

Synchronous and Asynchronous Learning Environments of Rural Graduate Early Childhood Special Educators Utilizing Wimba© and Ecampus

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Abstract

This article presents the findings of early childhood special education graduate student's experiences within two distance learning environments. Specifically, this study explored the perceptions of students as they interacted with synchronous and asynchronous learning environments specific to Wimba© and Ecampus. Participants included 18 graduate students at a mid-size, public university in a rural eastern state who were completing a degree in early childhood special education. Data collection methods included transcribed discussion board posts, live class meeting transcriptions, and survey responses. Results suggest that students perceived benefits to both synchronous and asynchronous learning environments. Also discussed are specific learning activities and strategies which students identified as beneficial to their learning experiences.

Keywords: Synchronous Learning Environments, Asynchronous Learning Environments, Graduate Students, Wimba, Ecampus

Introduction

Within the 2004 revisions of the Individuals with Disabilities Education Act, states are, "Required to ensure that highly qualified personnel are recruited, hired, trained and retained to provide special education and related services to children with disabilities" [Section 612(a)(14)(D)]. One way states are preparing early childhood special education (ECSE) personnel is through online learning environments, which have become more available than ever before and are continuing to grow (Allen & Seaman, 2010; 2013; Crawford-Ferre & Wiest, 2012; Skylar, 2009; Stryker, 2011). The opportunity of online courses is appealing to teachers because participation in the class allows them the flexibility to continue working while completing their degree. Other appealing aspects of online courses include geographic, financial, and reduced time limitations (Crawford-Ferre & Wiest, 2012). Due to current technology, instructors are able to emulate the traditional learning activities that take place in the customary face-to-face classroom within online learning environments (Shi & Morrow, 2006; Skylar, 2009; Stephens & Mottet, 2008). An additional attractive aspect of this type of learning environment is the ability to provide higher education options in rural communities.

Online learning can be presented in synchronous, asynchronous, or hybrid learning environments. Synchronous learning environments are those settings where learning is occurring in real time and might incorporate activities such as an instructor lecture, collaborative activities, and student questions. All members of the course are logged on at the same time each class meeting. Asynchronous environments are those settings where the students engage in activities that occur independently from the instructor or other peers. Asynchronous environments might include a review of a pre-created learning module, threaded discussion boards, and/or conversations via email with the instructor or class peers. A hybrid course can take many forms. Some course meetings are synchronous, while other activities are completed independently or asynchronously. Regardless of the synchronicity of the course, the key factor

for students from rural settings is that element of education being offered to students who are not near the traditional, brick and mortar type instruction.

Students have suggested an appreciation of distance learning due to accessibility, technology tools, sharing ideas with other students, flexibility, and interactive tools (Cooper, 2008; Grenzky & Maitland, 2001; Heirdsfield, Walker, & Tambyah, Beutel, 2011; Maushak & Ou, 2007; Sherman, Crum, & Beaty, 2010). Some research suggests online instruction demonstrates more success compared to traditional courses (Angiello, 2010; Angiello & Natvig, 2010; Schrum, Burbank, Engle, Chambers, & Glassett, 2005). Students have identified aspects of online learning that were not ideal including the cost of print, organization of materials, and the time needed to prepare materials (Heirdsfield et al., 2011). Another consideration regarding online learning is completion rates (Hachey, Wladis & Conway, 2013; Patterson & McFadden, 2009). Research suggests students enrolled in online learning environments were more likely to fail or withdraw. Therefore it is important to consider those supports that would enhance student success in online programs.

As exposure to distance learning environments has increased, student perceptions have transformed over time (Levin, He, & Robbins, 2006). Research examining student views suggest both synchronous and asynchronous environments have benefits. Specifically, students have indicated they understood more and performed better when participating in synchronous environments (Skylar, 2009; Ward, Peters, & Shelley, 2010). Conversely, students enjoy the flexibility and the work at your own pace style provided in asynchronous environments.

Additionally, little research is available investigating the specific experiences and perceptions of students using Ecampus and Wimba®, a synchronous, virtual classroom environment with many features including audio, video, application sharing and content display online. The purpose of this research was to explore rural ECSE graduate student's perceptions of synchronous and asynchronous learning environments who were enrolled in a graduate course operating within Ecampus and Wimba®. The questions the researchers sought to answer included:

1. What are rural ECSE graduate student's perceptions of synchronous learning environments specifically related to Wimba® and the tools Wimba® has to offer?
2. What are rural ECSE graduate student's perceptions of asynchronous learning environments within the Ecampus environment?
3. What is the rationale for rural ECSE graduate student's preferences of learning modality?

Method

Grounded theory was used to investigate ECSE graduate student's perceptions of synchronous and asynchronous learning environments. When using grounded theory, the researcher generates an explanation of a process, action, or interaction determined by the views of participants (Creswell, Hanson, Clark, & Morales, 2007); and seeks to describe what is observed through a systematic analysis of data (Patton, 2002). Strategies used to assure research quality and rigor in this study are identified in Table 1 (Anfara, Brown, & Mangione, 2002; Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005).

Table 1.

Strategies Used to Obtain Research Quality and Rigor

Quantitative Term	Qualitative Term	Strategy Employed
Internal validity	Credibility	Data triangulation
External validity	Transferability	Thick description Particularizability Disconfirming evidence
Reliability	Dependability	Audit trail

Quantitative Term	Qualitative Term	Strategy Employed
		Code recode strategy Data triangulation Disconfirming evidence
Objectivity	Confirmability	Data triangulation Disconfirming evidence

Participants

A convenience sample of students in an ECSE graduate program was used. Students enrolled within a specific course, Typical and Atypical Development, from rural settings were invited to participate. Because the purpose of qualitative research is not generalization, "but rather to produce evidence based on the exploration of specific contexts and particular individuals," 18 students participated in this research (Brantlinger et al., 2005), a response rate of 58.06%.

Setting

This study took place within a distance learning environment that embedded both synchronous and asynchronous teaching tools. Students participated in both synchronous and asynchronous environments from home or work settings and were all members of a rural community.

Synchronous environment

The synchronous environment included various learning tools which were used when students met virtually using Wimba®. Wimba® is technology system that allows students and instructors to log into one virtual environment with users from various locations. Tools Wimba® offers that the instructor embedded included poll questions, instant messaging chat, and break out rooms. Poll questions was a tool the instructor used within every live meeting by creating multiple choice, true/false, as well as open ended questions that reviewed content the instructor covered. For example, after the instructor covered various types of disabilities, the instructor asked students to identify which of the choices was the best example of a developmental delay.

Wimba® also offers an instant messaging chat option that can be enabled or disabled. In this class the instructor left the chat feature on and students used this feature regularly to seek clarification or share personal examples. Breakout rooms was a tool used to create virtual, student led small group activities where the students would be assigned an activity by the instructor, but would virtually work with two to three other students to complete the activity. Some examples of activities included scenarios where the students had to identify whether typical or atypical development was present. Using Wimba®, the instructor had the ability to rotate among small groups to monitor and facilitate small group discussions regarding the class activities.

Asynchronous environment

The asynchronous environment included any assignments the student completed independently from their instructor and peers. Within Ecampus, students were provided eight discussion questions where they were asked to respond to a prompt as well as at least two of their peers using content from the class. Questions on the discussion board directly related to class topics such as child development, developmentally appropriate practice, collaboration, and ethical issues. Students were also assigned weekly readings using two textbooks. Eight modules were provided through Ecampus where the student would navigate a power point that ranged from ten to 30 slides. These slides included content, scenarios to illustrate content, and external website resources. Once students reviewed each of the modules, they were to complete a three to ten question quiz related to the module they reviewed. Additionally, students completed five writing assignments including topics related to development, developmental differences, developmentally appropriate practice, and program planning within inclusive environments.

Data Collection

An open ended survey as well as transcriptions of the discussion board and synchronous meetings were used to triangulate data (Brantlinger et al., 2005).

Survey

The two authors created a survey using Qualtrics®, an online survey tool. Participants were provided a link to the survey and were asked to complete it after the course ended. The purpose of the survey was to gain a deeper understanding of student experiences with distance learning. It included five open-ended questions: please describe at least two aspects you enjoyed most about asynchronous environments, please describe at least two aspects you enjoyed most about synchronous environments, please describe at least two aspects you disliked most about asynchronous environments, and please share what environment (asynchronous or synchronous) you feel you learned the most and why.

Discussion board

The discussion board was used to create community and solidify course content through interaction with peers. The first author transcribed participant posts within the learning community, technology forum, and casual corner. The learning community is where students posted information, questions or concerns related to topics and assignments within the class. The technology forum was for students to troubleshoot technology issues by sharing problems and solutions with one another, and the casual corner was a virtual place for students to communicate about any topics they chose.

Live class archives

The four live class archives were transcribed and analyzed for data related to each of the research questions. Each archive was approximately two hours in length and consisted of instructor lectures and interactive activities. Data included verbal exchanges, text exchanges using the chat box, and activities embedded into each class.

Data Analysis

Data from the transcriptions and open-ended portion of the survey were downloaded into an excel spreadsheet the iterations identified in Figure 1 (Miles & Huberman, 1994). Several strategies were used when analyzing qualitative data to maintain research quality and rigor (Brantlinger et al., 2005; see Table 1). Table 2 provides a sample of data analysis.

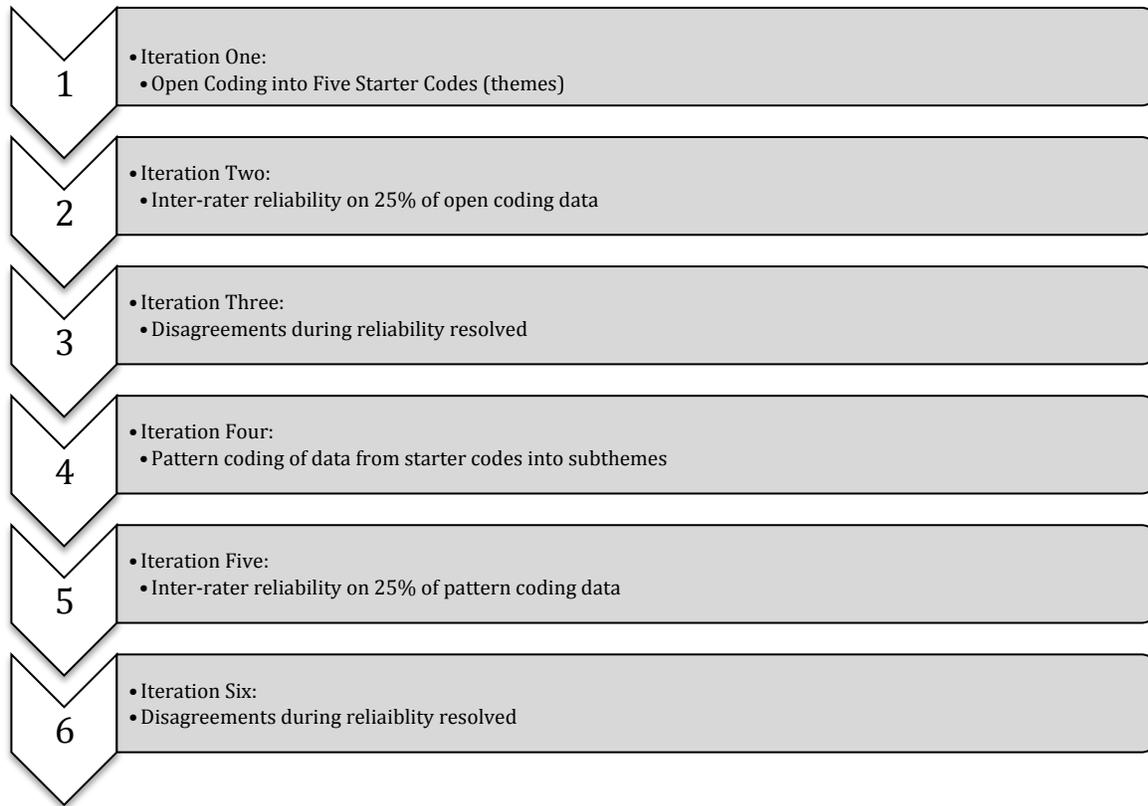


Figure 1. Data Analysis and Iterations

Table 2.

Sample Coding

Original Response	Subtheme	Theme
<i>"I could relate what people said about their own classroom"</i>	Social Presence	Positive Aspects of Synchronous Environments
<i>"I disliked some of the module questions and the length of some of the modules."</i>	Assignments	Negative Aspects of Synchronous Environments
<i>"I enjoyed that I could complete assignments in my own time. I also enjoyed that I could work ahead."</i>	Flexibility	Positive Aspects for Asynchronous
<i>"working online was trying when it was not working properly"</i>	Technology	Negative Aspects of Asynchronous Environments
<i>"I probably learned the most in asynchronous. I spent the most time in that environment, whereas the synchronous environment did not require as much time input."</i>	Increased Effort	Rationale for Preferred Environment

Results

Results include five themes and 16 subthemes. Results are discussed below and summarized in table 3. Table 4 summarizes themes and data sources.

Table 3.

Themes and Subthemes

Positive Aspects of Asynchronous

Social Presence		Flexibility		Assignments	
N	%	N	%	N	%
73	20.4	20	20.4	5	5.1

Positive Aspects of Synchronous

Interactions with Professor		Interactions with Students		Learning Activities	
135	33.1	79	33.1	25	10.5

Negative Aspects of Asynchronous

Assignments		Interactions		Technology	
11	36.7	10	33.3	9	30

Negative Aspects of Synchronous

Technology		Interactions		Logistics	
60	76.9	13	16.7	5	6.4

Rational for Preferred Environment

Social Presence		Learning Style		Increased Effort		Flexibility	
9	47.4	6	31.6	2	10.5	2	10.5

Table 4.

Data and Data Sources

Theme	Survey Response	Discussion Post	Live Class Meeting
Positive Aspects of Asynchronous	X	X	
Positive Aspects of Synchronous	X	X	X
Negative Aspects of Asynchronous	X	X	
Negative Aspects of Synchronous	X	X	X
Rationale for Preferred Environment	X		

Theme One: Positive Aspects of Asynchronous Environments

This data focused on specific aspects that students liked about the asynchronous environment. Students identified social presence, flexibility, and assignments as aspects they enjoyed about the asynchronous environment. Data sources included survey responses and discussion board posts.

Social presence

The data suggest students identified and appreciated a social presence within the asynchronous environment. Seven of the 18 participants discussed interactions they had with the instructor and other students in their survey responses. Sixty-six posts on the discussion board supported social presence within the asynchronous environment.

Social presence in the asynchronous environment was exemplified by exchanges regarding the discussion board. One student illustrated social presence when she stated, "I enjoyed the discussion questions." Students also discussed social interaction among students. For example, one participant explained, "I enjoyed reading the information in posts from classmates that share different professional and personal backgrounds." Another participant said, "I really liked the discussion boards and reading everyone's opinions. It opened my mind a bit and gave me a different view." A participant wrote, "It is wonderful to meet each and every one of you. Believe it or not, I read each introduction on here. I admire the paths you have chosen in working with children with special needs. I can tell, just by your words, that each and every one of you have the passion and drive that I have to help children with special needs. I am looking forward to working with all of you!!!!" Although students were not having a face to face discussion, participants suggested social presence was established among students and with the instructor within the asynchronous environment through a common distance-learning tool, the discussion board. Students indicated that this type of social presence led to discovery of different perspectives.

Flexibility

Participants identified flexibility as a desirable component of asynchronous environments. Thirteen of the 18 participants illustrated flexibility in their responses to the survey when they discussed working at their own pace and on their own time, having time to process information, and producing higher quality work due to flexible time windows. Additionally, seven-discussion posts exemplified flexibility.

Participants frequently identified working at their own pace and on their own time as a positive component of asynchronous learning. One participant stated, "I enjoyed that I could complete assignments in my own time. I also enjoyed that I could work ahead." Another participant illustrated flexibility when she responded, "...working at my own pace, and not having to change my schedule around live class times." One of the participant's post on the discussion board explained flexibility, "I like that I can work on school work while sitting at a soccer practice or dance practice. I have also completed several assignments in my PJ's." It was clear from the responses that participants valued the flexibility aspect of asynchronous environments.

In addition to working at their own pace and on their own time, participants identified a positive quality to the asynchronous environment as having time to process information and thus producing higher quality work. One student said, "Being able to work on course work when I have the time rather than at a specific time...feeling like I can put more time and thought into my responses rather than coming up with something on the spot." Another participant responded, "It gives you time to sit and think about the information when you are not rushed to do so. Unfortunately family and life really can effect your attention during scheduled meeting times." Participant's responses suggest students place value in working at a pace that is conducive to their personal commitments and allows them to produce a higher quality work product.

Assignments

Five of the 18 participants discussed assignments within the asynchronous learning environment. Student preference for asynchronous assignments was exemplified when participants discussed the learning modules and assignments that required them to work in a field placement using real life scenarios. Participants identified learning modules as an expansion of what they learned in class and read in the textbook, "I also liked the learning modules. I learned information that expanded on what we learned in class and in the text." Another participant suggested the assignments that require them to work independently with a child in a field placement as beneficial. This participant said, "...working with an actual child and creating assignments that I can use and help a child." Students implied that learning modules as well as the activities they developed for children in the field placement as aspects they enjoyed about the asynchronous setting. Participants suggested that independent assignments were perceived as beneficial since they add to and enhance their learning from the text and during live classes.

Theme Two: Positive Aspects of Synchronous Environments

Positive aspects of synchronous environments data focused on aspects participants identified as beneficial in synchronous environments. Students identified interactions with other students, interactions with their professor, and learning activities as aspects they valued within synchronous environments. Students appreciated sharing with their peers, interacting with the instructor through questions and answers as well as through the instructor's real life stories, and activities such as discussions, case studies, and information shared during lecture based instruction. Data sources included survey responses, discussion board posts, and live classes.

Interactions with professor

Thirteen participants discussed their interactions with the instructor in their survey responses. One student discussed interaction with the professor within a discussion board post, and 122 exchanges took place during synchronous meetings. Specifically, participants appreciated the opportunity to ask questions and receive answers in real time as well as hearing real life experiences and stories. Students suggested this information led to clarification.

For example, one student identified clarity as an aspect of synchronous environments that she found valuable. She acknowledged the benefit of live conversations with the instructor when she stated, "Having the opportunity to interact with the teacher and having the opportunity for her to explain certain items I was unsure about." One post on the discussion board illustrated interaction with the professor leading to clarity, "Also, all of the professors that I've had so far have been great and are always available to answer questions!" Participants also found the instructor's stories and experiences to be beneficial. One student said, "I liked hearing personal stories and ideas from the instructor." When the instructor finished sharing a personal story during one of the live meetings a student typed via chat box, "I love hearing stories about others children." Student responses suggest clarity was gained through explanations and real life stories during synchronous meetings.

Interactions with students

Seventeen participants suggested they enjoyed discussions with their peers within break out rooms and using chat technology in their survey responses. Sixty-two exchanges occurred during live class meetings supporting data related to interactions with students. One student suggested that breakout rooms led to a feeling of connectivity when she said, "I loved the break out rooms because they helped me feel connected to the other students even though I never met them." Another participant indicated that live class discussions led to concept comprehension when she explained, "I enjoyed hearing other opinions and stories. I remembered/understood concepts and situations more because I could relate a story to it." Students also identified gaining ideas from their peers as a way in which they interacted with other students. One participant suggested placing value in real time conversations with her peers when she said, "Immediate feedback and gaining ideas/strategies from other students..."

One of the exchanges that supported interactions among students took place during a live class meeting when the student shared, "...the things we discussed were the developmental delays, motor development, muscle tone, limited gross motor, behavior issues, emotional control and would need lots of work on positioning, fine motor, cognitive delays, and social skills. One person in our group actually has a sister who had similar issues. Her sister had to have surgery to have shunts, which were very expensive. She also discussed how the shunts became broken and doctor error and how that could cause other delays and regression after surgery. Our group member talked about how her sister regressed after surgery..." Student responses indicated that interactions in real time with their peers are of high value. Participants suggested these interactions led to connectivity, other ideas, and assisted them in maintaining information.

Learning activities

Six participants identified learning activities as positive aspects of the synchronous environment. Additionally, one post on the discussion board and 18 exchanges during the live class meeting composed learning activities data. Learning activities were illustrated when students discussed case studies and lecture based learning. For example, one student said, "I also like the case studies and the different situations we may have to deal with one day." Another student suggested enjoying synchronous

environments due to the sharing of real time information. This student said, "I enjoy this type of learning because you get the information in real time." Data suggest learning activities during synchronous meetings were seen as beneficial due to the information they provided.

Theme Three: Negatives aspects of Asynchronous Environments

Negative aspects of asynchronous environments is the third theme, which describes aspects that students felt needed change within this type of environment. Subthemes include assignments, interactions, and technology. Data sources included survey responses and discussion posts.

Assignments

Assignments were one subtheme that arose within aspects students disliked regarding asynchronous environments. Ten of the 18 participants discussed assignment materials, format of assignments, and type of assignments. One post on the discussion board was also included in assignments data.

One student suggested that some assignment materials were outdated when she said, "Directions for assignments were sometimes outdated and confusing." On the discussion board a student indicated feeling as though the orientation module was not time well spent when she said, "As a side note I have to say I find this orientation model, at this point after having the first session, a waste of time. This would have been great for new comers if it was emailed to us to complete prior to the first class. Most of what it is asking us to do we already did, if following the SPED page suggestions."

Participants discussed the length of modules, the length of reading materials, the length of discussion questions, and number of responses required on discussion questions. For example, one participant said, "I like doing discussion questions, but I do not enjoy them when we have to reply to a large number of them (5 or more) if you are not one of the first ones to post you feel you are being redundant on what the others have already said." Participant responses suggest students place value in popular assignments such as discussions; however, after a certain point these assignments may become monotonous. Responses also highlight the significance of maintaining current materials.

Interactions

Ten students identified interactions as an aspect they disliked within asynchronous environments. This data focused on absence of immediate feedback and wait time. Participants frequently identified desiring an immediate response for a question they might have or someone to share ideas with, both of which were not possible within the asynchronous environment. For example, one participant stated, "If I was unsure of something there was no way to get a quick answer. No one to bounce ideas off of." Another participant explained, "...and it's a longer process to ask questions. You don't have someone guiding you through the material." Students also suggested frustration in waiting for their peers. One student said, "I dislike that other students wait till the last minute on discussion boards, so I have to wait for them to post answers. I also disliked that if I had a question I had to e-mail and wait for a response." Student responses suggest that asynchronous environments do not allow immediate responses or feedback can lead to frustration for students when working in this type of environment.

Technology

Three participants responded to the survey by identifying technology as an aspect they disliked within the asynchronous environment. Six discussion posts also composed technology data. Technology was illustrated through the software within the University Program, service provider of online services, tool bars, and inconsistency with Internet services.

For example, one student said, "Software incompatibility to university online program. Sometimes my service provider was not reliable and made for better planning on my part." Another student said, "Working online was trying when it was not working properly." On the discussion board, one participant stated, "I agree and I too have had many frustrations thus far with the whole university experience in general. I have noticed though that it is very difficult to maneuver between the tool bars. You always have to go back and go into whichever you want then go back to wherever you were previously. I don't remember my masters program I took online being this difficult." It was clear from student responses that technology was an aspect that if not working properly had the potential to lead to student frustration.

Theme Four: Negative Aspects of Synchronous Environments

The data within this theme focused on those aspects of the synchronous environment, which were disliked by students. Subthemes included technology, interactions, and logistics of class meetings. Sources of data included survey responses, discussion posts, and live class meetings.

Technology

Ten participants responded to the survey by suggesting technology was one aspect of synchronous meetings they disliked. Fifty exchanges during the live meeting supported technology as a negative aspect to synchronous meetings. Technology statements were all in relation to restricted participation due to the Internet or Wimba®. For example, one student stated, "I also feel like wimba is a bit disorganized there is always something that doesn't work. The live sessions were great but I was always stressing out wondering if I was going to be able to get on each week." Another student explained that the Internet could create stress due to inconsistency that leads to inability to participate. This student stated, "I disliked internet difficulties (although not anyone's fault) and sometimes the stress of having to participate." During a live meeting one student stated, "I tried using Internet explorer or Mozilla and is anything up on your screen because I am seeing nothing." It was evident from student responses that technology challenges whether systematic or Internet access related created challenges during synchronous meetings leading to student stress.

Interactions

Interactions were an aspect participants identified as something they disliked within the synchronous learning environment. Thirteen participants made statements within the survey related to the way students felt interacting with others in the synchronous environments. Some participants identified feeling uncomfortable when sharing with others. One participant stated, "I do not like to talk in front of anyone (even if they don't know me/can't see me) it causes me a lot of anxiety especially when I'm called upon to discuss topics and situations that I'm very new to. I also didn't enjoy the breakout rooms. I do not like to talk and I always seemed to be in a room where other people REFUSED to talk." Another student explained, "I disliked that sometimes I felt lost and afraid to ask a question, the text box does help though. I feel that a lot of the students are already teachers and have a lot of background knowledge, I am not a teacher yet so I miss out on some things. The breakout rooms were good and bad. I liked hearing other student's thoughts and opinions but sometimes they were shy and didn't participate." Participant responses suggest that students have various comfort levels in sharing information in the synchronous learning environment. Although some students find it beneficial to interact with their peers, other students perceive these experiences as uncomfortable and stressful.

Logistics

Logistics were an aspect of synchronous learning environments that three participants identified as challenging on the survey. Two discussion posts were also included in logistics data all of which were in relation to the schedule. For example, one participant explained, "The time that the class was scheduled for. With having children in activities it was difficult some weeks to log in on time." One of the participants stated on her discussion post, "...being 3 time zones away from the location of classes can be a slight pain for doing live sessions but I have managed so far." These live synchronous meetings for this specific class were offered during the evening hours that some participants identified as challenging.

Theme Five: Rationale for Preferred Learning Environment

Theme five related to the rationale for student's preferred learning environment. The subthemes within this theme are organized by the rationale regarding the environment the student indicated preference and are described. Data were analyzed into the subthemes of social presence, learning style, increased effort, and, flexibility. The data source was the survey.

Social presence

There was a divide in how participants viewed social presence in the course. Some participants enjoyed and felt learning was enhanced by interactions with peers and the instructor, while other participants were frustrated by similar interactions.

Social presence within synchronous environments

Seven participants discussed social presence within synchronous environments. The data within social presence leading to a preference for the synchronous environment was related to interactions with peers and the instructor of the class. For example, one student stated, "I like the lecture aspect of live class and being able to ask questions to clarify something." Another student indicated, "If I had to chose, I would chose synchronous because I liked relating things to situations and stories and having other student's thoughts and opinions." Students suggested preferring synchronous environments due to the social presence as this provided clarification and connectivity to others.

Social presence within asynchronous environments

Two participants indicated social presence led to a preference for the asynchronous environment. These comments were both positive and negative aspects to social presence. One student said, "Also, sometimes during live sessions, the topics can go off on a tangent and not necessarily on something that is of value to myself." This student suggested enjoying asynchronous as this allowed the student to stay focused on information that pertained to her. The second statement was positive, "When working alone I learned from other classmates and their posts and discussions." This student indicated a social presence exists in the asynchronous environment through the discussion board that creates a preference for that type of learning environment.

Learning style

Learning style was something that six students identified as dictating their preference for synchronous or asynchronous environments. Learning style led to student's preferences for synchronous and asynchronous environments.

Learning style within the synchronous environment

Three participants made statements in reference to hearing the information and retaining more information due to the nature of this type of environment. For example, one student stated, "I feel that I learned more during the synchronous environment. I do well when I have someone telling me information and explaining what I have read instead of me just reading everything and trying to pick out what information is important." Another student was in agreement, "I feel like I learn better when I hear the information rather than just reading it." Student responses suggest that these participants preferred the synchronous learning environment because hearing the information was beneficial to their learning experience.

Learning style within the asynchronous environment

Three participants discussed learning style leading to a preference for the asynchronous environment, referencing a distraction free environment and real life experiences. One participant stated, "I prefer the asynchronous environment because I like to work at my own pace and don't feel distracted by trying to stay engaged in what everyone else is discussing." Another student expanded on this topic when she explained, "I prefer doing the work and discussion questions in an asynchronous environment rather than the activities and break out rooms of live classes because I am more comfortable having time to think about what to say and not having to talk as much over the computer." The final statement was in reference to the assignments and finding value in the real life experiences. The student said, "I feel I learned the most in the asynchronous environment because the assignments were very valuable and I used in it real life experience, but ultimately the real life usage of the assignment were most valuable for me."

Increased effort

Two students identified increasing their effort in the asynchronous learning environment and thus suggesting a preference for this type of environment. These were statements made in reference to the amount of time spent in the asynchronous environment and this environment provided opportunities to research independently. One student said, "I probably learned the most in asynchronous. I spent the most time in that environment, whereas the synchronous environment did not require as much time input." Another student explained a preference for the asynchronous environment when she said, "Asynchronous because I have always liked to do research on my own." Students identified feeling an

increase in effort in the asynchronous environment due to spending more time in that environment or completing independent research. The increased time and independent research suggest that students felt a higher level of effort and thus preferred the asynchronous environment.

Flexibility

Two students identified preference for the asynchronous environment due to a feeling of flexibility. These students suggested that asynchronous environments contained no time constraints, creating more flexibility and led to a preference for this type of environment. One student stated, "Asynchronous. I felt as though I work more efficiently without the time constraints. As a working mom its difficult to have your family taken care of and be able to go on for class promptly. I work well when I have free time in the late evening and weekends. I would love a Saturday morning online course! 8- 10AM." Another student said, "With asynchronous I could take my time and really study the material that was presented." Students explained that the asynchronous setting was their preferred learning environment due to limited time constraints.

Discussion

Results suggest students differ between their preferences for an asynchronous or synchronous learning environment and what each of these environments has to offer when using tools such as Wimba© and Ecampus. These findings support the current literature by suggesting ECSE graduate students perceive benefits to a range of synchronous and asynchronous learning tools, and add to the literature by providing ECSE graduate students' perceptions of utilizing tools for synchronous and asynchronous learning environments that are suggested in the literature (Balkin, Buckner, Swartz, & Rao, 2005; Guthrie & McCracken, 2010; Liu, Liu, Lee, & Magjuka, 2010; Osman, 2005; Tee & Karney, 2010). Furthermore, these findings provide student perspectives of collaborative opportunities with their peers which is an additional practice that shows promise in enhancing student outcomes (Balkin et al., 2005; Tee & Karney, 2010).

Students highlighted proponents of synchronous and asynchronous learning environments that provided a positive learning experience. Using qualitative methodology, a richer description of the students' experiences and involvement in both methods of instructional delivery was identified. The students were able to clearly articulate specific aspects of synchronous versus asynchronous that enhanced or impeded their learning. For example, students felt their ability to interact with readings and field experience, reflect, and then respond provided them with a better overall performance of the information they gained. Most felt that during the synchronous classes, the need to respond quickly and efficiently took precedence over a more thoughtful and reflective response provided in asynchronous activities.

Given that this class was comprised of graduate students – many currently teaching with families of their own, the flexibility of course activities completed on their own was viewed as highly important. Additionally, students at the graduate level were required to complete field experience activities within a classroom setting. For those having their own classrooms, the students were able to complete the activities with limited difficulty. Moreover, if students were not already in placements and had to find time for both a field placement and synchronous class sessions, the issue of lack of flexibility could be paramount. Further, the fact courses were presented at a distance and designed at the onset to support their learning, assisted students from rural settings to not only access higher education options, but to thrive.

Also, since students were completing assignments in their own classrooms, there was a strong connection from research to practice. Students were able to refine their skills and new learning in their own classrooms with learners they knew and then come back to the higher education class and reflect on the impact of their instruction or implementation of a course activity. Therefore, students were highly vested in the outcomes of the assignments beyond simply the grade received. For example, one student wrote, "...the assignments were very valuable and I used it in real life."

The students were mixed as to how they received feedback. Some appreciated the immediacy of the feedback provided during the live classroom session because issues or concerns could be readily addressed and changes could quickly be made to their classrooms as needed. Alternatively, some students still preferred having additional time to reflect and not "talk so much on the computer."

One aspect the students agreed upon regardless of their preferred delivery mode was the belief that the practical application of the assignments were valuable and relatable. Students enjoyed feedback from their peers, "...could relate to what people said about their own classrooms" and "I liked hearing personal stories and other people that work in the field." Also, feedback from the instructor was an important factor to the students, "...getting input from professor about issues in classrooms and with students and speaking live with professor."

There were positives and negatives to online instruction. In fact, students were clear that there were aspects that were beneficial in both synchronous and asynchronous environments. Therefore, further review of the 'why' those aspects are viewed as most important are critical for future course development. Likewise, aspects of either environment that were viewed as negative need to be examined in a systemic and methodical way to determine how those negative aspects can be modified to actually support student learning. Fortunately at the heart of each student's response was the desire to learn and to increase their effectiveness in their field of study. We are now teaching digital natives and their ability to interact with a variety of teaching modalities creates a certain level of student expectation. Graduate students have learned how they best learn and they are seeking such experiences in the courses they take.

Implications for Practice

It is important to note that qualitative data should continually be generated as student perceptions and experiences change as does technology tools being offered. Because of this, programs should continually be evaluated in order to determine strengths and elements in need of change as they relate to student learning experiences. While keeping this fact in mind, when developing programs designed for educators in rural settings, creating a platform for success with potential technology implications is crucial.

These combined findings in research have implications for teacher educators related to learning tools in both synchronous and asynchronous learning environments. For example, tools within the asynchronous environment students identified as beneficial included the discussion board, learning modules, and assignments based on real life experiences. Aspects that students identified from synchronous environments using Wimba© included break out rooms, chat technology, case studies, live lectures, and time for questions as well as sharing of real life examples.

Students were also able to identify learning barriers that provide teacher educators with information when developing distance education courses. In the asynchronous environment these are related to providing updated materials and considering the length of time it will take for students to complete modules, readings, and discussion questions. Other barriers within the asynchronous environment were related to the amount of time it takes for students to receive feedback. Technology incompatibility was an aspect students identified as a barrier in both synchronous and asynchronous learning environments. In regard to learning barriers within synchronous learning environments, students identified feeling uncomfortable with interacting in the live environment and identified logistics such as time and time zone differences as aspects to consider when developing distance learning courses.

It is clear that student preferences for synchronous and asynchronous environments using Wimba© and Ecampus is based on several factor (e.g., social presence, student's learning style, education to learners at a distance). Therefore a final consideration in developing distance-learning courses is related to knowing the students and tailoring instruction to meet their diverse needs.

Conclusions and Future Research

Although not the purpose of this article, the sample size of 18 is small which makes it quite challenging to generalize these findings to a larger population. Further, the participants were from one cohort of rural educators in a class in the area of early intervention/early childhood. It is important to remember the purpose of qualitative research is to gain a deeper understanding of experiences, and therefore generalization is not the purpose of this research. Rather this research serves as a resource related to synchronous and asynchronous course development for faculty in higher education settings.

Online graduate programs are a growing form of learning and a growing population of learners due to increased certification requirement. Therefore, there is a need to continue to explore alternative learning environments to ensure we are graduating and certifying high quality learners. By creating learning environments that highlight the positives of both teaching modalities as well as addressing and perhaps

ameliorating the negatives, we can expect learners to participate in a high quality-learning environment that will meet a majority of their needs as a learner. As faculty, we alter face-to-face classes to meet the diverse needs of our postsecondary students, and likewise, the same is necessary within virtual learning environments. Developing strong programs and educational experiences for teachers in rural setting is essential given the limited resources and technology in rural households. Higher education settings must create environments that support and challenge educators in such rural classrooms.

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