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An Investigation of Faculty and Undergraduate Students' Beliefs about Student Engagement Activities in Online Courses

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Abstract: Past research suggests that student engagement, interaction, and collaboration in online learning environments have positive effects on both student satisfaction and students' perceived learning (Eom, Wen, & Ashill, 2006; Gray & DiLoreto, 2016; Swan, 2001; Thurmond & Wambach, 2004). Although there is evidence of the importance of student engagement and interaction, there is little support of specific engagement and interaction strategies successfully implemented in online courses. Furthermore, faculty members' beliefs about the use of engagement strategies in online courses is lacking in the literature. Using the *Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1987) as a guide for effective engagement strategies, the researcher collected data from both students completing online courses and faculty teaching online courses to investigate the beliefs about the level and type of engagement activities embedded within online courses. Results indicated a statistically significant model for both student satisfaction and perceived learning with instructor presence accounting for the majority of the variability in both satisfaction (R^2 = 0.869) and perceived learning (R^2 = 0.863). Although instructor presence accounted for most of the variability in both student satisfaction and perceived learning, findings from course observations and faculty interviews illustrated that this engagement rarely occurred in these classes. These findings suggest additional research about engagement strategies in online courses is needed.

Keywords: Student engagement, Active learning, Student satisfaction, Perceived learning

Introduction

Obtaining a degree through an online program appeals to many students for many different reasons (Columbaro, 2014; Lemoine, 2019). According to Holzweiss et al. (2014), "Online learning has become such an essential part of higher education that 66% of institutions include online learning as a critical part of their long-term strategy" (p. 311). With the increase in enrollment in online courses and programs, an understanding of the factors that impact students' satisfaction and student learning outcomes can help bolster the effectiveness of online courses and programs at colleges and universities (Jaggars & Xu, 2016; Lemoine et al., 2019; Paulsen & McCormick, 2020; Preuss et al., 2023). Past research indicates varying results as to which factors impact both student satisfaction and perceived learning. Eom, Wen, & Ashill (2006), Baber, H. (2020) found that course structure, instructor feedback, self-motivation, learning style, interaction, and instructor facilitation significantly impacted student satisfaction. However, they found that only instructor feedback and learning style significantly affected perceived learning outcomes and that student satisfaction significantly predicted learning outcomes. Gray and DiLoreto (2016) concluded that course structure and organization, learner interaction, instructor presence, and student engagement significantly impacted both student satisfaction and perceived student learning. Although there is evidence of the importance of these relationships, there is limited evidence to support specific engagement strategies used within undergraduate courses that are tied to student satisfaction and perceived learning gains.

Purpose

This study sought to explore both student and faculty beliefs about engagement and interaction in online learning environments and to obtain information about the amount and type of student engagement that occurs in undergraduate courses taught online.

Literature Review

Research indicates that there are relationships among various factors that impact both student satisfaction and perceived student learning. Paulson and McCormick (2020) found that face-to-face learners reported more student satisfaction with their courses than their online peers. According to the researchers, the differences in student satisfaction were due to more peer collaboration along with the presence of better faculty interactions among face-to-face learners than among online learners (Paulson & McCormick, 2020). Past research also indicates the importance of student engagement and how that engagement impacts student satisfaction and perceived learning; however, there are multiple definitions of student engagement. Most definitions support the notion that engagement includes some aspect of affective components including students' attitude, personality,

motivation, effort, and self-confidence (Mandernach, Donnelli-Sallee, & Dailey-Hebert, 2011; Mercer and Dörnyei, 2020; Mercer et al., 2012; Mercer and Dörnyei, 2020; Amerstorfer, C. M., &Freiin von Münster-Kistner, C., 2021). Additionally, multiple studies point to interpersonal interactions as a main component of positive student engagement (Jaggars & Xu, 2016; Lemoine et al., 2019; Paulsen & McCormick, 2020; Preuss et al., 2023). Furthermore, research has suggested that student engagement in online learning environments can increase learning gains (Hu & Kuh, 2001; Kuh & Hu, 2001; Kuh & Vesper, 2001) and that active learning is an important factor in student engagement (Dixson, 2010). However, there is little evidence that supports that there is one particular mode of engagement related to active learning, although research points to faculty relationships with students, student-to-student connections, course design and functionality, student behavior and characteristics, and academic challenge as factors that students reported are important themes that increase their engagement (Dixson, 2010; Jaggars & Xu, 2016; Lemoine et al., 2019; Parker 2015; Paulsen & McCormick, 2020; Preuss et al., 2023).

Past studies about student engagement in online learning environments suggest that as the expectation for students to work in collaborative settings with classmates increases, their beliefs about the level of engagement in their learning increases (Thurmond & Wambach, 2004; Duderstadt, Atkins, &Hoeweling, 2002; Martin, F., & Bolliger, D. U., 2018). According to Jagger and Xu (2016) working collaboratively helps build learning communities that "encourages critical thinking, problem-solving, analysis, integration and synthesis" (p. 273), while supporting a deeper cognitive understanding of the material for learners. Research also suggests that students who actively engage in the learning process report an increase in both student satisfaction (Gray & DiLoreto, 2016) and persistence (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008). Part of this active engagement includes making sure that students understand the expectations, organization, and structure of the course (Holzweiss et al., 2014). According to Lemoine et al. (2019), when students are engaged, they lose motivation, self-discipline, and self-direction. The *Seven Principles for Good Practice in Undergraduate Education* outlines the principles aligned to engagement indicators (Chickering & Gamson, 1987). The seven principles are: student-faculty contact, cooperation among students, active learning, prompt feedback, time on task, high expectations, and respect for diverse talents and ways of learning. In addition to these engagement principles, setting clear expectations for performance and clearly articulating those expectations are positively correlated with student satisfaction and student learning (Astin, 1993; Swan, 2001, Kujala et al., 2017; Sears et al., 2017; Keane, T., 2022; Linden, T., 2022; Hernandez-Martinez, 2022; P., Molnar, A., 2022; &Blicblau, A., 2022).

Retention in online programs remains an ongoing issue for educators. Research has shown online learners "have a 20% higher attrition rate than traditional campus students" (Lemoine et al., 2019, p. 30). Research also points to several possible reasons for the higher attrition rates among online learners including student beliefs about their engagement (Jaggars & Xu, 2016; Lemoine et al., 2019; Paulsen & McCormick, 2020; Preuss et al., 2023). Therefore, as funding for higher education continues to decrease and enrollment of online learners continues to increase, it is imperative that institutions of higher education retain their students. As such, exploring the relationships between student beliefs about their engagement in online learning environments, faculty beliefs about various engagement strategies they employ within their courses, and a review of the activities embedded within courses, can assist educators with targeting specific activities that increase student engagement so they can embed those activities in other courses. These practices, according to past research, are more likely to increase students' perceived learning, improved student satisfaction, and ultimately increase student persistence.

This study aimed to build on past research about student engagement, student satisfaction, and perceived learning. Using the Student Learning and Satisfaction in Online Learning Environments (SLS-OLE) (DiLoreto et al., 2022; DiLoreto & Gray, 2015) to measure the relationships between student engagement and perceived learning in graduate students, the researcher collected evidence to determine if the results elicit similar-to findings when applied to undergraduate students. Furthermore, the researcher obtained access to five undergraduate online courses to determine if the reported beliefs of undergraduate students align with the principles of engagement activities found in these five undergraduate courses. Finally, the instructors of the five undergraduate courses were interviewed in order for the researcher to obtain their beliefs about the engagement activities used in their courses. Semi-structured interviews were completed by the researcher with the instructors of the five courses. The qualitative findings provided by the instructors, along with the information obtained from reviewing their online courses were compared to the quantitative results collected from undergraduate students regarding their perception of the type and level of engagement they report experiencing in their undergraduate program. The following research questions were explored through this concurrent mixed-methods study.

Research Questions

1. What is the impact, if any, of course structure/organization, learner interaction, instructor presence, and student engagement on student perceptions about their satisfaction?
2. What is the impact, if any, of course structure/organization, learner interaction, instructor presence, and student engagement on student perceptions about their learning?
3. What types of activities do faculty include in their online courses to ensure active learning and student engagement?
4. What are faculty members' beliefs about the engagement strategies they employ in their undergraduate, online courses?

Methodology

Sample

Data were collected during the spring 2019 semester from undergraduate students enrolled in online, pre-service teacher preparation courses during the fall semester of 2018. Data were also collected from five faculty members who taught those undergraduate, online students. In addition, observational data were collected from a review of each of the online courses that were completed by the students and taught by the faculty members. Of the 163 students that were invited to participate, 48 began the questionnaire housed in the Qualtrics Research Suite survey online. In order to maintain anonymity, the advisor for the education programs sent an email request soliciting participation from students. Participants who completed at least 95% of the questionnaire were kept in the quantitative analyses. Multiple regression procedures were used to replace missing values for two missing items. The research included a total of 42 student participants' completed responses in the final quantitative analyses of the data.

Student Participants

Undergraduate students enrolled in a minimum of one online course during the fall 2018 semester and the faculty members who taught those students were invited to participate in this study. Purposive sampling methodology was utilized as the five different online courses were selected as part of this study because those courses are regularly taught by the same faculty members, they were offered that particular semester, and they had the highest enrollment of the online courses available. The study was delimited to students pursuing a bachelor's degree in a pre-service teacher preparation program and faculty members who teach online courses in those pre-service teacher preparation programs offered at a medium-sized regional university located in the southeast. In addition, a review of the courses was also conducted by the researcher.

A total of 42 student participants completed the 34 Likert-item SLS-OLE questionnaire. The ages of the majority of participants range from 21 years of age to 30 years of age (55%). Thirty-three percent of the participants are aged between 31 and 40. The age of the remaining 12% of participants is 41 or older. Participants reported five states of residency with Florida being selected most often (74%). Three programs of study were reported by participants. The majority of the participants (72%) are pursuing a degree in exceptional student education (ESE). Fourteen percent of student responses included elementary education as their program of study. Six percent indicated informal education as their program of study. Approximately eight percent of the respondents indicated "other" as their program of study. Various reasons for selecting their program of study were reported. Forty-four percent indicated that the program aligned with their career goals and 42% selected online as their primary reason for selecting this program of study. Other reasons provided included the content (2%), location to campus (4%), and other (8%). Sample reasons for selecting "other" include not passing the required entrance exam for first program of choice, and one indicated that he/she did not know what to choose so he/she selected Exceptional Student Education (ESE). The majority of the participants are fairly new to their program of study as 77% of respondents had at least one year of coursework remaining in a two-year program. Twenty-three percent of participants had less than a year remaining in their program.

Faculty Participants

Five faculty members with positions including both tenured and non-tenured roles participated in the study. Faculty participants reported a range of three to fifteen years of experience teaching online courses. In all cases, faculty reported that the majority of their recent teaching assignments are online. Three of the five faculty participants indicated that approximately 66% of their teaching assignment includes online courses. The other two members reported that approximately 75% of their recent teaching assignments are online courses. One faculty participant indicated that he/she did not complete any formal training in teaching online, but the remaining four participants indicated that they have had some form of formal training with Quality Matters being the most frequently reported formal training that they received. All five faculty participants reported that

they have created a minimum of one course online and they have all been required to significantly revise the curriculum and/or layout of at least one online course that they have taught.

Procedures

This study employed a concurrent triangulation mixed-methods design. Concurrent triangulation methods are used as a means to corroborate findings from both quantitative and qualitative data collection (Creswell, 2018). Data were collected concurrently from undergraduate students and faculty members who teach those students in order to corroborate findings from each group. The researcher used the existing SLS-OLE scale (DiLoreto et al., 2022; DiLoreto & Gray, 2015) to collect quantitative data about student satisfaction and learning outcomes from those students who completed their courses online. Semi-structured interviews with faculty members who taught those same undergraduate students were used to elicit their beliefs about various engagement activities they promoted within their courses. Finally, a review of those faculty members' undergraduate, online courses was completed by the researcher. The researcher specifically looked for practices associated with the seven principles of engagement defined by Chickering and Gamson (1987).

Instrumentation

The SLS-OLE (DiLoreto et al., 2022; DiLoreto & Gray, 2015; Gray & DiLoreto, 2016) was used to collect data from student participants. A positively-packed, six-point rating scale was used in an attempt to elicit data that did not violate the assumption of normality and to elicit more variability in responses. Positively-packed rating scales have been developed and used to increase variability in responses when there is a fundamentally positive perspective on the topic (Brown, 2004; Hancock, & Klockars, 1991; Klockars, & Yamagishi, 1998). Sample items from the questionnaire include: "Student learning outcomes are aligned to the learning activities", "I communicated often with other students within the course", and "I frequently interacted with my instructor of this course" (DiLoreto et al., 2022; DiLoreto & Gray, 2015).

Semi-structured interviews were conducted to elicit responses from faculty participants. Additional prompting was used to clarify or obtain additional details. Each interview lasted approximately 40 minutes and interviews were audio recorded. It should be noted that the researcher is a colleague of each of the faculty participants. Thus, it is possible that responses were impacted by this professional relationship. As such, the researcher provided an option of opting for an unknown interviewer to each faculty participant; however, each faculty participant declined this offer and agreed that his/her responses would not be impacted by his/her personal knowledge of the researcher. The researcher utilized interview notes and transcripts of the interviews to determine common themes among the participants' statements.

Finally, observational data were collected using a researcher-created tool that aligned the SLS-OLE (DiLoreto & Gray, 2015) factors and Chickering and Gamson's (1987) principles of engagement. During the course reviews, the researcher specifically sought evidence of the seven principles of engagement that were aligned with the factors included on the SLS-OLE found in each of the courses (see Appendix C).

Quantitative Analysis

Descriptive data for each of the factors measured by the SLS-OLE (DiLoreto et al., 2022; DiLoreto & Gray, 2015) are summarized using the means, standard deviations, and estimate of reliability for each variable and reported below (see Table 1). Seven negatively-worded items (4.2, 4.3, 5.2, 6.5, 7.2, 8.2, and 9.3) were recoded and two items (9.1 and 9.2) were imputed using multiple regression procedures to replace one piece of missing data for each case. Next, the impact that each independent variable has on each dependent variable was analyzed and shared below.

Overall, student participants rated the item, "I had the opportunity to introduce myself to others in the class" the highest on the questionnaire (M = 5.55). Conversely, students rated the item, "I received ongoing feedback from my classmates" as the lowest on the questionnaire (M = 3.26). Item level statistics are illustrated in Appendix D.

Table 1: Descriptive Statistics

	N = 42		
Constructs/Factors	Mean	SD	α
Course Structure/Organization	5.22	.79	.64
Learner Interaction	4.20	1.05	.85
Student Engagement	4.51	1.02	.64

Instructor Presence	5.04	1.06	.86
Student Satisfaction	4.98	1.16	.91
Perceived Student Learning	4.90	1.27	.93
Overall Scale	4.78	.90	.95

Results

Past research suggested that both student satisfaction and perceived learning are impacted by course structure, learner interaction, and instructor presence in graduate education. Furthermore, it should be noted that past research has demonstrated that student engagement is a mediating variable (Gray & Diloreto, 2016). This study explored the impact that course structure, learner interaction, instructor presence, and student engagement have on student satisfaction and on perceived learning in undergraduate, online education programs of study. Student satisfaction and perceived learning served as the dependent variables and were regressed on four independent variables known to influence these outcomes. The independent variables used in these analyses were: course structure, learner interaction, instructor presence, and student engagement.

Research Question #1

What is the impact, if any, of course structure/organization, learner interaction, instructor presence, and student engagement on student perceptions about their satisfaction?

Multiple regression procedures were employed to determine the impact the four independent variables had on student satisfaction. Upon ensuring no violations of assumptions required for regression procedures, the researcher analyzed the variance explained by the independent variables on the dependent variable of student satisfaction. The overall model was statistically significant ($F(4, 37) = 61.186$, $p < 0.001$). The overall model accounted for ~87% of the variability in student satisfaction ($R^2 = 0.869$) (See Table 2). This means the independent variables, when considered simultaneously, could be used to explain ~87% of the variability in student satisfaction. It should be noted that in this model, only instructor presence has a significant impact on student satisfaction. This one variable accounted for nearly all of the variance explained in the dependent variable.

Table 2: Regression Coefficients for Student Satisfaction

	B	*SE B*	β
Constant	-.589	.513	
Course Structure/Organization	.040	.122	.027
Learner Interaction	.122	.094	.110
Student Engagement	.115	.099	.101
Instructor Presence	.858	.105	.788*

Notes. $R^2 = .87$. *$p < .001$

Research Question #2

What is the impact, if any, of course structure/organization, learner interaction, instructor presence, and student engagement on student perceptions about their learning?

Multiple regression procedures were employed to determine the impact the four independent variables had on students' perceived learning. The researcher analyzed the variance explained by the independent variables on the dependent variable of perceived learning. The overall model was statistically significant ($F(4,37) = 58.201$, $p < 0.001$). The overall model accounted for ~86% of the variability in student satisfaction ($R^2 = 0.863$) (See Table 3). This means the independent variables, when considered simultaneously, could be used to explain ~86% of the variability in their perceived learning. Similar to the answer to research question #2, only instructor presence has a significant impact on perceived learning. This one independent variable accounts for the majority of the variance in the dependent variable of perceived learning.

Table 3: Regression Coefficients for Perceived Learning

	B	*SE B*	β
Constant	-1.3	.573	24
Course Structure/Organization	.073	.136	.045
Learner Interaction	.206	.105	.170
Student Engagement	.142	.111	.114
Instructor Presence	.862	.118	.724*

R^2 = .86. *p < .001

Qualitative Analysis

Research Question #3

What types of activities do faculty include in their online courses to ensure active learning and student engagement?

The researcher conducted an observation of each of the five courses taken by the participants who were included in the study. Throughout the observation, the researcher noticed several specific strategies that were employed in order to ensure active learning and student engagement. Some specific examples include:

- Employing synchronous question-and-answer sessions;
- Utilizing hands-on activities related to virtually exploring various places related to the arts;
- Using multiple forms of technology (i.e., interactive websites, virtual tours of various geographical locations, games, video development, narrated presentations, etc.)
- Having students watch interactive presentations created by the instructor;
- Having students view outside videos that cut across multiple content areas;
- Including transcripts for students to read in addition to watching videos;
- Requiring assignments to be completed with other students or in a classroom setting;
- Using flexible due dates to accommodate individual student needs;
- Requiring students to reflect on what they've learned, how the content applies to their chosen profession, and what they would still like to learn; and
- Utilizing course discussion boards for question and answers.

Although several pieces of evidence of engagement and active learning were found in the courses, some courses were missing items that have been identified as best practices for engaging students (Chickering & Gamson, 1987; Kuh 2001). In three courses, there were no audio or visual synchronous sessions or recordings from the instructor of the course. This means that the students will neither see nor hear their instructor's voice throughout the entire semester. This is in direct opposition to what past research has shown about the importance of instructor presence and faculty-to-student contact (Chickering & Gamson, 1978; Gray & DiLoreto, 2016). Additionally, three courses included no requirements for students to reflect on what they learned, how to connect what they learned to the real-world, and/or what they still need to know. In one course, student reflections were required; however, they were not shared with other students. Instead, they were shared with only the instructor of the course. In another, reflections were not required; however, the instructor noticed that students inherently did reflect in some of their assignments.

Research Question #4

What are faculty members' beliefs about the engagement strategies they employ in their undergraduate, online courses?

Responses to student engagement in online courses

Participants were asked about their personal definition of student engagement. All five faculty participants reported activities associated with the students. For example, one stated, "Where students can engage and participate. Doing more than the minimum requirements. Students interact with each other, with the content, and with me." Another stated, "Engaged with content – interactive content videos and websites; more than reading. Engaged with each other through discussions. Engaged with the instructor by the instructor providing constructive feedback and allowing them to build on drafts." Two faculty participants were less precise. For example, one stated, "Still working out what this means. Student's individual commitment to the material – more than what I have to turn in but more how do I interact. I have to make them do something to get

them engaged." Another indicated, "Unfortunately, because of the way of our courses, they aren't very dynamic. They're too static – for example discussions. Engaging in discussions is engaging. About 10% respond to about 10 people every discussion thread but about 70% is just lip service. I would love for the opportunity for online students to get together to talk."

The faculty participants were asked about strategies they believe they employ to engage students. Three of the responses included hands-on and real-world examples. For example, one faculty member stated, "Hands-on science activities – I encourage them to do the activities with someone else. I try to highlight relevance and make a connection between what they'll do with the information or why it might matter." Another reported, "I provide relevant videos of different ages of students in real classrooms." Another stated, "They have hands-on. . .journals for required readings." In addition, to the hands-on and real-world references, three of the five faculty members use either live sessions to describe assignments, content, expectations, etc. or videos/narrated PowerPoints explaining the information.

Responses to active learning in online courses.

When asked about the meaning of active learning, all five faculty participants focused on what the student does instead of what the instructor does as was the case when asked about student engagement. Example responses of the meaning of active learning included, "It's tied to the students themselves – if they're interested, they'll actively learn." Another stated, "…students take a role and initiative. They go beyond the minimum requirements and they take initiative by answering questions of their peers or taking a leadership role." A third participant indicated, "… applying what they've learned – action is students' part." Finally, one faculty member indicated that it's hard to promote active learning in online courses because he/she believes that it is more passive learning and that a lack of facilitation makes it difficult.

The faculty participants were asked about the strategies that they believe they employ to encourage active learning. All of them reported various assignments or activities they embed within their online courses. Specific examples included items that were described for the question related to student engagement. For example, one faculty participant indicated that he/she uses narrated PowerPoints and has students watch videos. Another indicated that he/she uses hands-on activities in his/her course. Another described various assignments and indicated that the assignments are sequenced and practical.

Chickering and Gamson (1987) provided examples of active learning that included student reflections about what they learned, relating what they learned to past experiences, and applying what they learned in their daily lives. Faculty participants were asked about strategies they employ or assignments that they require in their courses that relate to students sharing what they've learned either in writing or verbally. One faculty member stated, "This is sometimes seen in discussions; but, it is not required. They do respond to reflection prompts in one assignment (metacognition) and they think about the teaching practice and they submit to the instructor." Another indicated that students reflect on their own knowledge. They write reflections and submit those to the instructor. They do not, however, share these with other students in the class. They write about how they felt about things. Finally, two faculty participants indicated that there are no such requirements in their courses. One specifically indicated that he/she avoids having students share this type of information because he/she fears that misconceptions will be spread.

Faculty participants were also asked if they require students to relate what they have learned to past experiences or in their daily lives. One faculty member indicated that he/she believes that students have a difficult time connecting the content to application because the course is not tied to field experiences. None of the faculty of the courses require that students directly relate what they have learned to past experiences. One course does have an introduction discussion in which students share positive and negative experiences related to the content. Finally, faculty participants indicated that they do not require students to apply what they have learned in their daily lives. One faculty participant indicated that they only do this if they are concurrently enrolled in a field experience. Another said the course content focuses on what they will do in the future; not what they are currently doing in their daily lives. One faculty participant indicated that he/she hopes that the course provides strategies from which the students can pull in the future.

Responses to student-faculty contact (instructor presence) in online courses.

Faculty participants were asked about ways in which they communicate with students both within the course and outside of the course. Each of the five participants utilizes the course announcements page; however, they use that form of communication differently. For example, two participants reported that they use this page on a scheduled basis, one of which uses the functionality weekly to summarize the previous week and then post what the students will do this week. Another faculty member uses the announcements function at least every other week to summarize graded assignments and to provide general feedback for the upcoming module. One participant indicated that he/she uses announcements as if they are emails. He/she posts an announcement to

explain a task, send a reminder, or provide information about various trainings/workshops not required for the course. That faculty participant also sends an email with exactly the same information, so the students receive the same information via two forms of communication. Two participants indicated that they only use the announcements feature of the online learning course management system to provide information about things that are not associated with the course itself (i.e., departmental opportunities). All five of the faculty participants rely heavily on email communication with online students. All reported that they use email as the primary source of communication with three of the five faculty participants sending emails weekly for whole-class reminders. One faculty member reported that he/she typically does not send emails to the class but encourages the students to contact him/her directly via email with specific questions. He/she specifically indicated that all course instruction is included in the course itself and no instruction occurs outside via email. When asked about students utilizing office hours or coming to visit them in the office, all five participants indicated that never or rarely do students communicate in the office and few students call or use web-based meetings with the faculty participants. One participant indicated that he/she "…offers virtual meetings but nobody takes advantage of this." Another indicated that two to three students a semester may call him/her for clarifications.

When asked about whether or not the courses include any real-time instructor interaction, two of the five faculty participants indicated that they do utilize synchronous sessions to explain assignments and/or answer questions. Both of these faculty participants indicated that very few students participate in the live sessions but it is likely that they do watch/listen to the recorded sessions. One stated, "I facilitate weekly collaborative sessions. Participation is voluntary so few students attend. Typically, I talk about things that were the result of issues in the online discussions. Students can send me questions ahead of time and I will address them during the session." The other three members indicated that they have no live or synchronous interaction with their students.

Faculty participants were asked about other ways in which students were asked to interact with the instructor of the course. One instructor reported that he/she requires students to contact him/her by phone a minimum of one time during the semester. He/she indicated that students sign up for a scheduled time and then they discuss the content of the course directly with the instructor. This is the only course in which the faculty participants reported that student-to-instructor communication is required with the exception of submitting class assignments. Further, one faculty participant did not regularly communicate with students in ways other than providing feedback on submitted assignments. According to Chickering and Gamson (1987), ongoing and frequent contact between students and faculty are key components of best practices in undergraduate education.

In order to gain a deeper understanding of feedback provided to students, faculty members were asked about the frequency and type of feedback they provide. In all five cases, the goal for faculty is to provide feedback to students within one week of the time that students submit work, and participants reported that they most often meet this goal. All participants indicated that they provide written feedback and one participant indicated that he/she has provided video feedback and that worked really well. Three participants indicated that they state something positive, then indicate something that needs to be improved, and finally end with something positive (sandwich method). One participant indicated that he/she "…try to prompt them without telling them the answers; they are advised to go to the writing lab and/or utilize other resources."

Responses to cooperation (learner-to-learner interaction) among students in online courses.

Faculty members were asked about strategies that they employ for learners to interact with each other. In all courses, online discussion forums were used; however, they were used for various reasons. In one course, discussions are only used for questions and answers related to the module content. That faculty participant stated, "I do not have many in my course but I do have a Q&A for every lesson. Either the students or the instructor will respond to the questions that are posted." In one course, the discussion forums are primarily used for collaboration among students (group work). In two others, discussions are used only for graded assignments. One faculty member stated, "Discussions are task-specific in my course. I want them to accomplish something, analyze, or clarify kids' misconceptions."

When asked whether the course utilizes other forms of learner-to-learner interaction, two participants indicated that their courses require group work. Specifically, one indicated, "There is group work in the course. They use Google apps, docs, or conferences to collaborate with one another. They create a Google document and give each other feedback." In one instance, the faculty participant indicated that he/she encourages students to work together but that is an optional component of the course. In that case, they are not required to collaborate or work together on any of the assignments in the course.

Quantitative Results that Corroborate and Contradict Qualitative Findings

Student participant responses corroborated many findings from course observations and faculty participant interviews. Specifically, using the item mean statistic for the sample, student participants agreed that

they did not frequently interact with other students in the course (M = 3.86, SD = 1.62) and that the learning activities did not promote interaction with others (M = 3.93, SD = 1.54). In addition, they did not often communicate with other students in the course (M = 3.74, SD = 1.61) and they did not receive ongoing feedback from their classmates (M = 3.26, SD = 1.74)). Furthermore, student participants agreed that they did not participate in synchronous and/or asynchronous chat sessions during the course (M = 3.88, SD = 1.86). Finally, student participants agreed with faculty participants and observation data related to feedback. Student participants rated the instructor's feedback high in the areas of clarity and timely (M = 5.02, SD = 1.39 and M = 5.38, SD = .94 respectively).

There were some items that student participants did not completely agree with activities that were observed in the courses and/or reported by faculty participants. For example, three faculty participants reported multiple ways in which they communicated with students (via assignment feedback, emails, course announcements, videos, and/or narrated PowerPoint presentations). Student participants, however, rated their frequency of interaction with the instructor lower than several items (M = 4.21, SD = 1.62). Finally, using the results of a one-sample t-test, student participants rated their satisfaction with their interaction with other students statistically lower than other items related to their satisfaction. Specifically, student participants rated their satisfaction with their learning (M = 5.10, SD = 1.39) higherthan they did their satisfaction with the interaction with other students in the course $t(41) = 23.70$, $p < .001$. Also, they rated their satisfaction with the content (M = 5.12, SD = 1.35) higher than they did their satisfaction with the interaction with other students in the course $t(41) = 24.63$, $p < .001$. This may be a noteworthy finding for faculty members to consider when thinking about types of activities to develop that encourage active learning and student engagement.

Discussion and Future Research

The results of this study highlighted some interesting findings. However, the results should be interpreted with caution due to the low number of participants and the use of purposive sampling methodology which may increase bias in the results. Furthermore, although concurrent mixed-methods can be a robust research methodology when trying to better understand a phenomenon (Creswell, 2018), findings may exemplify bias in the positionality of the researcher and the responses of the participants may not be representative of a population.

The calculated reliability estimates are puzzling to the researcher. Prior to this study, there was extensive evidence of reliability and promising evidence of construct validity from past studies (DiLoreto et al, 2022; DiLoreto & Gray, 2015; Gray & DiLoreto, 2016). It was also curious that only one independent variable (instructor presence) accounted for nearly all of the variability in both student satisfaction and perceived learning and course structure/organization accounted for the least explanation of the variability in both student satisfaction and perceived learning. This makes me question either the measurement validity of the hypothesized model or whether the instrument is invariant across undergraduate and graduate students. Past research indicated significant relationships among all variables and statistically significant impacts of both course structure/organization and instructor presence on both student satisfaction and students' perceived learning. The results obtained from this study are similar to the past work of Eom et al. (2006) and unlike past results obtained by Gray and DiLoreto (2016). Further investigation is needed and invariance testing is recommended in order to make any definitive conclusions about these contradictory results.

Findings from interviews of faculty participants were interesting. There were common themes that emerged from the statements of the faculty members. For example, when faculty members described student engagement, they primarily described things that they themselves did to involve the students in the learning process. However, when faculty members discussed active learning, they focused more on what the students did in the learning process. Although evidence suggests that active learning is part of engagement (Chickering & Gamson, 1987; Kuh, et al., 2008), faculty participants separated these concepts into what instructors do and what students do. Even when asked what strategies the faculty members use to ensure engagement and active learning, the responses were divided into what they did (engagement) and what students did (active learning). Chickering and Gamson (1987) identified principles of good practice in undergraduate education. This study used those principles as a guide to exploring practices used by these faculty participants in online courses. Although many of the good practices identified by Chickering and Gamson (1987) were prevalent in a review of the courses, some were not. Specifically, past studies show the most significant impact on student motivation, satisfaction, and perceived learning is instructor presence (Gray & DiLoreto, 2016) and frequent contact between students and faculty (Chickering & Gamson, 1987). However, there were three instances where there was no evidence (corroborated by faculty interviews) in which the faculty member had any communication with the students other than grading papers and responding to individual emails sent to the instructor by the student. Furthermore, although student participants rated that they had ongoing communication with an instructor who cared about them, this was not supported by three faculty interviews and in two of the course reviews. Reasons

for the courses lacking this type of instructor presence should be further investigated. It is unclear if the faculty members do not believe in the importance of this type of interaction, do not know about the importance of this type of interaction, or if there is an internal reason for not participating in this type of interaction.

Although much information was gleaned from this study, answers to other questions are warranted. Additional data need to be collected in order for the researcher to determine extensive evidence of validity and reliability of the SLS-OLE (DiLoreto & Gray, 2015). Furthermore, because the results contradict some past studies, the researcher suggests additional participants from programs other than educator preparation. Invariance testing may be necessary in order to determine if the scale is invariant across undergraduate and graduate students as there is some evidence in the literature to support differences in attitudes toward online learning for graduate and undergraduate students (Chang, Hun-Yi, Zhi-Feng, 2014). Finally, the long-term goal of this body of research is to determine what factors and strategies impact both student satisfaction and perceived learning so those can be implemented across other courses in order to increase student retention. The link between student satisfaction, perceived learning, and student retention is still lacking. This study did provide some evidence related to what students report versus what faculty report. However, it is not yet clear if and how these beliefs and reported strategies impact student retention.

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