual means like online discussions, chat groups, or pre-recorded lectures (Graham et al., 2019; Horn & Staker, 2015). *Pace* accounts for the speed at which students choose to work through the assigned materials or content (Graham et al., 2019; Horn & Staker, 2015). Pace takes into consideration that students have unique and individual learning preferences which impact the speed at which they are able to complete work (Graham et al., 2019; Horn & Staker, 2015). Pace also encompasses self-directed learning in which students are able to interweave their personal interests within the content (Graham et al., 2019; Horn & Staker, 2015). Lastly, *path* is concerned with how a student chooses to progress through learning activities (Graham et al., 2019; Horn & Staker, 2015). Path

can also refer to the personalization of the content to meet the needs and interests of the student. This allows students to select activities or other learning opportunities that best support their preferred way of learning (Graham et al., 2019; Horn & Staker, 2015).

It is important to note that blended learning, by definition, focuses on how students engage with course content and the learning environment. Moving forward, we focus on *blended teaching* – or the practices teachers use to facilitate the blended learning environment – while drawing from the definition of blended learning established by Horn and Staker (2015). Blended teaching is the purposeful integration of a formalized online and face-to-face instructional program that incorporates student choice and personalization. Student choice and personalization are achieved through an awareness of how time, place, pace, and path impact student learning.

## Conceptual/Theoretical Framework

For this study, we relied on theoretical ideas consistent with research on teacher beliefs to explore SBAE teachers' beliefs about personalized learning in SBAE contexts and how those beliefs were demonstrated through practice. All teachers hold beliefs (Bruggeman et al., 2021; Buehl & Beck 2014; Parajes, 1992), including beliefs about pedagogy and pedagogical practices (An & Reigeluth, 2011; Coley et al., 2015; Ertmer & Ottenbreit-Leftwich, 2010; Ertmer et al. 2012; Tonderu et al., 2016). Simply stated, beliefs held by teachers are strongly connected to their behaviors, decisions, and actions related to how teaching is enacted into classroom practice (Bruggeman et al., 2021; Guerra & Wubbena, 2017; Parajes, 1992; Speer, 2005; Tondeur et al., 2017). Teachers use their beliefs to make decisions about teaching in general (Bruggeman et al., 2021), interpret and plan (Parajes, 1992), and select specific instructional strategies or tools to implement into classroom practice. (Tondeur et al., 2017).

Research on teacher beliefs often identifies a distinction between professed beliefs, (what teachers say they believe) and attributed beliefs (what is reflected in their practice; Speer, 2005). However, it has been noted that perceived inconsistencies between beliefs and practices arise when professed beliefs and attributed beliefs are cleanly and distinctly separated. Additionally, it is possible that teacher beliefs and practices may be intentionally or unintentionally inconsistent with one another (Speer, 2005). Ernest (1989) identified three causes that could potentially account for the perceived inconsistencies between professed and attributed beliefs. First, teachers may be aware of the lack of connection between their professed beliefs and their other beliefs and knowledge, especially pedagogical knowledge. If the connection between professed beliefs, other beliefs, and knowledge is weak then there will be a disconnect between professed beliefs and the practices used to teach (Ernest, 1989). Second, awareness of and reflection on beliefs lead toward greater integration of beliefs and practice. This includes the ability to integrate beliefs and classroom practices as well as reconcile conflicting beliefs (Ernest, 1989). Third, social context is a powerful influential factor when examining teacher beliefs and classroom practices. Circumstances, whether logistical or practical in nature, may prohibit teachers from enacting their beliefs in their classrooms (Ernest, 1989; Speer 2005; Wilson & Cooney, 2002). These circumstances may include the curriculum to be taught, available resources, texts, high-stakes assessment, and administration, to name a few.

## Purpose

The purpose of this study was to explore SBAE teacher beliefs about personalized instruction and blended teaching, within the context of SBAE and their experiences with implementing personalized learning within their blended teaching practice. The specific research questions that guided our study were 1) *what are SBAE teachers' beliefs about personalized instruction and blended teaching?* and 2) *how have they personalized instruction within their blended teaching practice?* These research questions align with the American Association of Agricultural Education (AAAE) Research Priority 4, Question 1: "How do digital technologies impact learning in face-to-face and online learning environments?" (Roberts et al, 2016, p. 39).

## Methodology

This study employed a hermeneutic phenomenological approach to explore teacher beliefs and blended teaching in SBAE. Rather than adhering to the tenets of descriptive phenomenology which only allows for the description of the phenomena under investigation, hermeneutic phenomenology is the philosophy of interpretation (Reiners, 2012), and experiences are viewed from the perspective of the individual in relation to their reality and the everyday world, not what they consciously know (Lopez & Willis, 2004). When interpreting and analyzing the deeper understanding of our daily experience, phenomenological research enables the findings to be used in developing practical theory and can be used to support, challenge, or otherwise inform policy and practice (Lester, 1999). The hermeneutic phenomenological researcher arguably cannot remain neutral in their investigation of the meaning of the human experience. Rather, the researcher exists within the phenomena being explored (Sloan & Bowe, 2014). Furthermore, hermeneutic phenomenology seeks to be subjective in how the phenomenon is explored and interpreted. This means that the researcher needs to be "perceptive, insightful, and discerning…to show or disclose the object in its full richness and in its greatest depth" (van Manen, 1990, p. 20). Subjectivity recognizes the strength in the researcher's orientation to the phenomena under study while acknowledging their personal and unique connection to the phenomena, striving to avoid the pitfalls of becoming "arbitrary, self-indulgent, or of getting captivated and carried away" by their personally held preconceptions (van Manen, 1990, p.20).

How teachers make sense of their beliefs and experiences with blended teaching is essential to understanding practices, decisions, and actions related to classroom instruction. Interpretive phenomenology as a methodological approach allows us to focus on the "why" behind teachers' experiences and practices. Focusing on the why of blended teaching in SBAE goes beyond describing what teachers do, examining a checklist of tasks identified as best practices, or reviewing a list of "up to date" technology that impacts learning. The deeper meaning is connected to how blended teaching SBAE educators see themselves as teachers and the impacts of blended teaching on how they practice teaching. Moreover, teacher experiences are the foundation of teacher preparation and teacher professional development. Hermeneutical phenomenology is a tool and methodology that allows us to center teachers' experiences and focus on how teachers are making sense of navigating their teaching contexts.

### Participant Selection and Recruitment

Phenomenological research requires that all participants have experience with the phenomena being examined (Creswell & Poth, 2018). To this end, the identified population for our study was SBAE teachers in the United States who self-identified as blended teaching pedagogues and who implemented blended teaching practices in their SBAE classrooms during

the 2021-2022 school year. We purposefully sampled participants from multiple avenues to account for a lack of previous research on blended teaching and learning in SBAE. Recruitment emails were first sent through the AAAE listserv with the intent of seeking recommendations from agriculture teacher educators throughout the United States. Eleven individuals from across the United States responded to the email and recommended a total of 23 individuals. From the list of recommended individuals from AAAE, three SBAE teachers (Jill, Kathy, and Nancy) consented to participate. Additional emails were sent to members of the National Association of Agricultural Educators (NAAE), a national organization for secondary and post-secondary agricultural educators, and state and national agricultural education leaders and to the Oregon Agriculture Teachers' Association (OATA). No participants were recruited from NAAE or OATA. Upon recommendation from an individual from North Carolina State University we contacted SBAE teachers in North Carolina directly using the publicly available North Carolina Ag Ed Teacher Directory. Eighty individuals were randomly identified and contacted. Two participants (Jeremy and Julianne) elected to participate in the study. Ultimately five SBAE teachers representing California, Delaware, North Carolina, and Ohio participated in this study.

**Data Collection and Analysis**

We acknowledge that the COVID-19 pandemic potentially impacted data collection for this study. The data collected for this study occurred after many of the widespread shutdowns had ended and the public school system had largely returned to in-person instruction. It is in this post-pandemic context that the participants discussed their beliefs and blended teaching practice.

The primary method of data collection for our study was through semi-structured, in-depth interviews that were conducted via Zoom, a video conferencing software. Semi-structured interviews allowed us to carefully consider the purpose of the interview while providing the flexibility to ask follow-up questions (van Manen, 1990). Each interview lasted for approximately 60 minutes. Questions in the interview protocol were centered on the participants' beliefs and experiences with blended teaching in the context of SBAE. We used Otter.ai, a web-based voice-to-text transcription and translation service, to transcribe each of the five interviews. Once the transcription process was completed, the transcripts were uploaded into DeDoose, an online data analysis program. All participants voluntarily provided verbal consent for both audio and video recording and Oregon State University's Institutional Review Board (IRB) guidelines directed data collection for this study.

In hermeneutic phenomenology, the goal of the researcher is to interpret the meanings as they relate to the phenomenon under investigation. To move between the parts and the whole of texts, we employed the hermeneutic circle to review and analyze the findings (Laverty, 2007; Lindseth & Norberg, 2004; Reiners, 2012; Sloan & Bowe, 2014). This process of understanding a text occurs by examining individual parts in conjunction with the researcher's understanding of the individual parts, while also considering the context of the individual parts within the whole document (Sloan & Bowe, 2014). To enter the hermeneutic circle, we drew on the general methodology, or phases established by Lindseth and Norberg (2004) which describe a method for analyzing and interpreting hermeneutical interview text.

During the naïve reading phase, each transcript was read multiple times to gain a better understanding of the text, the ideas presented by the participants, and to take the time to record thoughts about the conversation (Lindseth & Norberg, 2004). This phase was followed by

thematic analysis through initial coding, memoing, and focused coding, which were completed based on the guidelines established by Saldaña (2009). During this phase the initial codes were organized into salient categories that made the most analytic sense to establish preliminary core themes. Once the themes and subthemes were established, we followed the validation process set forth by Lindseth and Norberg (2004) where naïve understandings were revisited to reflect on the themes to determine if they validated or invalidated our naïve understandings. Finally, to gain a comprehensive understanding of the data, the transcripts were read in their entirety once again with the naïve understanding, while keeping the validated themes at the forefront of the mind (Lindseth & Norberg 2004). During this process, we strived to keep an open mind to alternative meanings and interpretations while taking steps to be aware of our pre-existing understandings.

**Study Quality**

For this study, we drew on Lincoln and Guba's (1986) criteria for credibility, transferability, and dependability while applying the concept of reflexivity based on Berger (2015) and Malterud (2001). This was done in an effort to validate our study. *Credibility* was accomplished through member checking through participant feedback on data, preliminary analysis, interpretations, and conclusions, which led to an increase in credibility (Creswell & Poth, 2018; Lincoln & Guba, 1985; Lincoln & Guba, 1986). To tend to *transferability* we generated rich, thick descriptions of conversations, settings, and the participants as advised by Merriam and Tisdell (2015) and used verbatim transcriptions of the interviews as recommended by Maxwell (2013). The use of audit trails, as a way to provide transparency to data collection and management (Marshall & Rossman, 2016) was implemented to increase *dependability*. Engaging in *reflexivity* requires an acknowledgment of research bias, values, and other experiences and how this background informs data interpretation (Berger, 2015; Creswell & Poth, 2018, Maxwell, 2013) and ensuring the researcher's position is understood by the reader (Creswell & Poth, 2018).

To address researcher bias and reflexivity, it was necessary for me as the lead researcher, to acknowledge my experiences in relation to the phenomenon, consider how my experiences influenced my interpretation of the phenomenon under investigation. As a former SBAE teacher, I was the first in my school to incorporate Canvas in my courses and subsequently mentored many other teachers as Canvas was adopted schoolwide and I routinely integrated one-to-one computing with my students. I also believed that my students should connect their learning to their interests and communities, so I took steps to make this possible. Although I was incorporating technology and seeking to create a learner-centered classroom that valued many of the necessary components of blended teaching, I would not have considered myself a blended teacher. There was so much more I needed to do; however, I am confident that had I stayed in the classroom I would have taken purposeful steps to make blended teaching and learning a reality for my students and me.

## Findings

The desire for the agriculture teacher to provide their students access to personalized learning opportunities was apparent in our conversations. The participants believed that personalized learning allows and encourages students to learn in ways that are best suited to their unique preferences for learning and demonstrating knowledge. One way to look at personalized learning is to draw from the definition of blended learning (Horn & Staker, 2015), student choice

and personalization are achieved through awareness of how *time*, *place*, *pace*, and *path* along with *empowering students* to make choices about what they learn and how they demonstrate learning. Additionally, participants experienced a *reality check* that reflected the inconsistencies between their beliefs about blended teaching and personalized learning and what could be realized through their practice.

**Time, Place, Pace, and Path**

Each of the participants identified different aspects of time, place, pace, and path as ways that blended teaching allowed them to support personalize instruction for their students. Time, as a means of engagement and personalization, was rarely mentioned by the participants while path was the element most frequently discussed.

Time and place are strongly connected to one another (Norberg et al., 2011). Generally speaking, during school hours students are in the face-to-face classroom, therefore time dictates the place where students are accessing information and where they are engaging in the learning process. In relation to time, only one participant in this study, mentioned time in the context of student learning. Jeremy noticed that "a lot of kids, if they're absent, they'll go ahead and do the work", by reviewing the materials on his learning management systems and coming back to class prepared to move on.

When Jeremy and Nancy mentioned practices that connected with place, they did so from the perspective of their role as a teacher rather than how students were approaching learning in different spaces and places. Both Jeremy and Nancy saw blended teaching as a way for teaching and learning to continue without them physically in the same space as the students. Jeremy mentioned that he can "put an assignment up on Google Classroom or Canvas…and I know that the students are doing it". Likewise, Nancy acknowledged that "as an ag teacher who's active at state and national levels…blended learning allows learning to go on without me here". Both teachers believed that students could still be actively engaged in learning without them there to facilitate it because the online component of blended learning helps to mediate that.

Pace is the speed at which a student chooses to work through assigned content or materials (Graham et al., 2019; Horn & Staker, 2015). Elements related to pace, much like time, was rarely mentioned in our conversations with the participants. Kathy situated pace as not proceeding with instruction until a foundation is established, "because you're building on a foundation and so if the first level is not ready, why are we moving on to continue to build on the next level?" On the other hand, Nancy discussed pacing in her class as a way for students to self-assess if they needed to review information before moving on, or deciding to advance without remediation. Jill situated pacing similar to Nancy. Jill mentioned that if "my kids that need extra time, they can work on this as slow as quick as they want", but she also maintained some control of student pacing so students did not "move too far ahead". Kathy mentioned pacing more in the context of returning to the post-pandemic classroom, "if they need time, because there are things going on in their life, or their English class has a big assignment due and they need more time. I encourage them to communicate and advocate for themselves."

Path refers to how students choose to learn, how learning is personalized to meet their needs and interests, and how students demonstrate learning (Graham et al., 2019; Horn & Staker, 2015). The participants referred to path more than any other means of engagement. Path encompasses many different ways that students could engage in learning. Each student has

different learning needs and different interests. Jill mentioned that "for one skill, I might give them 10 or 20 different activities that are related to that skill in a year". Kathy recalled a number of examples related to path that included providing accommodations for all students based on their learning preferences, like both digital and handwritten notebooks, assignment menus, revise and resubmit options, and allowing students to demonstrate their learning in a variety of ways. Kathy also discussed that if "students request a printout, I'll print everything out for them so that they can use paper and pencil…there are students who just know themselves. They know that they're going to understand the material better if they can write it out." Kathy goes on to say that "if typing it out is going to be the difference between you being able to communicate that answer or if writing it out is better, then they can take the test on paper." Similarly, Jeremy mentioned that the "personalization piece is more how you want to share with me that you've mastered the material…if you want to create something tangible, a presentation, if you want to work with somebody to do something, I have given more flexibility and how they get to the end product".

**Empowering Students**

Many of the participants believed that students should be involved in making decisions about their education. With focus on personalized learning in the blended classroom and learner-centeredness, students take on a different role than they might in other instructional models, especially those that rely heavily on teacher-centered pedagogy (Ertmer & Ottenbreit-Leftwich, 2010; Hancock et al. 2003; Knowlton, 2000; Krahenbuhl, 2016; Schiro, 2008; Weimer, 2002). One characteristic of the student role in the blended classroom is the ability, or opportunity, for students to be involved in making decisions about their education based on their interests, abilities, and preferences. This is partially accounted for in how students choose to learn while taking time, place, pace, and path into consideration (Horn & Staker, 2015).

Julianne expressed "I do believe in personalized instruction for all students. I believe that each student deserves instruction that will benefit them, not what benefits the majority…it is important for students to have the opportunity to choose how they learn best and to have a choice" Nancy touched on something she has experienced throughout her career as an agriculture teacher, not every student in the same class has the same interests. For her, blended teaching allows her students to find their interest and "voyage on their own learning journey" to "excavate" the knowledge they are interested in. Nancy said "...everyone sitting in an ag business class doesn't have the same interests. Everyone sitting in an animal science class certainly doesn't have the same interest…blended learning allows them to go deep into a content area that they're interested in". Relating her own experiences and her observations of students, Kathy recounted "there's too many classes where I walk in, and kids are just zombies, like not listening, but being obedient...I would love to see a world where students learn what they're passionate about". She proposed that the way to help students overcome a zombified state is to teach them the value of learning by giving them options, helping them find the wonder and curiosity in learning, and putting them in control of their education.

**Reality Check**

Despite the participants discussing the importance they place on the personalization of instruction in their teaching practice, they also recognized the realities of teaching. After

recalling the ways that she provides personalized instruction and learning opportunities for her students, Nancy admitted that "…it's not all roses and skipping through the meadow...but I believe the blended learning piece offers that personalization". Julianne acknowledged the realities of her position and the substantial challenges she faces in delivering personalized instruction to each student. She said "as an agriculture teacher, we teach a lot of students during the school year…it makes personalized instruction hard. It is difficult to meet the needs of every single student." With this Julianne added, "I have learned that I am not going to be the perfect teacher that personalizes every lesson to be individualized to each student sitting in my room, as that would be impossible." Jeremy expressed "...I have five preps every day, and so, from a teacher's sanity standpoint I need everybody to kind of be in that same general area". Kathy touched on the many responsibilities that agriculture teachers take on, like FFA advising, finance oversight, and farm management. "…the reality is I teach four preps, I'm an FFA advisor, I'm handling the accounts, and I've got a herd of sheep out of the farm…". Later in our conversation, Kathy lamented "...I would love to incorporate it every single day. But it's just not possible".

## Discussion, Recommendations, and Conclusion

Participants in this study expressed positive beliefs about the need and desire to incorporate student choice and personalization into their blended teaching practice. Teachers cited that their SBAE programs were uniquely situated to personalize instruction because students build strong relationships with their teachers, presumably through years-long engagement in the program, and through an interest in helping students be successful. This meant tending to time, place, pace, and path – the four means of engagement that support student choice and personalization in blended teaching and learning systems (Horn & Staker, 2015) – along with empowering students to make choices about what they learn and how they demonstrate learning and mastery.

### Time, Place, Pace, and Path

The participants were not asked direct questions about *time, place, pace,* and *path* during our conversations, instead the participants were asked to relate their experiences with supporting personalized learning opportunities for their students through their blended teaching. In relation to *time*, only one participant in this study, Jeremy, mentioned time in the context of student learning. He noticed that when his students were absent, they were reviewing the materials on his learning management systems and coming back to class prepared to move on. Although this is a legitimate connection to the role time plays in the blended classroom, time can and should include so much more than just using blended teaching as a tool to manage absent students. How can student learning extend beyond the school hours for all students, not just students who are absent?

When Jeremy and Nancy mentioned practices that connected with *place*, they did so from the perspective of their role as a teacher and how they manage their classes with technology rather than how students were approaching learning in different spaces and places using blended teaching. Both Jeremy and Nancy saw blended teaching as a way for students to still be actively engaged in learning without a teacher in the classroom; the online component helps to mediate, or manage, teacher absence. Is this a valid point of discussion? Does Nancy make a valid point when she says "blended learning allows learning to go on without me here. You shouldn't have to have me here to learn in a blended learning situation"? Or is blended teaching a solution,

particularly for SBAE teachers who often miss many days for FFA events and other professional activities? Can blended teaching keep students engaged and even when their agriculture teacher is not in the classroom?

When the participants mentioned things related to *pace*, they used words such as "building on a foundation" before moving on and students "self-assess" their needs and understanding. Jill mentioned that although she allows some student choice in pacing, she still maintained some control, so students did not get too far ahead. However, pace is an interesting element of personalization in that it tends to go against what teachers are often asked to do by administrators–create pacing guides and follow lesson plans as a way to manage the learning in their classrooms. Each of the participants casually mentioned state standards, state assessments, and other boxes that had to be checked showing that teachers taught what was required of them. How do state standards and state assessments impact personalized learning? Is the goal to check the box saying all the standards were taught so students were prepared to take a test? Or should the goal be to help students excavate knowledge that is relevant to them, at a pace that creates understanding, that lasts longer than their time in the classroom?

The participants referred to practices related to *path* more than any other means of engagement and each genuinely believed that students should have the option to choose their path of learning. However, despite making some minor references of choice boards, digital and physical notebooks, adjusting an assessment, or being cognizant of IEPs and 504 plans, the participants struggled to describe how they actually accounted for student choice in their learning path. Providing choice boards or altering assignments and assessments are just good teaching practice. And although IEPs and 504 accommodations begin to account for a student's learning path and their individual needs, how much choice does a student have in selecting the path? Is creating a classroom environment where each student receives a personalized education and has the autonomy to make choices about their learning even possible? How many courses lock students into learning, or demonstrating their learning, in ways that are in conflict with how they like to learn or how they learn best?

**Empowering Students**

The participants also shared a belief that students should be involved in making decisions about their education and that blended teaching helped students make those decisions. As the role of the teacher is decentralized in learner-centered classrooms, students are empowered to take on more ownership of their own learning (Horn & Staker, 2015, Knowlton, 2000). Although this is strongly connected to the means of engagement as part of a blended teaching system, the participants moved beyond time, place, pace, and path to make connections to student engagement. The agriculture teachers in this study saw student choice as a catalyst for engaged classroom participation, discovering personal interests and goals, and sparking the desire to voyage on learning journeys. As learner-centered pedagogy is rooted in constructivism, students can be empowered, through blended teaching and learning, to extend their learning journeys beyond the classroom to their communities and surrounding environments to construct their own view of the world around them (Ertmer & Ottenbreit-Leftwich, 2010; Schiro, 2008).

**Reality Check**

The participants in this study provided a variety of evidence that personalization was important to student learning and that blended teaching assisted in providing those personalized opportunities. Despite the agriculture teachers professing a belief that a personalized learning environment for each student was important, there remained some inconsistencies with these beliefs as our conversations progressed. Participants emphasized the realities of teaching within SBAE, their schools, and the present education system more broadly. For example, participants referenced the number of preps they taught, the number of students in their programs, advising FFA chapters, overseeing program finances, and managing school farms as hindrances to fully realizing personalized learning in their classrooms. These reality checks demonstrate that context, in the case of these teachers, is a powerful influential factor when connecting teacher beliefs about personalized teaching to the feasibility of actual classroom practices. The contextual circumstances of many of the agriculture teachers in this study prohibited them from enacting their beliefs regarding personalized teaching in their classrooms. This coincides with what others have presented about the influence context has on teachers enacting their beliefs through their classroom practice (Ernest, 1989; Speer 2005; Wilson & Cooney, 2002). In addition, three of the participants – Julianne, Jeremy, and Kathy – mentioned that they did not have the time to personalize all the learning for all their students. Teachers making all the decisions regarding the personalization of each students' learning is differentiation, and although this is a good practice, doing this for hundreds of students would be exhausting and impossible. If students were allowed to take some control of their own learning instead of teachers arranging everything, could this alleviate some of the pressure from teachers and allow them to support personalized learning to a greater degree?

It is important to note that the beliefs discussed in this paper were drawn from comments made by the participants. The dichotomization of professed beliefs and attributed beliefs are complex, and it is not wholly accurate to categorize beliefs as such due to the many factors that could contribute to perceived inconsistencies between beliefs and practice (Speer, 2005). The personalized component, especially time, place, pace, and path, and how those means of engagement impact student empowerment to make decisions about their learning is complex. It requires buy-in from both the teacher and the learner for it to happen effectively. Additionally, this study did not explicitly explore the contextual influences that impact personalized learning in blended classrooms. However, all the participants in this study discussed contextual factors that they believe assisted or prevented them in implementing personalized learning in their respective blended SBAE classrooms. Therefore, to understand the factors that may contribute to perceived inconsistencies between agriculture teachers' beliefs and practices related to blended teaching, we recommend researchers engage in observational research of personalized learning in blended SBAE classrooms. This could shed light on how time, place, pace, and path are authentically and genuinely being implemented to encourage personalized learning and support student choice in the learning process. This could lead to a greater understanding of the impact of agriculture teachers' beliefs on their blended teaching practice, along with the factors that may lead to inconsistencies. Additionally, researchers should study the contextual factors related to teacher responsibilities and school climate to ascertain the impact context has on the relationship between teacher beliefs and practice in blended classrooms.

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