The Role of Meet Sessions and Breakout Rooms in Creating a Doctoral Learning Community: A Sequential Mixed Methods Study

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The problem of Virtual Learning Environment (VLE) doctoral student attrition has led institutions to explore solutions to support doctoral students' program completion. According to Tinto's model of institutional departure, students' social and academic integration must be addressed to increase retention. Additionally, Astin's student involvement theory purports that the effectiveness of an engagement strategy is dependent upon the program's ability to increase the amount of time and level of commitment of students. In VLE programs, personal interactions are limited. The purpose of this sequential mixed-methods study is to examine the perceptions of doctoral students and doctoral teaching faculty of weekly voluntary Zoom meet sessions utilizing breakout rooms in VLE doctoral programs. Data were collected from 1) 50 doctoral students (75.8%); 2) 31 (24.4% doctoral faculty teaching online; and 3) a focus group consisting of the Doctoral Students Association (DSA) leadership team. The results indicated that the implementation of a voluntary weekly meet session and the utilization of breakout rooms could facilitate the development of a DLC.

Keywords: attrition, breakout rooms, Doctoral Learning Community (DLC), doctoral student, doctoral program, meet session, online, Virtual Learning Community (VLE)

The terms Virtual Learning Environment (VLE), Virtual Learning Course Management Systems (CMS), and Learning Management Systems (LMS) tend to be used interchangeably (Lopez, 2017), but the term VLE will be used in this paper to characterize a doctoral program at a private not-for-profit university in mid-west America. Based on a 10-year completion rate only 56% of students will complete their doctorate (Council of Graduate Schools, 2020), and program attrition rates in VLEs are often 10%-20% higher than residential programs (Heyman, 2010; Holder, 2007; Muljana & Luo, 2019; Terrell, Snyder, & Dringus, 2009). Smith (2010) documented that VLEs dropout rates across programs range from 40% to 80%. Despite documented high attrition rates across VLEs doctoral programs, little is still known about the reasons for student persistence and attrition (Castelló et al., 2017).

Historically, higher education institutions have intentionally developed policies, procedures, and practices to support students, including structure, to help students actively engage in their program experience (Owolabi, 2018). Research shows that whilst students with higher levels of academic and social integration are more likely to be retained (Tinto, 1975), traditional online course engagement grounded on a unilateral teaching approach which is text based fails to develop a sense of community (Budhai & Skipwith, 2017). Kimbrel and Gantner (2021) argue that further research is needed to determine the specific impacts of instructional strategies and methods to increase student engagement and decrease loneliness of graduate students.

The literature suggests that weekly meet sessions and the utilization of breakout rooms may enhance VLE student engagement as they: (1) are ideal for collaboration and dialogue; (2) can change the pace of the session; (3) provide a safe space for participants; (4) facilitate active dialogue due to small group numbers; and (5) enable the instructor to be present if appropriate to the task in hand (Chandler, 2016; Saltz & Heckman, 2020). Length of time in the breakout rooms can vary according to the task. An impetus to stay on task is that generally each group is required to report back to peers when together in the main room (Saltz & Heckman, 2020). Group membership can be preassigned, strategic, or random allowing students with similar research topics, academic needs or personal needs to be grouped together (Zoom Support, n.d.). The automatic random grouping ensures that doctoral students mix with each other outside their normal learning community.

The purpose of this mixed methods study was to add to the sparse literature on effective VLE instruction in higher education at the doctoral level (Lougheed et al., 2012) by examining the perception of voluntary meet sessions in a VLE doctoral program by doctoral students and doctoral faculty. Further, the contribution of weekly meet sessions and the utilization of breakout rooms to the development of a Doctoral Learning Community (DLC) is explored.

The paper begins by outlining the theoretical framework grounded on Tinto's theory of retention and Astin's theory of student involvement. Previous research related to the development of a VLE learning community is discussed. A rationale for the study's methodology is given. This is followed by a review of the research findings. Finally, a concluding discussion includes possible next steps and limitations.

Theoretical Framework

Tinto's (1975) model of institutional departure considers first an individual's family background, personal experiences, and pre-university education, and second, the academic and social factors as contributory attributes in a student's decision to retain or drop out. Tinto argues that student retention and graduation are as much a reflection of an institution's social and academic environment as it is the character of the student (2012, p.vii) and that student attrition may be due to institutional administrators, faculty, and staff lack of knowledge about the appropriate types of actions, practices, and policies they should adopt.

In a "Framework for Institutional Action," Tinto (2012) places the classroom at the center of his framework. Tinto identifies four conditions from research that are known to promote student success and enhance student retention and graduation: (1) clarity and consistency of high expectations; (2) support to help students achieve expectations specifically in the classroom where success is constructed one course at a time; (3) assess performance and provide frequent feedback; and (4) academic and social engagement. Students are more likely to remain in a program when all four conditions exist. The absence of one undermines the efficacy of the others (Tinto, 2012, p.8). When a student voluntarily withdraws from an institution, as opposed to being academically dismissed, it is because of an incompatibility between the individual student and the institution (Tinto, 1975).

Researchers have applied Tinto's (1975, 1993) work to doctoral programs (Wao & Onwuegbuzie, 2011) and to VLE programs (Rovai, 2003). Holmes and Rockinson-Szapkiw (2019) established that academic and social integration are intertwined for doctoral students in VLE programs. They assert that program integration is comprised of three factors—faculty integration, student integration, and curriculum integration, which require consistent effort by both the student and the instructor. VLE programs ensure academic interactions (e.g., instruction, receiving timely feedback) as well as non-academic interactions (e.g., social, empathy, care); students' satisfaction with both the quality and nature of peer interactions within the program, both academic and non-academic; and satisfaction a doctoral student has with the quality and relevancy of the doctoral curriculum (Holmes & Rockinson-Szapkiw, 2019). Holmes and Rockinson-Szapkiw (2019) research support the earlier research of Pace (1984) who found that a doctoral student's learning and development are dependent upon the quality of effort given and the amount of time invested. The amount of effort directly affects the experience (Pace, 1984). Doctoral students are responsible for their quality of effort, but higher education institutions are responsible for providing the opportunity for a high-quality experience.

Astin's (1984) student involvement theory purports that the effectiveness of a school's engagement program is dependent upon the program's ability to increase the amount of time and level of commitment of students. Astin focused on student involvement as a lead factor in student development. Rooted in the action, or behavior, of being involved, the theory has five postulates: (1) investment of physical and psychological energy, (2) a continuum of involvement, (3) quantitative and qualitative in nature, (4) learning and development are correlated to the quality and quantity of involvement; and (5) effectiveness of policies and practices are dependent on their capacity to increase involvement. The involvement is measured at both the macro and micro level, considering a student's general involvement as well as the involvement for each course, assignment, faculty, etc., and an individual can have various levels of involvement with each area at different times. The fourth and fifth postulates provide a guide for higher education

institutions to develop programming and policies to encourage student involvement and development.

Astin (1984) argues that motivation through involvement is the driving force. Faculty can work to influence the behavior of students to increase involvement; therefore, increasing student development and learning. Involvement strategies must be perceived by doctoral students, particularly working professionals, as essential to their scholarly learning and community development as time can be viewed as their most critical resource (Bean & Netzner, 1985). External entities, such as family, friends, and work, all require allocation of a student's finite resource of time and energy. Even within the education environment, students must navigate how and where to spend their time, whether it be attending class, studying, completing assignments, working with peers or faculty, using student services, or participating in extracurricular activities.

Review of Related Literature

This section first reviews the general topic of the VLE learning environment. This is followed by a review of research with respect to the use of technology tools such as Zoom and the utilization of breakout rooms.

A VLE offers an intercultural learning environment, whereby communication and learning are different than in a face-to-face program because of the technological forum and potential for interactions among diverse students with unique learning needs (Wang, 2007). Garrison and Anderson (2003) in a study of an international student cohort in an EdD in Higher Education VLE program analyzed interactions of three modules and concluded that not all students challenged each other when engaged in discussion and that a 'pseudo-online learning community' formed (Crosta et al., 2016). They recommend that social presence and connections be better established (Crosta et al., 2016) and that the instructor takes an active role in encouraging, supporting, and connecting students via the VLE by presenting opportunities for student interaction (Budhai & Skipwith, 2017; Crosta et al., 2016). Conversely, findings from a study of educational leadership students, including doctoral students (Sherman et al., 2010) highlight that most students agreed that their online coursework was as rigorous as face-to-face learning, that they experienced high levels of interaction with instructors and classmates, that online coursework resulted in greater responsibility for learning, and that they felt they had been part of a learning community.

A wide range of literature exists that examines VLE communities of practice, (also known as virtual learning communities), which puts the emphasis on student VLE interactions that integrate dialogue, collaboration, trust, support, competence, and improvements to professional practice. Since the community of practice theory's inception in 1991 by Lave and Wenger, the theory has evolved to include more than a localized community and is called a landscape of practice (Wenger-Trayner & Wenger-Trayner, 2015). In a VLE doctoral program, the landscape of practice is complex as doctoral students typically engage in both localized and nationalized communities of professional practice. For doctoral students in VLE programs to develop into a learning community, certain components are necessary: students challenging each other respectfully and taking responsibility for their learning, as well as strong cognitive, social, and teacher presence (Garrison & Anderson, 2003).

Instructor presence sometimes may be more important than student interactions in developing learning communities (Drouin, 2008). Wikeley and Muschamp (2004) emphasize the relevance of instructor presence in helping doctoral students find their voice as academic researchers in a scholarly community, and the onus on the instructor to design learning tasks that promote collaboration and development of a learning community. Furthermore, Wikeley and Muschamp (2004) underscore the significance of instructors finding ways to include VLE doctoral students in the research community to address loneliness, isolation, and disconnection. Jairam and Kahl (2012) also emphasize the potential of academic and social support systems in mitigating stress and social isolation They recommend that doctoral students maintain academic friends, family assistance, and positive relationships with faculty, who are empathetic and supportive.

Familiarity with the VLE impacts course design, delivery, and reception. Ivankova and Stick (2007) conducted a mixed methods study, surveying 278 doctoral VLE students within a Doctor of Education program. They found that doctoral students who persisted felt a high level of comfort with technology and VLE systems; and that asynchronous communication provided the opportunity for deep reflection and created a learning environment conducive to their learning preferences (Ivankova & Stick, 2007). However, VLE doctoral students in other studies have reported a preference for a balanced use of both synchronous and asynchronous communication to enhance their sense of connection with faculty and peers, and ultimately, persistence (Teng, Chen, Kinshuk, & Leo, 2012; Fuller, Risner, Lowder, Hart, & Bachenheimer, 2014).

One VLE academic support strategy studied by Kimbrel and Gantner (2021) centered around instructor videos with quizzes, which they found reduced VLE graduate students' sense of isolation and loneliness. An unexpected study outcome was that students did not need to see their instructor to experience the feelings of connection. Conversely, Guo et al. (2014), found that students wanted to see the instructor's face during the teaching episode in a large-scale Massive Open Online Course (MOOC). Kimbrel and Gantner (2021) suggest that these two discrepant results could reflect student numbers and program size.

Throughout the VLE education literature, it is well documented that VLE doctoral students frequently feel socially isolated and disconnected from the learning environment, (Bollinger & Inan, 2012; Terrell, Snyder, & Dringus, 2009) and that connection with faculty members in the VLE environment through teaching presence (Rockinson-Szapkiw, Baker, Neukrug, & Hanes, 2010) is vital to their successful integration into learning communities (Provident et al., 2015; Rademaker et al., 2016).

Research Questions

The following research questions guide this inquiry:

Research Question 1: What is the perception of voluntary meet sessions in a VLE doctoral program by doctoral students and doctoral faculty?

> **Sub-Question 1:** Do weekly voluntary meet sessions contribute to the development of a Doctoral Learning Community (DLC)?

Sub-Question 2: Do breakout rooms contribute to the development of a Doctoral Learning Community (DLC)?

Methods

Study Design

In order to fulfill the purpose of this study, the most fitting design was a sequential mixed methods approach. Creswell (2015) states that a sequential mixed methods is appropriate when the intent is to collect both quantitative and qualitative data, analyze both data sets and then merge the results of the two data sets with the purpose of comparing the results. The focus of the quantitative component of this study was to gather data that demonstrated doctoral student and doctoral teaching faculty perception of (1) weekly meet sessions; and (2) breakout rooms and their contribution to the development of a DLC. The focus of the qualitative component of this study was to obtain clarification and comprehension of the phenomenon of interest, perception of weekly meet sessions and breakout rooms and their contribution to the development of DLCs. Doctoral Student Association (DSA) leadership team's perception of (1) weekly meet sessions; and (2) breakout rooms and their contribution to the development of a DLC (Pajo, 2018).

Quantitative Component: Survey

The developed questions for the online non-standardized survey were derived from a review of the empirical and theoretical literature related to student engagement, and program retention (see Appendix A). The doctoral student survey was distributed electronically one week after the conclusion of the summer semester, 2021 to all doctoral students who had participated in a summer semester doctoral course (n= 66).

Quantitative Data Collection

Data was collected from a purposeful sample of doctoral students (n=66) and doctoral faculty (including adjunct faculty teaching in a doctoral program) (n=127) at a private non-profit specialized higher education institution located in mid-west United States. The response rate was high for both populations, with n=50 (75.8%) student respondents and n=31 (24.4%) doctoral faculty respondents regarding their perception of weekly voluntary meet sessions and breakout rooms; and the contribution of meet sessions and breakout rooms to the development of a DLC (Pajo, 2018). Both doctoral student and doctoral faculty surveys were open for two weeks with a reminder notification sent weekly (see Appendix B).

Quantitative Data Analysis

Each survey (doctoral students and doctoral teaching faculty) was divided into three sections. The first was a demographic section to collect basic information on gender, race, age, program, and for the doctoral students only, employment hours. The second section was designed to

evaluate doctoral students and doctoral faculty perceptions of voluntary meet sessions. The third section was designed to evaluate doctoral students and doctoral faculty perceptions of breakout rooms. Reponses were measured using a 4-point Likert scale (1=Strongly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Strongly Agree). Both the voluntary meet and breakout room sections were nested: if it was indicated that the respondent had not experienced this component in their courses, then the perception questions were not revealed.

An overview of the participants' demographic data is presented in Table 1 (doctoral students) and Table 2 (doctoral teaching faculty).

Table 1
Doctoral Student Participant Demographics (n = 50)

Gender	Female n=37 74%	Male n=13 26%	Other n=0		
Race	Asian n=3 6%	Black/African American n=14 28%	Hispanic/ Latino n=1 2%	White n=30 60%	
Age	20-29 n=3 6%	30-39 n=8 16%	40-49 n=21 42%	50-59 n=17 34%	60-69 n=1 2%
Program	DBA n=13 26%	DHA n=12 24%	DPS n=3 6%	EdD n=22 44%	
Employment Hours	None n=3 6%	1-20 n=2 4%	21-30 n=3 6%	31-40 n=18 36%	More than 40 n=24 48%

Table 2
Doctoral Faculty Participant Demographics (n = 31)

Gender	Female n= 15 48%	Male n=16 52%	Other n=0		
Race	Asian n=0	Black/African American n=6 19%	Hispanic or Latino n=0	White n=24 77%	
Age	30-39 n=2 6%	40-49 n=7 23%	50-59 n= 11 36%	60-69 n=8 26%	70-79 n=3 9%
Program	DBA n=13 42%	DHA n=5 16%	DPS n=4 13%	EdD n=9 29%	
Employment Status	Full-time Faculty n=4 13%	Adjunct Faculty n=23 74%	University Administrator n=4 13%		

Qualitative Component: Focus Group

The purpose of the focus group interview was to provide indepth insights on doctoral student's survey responses (Pajo, 2018). The Doctoral Student Association (DSA) committee has unique insight into doctoral student motivations because of their exposure to a broad cross-section of doctoral students. The DSA committee consists of seven members, and all responded positively to an invitation to participate in a focus group. In actuality, five committee members, representing the four doctoral programs (DBA, DHA, DPS, EdD) participated in the focus group which was conducted during the Fall, 2021 semester.

Qualitative Data Collection

The data collection was performed online through synchronous interactions using the Zoom video conferencing platform (Zoom Video Communications Inc., 2016). The 45 minutes discussion was recorded after receiving participants' consent. The created discussion guide was grounded on doctoral student survey responses and served as the blueprint for the focus group session. These questions (see Appendix C) included the number of courses completed with voluntary meet sessions, how participants define a DLC, whether voluntary meet sessions or other aspects of the doctoral program contribute to building a DLC, and an overall assessment of voluntary meet sessions. Additional questions posed to participants included responsibilities that influenced participation in voluntary meet sessions, perspectives on attending versus watching a recording, experiences with breakout rooms, and suggestions for faculty to enhance course engagement and a DLC, and then questions exploring the respondent's opinion about certain outcomes from the survey.

Qualitative Data Analysis

The focus group recording was transcribed verbatim and followed an inductive and iterative process. We thematically analyzed narratives from the focus group. The paper authors were involved in discussions of preliminary thematic findings and throughout the data interpretation process. Credibility as a source of trustworthiness was ensured through prolonged engagement and observation. Peer debriefing was another way of ensuring the credibility, by discussing the preliminary qualitative findings as well as the mixed method interpretation findings with colleagues having expertise in qualitative and mixed methods research in order to enhance the transferability of the findings to other similar populations and contexts.

Mixed Methods Integration

Once quantitative and qualitative data were collected and analyzed separately a comparison strategy was used to combine quantitative and qualitative results to interpret how the merged results agreed (correspondence, similarities), offered complementary information, or contradicted (disagreement or dissonance). The purpose of the integration of quantitative and qualitative findings was to compare and contrast both components to provide a comprehensive picture of the role of meet sessions and breakout rooms in contributing to student engagement

and the development of a Doctoral Learning Community (DLC) (Johnson et al., 2019). We first used a weaving technique, inspired by Fetter et al. [2013; 2015], that aims to narratively group both quantitative and qualitative findings under a mixed methods interpretation. For this interpretation process, we utilized the four stages of the pillar integration process (Figure. 1) to visually compare quantitative and qualitative components and integrate them into a joint display.

Figure 1
Pillar Integration Process
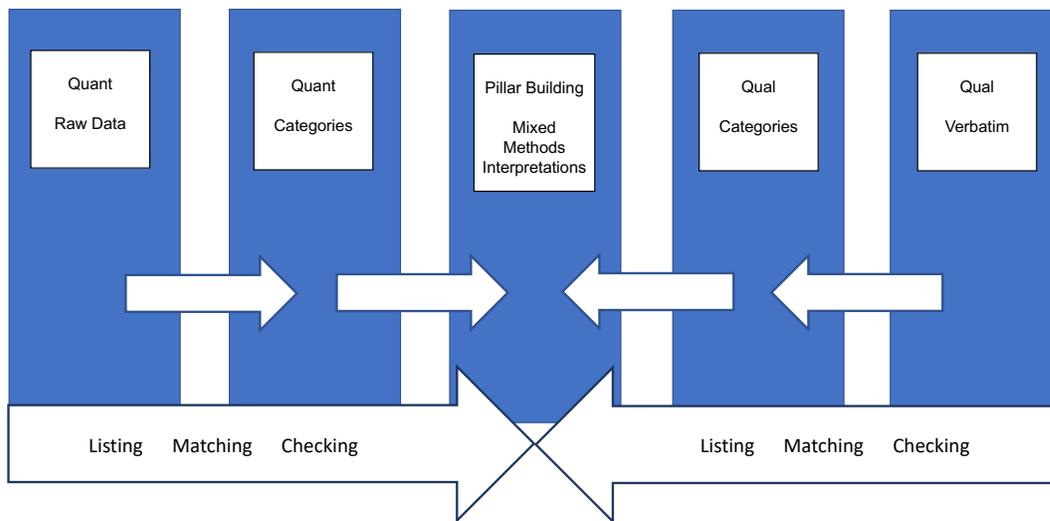
Adapted from Johnson et al., 2019

Integration of Quantitative and Qualitative Findings into Mixed Method Interpretations

Using the pillar integration process (PiP), a transparent and rigorous four-stage technique for integrating and presenting qualitative and quantitative findings in joint display (Johnson et al., 2019) we combined both quantitative and qualitative data and categories (findings) to describe how both doctoral students and doctoral teaching faculty perceptions of voluntary weekly meet sessions and use of breakout rooms contributed to the development of a DLC.

Table 3
Comparison of Doctoral Students and Doctoral Faculty Perceptions of Weekly Voluntary Meet Sessions (1=strongly disagree; 2 = somewhat disagree; 3 = somewhat agree; 4 = strongly agree)

	Faculty (n=22) Mean Response	Student (n=48) Mean Response	p-value**

Valuable use of time	3.73	3.33	0.0166***
Help to clarify content	3.77	3.52	0.0852
Contribute to development of DLC	3.45	3.62*	0.7508
Increase engagement in course	3.77	3.21	0.0048***
Increase faculty/student interaction	3.68	3.35	0.1335
Increase student/student interaction	3.45	3.08	0.1139
Meets are expectation (obligation)	2.64	2.79	0.5513
Attendance correlates with (has + impact on) grade	3.45	3.04*	0.1270

* data set included 1 non-response, n=47   **two-tailed, two-sample t-test   *** difference in means is statistically significant, α = 0.05

Figure 2

Comparison of Doctoral Students and Doctoral Faculty Perceptions of Meet Sessions (n = 22, faculty; n = 48, student)
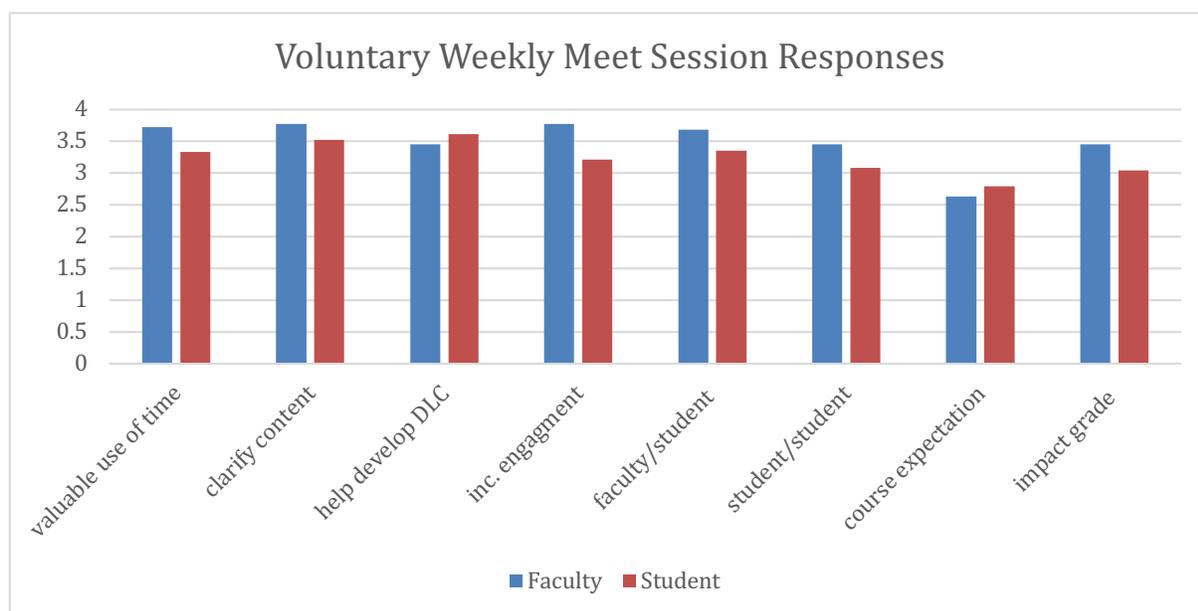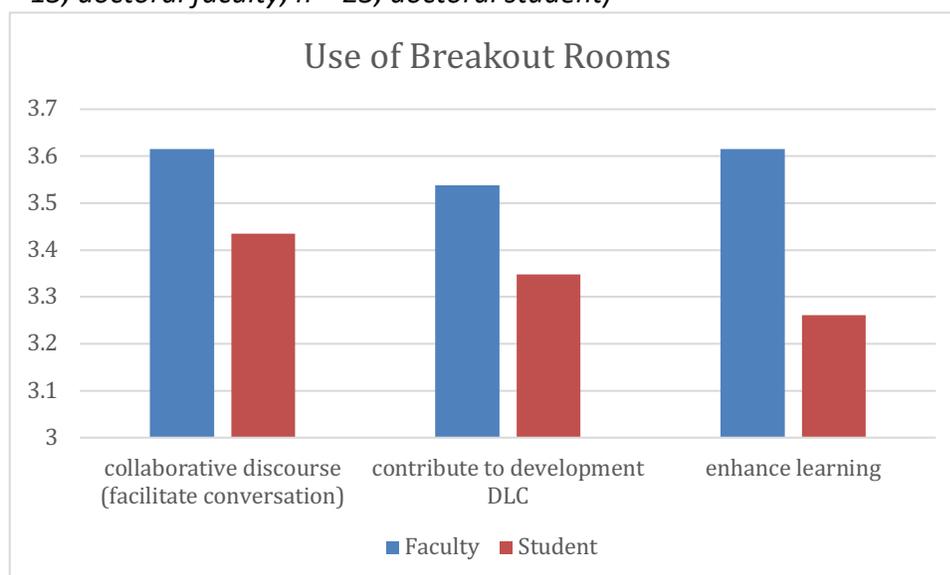

Table 4

Comparison of Doctoral Students and Doctoral Faculty Perceptions of Zoom Breakout Rooms (1=strongly disagree; 2 = somewhat disagree; 3 =somewhat agree; 4 = strongly agree)

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	Faculty (n=13) Mean Response	Student (n=23) Mean Response	p-value*
Collaborative discourse (facilitate conversation)	3.62	3.43	0.3608 not sig.
Contribute to development of DLC	3.54	3.35	0.4052 not sig.
Enhance learning	3.62	3.26	0.1864 not sig.

*two-tailed, two-sample t-test, α = 0.05

Figure 3

Comparison of Doctoral Students and Doctoral Faculty Perceptions of Zoom Breakout Rooms (n = 13, doctoral faculty; n = 23, doctoral student)

Quantitative Findings

Each survey (doctoral students and doctoral teaching faculty) was divided into three sections. Demographic data from the first section is presented in Table 1 (doctoral students) and Table 2 (doctoral faculty). The second section was designed to evaluate doctoral students and doctoral faculty perceptions of voluntary meet sessions, with 48 students (96%) and 22 faculty (71%) indicating that they had attended (doctoral student) or held (doctoral faculty) weekly voluntary meet sessions. The follow-up perception questions were only revealed to those respondents that indicated "yes" that they had experienced weekly voluntary meet sessions. Reponses were measured using a 4-point Likert scale (1=Strongly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Strongly Agree); the mean responses for both student (n=48) and faculty (n=22) are presented in Table 3. The tabulated responses do not reflect all data collected; the

table includes responses to questions that were included on both surveys. Appendix A has the full set of student and faculty survey questions.

The doctoral student responses indicated that doctoral students do not attend the weekly voluntary meet sessions out of a sense of obligation; rather, doctoral students attend because they find them to be a valuable use of their time, help to clarify content, increase faculty-student interactions, and contribute to the development of a DLC. It was interesting that mean student response for the development of a DLC (3.62) was greater than mean student response for both increased student-student (3.08) and faculty-student interactions (3.35). This prompted us to further explore how doctoral students defined a DLC in the focus group session.

Likewise, the faculty responses indicated that faculty do not hold weekly voluntary meet sessions because they feel it is a course expectation; rather they offer the sessions because they find them to be a valuable use of their time (3.73), help to clarify content (3.77), increase engagement with the course (3.77), and increase their interaction with students (3.68). It was interesting that the faculty place greater value on content clarification and increased faculty-student interaction than students. This may indicate that they view the meet sessions as more of a mechanism to convey content information than to facilitate peer-to-peer interactions.

A two-tailed, two-sample t-test (H_0: $\mu_{faculty} - \mu_{student} = 0$, H_a: $\mu_{faculty} - \mu_{student} \neq 0$) was performed to see if there were significant differences between the mean doctoral teaching faculty and mean doctoral student responses. There was strong agreement between the faculty and student responses with the exception of valuable use of time (p=0.0166) and increased engagement in the course (0.0048). It is not surprising that faculty perception of 'valuable use of time' is greater than student perception; facilitating a meet session is an instructional component in most courses at the university (i.e. faculty may view the meet as part of their job) whereas 84% of the students indicated that they work 30+ hours a week (i.e. time is a precious commodity and doctoral students view the meet sessions as something additional). It is also not surprising that faculty perception of 'increased engagement in course' was greater than students' perceptions. Faculty facilitate (engage in) every live meet session. In a survey question (not reflected in the table above), 44% of the students responded that they preferred the recorded session over the live session. As nearly half of the students prefer to utilize the recorded session, this could impact their perception of engagement in the course.

The last section of the survey was designed to evaluate doctoral students and doctoral faculty perceptions of breakout rooms, with 23 students (46%) and 13 faculty (42%) indicating that they participated in (doctoral student) or utilized (doctoral teaching faculty) breakout rooms during a meet session. The follow-up perception questions were only revealed to those respondents that indicated "yes" that they had experienced breakout rooms. Reponses were measured using a 4-point Likert scale (1=Strongly Disagree, 2 = Somewhat Disagree, 3 = Somewhat Agree, 4 = Strongly Agree); the mean responses for both faculty (n=13) and student (n=23) are presented in Table 4.

Both doctoral students and doctoral teaching faculty report a positive experience with breakout rooms. The results of the two-tailed, two-sample t-test (H_0: $\mu_{faculty} - \mu_{student} = 0$, H_a: $\mu_{faculty} - \mu_{student} \neq 0$) indicated no significant differences between the mean doctoral student and doctoral faculty responses. This data may prompt more doctoral teaching faculty to explore the use of breakout rooms during their meet sessions. The tabulated responses do not reflect all data

collected; the table includes responses to questions that were included on both surveys. Appendix A has the full set of doctoral student and doctoral reaching faculty survey questions.

Qualitative Findings

Three main themes are presented: 1) contribution of voluntary weekly meet sessions to the development of a Doctoral Learning Community (DLC); 2) utilization of time; and 3) student engagement. Doctoral students' experience of breakout rooms is also presented.

Contribution of Voluntary Weekly Meet Sessions to the Development of a DLC.

Participants varied in their experience of voluntary meet sessions and the regularity of the sessions. Several doctoral students used the word "collaborative" to define a DLC but there was consensus agreement with the program's definition of a DLC: A scaffold enabling doctoral students to develop scholarly dispositions and knowledge through varied formal and informal activitie*s* (Berry, 2017; Wenger, 1998; Wenger & Snyder, 2000). Participants highlighted the interactive, supportive, relationship building, communication and knowledge sharing role of meet sessions in contributing to the DLC.

> "I think there are a thousand reasons. The one that comes to mind is it makes you responsible. You have a chance to communicate. It is that kind of encouragement. It is more of the support, and you know the instructor cares so that is just my take on it."

> "I have more interaction with my peers in the voluntary meet sessions than I do in the doctoral dialogues. It has helped build my DLC. I do much better in the classes where we have had the voluntary meet sessions."

Other aspects of the program that help to build a DLC were identified as the Doctoral Student Association (DSA), study groups, peer assignments, and the dissertation writing boot camp.

> "Out of the bootcamp, every Saturday we have a group that still, to this day, get together. This is my tribe."

> "When I took the applied statistics second course, we were assigned study groups and our assigned study group grew from the folks we were assigned to, to also include folks in other stats sections. That became our tribe."

> "I was matched up with a group of people, and out of that class the two people that I still talk to are not in my program. I have one in the DBA program and one in the DHA program. We still talk through different classes and help each other. I purposely joined the DSA to help build my learning community."

> ***Utilization of Time.*** All participants thought that attending a meet session was a good use of their time and agreed that the sessions helped to develop doctoral student and doctoral

teaching faculty relationships although they did not perceive attendance at meet sessions as impacting their course grade. However, challenges such as different time zones, conflict with work schedule, unforeseen traffic commuting issues were identified as barriers to attending the voluntary sessions. In most courses voluntary meet sessions are recorded which respondents appreciated as it enables them the convenience of pausing a recording. One respondent stated that they are less focused and less attentive when watching a recording.

Student engagement. Respondents made several suggestions as to how faculty could further enhance student engagement and build a DLC: active professor participation and interaction; attentive and compassionate professors; ownership of course design; structured course sequence; increase study groups and social events.

"Seeing them outside of school connects you outside of the classroom and connects you more to them."

"I felt that this was my most connected term. The weekly face-to face sessions and meeting with each other is what built the rapport for me. I think it is the option to have groups as well that builds the Doctoral Learning Community because you can identify with classmates in the group, and I think that transcends from class to class."

Experience of Breakout Rooms. Only one respondent regularly experienced breakout rooms in their doctoral program although all had an opinion as to the contribution of breakout rooms to the development of peer relationships and the building of a DLC. Interaction, focused collaboration, and the development of connections were highlighted as helping to facilitate a DLC.

"What I found interesting is that we'd all break out and normally when we came back, we all had different ideas about whatever we were discussing."

"Offering it allows students the opportunity if they want it and it creates connections."

"I felt like I actually really got to know a lot of the people. We always got shuffled into different ones, so we always worked with someone else. I would honestly probably attend more voluntary meet sessions if I knew there was going to be a breakout room. I want more of that peer interaction."

"If there was a breakout room, I was more inclined to stay during the duration instead of tuning out."

Discussion

Data analysis revealed that whilst weekly voluntary meet sessions were the norm for the courses completed by most survey respondents this was not the majority experience of the focus group participants. This may reflect when a course was completed. The survey went to all doctoral students in the four doctoral programs irrespective of how far into the program they were whilst the focus group participants were at or near the end of taught classes. Doctoral students attend

meet sessions because they find them to be a valuable use of their time, help to clarify content, increase faculty-student interactions, and contribute to the development of a DLC. They do not attend meet sessions out of a sense of obligation.

In comparison to doctoral students, doctoral teaching faculty responses indicate that they view the meet sessions as more of a mechanism to convey content information than to facilitate peer-peer interactions. In common with doctoral students, they find voluntary weekly meet sessions to be a valuable use of their time; help to clarify content; increase course engagement; and interaction with students.

Whilst active synchronous involvement in meet sessions was the preference of the majority of doctoral students the benefits of recorded sessions were also highlighted i.e., option to pause the recording, overcomes time zone differences, ameliorates a conflicting work schedule, avoids stress due to traffic issues to and from work, enables participation even if there is a personal conflict with the scheduled day/time. Focus group participants pointed out that watching the recording is less impactful because it results in a loss of focus and attention.

Aside from voluntary meet sessions and recordings, the researchers also assessed participants' experiences with breakout rooms with just under half of doctoral students and doctoral teaching faculty indicating that they experienced breakout rooms during a voluntary meet session. Overall, survey respondees and focus group participants felt that breakout rooms influence peer relationships and the development of a DLC because they foster peer interaction, focused collaboration, and develop connections. Focus group participants expanded on survey responses by suggesting that in order to further enhance engagement with courses and build a DLC, faculty must ensure instructor participation is consistent within and across doctoral programs and courses.

Overall, both doctoral student and doctoral teaching faculty perceived that voluntary weekly breakout sessions in a VLE doctoral program are a good use of their time and contribute to the development of a DLC, if we consider that the great majority of means were above 3, on the 4-point Likert scale. Both the quantitative and qualitative results were highly consensual in identifying the positive contribution of voluntary meet sessions to relationship building, doctoral student and doctoral faculty relationship, doctoral student to doctoral student relationship. The qualitative results nuanced, deepened, and even added new elements (e.g., role of meet session in facilitating knowledge sharing) to the quantitative results. The integration of quantitative and qualitative findings drew a full portrait of the continuum of doctoral students and doctoral teaching faculty experience of both voluntary meet sessions and the use of breakout rooms.

Summary/Theoretical Significance

This study further reinforced the research by scholars who recommend that presence and connections should be better established by instructors and that they take an active role in encouraging, supporting, and connecting students via the VLE by presenting opportunities for student interaction (Budhai & Skipwith, 2017; Crosta et al., 2016; Drounin, 2008; Provident et al., 2015; Rademaker et al., 2016; Rockinson-Szapkiw, Baker, Neukrug, & Hanes, 2010; Wikeley & Muschamp, 2004;). Further, meet sessions and the utilization of breakout rooms are perceived by both doctoral students and faculty as contributing to the development of a DLC by presenting

opportunities for doctoral students to challenge each other respectfully (Garrison & Anderson, 2003).

Strengths and Limitations

As far as we are aware, this is the first study to examine doctoral students and doctoral teaching faculty perceptions of voluntary weekly meet sessions and the utilization of breakout rooms in VLE doctoral programs. This mixed methods study led to a gain in complementary and rich data, providing a comprehensive picture of doctoral students learning experiences in meet sessions and breakout rooms and the development of a DLC. However, the study is limited by four factors: 1) data were collected via an online non-standardized survey; 2) the integration of doctoral student data was impacted by the unequal sample size (50 in the quantitative component; and 5 in the qualitative part); 3) the study focused on doctoral students who were enrolled in one of four VLE doctoral courses during the summer semester and were also at different points of their program; and 4)the recommendations and implications derived from this study may have limited application especially since research demonstrates different completion rates, time to completion, and program characteristics based on different disciplines (Golde, 2005).

Implications For Future Research

This study focused on doctoral student and doctoral teaching faculty perceptions of voluntary meet sessions in a VLE doctoral program, and the role of meet sessions and breakout rooms in contributing to the development of a DLC. Subsequent research is necessary to explore the influence of contextual enablers/barriers (e.g., nature of the institution, resources, structure, organizational culture) and those that are related to doctoral students and doctoral teaching faculty themselves (e.g., tenure/adjunct faculty, work structure, competing demands) when examing the role of meet sessions and breakout rooms in developing a DLC.

Conclusion

Implementation of a voluntary weekly meet session and the utilization of breakout rooms can facilitate the development of a DLC. Other VLE doctoral programs seeking to encourage DLC development could implement this andragogical strategy.

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Appendix A
Doctoral Student Survey

Thank you for participating in our survey. Your feedback is important.
For information:
- The weekly voluntary meet session is a synchronistic one-hour zoom session facilitated by the course instructor.
- Doctoral Learning Community (DLC) is defined as the scaffold enabling doctoral students to develop scholarly dispositions and knowledge through varied formal and informal activities (Berry, 2017; Wenger, 1998; Wenger & Snyder, 2000).

Section 1: Demographic data
1. Gender-male/female/other/prefer not to respond
2. Race-American Indian or Alaska Native/Hispanic or Latino/Asian/Black or African American/Native Hawaiian or other Pacific Islander/ White/Other
3. Age -20-29/30-39/40-49/50-59/60-69/70-79
4. Doctoral program-EdD/DBA/DHA/DPS
5. What stage of the program are you in? Year 1-Course work, Year 2- course work, Year3- course work

Section 2: Doctoral Student Perception of Voluntary Meet Sessions
1. They are a valuable use of my time
2. They help me feel more comfortable with my classmates
3. They help to clarify course content
4. They contribute to the development of a Doctoral Learning Community (DLC)in a virtual environment
5. They help to increase my engagement with the course
6. They help to increase my engagement with classmates
7. They were a factor in me remaining in the course
8. They were a factor in me remaining in the program
9. They provide practice for doctoral students to engage in collaborative discourse
10. They are important in developing doctoral faculty/doctoral student interaction
11. They are important in developing doctoral student/doctoral student interaction
12. Attending a voluntary weekly meet session had a positive impact on my course grade
13. I attend most scheduled voluntary meet sessions
14. I only attend mandatory meet sessions
15. I prefer to watch recordings of the voluntary weekly meet session
16. I feel obligated to attend voluntary weekly meet sessions
17. I enjoy attending voluntary weekly meet sessions
18. I have used Zoom breakout rooms in voluntary meet sessions

Section 3: Doctoral Student Perception of Zoom Breakout Rooms
1. They facilitate collaborative discourse
2. They are a valuable use of my time
3. They contribute to the development of a virtual Doctoral Learning Community (DLC)
4. They enhance learning in a virtual environment
5. I enjoy the small group interactions on breakout rooms

Thank you for participating in our survey. Your feedback is important.
For information:
- The weekly voluntary meet session is a synchronistic one-hour zoom session facilitated by the course instructor.
- Doctoral Learning Community (DLC) is defined as the scaffold enabling doctoral students to develop scholarly dispositions and knowledge through varied formal and informal activities (Berry, 2017; Wenger, 1998; Wenger & Snyder, 2000).

Section 1: Demographic data
1. Gender-male/female/other/prefer not to respond
2. Race-American Indian or Alaska Native/Hispanic or Latino/Asian/Black or African American/Native Hawaiian or other Pacific Islander/ White/Other
3. Age -20-29/30-39/40-49/50-59/60-69/70-79
4. Credential-DBA/DBH/DHA/DM/DNP/EdD/PhD/Other
5. Doctoral program-EdD/DBA/DHA/DPS
6. Employment Status-Faculty/Adjunct Faculty/University Administrator

Section 2: Faculty Perception of Voluntary Weekly Meet Sessions
1. Do you hold voluntary weekly meet sessions?
2. They are a mandatory program requirement
3. They are a program expectation
4. They are a valuable use of my time
5. They contribute to the development of a Doctoral Learning Community (DLC)in a virtual environment
6. They contribute to the development of a doctoral student's social presence in a virtual environment
7. They provide practice for doctoral students to engage in collaborative discourse
8. They help to clarify course content
9. They help to increase doctoral student engagement with the course
10. They are important in developing doctoral faculty/doctoral student interaction
11. There is a positive relationship between attendance at voluntary weekly meet sessions and course grade
12. I have used Zoom breakout rooms in voluntary meet sessions

Section 3: Faculty Perception of Zoom Breakout Rooms
1. They facilitate collaborative discourse
2. They contribute to the development of a virtual Doctoral Learning Community (DLC)
3. They enhance learning in a virtual environment

Appendix C
Focus Group Questions

1. In a recent survey completed by 50 doctoral students (DBA-13, DHA-11, DPS-2 & EdD-22), 48 students (96%) said that they had completed a course with voluntary meet sessions.
    a.) We are interested to know whether all the courses you have so far completed had voluntary meet sessions?
    b.) Were voluntary meet sessions the norm in all courses or an exception?

2. 83% of survey respondees identified voluntary meet sessions as contributing to the building of a Doctoral Learning Community (DLC).
    a.) How would you define a DLC and how do you think that the voluntary meet sessions contribute to the building of a DLC?
    b.) Can you identify any other aspects of your program that help to build a DLC?

3. 48% of survey respondees work more than 40 hours per week and 48% have children under 20 years old. Nevertheless, virtually all survey respondees reported that attending voluntary meet sessions is a good use of their time, enhances faculty and student relationships; student to student relationships; and contributes to grade enhancement.
    a.) Would you agree/disagree with this overall assessment?
    b.) Do personal/professional responsibilities, or both impact your ability to participate in voluntary meet sessions?
    c.) Is there an impactful difference between participating in a voluntary meet session and watching the recording?

4. Just under 50% of respondees have completed a course where zoom breakout rooms were used. This was perceived as a positive experience.
    a.) Have you experienced the use of breakout rooms in your course?
    b.) Do you think zoom breakout rooms contribute to the development of peer relationships and the building of a DLC?

5. Finally, as doctoral student representatives at _ University are you able to make any other suggestions that faculty can implement in addition to Canvas course content that would enhance your engagement with the course and build a Doctoral Learning Community?