

**A Mixed-Method Study: Understanding Student Ties in a Distance Learning  
Educational Leadership Cohort**

by

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## **Abstract**

With instructional delivery for education changing at an increasing rate from the traditional face-to-face classes to distance learning and hybrid formats, educators must stay current with best practices. Cohorts, which have been an essential part of effective leadership preparation programs in traditional settings (Davis, 2016; Donmoyer et al., 2012), can help foster student engagement and create supportive environments (Bista & Cox, 2014; Pemberton & Akkery, 2010) in distance learning contexts.

The purpose of this study was to explore how doctoral students experience social presence (Garrison, Anderson, & Archer, 2000) in a distance learning educational leadership cohort. The mixed-methods explanatory sequential case study (Creswell & Plano-Clark, 2018) was a two-phase design that allowed the researcher to examine student interactions and the development of relationships in both breadth and depth. Data collection from multiple sources included surveys and discussion thread transcripts in the first phase followed by group text messages and interviews in the second phase. Descriptive statistics and visualizations were generated using social network analysis (Borgatti et al., 2018). With relationships being the focus, the researcher explored the individual's experience while getting a picture the whole cohort from different perspectives (Knapp, 2017). Bounded by time and location, the study focused on the first-semester experience of thirteen doctoral students at a large public university in the south.

Findings from this study revealed that the strength of ties in the expressive network (personal relationships) was not a predictor of the strength of ties in the instrumental network (academic engagement). This finding suggests that cohort members were just as likely to engage academically with cohort members outside their expressive network, which allowed for exposure

to diverse opinions and perspectives. The qualitative results in the second phase expanded upon the quantitative results. Three themes emerged from the participants' stories told during six interviews. Each cohort member shared how important it was to develop relationships within the cohort, how this was their support system, and how they felt it was the program structure that allowed for opportunities to develop as a cohort. Strategies that foster the development of social presence were identified and could be used to inform future distance learning cohort programs.

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## **Chapter I: Introduction**

With instructional delivery for education changing at an increasing rate from the traditional face-to-face classes to distance learning and hybrid formats, educators need to stay current with best practices. Online educational leadership programs can produce equivalent learning experiences to traditional on-campus programs (Schlosser & Simonson, 2009). Cohorts, which have been an essential part of effective educational leadership preparation programs in the traditional settings, (Barnett et al., 2000; Davis, 2016; Donmoyer et al., 2012; Darling-Hammond et al., 2007; Pemberton & Akkary, 2010) are also used in distance learning contexts. Cohort programs help foster student engagement and help create a supportive learning environment (Bista & Cox, 2014; Brindely et al., 2009; Pemberton & Akkary, 2010). The researcher intended to explore student interactions and the development of relationships within distance learning cohorts.

Student interactions and social relationships are important factors for graduate student success. Educational leadership courses emphasize the value of collaborative learning by creating opportunities for student-student interaction. Best practices for designing courses and cohorts include elements to promote interaction and foster relationships. Interaction helps establish social presence, the ability of the learner to project his or her authentic self (Garrison et al., 2000), and allows for the development of a sense of belonging as students converse and make impressions on one another. As students experience a sense of belonging, they are more likely to share perspectives and express disagreement enabling collaboration and sense of community (Garrison et al., 2000), which is all needed to create a supportive, trusting environment (Boling et al., 2012). Social network analysis has provided researchers an effective means to analyze the student-student interaction (Crosta, Manokore, & Gray, 2016; Giri, Manongga, & Iriani, 2014;

Hernandez-Garcia, Gonzalez-Xonzalez, Zarco, & Caparro-Palaez, 2016). However, there is a gap in the literature and a need for research on how to build and maintain cohorts, or community of learners, for online programs (Bista & Cox, 2014; Boling et al., 2012; Choi, Browne-Ferrigno, & Muth, 2005; Ladyshevsky & Taplin, 2014; Myers, Jefferey, Nimmagadda, Werthman, & Jordan, 2015; Robertson & Webber, 2004).

The researcher created a social network survey and interview protocol for this mixed-methods case study. Those new data were examined along with archival data using social network analysis in order to explore the cohort experience of thirteen doctoral students in a distance learning educational leadership program in terms of social presence (Garrison et al., 2007). The purpose of this study was to explore the cohort experience for graduate students in an educational leadership program. The researcher intended that the findings from this study be used to provide practitioners with research-based strategies to inform development of future cohorts for a distance learning educational leadership program.

### **Statement of the Problem**

Professors have been facing challenges, as many graduate programs began to offer graduate programs online to meet the needs of full-time working professionals (Ladyshevsky & Taplin, 2014). Evidence has shown transitioning traditional on-campus courses to an online format has been challenging for both professors (Boling et al., 2012) and students (Hendricks & Bailey, 2014). Educators must use research-based strategies for designing and implementing online courses in order to effectively engage students as they explored new concepts (Smith, 2015). Educators work to facilitate learning opportunities that foster a supportive learning environment and encourage student interaction (Boling et al., 2012; Giri et al., 2014; Hernandez-Garcia et al., 2016; Lamaster & Knop, 2009; Lucey, O'Malley, & Jansem, 2009; Luhrs &

McAnally-Salas, 2016; Robertson & Webber, 2004; Thormann, Gable, Fidalgo, & Blakeslee, 2013).

While engaging course design can set the stage for student-student interaction, researchers support the use of cohorts to promote mutually supportive relationships among students. Studies have shown benefits to graduate students in educational leadership cohorts' programs include continuous support, developed interpersonal collaboration skills, and higher rates of graduation (Barnett et al., 2000; Bentley et al., 2004; Donmoyer et al., 2012).

Researchers demonstrated the need for the development of relationships as well as the need for authentic social presence within cohorts for distance learning courses (Berry, 2017; 2018; Crosta et al., 2016; Giri et al., 2014; Hernandez-Garcia et al., 2016; Thorpe, McCormick, Kubiak, & Carmichael, 2007). Other researchers have used social network analysis to examine different types of relationships and to understand types of networks (Baker-Doyle, 2012; Ellwardt, Labianca, & Wittek, 2012; Hernandez-Garcia et al., 2016; Luhrs & McAnally-Salas, 2016; Matthews et al., 2015; Maudlin, Narendorf, & Mollhagen, 2017; Moolenaar & Slegers, 2010; Tirado, Hernando, & Aguadad, 2012).

By recognizing and understanding patterns of interaction associated with different types of student-student relationships, educators can continuously improve their programs and structures that support them (Reames, 2016). The development of mutually supportive relationships in expressive networks (Moolenaar & Slegers, 2010) is a primary indicator of social presence (Tirado et al., 2012). Social presence is also reflected in the student-student interactions of instrumental networks (Maudlin et al., 2017; Moolenaar & Slegers, 2010). Very few studies have addressed patterns of interactions and relationships in both cohort programs and the individual online courses that cohort members take. Of those that did, none made use of

social network analysis to understand the structural elements of student-student relationships. Understanding the cohort experience requires both knowledge of the supporting relationships among members and the student-student engagement found in the individual courses within the program of study. Social network analysis offers a unique way to study both types of relationships simultaneously, providing educators with unique insights.

The researcher explored the cohort experience for a distance learning educational leadership graduate program because she believes that the cohort program is a major factor in the success of each member and the cohort as a whole. The researcher was particularly interested in how cohort members experience social presence, and she planned to use social network analysis as she examined student ties looking for indicators of social presence.

### **Purpose of the Study**

Researchers found that cohorts, which are inherently designed to develop social presence (Garrison et al., 2000), were associated with higher retention rates for graduate students in educational leadership programs (Bista & Cox, 2014) and increased graduation rates (Lake, Koper, Balayan, & Lynch, 2018). Social presence plays an important role in creating a supportive, trusting online learning environment (Boling et al., 2012; Garrison, Cleveland-Innes, & Fung, 2010). Cohort members need to have opportunities to make authentic connections (Swan & Shih, 2005) and to “project themselves socially and emotionally” (Boston et al., 2010, p. 4). The purpose of this study was to explore the cohort experience and examine relationships that developed within the graduate-level distance learning educational leadership cohort in terms of social presence. For this study, distance learning cohort experience will be defined as experiences related to graduate students in the same program, which had three face-to-face sessions for each course during the first semester, with the same course sequence where many of

its assignments and support provided in an online format. Social presence plays an important role in academic success for these students (Berry, 2017; 2018; Thorpe et al., 2007).

Researchers found that implementation of cohort models and identified their use as an integral part of educational leadership programs (Barnett et al., 2000; Darling-Hammond et al., 2007; Donmoyer et al., 2012; Pemberton & Akkary, 2010;). In this study, the researcher used a mixed-methods approach to explore the relationships that develop within the graduate-level educational leadership distance learning cohort in the College of Education at a large public university in the south.

### **Conceptual Framework**

Guided by a social constructivist (Vygotsky, 1978) approach, the researcher explored the educational leadership distance learning cohort experience using the Community of Inquiry (CoI) framework (Garrison et al., 2007). Researchers have frequently used the CoI framework for studying online interactions to explore relationships and communities (Berry, 2017; 2018; Boston et al., 2009; Crosta et al., 2016; Swan, Day, Bogle, & Matthews, 2014).

The researcher's epistemological, ontological, and axiological approaches have been influenced by her values, beliefs, and experiences (Grant & Osanloo, 2014). She believes that student exposure to alternative viewpoints of their peers facilitates social learning and leads to a deeper, more nuanced application of core concepts within a discipline. She believes that individual perceptions of reality could be reconciled and reshaped through social mediation. Cohorts foster this kind of transformative experience. She believes that cohorts and their development are an essential part of the educational leadership preparation program. The desired outcome of this study is for future graduate students in the distance learning educational

leadership program to have increased student success, which would be evident by academic engagement, student-student communication, and cohesion within cohorts.

With origins dating back to John Dewey (1959), the Community of Inquiry is a framework defined as, “a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct meaning and confirm mutual understanding” (Garrison, 2011, p. 2). Figure 1 shows indicators of social presence that are the foundation needed for students to develop as a community of learners (Berry, 2017; 2018; Thorpe et al., 2007). A sense of belonging develops as students have opportunities to interact and make impressions on one another. When students feel comfortable and continue to interact, they are more likely to share perspectives and present opposing views. Eventually, a cohesive group enables collaboration and a sense of community.

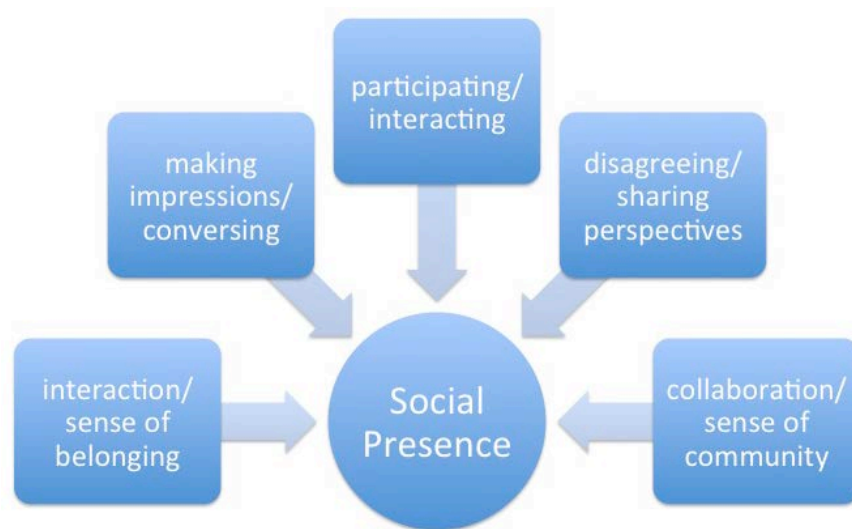


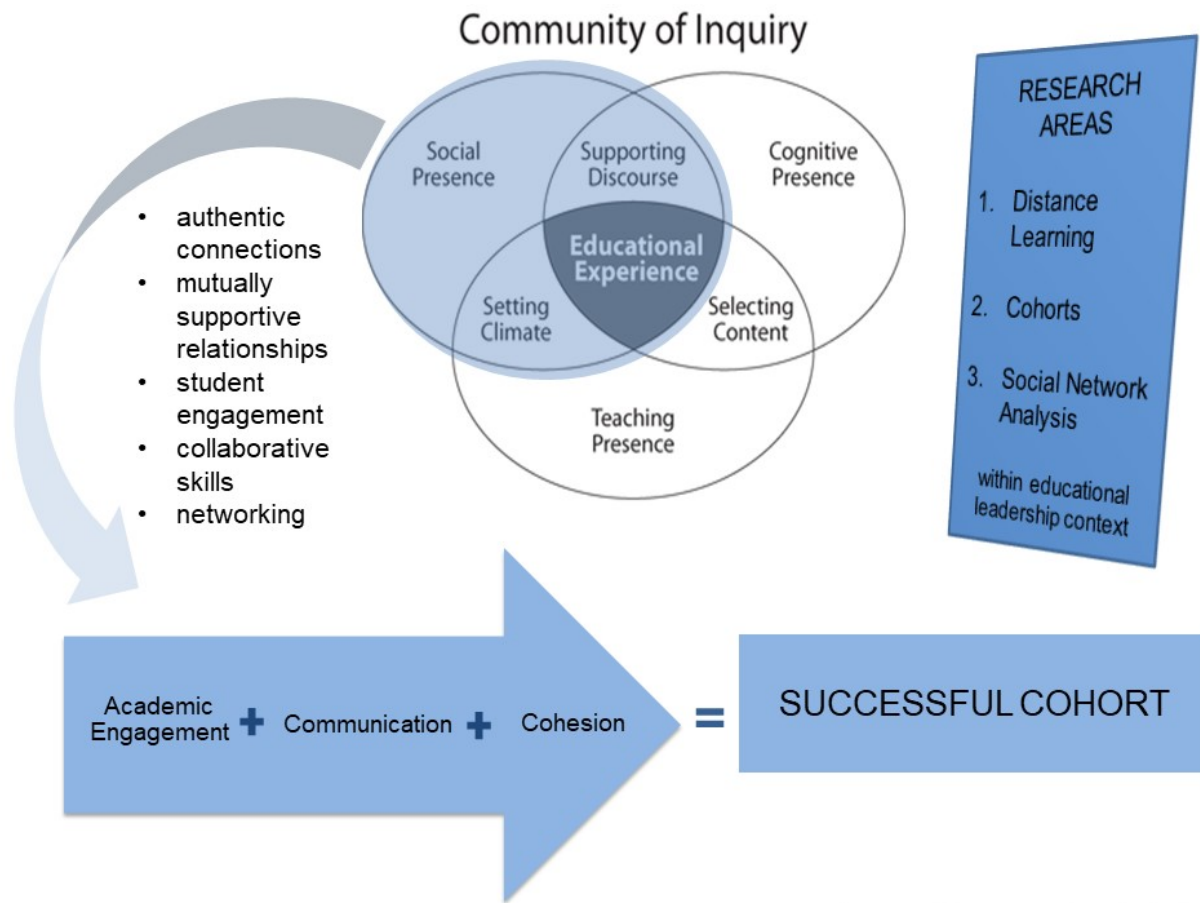
*Figure 1.* Indicators of Social Presence (Adapted from Garrison et al., 2000; 2010)

The CoI framework informs educators as they design, facilitate, and assess courses in an online environment (Garrison & Akyol, 2013) using the three presences (social, cognitive, and teaching) as a guide. While these three presences are interconnected and are equally important to

student success, professors are responsible for creating the environment conducive to the development of social and cognitive presences.

Social presence describes the cohort members' abilities to "identify with the group, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their personalities" (Garrison & Akyol, 2013, p. 7). There is likely to be a higher level of social presence found in courses designed so that students could work together, share their professional experiences, and develop mutually supportive relationships (Keengwe & Schnellert, 2012). From a constructivist perspective, students need to interact to understand meaning more completely and to produce new knowledge (Gunawardena, Lowe, & Anderson, 1997). Building trusting relationships plays an important part in the process of social presence (Greenlee & Karanxha, 2010). Elements of cognitive and teaching presences are each reflected in social presence.

The CoI framework presented in the top portion of Figure 2 shows the interconnectedness of all three presences. For example, cognitive presence is evident when students can have class discussions involving learned concepts with other students. If students address opposing views during that discussion that is indicative of social presence. All this takes place under the guidance of their professor, the teaching presence. Berry's (2018) research found that students in an online learning environment relied less on teaching presence than it does on social presence. However, Bush et al. (2010) emphasized the importance of teaching presence, as it is needed for "establishing a learning environment that will allow the social and cognitive presences to take shape and create a community where learning can be effective" (p.11). The bottom portion of Figure 2 shows that social presence is needed for the success of graduate students in distance learning educational leadership cohorts.



Community of Inquiry model by Garrison, Anderson, & Archer (2000)

Figure 2. Using SNA to explore a distance learning cohort experience in terms of elements of social presence. Permission received from Garrison to use this figure.

## Research Questions

**Central question.** How do doctoral students experience social presence (Garrison et al., 2000) in an educational leadership distance learning cohort program at a large public university in the south?

### Sub questions.

1. How do the patterns of interaction among cohort members differ between expressive and instrumental networks?
  - 1a. Correlation between strength of ties
  - 1b. Connectedness within networks

2. What elements of social presence were evident through interaction in the expressive and instrumental networks?
3. What elements of social presence were evident through the lived experience of cohort members?

## **Research Design**

The researcher created a social network survey and interview protocol for a mixed-method design to explore the distance learning educational leadership cohort experience. The explanatory sequential case study (Creswell & Plano-Clark, 2018) began with a collection of quantitative data that connected to and expanded on by the qualitative data (Creswell & Plano-Clark, 2018). The mixed-methods study was guided by the Community of Inquiry's (Garrison, 2007) social presence component using social network analysis. This design is described in detail in Chapter Three.

## **Assumptions**

Although the researcher's experience as a doctoral student does not include being part of a cohort, she has several methodological assumptions based on what it means to be a doctoral student. Based on Knowles' (1984) theory of adult learning and the rigorous admissions process (Main University, 2017), she assumed that being a doctoral student in the educational leadership cohort program would mean that they are experienced, ready to learn, and motivated. Doctoral students would be "self-directed, autonomous, informed, and proactive learners" (McCarthy, Trenga, & Weiner, 2005, p. 24) with high levels social presence. This assumption was made based on fact that doctoral students within the cohort for this study entered into the program as adult learners with professional experience as educators. This experience would give more meaning to their input on the survey instrument and interview protocol created by the researcher.

The researchers also assumed the participants would answer the social network survey honestly and to the best of their ability; and that participants who were interviewed would share their experiences openly and honestly. These assumptions are based on the importance of relationships within the cohort as well as evidence of social presence.

### **Delimitations**

The university program that was selected for the study was preparing for accreditation. The program coordinator and faculty were interested in the results of this study as part of their commitment to the continuous improvement process. Since the goal was to explore a graduate-level educational leadership distance learning cohort experience, the researcher used a purposeful sampling for this mixed-methods study. Quantitative data were collected through the use of the social network survey and archived transcripts from an online discussion thread. The discussion thread was from a required weekly assignment within an introductory educational leadership course that all cohort members took the first fall semester. Qualitative data were collected using semi-structured interviews and group text messages. A social network analysis followed by content analysis allowed the researchers to examine the relationship ties within the cohort.

The research was bounded by time and location (Berg & Lune, 2012; Merriam & Tisdell, 2017): covering the cohort's first semester, August through December at Main University (a pseudonym), which is a large public university in the south. The sample included thirteen members of the doctoral program who made up the distance learning educational leadership cohort that began in the fall of the same year. Inclusion criteria included doctoral students new to the educational leadership program beginning fall of the same year as well as students who applied and accepted into the doctoral program after completing their educational specialist degree that same year. For this study, the researcher adopted the Community of Inquiry's

(Garrison, 2007) social presence as a lens through which to answer questions about the relationships as they relate to the cohort experience.

### **Significance**

Understanding student ties is a specific need for research on distance learning cohort development for educational leadership programs as instructional delivery for these programs are moving to an online format. Researchers have found that online programs can produce equivalent learning experiences to traditional face-to-face programs (Schlosser & Simonson, 2009). With cohorts being an essential part of effective educational leadership preparation programs (Darling-Hammond et al., 2007, Davis, 2016), there is a need for research on how to build and maintain these community of learners, for educational leadership students in an online environment (Bista & Cox, 2014; Boling et al., 2012; Choi et al., 2005; Ladyshewsky & Taplin, 2014; Myers et al., 2015; Robertson & Webber, 2004).

The researcher noticed a gap in the literature as she conducted her literature search to find empirical studies within the past ten years. When the researcher used the university's database and entered the key terms, *distance education* or *distance learning*, and *educational leadership*, the search yielded fifty-four empirical articles. This number dropped to fourteen when *cohorts* were added; it dropped to three when the term *social network analysis* were added. Of these, only one empirical article was specifically distance learning leadership cohorts and none of these articles referenced social network analysis. The findings from this study can be used to inform implementation of best practices for courses and the development of future cohorts for the distance learning educational leadership program.

## Definition of Terms

- Cohort – A group of students that begin a degree program together and take the same sequence of courses with a common goal of graduation (Barnett & Muse, 1993; Tisdell et al., 2004).
- Community of Inquiry (CoI) – A framework for “creating a deep, meaningful (collaborative-constructivist) learning experience” (Garrison & Akyol, 2013, p. 5).
- Discussion boards – A synchronous or asynchronous form of online communication that promotes student collaboration (Luhrs & McAnally-Salas, 2016) and a sense of community for online learners (Keengwe & Schnellert, 2012; McInnerney & Roberts, 2004; Smith, 2015).
- Distance learning – “An institution-based, formal education where the learning group is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” (Schlosser & Simonson, 2009, p. 6).
- Social Network Analysis (SNA) – A method of analyzing the numerical and visual representation of structures that show relationships among and between people in an organization or community (Wasserman & Faust, 1994).
- Social presence – One of the three components that make up the Community of Inquiry; and the ability of cohort members to “identify with the group, communicate purposefully in a trusting environment, and develop personal and affective relationships progressively by way of projecting their individual personalities” (Garrison & Akyol, 2013, p. 7).

## **Organization of the Study**

This study is organized into five chapters. In Chapter One, the researcher started by defining the topic of study, explaining the problem and purpose, providing relevant literature, and ended with stating her specific research questions and brief overview of design, along with conceptual framework that guided the study. In Chapter Two, the researcher shared more in-depth relevant literature guided by the Community of Inquiry's (Garrison, 2007) social presence as it related to distance learning, cohorts, and social network analysis within the context of educational leadership. In Chapter Three, the researcher offered a reflexivity statement, explained the research methodology and rationale, and gave details about the research design by identifying participants, re-stating research questions, and showing alignment with and explaining data collection and analysis. Chapter Three also included strategies for trustworthiness, validity and ethical considerations. The results were presented in Chapter Four. Chapter Five included the interpretation of results, implications, and recommendations for future research.

## **Chapter II: Literature Review**

Instructional delivery for education is continuously changing at an increasing rate from the traditional face-to-face classes to distance learning and hybrid formats. Students can achieve equivalent, or even greater, learning outcomes for the same course, when offered in online or hybrid formats (Ladyshevsky & Taplin, 2014). The design of a distance learning course was found to be a major factor that contributed to the amount and quality of interaction that would take place between students (Baker, 2003; Barbera, Layne, & Gunawardena, 2014; Hernandez-Garcia et al., 2016; Jenkins, 2016; Ko & Rossen, 2004; Robertson & Webber, 2004; Swan et al., 2014). Student interactions that promoted collaboration, knowledge diffusion, exposure to diverse perspectives, and a strong sense of purpose were important for the development of any group of online learners (Bista & Cox, 2014; Brindely et al., 2009). Social network analysis could then be used to study the patterns of these interactions (Baker-Doyle, 2012; Crosta et al., 2016; Giri et al., 2014; Luhrs & McAnally-Salas, 2016; Maudlin et al., 2017; Thormann et al., 2013; Thorpe et al., 2007).

Online educational leadership programs can produce equivalent learning experiences to traditional face-to-face programs (Schlosser & Simonson, 2009). Cohorts, which have been an essential part of effective educational leadership preparation programs (Darling-Hammond et al., 2007; Davis, 2016) can play a major role when achieving this equivalence. However, there is a gap in the literature and a need for research on how to build and maintain cohorts, or community of learners, for online and hybrid classes (Bista & Cox, 2014; Boling et al., 2012; Choi et al., 2005; Ladyshevsky & Taplin, 2014; Myers et al., 2015; Robertson & Webber, 2004). The researcher intended that the findings from this study be used to inform development of future cohorts for a distance learning educational leadership program.

## **Purpose of the Study**

The purpose of this study was to explore the cohort experience of an online educational leadership graduate program, specifically the student-student interaction. The researcher was looking for interaction that indicated the co-construction of knowledge, diffusion of knowledge, motivation, and support, and ultimately success. With the national graduation rate being at fifty percent for doctoral programs (Council of Graduate Schools, 2010), program completion was included in the definition of success. Best practices for distance learning classes extend to best practices for teaching distance learning classes with cohort programs. For this study, the researcher used Barnett & Muse's (1993) commonly used definition of cohort: "a group of students who begin and complete a program of study together, engaging in a common set of courses, activities, or learning experiences" (p. 401).

The continuation of cohort programs within graduate educational leadership programs was an important consideration as many universities have been moving these programs to a distance-learning format. Professors needed to keep up with best practices for instructional delivery for face-to-face and distance learning courses; while also keeping up with best practices for teaching cohorts. To inform how to best create and maintain a cohort system in an online environment, the researcher explored the patterns associated with best practices for online learning experiences and student interaction. The Community of Inquiry's (Garrison et al., 2000) social presence was used as a guide for this study and used to show how student interactions are evidence of social presence. Recall the indicators of social presence that are the foundation needed for students to develop as a community of learners (Berry, 2017; 2018; Thorpe et al., 2007) shown in Figure 1.

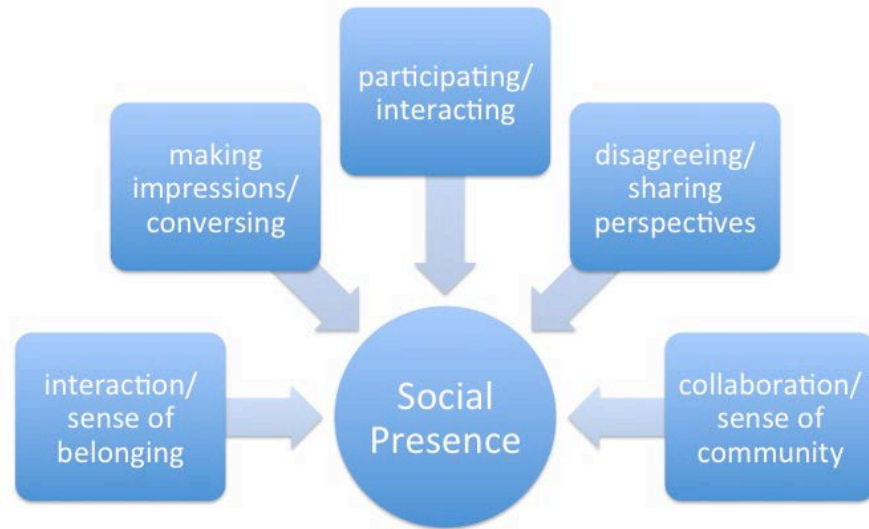
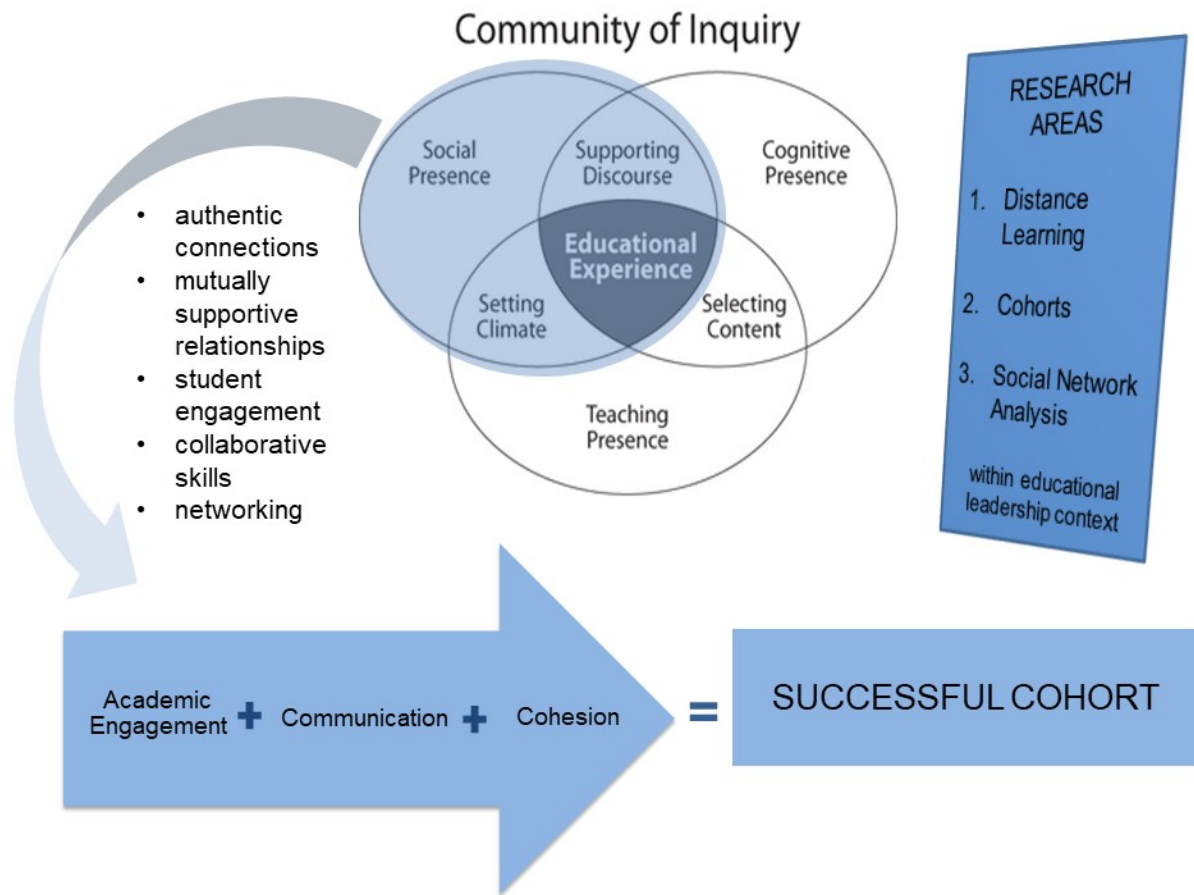


*Figure 1.* Indicators of social presence (Adapted from Garrison et al., 2000; 2010).

Garrison's (2011) research expanded upon a previous study (Akyol, Garrison, & Ozden, 2009) that coded results according to three themes: affective expression, open communication, and group cohesion. As shown in Figure 2, the development of social presence was reflected in and also the foundation for cognitive presence. As a cohort, these students move through the program with a common purpose and benefit from collaboration and the perspective of others.



Community of Inquiry model by Garrison, Anderson, & Archer (2000)

*Figure 2.* This study focused on the social presence component of the Community of Inquiry, using SNA to explore a distance learning cohort.

## Organization

This review of the literature will provide relevant research on distance learning, cohorts, and social network analysis as they pertain to graduate-level educational leadership programs. These topics will be viewed with an emphasis on social presence, from the Community of Inquiry (Garrison et al., 2000). The main questions that will guide this literature review:

1. How are cohorts an essential part of an educational leadership program?
2. How can social network analysis be used to explore the students' relationships in terms of social presence within a cohort program that is part of a distance learning program?

3. How can understanding the development of student-student relationships within a distance learning cohort be used to inform continuous improvement of a distance learning leadership graduate course and the cohort program?

## **Distance Learning**

**Definition.** As times have changed, so has the definition of distance learning education. Schlosser and Simonson (2009) provided a commonly used and broad definition. Distance learning education is “an institution-based, formal education where the group learning is separated, and where interactive telecommunications systems are used to connect learners, resources, and instructors” (Schlosser & Simonson, 2009, p. 6).

**Challenges.** Students face many challenges in adapting to distance learning. First, they must develop technology skills needed to interface with learning management systems. Next, overcoming a feeling of isolation from a lack of face-to-face interaction. Finally, time management is a factor especially for full-time working professionals as they learn to balance the freedom of asynchronous participation with full-time careers. Professors are also facing challenges as many graduate programs were being offered online as universities tried to meet the needs of full-time working professionals (Ladyshewsky & Taplin, 2014).

Some professors made this move from a traditional face-to-face course to a distance learning course simply by transferring course material and assignments online because they did not fully understand effective online teaching pedagogy (Boling et al., 2012). Professors would benefit from professional development workshops that would improve their technology skills and update their teaching methods for online delivery. Professors also need to make sure that there were appropriate tutorials for their students as part of the introduction to the course. Because retention rates for online courses have been an issue for universities, it was imperative

to identify the technology skills needed for students to be successful (Hendricks & Bailey, 2014). How students collaborate and how they move through the course were factors to consider during course design as well.

It was important for professors to use research-based instructional strategies when designing a course. Designing an online course that effectively engaged students as they explored new concepts was a major challenge (Smith, 2015). Student-centered courses foster a supportive learning environment focusing on the instructor facilitating experiences and student interaction (Robertson & Webber, 2004). Using discussion boards for leadership courses allowed students to reflect on their own experiences and think critically about new concepts (Bentley et al., 2004; Bista & Cox, 2014). There were many course design factors for professors to take into consideration when planning asynchronous discussion boards (Smith, 2015).

**Course design.** Educators have been faced with the challenge of ‘moving’ their courses online. Malik (2015) stressed that as the distance learning courses were being designed, they should not just be a ‘replica’ of the traditional face-to-face course and went on to explain how educators needed to be trained in the “specific nature and demands of the type of interaction that was inherent to online courses” (p. 238). Brey (2006) cited Stasi (2002) who has claimed that many approaches to distance learning

too often suffer from Tayloristic and behavioral approaches to learning, but argues the newer theories of collaborative, ecological learning can be used together with collaborative computer technologies to create a new distance learning paradigm in which learning has many of the same qualities as it has in its traditional universities (Brey, 2006, p. 3).

Faculty should keep in mind that

no matter what is developed [using learning management systems and Web 2.0,] the tools incorporated into the program need to enhance their ability to transmit course content, increase students' ability to understand the content and to effectuate increases student engagement with content and their colleagues (Deschaine & Whale, 2017, p. 7).

As a way to combat the feeling of isolation, researchers emphasized the need for educators to use appropriate pedagogy when creating online learning communities for students in distance learning courses (Deschaine & Whale, 2016; Ukpokodu, 2008). As professors gain experience with teaching online courses, they should use the challenges faced, along with end-of-course surveys, each semester to guide course improvements (Hendricks & Bailey, 2014).

After conducting a grounded design-based methods study for over four years, Swan et al. (2014) recommended two tools to evaluate distance learning course design. The first is the *Quality Matters* (Quality Matters, 2005) rubric. Quality Matters (QM) assesses the following categories: course overview, learning objectives, assessment and measurement, resources and materials, learner engagement, course technology, learner support, and accessibility. While QM addresses many tangible elements of course design, the *Community of Inquiry* (Garrison et al., 2000) survey was a valuable second tool, which measured students' perceptions of their learning environment across various dimensions. After collecting baseline data, Swan et al. (2014) used these tools to improve a distance learning graduate-level leadership program.

### **Evaluation of a Distance Learning Course**

**Quality Matters.** This rubric, used widely across the United States and in eight other countries, is considered an international standard for online learning (Quality Matters, 2017). After the first semester that a new distance learning course has been implemented, Swan et al.

(2014) recommended that professors evaluate the course. The Quality Matters rubric was used objectively to inform course design. Evaluators gave a value, using a three-point scale, to each of the forty-one items to determine the extent to which they believed the criteria had been met.

One sample item from each category of the QM rubric:

- Learners are introduced to purpose and structure of the course (Overview)
- All learning objectives are stated clearly and written from the student's perspective (Learning objectives)
- The course provides learners with multiple opportunities to track their learning progress (Assessment and measurement)
- A variety of instructional material is used (Resources)
- The requirements for learner interaction is clearly stated (Engagement)
- Course tools promote learner engagement and active learning (Course technology)
- The course instructions articulate or link to a clear description of the technical support offered and how to obtain it (Learner Support)
- Course navigation facilitates ease of use (Accessibility and usability)

**Community of Inquiry.** The Community of Inquiry (CoI) survey was used to subjectively evaluate the students' perceptions of the three presences – cognitive presence, social presence, and teaching presence. This survey consisted of thirty-four items using a five-point scale and allowed the student to rate each one at the end of the course. One sample item of each:

- Online discussions were valuable in helping me appreciate different perspectives (Cognitive Presence)
- Online or web-based communication is an excellent medium for social interaction (Social Presence)

- Instructor actions reinforced the development of a sense of community among course participants (Teaching Presence)

Professors took these indicators of social presence into consideration when creating courses for a cohort program. The courses were designed so that students could work together, share their professional experiences, and develop mutually supportive relationships. Professors gave an optional online end-of-course survey that provided data used to guide future course development (Keengwe & Schnellert, 2012).

Swan et al. (2014) looked to Boston et al.'s (2009) research findings that showed the students reported to be affected by eighty-eight percent of the CoI survey items related to social presence. Boston et al.'s (2009) quantitative study, which consisted of 28, 877 undergraduate students, showed a statistically significant relationship between social presence and student retention in an online program.

***Indicators of social presence.*** The following statements were on the CoI Survey. Students who strongly agreed had a higher perception of social presence within the online course (Garrison et al., 2000; Swan et al., 2014).

- *Getting to know other course participants gave me a sense of community in the program.* This statement demonstrated the importance of courses being designed with intentional introductory activities.
- *I was able to form distinct impressions of some course participants.* This statement showed that participants' personalities could come through in an online environment. Students could get to know one another as 'real people' (Swan & Shih, 2005).

- *Online or web-based communications is an excellent medium for social interaction.* This statement assessed how the participant feels in general about communicating online, which was important to take into consideration.
- *I felt comfortable conversing through the online medium.* This statement indicated the participant's level of comfort using online communications. Students have the opportunity to "project themselves socially and emotionally" (Boston et al., 2010, p. 4).
- *I felt comfortable participating in online discussions.* Since the goal was to develop a sense of community, this was an important indicator along the way (Garrison et al., 2010).
- *I felt comfortable interacting with other course participants.* These two statements indicated the participant's level of comfort with required and non-required interaction.
- *I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.* Each statement expanded on the previous statement; participants need to have opportunities to develop trust. Students should be able to disagree with each other, and this statement assessed the degree to which this is happening.
- *I felt that my point of view was acknowledged by other course participants.* Sharing one's point of view is just as important as hearing someone else's point of view. Participants were more likely to share if they are acknowledged.
- *Online discussions help me develop a sense of belonging.* Online discussions were one way to help foster a sense of community (Garrison et al., 2010).

These indicators of social presence emphasized the importance of a supportive, trusting online learning environment as a way to foster student engagement (Boling et al., 2012; Garrison et al., 2010).

Akyol, Garrison, and Ozden's (2009) mixed-methods study included thirty students who were part of an online Master of Education program. The researchers had the participants take the CoI Survey, analyzed discussion transcripts, and conducted interviews. One student said, "social presence increases your comfort level...You are more inclined, to be honest, straightforward and honestly who you are...you want to share more ideas and express viewpoints" (p. 75). Students indicated that social presence developed more quickly with smaller groups (Akyol et al., 2009).

Bista and Cox's (2014) mixed-method research found that students in educational leadership graduate-level cohorts, which are inherently designed to develop social presence, were associated with higher retention rates. Despite a response rate of just forty-eight percent, one hundred percent were either satisfied or highly satisfied with the program structure and cohort model. Students "felt that class schedules and workload were all manageable. They were great for working people!" (p. 11). More research is needed on how online learning will impact development of student relationships and retention rates (Koole & Stack, 2016).

The CoI framework validated the importance of the teaching presence. "Teaching presence is crucial in establishing a learning environment that will allow the social and cognitive presences to take shape and create a community where learning can be effective" (Bush et al., 2010, p.11). The CoI model was used to show the interactions among teaching presence, social presence, and cognitive presence. For example, students needed to be able to have class discussions involving learned concepts with other students (cognitive presence) that may address

opposing views (social presence) under the guidance of their professor (teaching presence). An online learning environment relies less on teaching presence than it does on social presence within the community of learners (Berry, 2018).

***Complementary evaluations.*** The data from the CoI survey was used in conjunction with the QM data to inform how instructors choose what assignment and activities they want for the best student outcomes. While the QM rubric and the CoI survey were very different evaluation instruments being used, they ‘complemented’ each other. “Since its inception, the Community of Inquiry framework has most frequently been cited for explaining online learning experiences” (Boston et al., 2009, p. 63).

### **Assumptions about Adult Learners and Cohort Members**

Based on the five main assumptions that adult learners are mature, have life experiences, come to class ready to learn, come to class ready to apply new concepts, and are motivated to learn (Knowles, 1984), educators can expect that graduate students who enter into the cohort program are “self-directed, autonomous, informed, and proactive learners” (McCarthy et al., 2005, p. 24).

Hendricks and Bailey’s (2014) exploratory study with fifty-one graduate students in a distance learning leadership program, found that to be successful, students must be proactive learners and take advantage of the support and tutorials provided, as well as find out what skills are needed as they begin a course or program. Although students are self-directed learners and professors act more as facilitators than in the past (Hernandez-Garcia et al., 2016), students still “require structured support before commencing self-directed learning activities, until they achieve a greater degree of independence” (Mello, 2016, p. 15).

It is assumed that cohort members bring professional experience. Many of them attending graduate school for some of the same reasons: recognition, professional advancement, salary increase, pursue lifelong dream.

### **Continuous Improvement**

The patterns of interaction that were shown to be associated with positive student outcomes could be used to guide the continuous improvement of courses and programs for online graduate students in an educational leadership program. Professors would look for evidence of collaboration or ties, strong and weak, which indicated co-construction and diffusion of knowledge. They could then conduct a social network analysis to inform improvements of an online course and highlight the individual's contribution to the group's learning experience (Thorpe et al., 2007). A professor could use the analysis to see which students were not connecting, which students were staying in the same small subgroups, or for tracking misunderstood concepts. While an analysis of student interaction during the semester may seem time-consuming and unrealistic, optional tools offered in learning management systems, such as Blackboard or Moodle, enable real-time monitoring of interaction (Luhrs & McAnally-Salas, 2016).

Although people often rely on intuition and informal observation to assess the flow of information, research has shown that one's ability to accurately assess their cognitive social structure (Borgatti, Everett, & Johnson, 2018) was about thirty percent (Casciaro, Carley, & Krackhardt, 1999). An analysis using statistical data using social network software could help improve future distance learning courses (Hernandez-Garcia et al., 2016). Social network analysis offers a means for understanding patterns of interaction that were associated with effective learning communities and their impacts.

## **Transition from Traditional to Distance Education Format**

Even the most competent, experienced professor would find redesigning a traditional face-to-face course a challenge. Adapting courses for online delivery requires more than just converting all the course materials and assignments expecting to teach the course in the same way (U.S. Department of Education, 2006). Barbera et al.'s (2014) research stressed the importance of instructors aligning online experiences and student learning objectives. Ladyschewsky & Taplin's (2014) findings supported and expanded previous research (Ladyschewsky & Taplin, 2004; Schachar & Neumann, 2010; Sitzman, Krieger, & Stewart, 2006; U.S. Department of Education, 2006) which indicated that, "fully online learning outcomes can equal or surpass outcomes in a face to face classroom education" (p. 284).

**Equivalency Theory.** The guiding principle when designing and developing a distance learning course was based on the equivalency theory. Equivalency theory explains how "the more equivalent the learning experiences of distance education students are to that of local students, the more equivalent will be the outcomes of the learning experience" (Simonson, 2009, p. 231). According to the U.S. Department of Education (2006), distance learning course designers should create comparable experiences matching the learning objectives as close as possible to the traditional face-to-face course.

Carson's (2012) research described how a professor who did not want to lose "the desirable and valued characteristics of her face-to-face course" (p. 596), e.g. creating a community of learners that was so highly rated by students in her course evaluations. She wanted to maintain her teaching style and "replicate an environment of engagement and collaboration with the students online" (Carson, 2012, p.596). Aligning course objectives with learning experiences is not the only challenge; technology can also create obstacles. It is

imperative to have technical support staff as well as support from one's colleagues. It is also recommended that professors take advantage of professional opportunities, such as workshops and classes on how to teach a distance learning course (Bush et al., 2010; Carson, 2012; Swan et al., 2014). The two biggest factors that will determine success: the time available for the professor to redesign the course and the support she received along the way.

### **Best Practices for Distance Learning**

According to Jenkins' (2016) research, discussion boards were one of the most frequently used instructional strategies used by professors for distance learning leadership courses. Discussion boards were also included in the most frequently used assessment strategies, along with term papers, formative quizzes, and participation. Instructors wishing to use asynchronous discussion boards should be aware of certain factors when planning for their use. According to Berry (2008), instructors should plan about five discussions per semester rather than one every week with ideal group size being between four and nine students. He cited Biesenbach-Lucas' (2004) study that included five semesters with fewer discussion boards and found that the quality of student contributions increased. As Berry (2008) reflected on his own experience he believed that seven discussions in a course worked well and said, "One discussion a week gets tiresome in a 16-week class" (p.3). He agreed with Smith (2015) when he claimed that students should be given a rubric for this graded assignment and be required to comment on other students' posts. The use of discussion boards was an important part of student collaboration (Luhrs & McAnally-Salas, 2016) and the development of community for online learners (Keengwe & Schnellert, 2012; McInnerney & Roberts, 2004; Smith, 2015).

Professional development workshops should teach well-established, successful strategies to promote best practices. However, novel and infrequently used strategies should also be

included in workshops to broaden the set of successful instructional strategies. In particular, educators need to learn more effective means of group work (Jenkins, 2016). In addition to promoting best practices, there were instructor-related factors that affected collaboration levels, such as variation in computer skills and instructor experience (Luhrs & McAnally-Salas, 2016).

**Discussion boards for collaboration.** The Equivalency Theorem stated, “deep and meaningful learning was supported as long as one of the three interactions (student-teacher; student-student; student-content) is at a high level” (Anderson, 2003, p. 4). Students having ‘robust and meaningful’ (student-student) discussions throughout the semester were evidence of high social presence (McRay, Goertzen, & Klaus, 2016). Anderson (2003) pointed out that substituting one type of interaction for another was an acceptable solution when planning an online course and that the instructor or course designer should “make judgments about its effectiveness” and “critically evaluate just how much human interaction should take place” (p. 10).

According to Smith’s research (2015), students were able to have meaningful discussions about the new concepts that would not necessarily have taken place if it were not for the discussion post assignments. Students also demonstrated the ability to ‘respectfully’ disagree with one another. In order for professors to most effectively use discussion boards in their distance learning leadership courses, they needed to allow students to practice posting using graded examples with the use of a simple rubric. The professor should be a facilitator of this process by giving feedback privately and checking participation. It is also recommended that professors split larger classes into smaller groups, with a maximum of five students per group. Discussions should be kept closed until each student has made an initial entry post, which may enhance student reflection (Smith, 2015).

**Discussion boards for leadership development.** The value of collaborative learning environments goes beyond the diffusion of knowledge as it promotes leadership development and social change. When students and instructors become partners in the learning process, students were more likely to make the connection between what they were learning and the social changes that needed to take place (Caruthers & Friend, 2014). Sharing experiences that encouraged social change helped develop future leaders. Distance learning courses made it possible for “learning to be extended across a more suitable time frame allowing for more reflection, which is a “critical component of leadership development” (Boyatis & Kran, 1999, p. 284). A high level of student-student interaction was crucial in order to create the support system required in a distance learning course.

Keengwe and Schnellert’s (2012) study of an online education course found that discussion boards were the most popular way for professors to communicate with students while students preferred using e-mail. Although they found that e-mails were a “technological tool that encouraged student learning,” professors should encourage the use of other “technological tools, such as wikis” (Keengwe & Schnellert, 2012, p. 34) to maximize the effect. McInnerney and Roberts (2004) also found student communication through both e-mail and discussion boards played an important role in the student learning experience as both are ways students could communicate asynchronously.

Many factors contributed to student success in a distance learning course. Even more factors came into play when a professor transitioned a traditional face-to-face course to an online course for the first time. It was imperative that professors and students prepared themselves for this challenge. Because this transition is a challenge, support was crucial (Bush et al., 2010; Swan et al., 2014).

## **Support for Online Students**

Boling et al. (2012) stressed the importance of connecting course work and activities to the real world and updating the content of online courses at least every year to maintain relevance. In their study, many students were coming back to school after many years, so instructors needed to provide information about various types of support offered through the school, such as library and technology (Berry, 2017; Boling et al., 2012). Boling et al. (2012) echoed Pemberton and Akkary (2010), who noted the importance of proper course sequencing so that knowledge and skills continue to build from one course to the next. For example, “The first [doctoral] seminar course serves as an initiation or orientation into the doctoral study generally and the educational leadership program specifically” (Pemberton & Akkary, 2010, p. 201). Courses must be arranged in a “sequential, developmental, and integrated into real-life school district contexts” (Reames, 2010, p. 445).

## **Online Cohorts**

Full-time working professionals benefited from many aspects of distance learning programs (Ladyschewsky & Taplin, 2014; McCarthy et al., 2005). The “optimal shared educational experience,” which researchers identified as developing and maintaining supportive relationships, could be created when students work in cohorts (Bista & Cox, 2014, p. 2). Students benefited from the ongoing support that was potentially developed, even if courses were moved to an online format. Studies have also shown that cohort programs had higher program completion rates due to increased motivation as cohort participants work towards the same goal (Barnett et al., 2000). Students need to have the opportunity to develop these kinds of interactions, even with courses and cohorts offered in an online format.

Institutions advertise courses with descriptions of the delivery and instructional methods as a way to attract students to the courses and programs. For example, one university's mission statement included a commitment to excellence, which was reflected in the diversity of course offerings and in the variety of instructional approaches that were offered (Mission and Vision, 2018). The university's website also stated that the program's cohort is "co-taught by experienced leaders and university faculty," and students will engage in a "sequential, developmental, comprehensive" preparation program (Main University, 2017).

The main goal of a cohort program is to foster student collaboration (Bentley et al., 2004; Myers et al., 2015). Students within a cohort had the potential to gain insight and diffuse knowledge during discussions and projects as they shared experiences regarding educational leadership theory and practice (Bentley et al., 2004; Bista & Cox, 2014). It is possible for adult learners can get the advantages of taking distance learning courses without sacrificing the benefits of the cohort experience.

### **Cohort Programs**

A cohort program was commonly defined as a group of students who apply to the same program of study and enrolled in the same core courses as they worked toward degree completion together (Barnett & Muse, 1993). Cohort members became a team as they bonded over shared experiences and their commitment to the same academic goals (Bentley et al., 2004; Bista & Cox, 2014; McCarthy et al., 2005). A cohort program added unique elements to the educational leadership program. Greenlee & Karanxha (2010) found that "the establishment of cohorts in educational leadership programs has gained substantial popularity and is consistent with research findings on benefits of preparation with students in cohorts" (p. 357).

Just as distance learning programs were designed in part to accommodate the full-time working professional, so was the cohort program (McCarthy et al., 2005). The flexible cohort model was designed to allow students to take courses while they remained working as an educator (Bista & Cox, 2014). This particular cohort was chosen because of the strategies implemented right from the start beginning with an educational leadership orientation before they started their first semester.

Fahlman (2009) conducted a study on the first cohort in an online distance learning doctoral program. Participants included thirteen educators who agreed to share their experiences. Stories revealed the importance of building relationships. Cohort members needed to have an initial face-to-face orientation and establish group norms as they begin this journey together (Fahlman, 2009; Tisdell et al., 2004). Admitting that some cohort members might not get along as well, one member shared that she thought “the final product and collective understanding were stronger as a result of a group effort” (Fahlman, 2009, p. 5). Themes of trust, support, and productivity emerged from participants in Tisdell et al.’s (2004) qualitative action research study. Some reflections from their experience of an online master’s program: Pam realized, “Everyone had to find her voice. I feel that I know people far better than I might have in the less intense situation in the classroom” (p. 121).

Mary added, ...our words and readings were not only an important part of the relationship-building but also the theory-practice connection of how one applies what is learning to practice. Learning in a cohort was transformative because it became so much more comfortable...constructing knowledge together and having the opportunity to reflect and build on the contributions of others made knowledge I constructed more powerful... (p. 122)

One of the most significant factors that contributed to student success in the online master's program in their study was the use of the cohort model. Cohort members built a trusting learning environment that allowed members to rely on each other for "intellectual and emotional support" (Tisdell et al., 2004, p. 123).

**Establishing a sense of community.** While establishing the sense of community needed for a cohort could be a challenge for instructors working with students in face-to-face programs, developing this learning community was even more of a challenge for instructors with an online or hybrid program. Berry's (2017) qualitative research found that students are interested in making both social and academic connections. They pointed out instructors need to design online courses to prevent students from feeling isolated. This design could be done through the deliberate use of synchronous and asynchronous communication tools, such as chat, instant messaging, and discussion boards (McInnerney & Roberts, 2004).

Lucey et al.'s (2009) case study examined student interactions for an online graduate-level cohort during their first semester together. The researchers compared text from discussion threads, blogs, and project groups, using Waltonen-Moore, Stuart, Newton, Oswald., and Varonis's (2006) stages for axial coding, which were introduction, identification, interaction, involvement, and inquiry. Groups that had familiarity and trust progressed through the stages quicker than those that had not. Based on findings, Lucey et al. (2009) recommended that professors "employ technology-based communication activities in their course to employ adaptable strategies, such as those identified in study, that respond to learner needs" (p. 215).

A successful online cohort program required professors to master technical skills and implement new instructional strategies to give their students a similar cohort experience as those in traditional face-to-face programs. While there were many benefits to implementing the cohort

program, there was a need for professional development to help professors with new strategies and align distance learning course experiences with student-learning objectives (Barbera et al., 2014).

**Cohort experience.** The benefits of these cohort programs could be preserved in a distance learning environment provided that the technical and instructional challenges were met. The “optimal shared learning experience” could be created when students worked in cohorts (Bista & Cox, 2014) and felt “a sense of community among their cohort and used their cohort to create a professional network of their peers” (p. 1). Cohort members have more opportunities to collaborate as they pursue “conference proposals, presentations, co-author manuscripts for publication, serve as guest lecturers for university courses, and co-teach with professors” (p. 6).

The qualitative results from the open-ended section of the Bista & Cox’s (2014) surveys showed that students made connections with one another in their cohort. “The cohort model allows students to work together on projects and to network for future success” (p. 13).

Bentley et al. (2004) captured the essence of what it means to be part of a cohort. “A cohort is not just a class; it’s a relationship” and compared cohort members to “siblings with a common desire to see their family succeed” (Bentley, 2004, p.44). One participant said, “I was able to make many lasting friends through my cohort experience. I am very glad for that format. It builds a lasting relationship that’s priceless.” Another said, “I’ve developed friendships throughout the program that helped to encourage each of us” (Bista & Cox, 2014, p. 15). Choi et al.’s (2005) study found this kind of bonding happened sooner when students met in at least one face-to-face class; but can be developed online if professors implemented strategies that fostered high student-student interactions from the very beginning (Brindley et al., 2009).

Lake, Koper, Balayan, and Lynch (2018) conducted a qualitative study on a face-to-face doctoral program that had an eighty-seven percent graduation rate for its cohorts. They attributed the success of the doctoral program to three factors: a supportive faculty, personal motivation, and the cohort model. Although the students only met on five sessions each semester, they began building relationships with their peers on a retreat at the start of the program. The cohort model, along with a supportive faculty and personal motivation, “were found to be the predominant contributors to the success of individual students and the program as a whole” (p. 210).

**Implementing an online cohort program.** It was important to establish a sense of community at the initial meeting (Brindley et al., 2009; Pemberton and Akkary, 2010). Pemberton and Akkary (2010) found that the first meeting should include a chance for students to reflect on their common goals. Instructors should not wait or assume students will develop relationships during group work during the course. Allowing students to choose their groups based on common interests, providing guidelines for assignment that allow freedom to make task more relevant, and giving sufficient time to complete assignments also encouraged a sense of community for learners” (Brindley et al., 2009, pp. 12 – 13).

**Structure.** An online cohort program should follow the same guidelines of having sequential and developmental courses co-taught by experienced leaders and university faculty using appropriate pedagogy (Bentley et al., 2004; Pemberton & Akkary, 2010). Professors should begin with the use of the learning management system. Professors could create opportunities within assignments to engage student interaction and enhance critical thinking skills (Lamaster & Knop, 2004).

In Kolb, Prussia, and Francoeur's (2009) study, seventy-five students participated in both face-to-face and online learning experiences, interactions were examined with a particular interest in perceptions of closeness in the online experiences. Participants were asked to rate their experiences using a survey with a seven-point Likert scale. There was a strong positive correlation between social connectivity and leadership effectiveness. "Leaders must do their best to initiate and maintain connections with others" (Kolb et al., 2009, p. 350).

***Challenges of an online course.*** Boling et al. (2012) looked to Desai (2009) to explain that one of the biggest challenges when designing and implementing an online course was to "provide a sense of community with... open forthcoming communication as well as recognizing membership and feelings of friendship, cohesion, and satisfaction among learners" (p. 33). The use of multimedia tools, such as a video, web apps, and software, within the learning management system, encouraged student interaction. According to Boling et al.'s (2012) findings, it should be policy that instructors send out a voice memo to students at the end of each week.

Brindley et al. (2009) cited Siemens' (2005), whose 'connectivism' theory identified the importance of students constructing knowledge as a community of learners working together. Siemens indicated that developing a sense of community is more likely with graduate students than any other group of students in an online course, due to the level of interaction required. Brindley et al. (2009) looked to Chapman, Ramondt, and Smily (2005) who stressed the importance of certain elements needed for establishing a successful learning community: "informality, familiarity, honesty, openness, heart, passion, dialogue, rapport, empathy, trust, authenticity, disclosure, humor, and diverse opinions" (p. 12). Brindley et al.'s (2009) study indicated that these elements would only be evident if instructors took the time to for students to

build rapport with one another and “nurtured the establishment of learner relationships and sense of community” (p. 12).

***Sense of belonging.*** “Being designated as members [of the community of learners] gave students a shared identity and sense of belonging” (Berry, 2017, p. 45). This designation had a great impact on subgroups, such as classroom groups, study groups, and friend groups, formed throughout their course work. Each subgroup was significant for building and maintaining the cohort bond. The development of group culture and group norms was an essential part of the educational leadership cohort program and was helpful when “trying to achieve the full potential of cohort learning” (Scribner & Donaldson, 2001). Myers et al. (2015) conducted a qualitative research study of fifty-one graduate students in an online distance learning cohort. They found that students were interested in being a part of a community as they learn. Although it would require “an initial investment of time and energy on the part of the students, it helped them to become a cohesive and supportive group” (Myers et al., 2015, p. 653).

Greenlee & Karanxha (2010) conducted a quantitative study that compared the cohort graduate students to non-cohort graduate students in a master’s level educational leadership program. They found “significant differences in trust, cohesion, and satisfaction” (p. 361) and that trust was essential to the development of cohorts.

***Equivalency theorem.*** The Equivalency Theorem stated, “deep and meaningful learning is supported as long as one of the three interactions, *student-teacher*; *student-student*; *student-content*, is at a high level” (Anderson, 2003, p. 4). While Anderson (2003) acknowledged Moore (1989) and Jucker’s (1990) findings about student-content interaction having “long been recognized as a crucial component of both campus-based and distance education” (p. 2), her research supported that substituting one type of interaction for another was an acceptable

solution when planning an online course. Myers et al.'s (2015) case study analysis identified effective strategies, such as video conferencing, group text messaging, and social media, which emphasized the student-student relationships in an online doctoral program.

Crosta et al. (2016) analyzed students' patterns of interactions within discussion forums for a cohort within an international online doctoral program. This cohort consisted of seventeen students in at least ten different countries. Crosta et al.'s research categorized text from the discussion forums as either cognitive or social, using CoI as a framework. While many of the students indicated the importance of making connections, "it just didn't happen" (p. 54). Many of those students indicated their focus was on developing relationships that would help them reach their academic goals. One student said, "that the modules were very task-oriented, but he recognized the importance of having more social aspects as this would help in learning more from each other and building something together" (Crosta et al., 2016, p. 52). In a community of learners, interaction was identified as a key component for student success (Swan et al., 2014).

***Benefits of a cohort program.*** Benefits of participating in a cohort in an educational leadership graduate program foster a sense of belonging. Students indicated the following benefits: graduating together, ongoing support, and being able to use learned interpersonal collaboration skills as principal (Barnett et al., 2000; Bentley et al., 2004; Donmoyer et al., 2012).

During Donmoyer et al.'s (2012) study, they conducted individual interviews, and without being prompted five of the six first-year principals gave credit to their cohort experience from their educational leadership program. Former cohort members attributed their positive experiences with teachers and staff to collaboration activities. One member spoke of a group project that "sensitized them of the need to systematically study the school they would lead...and

also provided the sort of data collection and analysis skills they needed” (Donmoyer et al., 2012, p. 35).

One cohort member explained that many of them still keep in touch after graduation. She reported, “We are still close. We go to each other’s weddings...[and] We still plan together and share ideas. At a recent in-service we did this, even though we are at different schools” (Donmoyer et al., 2012, p. 24). Another former cohort member shared the following story:

My supervisor gave me a form—our last year’s ... [standardized test scores]—and asked, ‘What are your projections for this year?’ I told her I really couldn’t say because we [the principal and her teachers] work together, and I would have to talk to the teachers to decide what makes sense for our school. She [the supervisor] seemed surprised and said, ‘Oh, you really are the collaborative type’ (Donmoyer et al., 2012, p. 27).

Researchers demonstrated the need for development of relationships as well as the need for the authentic social presence within cohorts (Berry, 2017; 2018; Thorpe et al., 2007), making connections between cohort experience and success. Researchers have found cohorts to be an integral part of graduate-level educational leadership programs (Barnett et al., 2000; Darling-Hammond et al., 2007; Donmoyer et al., 2012; Pemberton & Akkary, 2010) but these studies were not conducted on distance learning cohorts. Further research is needed to compare online cohort programs with face-to-face cohort programs (Berry, 2017; 2018). Myers et al. (2015) recommended future research on the success of cohort members after graduation to explore how this experience impacted students’ careers.

With as much research that has been conducted regarding cohorts, there needed to be more research on how to create an equivalent experience for students in an online learning environment. There were few studies relevant to this study that focused on distance learning

cohorts and fewer used social network analysis to explore the distance learning cohort experience.

### **Social Network Analysis**

Social Network Analysis (SNA) is a method of analyzing the numerical or visual representation of structures that show relationships among and between people in an organization or community (Giri et al., 2014; Wasserman & Faust, 1994). Applying SNA techniques to the relationships within a learning environment can be insightful for professors seeking continuous improvement (Giri et al., 2014; Hernandez-Garcia et al., 2016). SNA allowed educators to get a better understanding of student dynamics within their classes and could be helpful as they looked for patterns of interactions among students (Giri et al., 2014). These insights will give educators a better chance to create a cohort experience for distance learning students that is equivalent to a cohort experience for students who are part of cohorts and attend traditional face-to-face courses.

Bourgeois (2011) explained that the changes that need to be made are not always obvious through the critical pragmatic lens. A transformational, educational leader continuously works as a ‘scholar-practitioner’ who ‘examines and explores’ the needs of a learning community. Bourgeois (2011) cited Jenlink (2001) and explained that this means leaders “seek to mediate professional practice and formal knowledge and theory through disciplined inquiry and practice to guide decisions on all levels of educational activity” (p. 379). Data from SNA required rigor and discipline to analyze properly. However once optimized, networks from classes with strong ties and collaboration can be used as models to help identify patterns associated with effective student interaction. There has been much research on how SNA can be used to improve instruction of distance learning courses (Baker-Doyle, 2012; Crosta, Manokore, & Gray, 2016; Giri et al., 2014; Luhrs & McAnally-Salas, 2016; Maudlin et al., 2017; Thorman et al., 2013;

Thorpe et al., 2007) while less research has been conducted on how SNA can be used for longer-term relationships, such as those developed in a distance learning cohort.

**Purpose of social network analysis.** Social Network Analysis (SNA) allowed researchers to examine two aspects of relationships: “antecedents and consequences” and three levels of analysis: dyad level, node level, and group or network level (Borgatti & Halgin, 2011, p. 22). A node could be a person, a group of people, an organization, or an entity as large as a country (Borgatti et al., 2018). Analysis at the dyad level indicates the researcher is exploring the interaction between two nodes or actors. For example, if a relationship, such as friendship, exists in a dyad, a researcher may ask what common characteristics they share. Which aspect of the relationship the researcher is examining determines the type of social network used within a study, and they analyze one or more levels depending on the nature of their inquiry.

**Types of social network analysis.** SNA falls into two broad categories: *theory of networks*, which looks at conditions leading to network formation, and *network theory*, which is concerned with implications of an existing network structure. Networks can be analyzed at three levels: *nodal*, which looks at the placement of the actor within the network; *dyad*, which looks at the relationship between the actors; and *network*, which looks at properties of the overall network (Borgatti & Ofem, 2010).

**Theory of networks.** The theory of networks related to the antecedent, conditions leading to a network function, or how a network forms and seek to understand the structure and why the network has the structure it does. Table 1 lists examples provided by Borgatti and Ofem (2010) as to what a researcher might ask at each level when conducting a network theory.

Table 1

*Theory of Networks (antecedents) Organized by Domain and Level of Analysis*

| Level of analysis | Theory of networks (antecedents)                                                    |
|-------------------|-------------------------------------------------------------------------------------|
| Nodal level       | Explaining centrality as a function of personality characteristics                  |
| Dyad level        | Explaining friendships among school children as a function of being the same gender |
| Network level     | Explaining why some organizations are more centralized than others                  |

*Note:* The descriptions provided were from Mehra et al., 2001; McPherson et al., 2001; and Johnson et al., 2003. Adapted from “Overview: Social Network Theory and Analysis,” by S. P. Borgatti & B. Ofem, 2010 in A. J. Daly’s (Ed.), *Social network theory, and educational change* (pp. 17- 29).

**Network theory.** Network theory is concerned about the consequences or implications associated with a network (Daly, 2010). Like *theory of network* studies, network theory studies focus on specific levels of analysis depending on the nature of the question. Table 2 lists examples provided by Borgatti and Ofem (2010) as to what a researcher might ask at each level when conducting a network theory.

Table 2

*Network Theory (consequences) Organized by Domain and Level of Analysis*

| Level of analysis | Network Theory (consequences)                                                                     |
|-------------------|---------------------------------------------------------------------------------------------------|
| Nodal level       | Predicting actor rewards as a function of structural holes                                        |
| Dyad level        | Explaining the similarity of attitudes as a function of interaction among friends                 |
| Network level     | Explaining teams’ ability to solve problems rapidly as a function of their communication network. |

*Note:* The descriptions provided were from Burt, 1992; Erickson, 1998; and Bavales, 1950. Adapted from “Overview: Social Network Theory and Analysis,” by S. P. Borgatti & B. Ofem, 2010 in A. J. Daly’s (Ed.), *Social network theory, and educational change* (pp. 17- 29).

**Numerical representation.** Researchers must carefully consider the context in which relationships of interest occur when determining how to depict them (Borgatti et al., 2018; Daly, 2010). Some relationships make sense when described in binary terms (i.e., Alex attended the

same conference as Ben). These binary terms might be useful when collecting data on attendees at a regional educational conference. Other relationships, such as trust, might be analyzed more accurately when degree of trust is preserved in the data.

Many social network research surveys used a Likert-type scale, which generated value data indicating the strength of the relationship (Borgatti et al., 2018). These data were more commonly displayed and stored in an adjacency matrix (Wasserman & Faust, 1994), which were organized such that rows and columns formed a grid. The data in each cell contained a '1' or a '0' indicating a binary relation, or a numeric value indicating the strength of tie within a defined scale. Many advanced SNA techniques required binary data. To satisfy this requirement while preserving some measure of tie strength, researchers could dichotomize the data at a chosen threshold value. For example, a '1' may indicate the strength of tie at or above the threshold, and a '0' may indicate either the absence or presence of a tie below the threshold value (Borgatti et al., 2018). Table 3 shows all actors in this network and their connections. Diagonals are filled with zeroes since there would not be a tie with one's self. The matrix would be read from left to right beginning with the row. In the following example, the 1's in the first row indicate that Alex had ties with Ben and Cara; and Alex had no ties with Dave.

Table 3

*Adjacency matrix of relationship ties*

|      | Alex | Ben | Cara | Dave |
|------|------|-----|------|------|
| Alex | 0    | 1   | 1    | 0    |
| Ben  | 1    | 0   | 1    | 1    |
| Cara | 1    | 1   | 0    | 1    |
| Dave | 0    | 1   | 1    | 0    |

Social network diagrams were created to represent a group of nodes and their relationships to one another. This visualization allowed the researcher to analyze patterns within

the group of nodes. This social network visualization, also called a sociogram, was created using the numerical data based on the variables or attributes in which the researcher is interested.

*Visual representation.* The visual representation of a network includes nodes, ties, and links, while statistical representations may include measurements of characteristics, such as cohesion, centrality, and betweenness. Many SNA studies also included a qualitative component, which allows researchers to get a better understanding of the relationship from the perspective of the participants (Brooks & Normore, 2015). Shea et al. (2010) “found that a qualitative analysis [of a network] provides valuable insight into the nature and effectiveness of the online learning experience” (Giri et al., 2014, p. 44). Because of the asynchronous nature of most distance learning courses, it was important for professors to monitor their courses for sufficient student-student interaction. SNA provided evidence-based methods for analyzing these interactions. Social network analysts must carefully consider the context in which these relations occur before choosing particular methods of design and analysis (Knapp, 2017).

Visualization of the network gave the researcher an intuitive sense of network characteristics before formal numerical analysis. The purpose of Hernandez-Garcia et al.’s (2016) study was to show the potential of using social network analytics to study interactions. The researchers used the analytical software, Gephi, to measure relationships in and between groups and created a variety of visual representations. For example, users could create visuals to get an overall view of all classes and students within a school or program; show relationships between student participation and performance; find who was not interacting or participating, or compare interaction that was taking place in different classes. Users could do this by setting specific parameters, entering sizes and colors of nodes depending on values, and deciding which behaviors to analyze.

These visuals, along with interpretations showed the many possibilities for using this tool. However, Hernandez-Garcia et al. (2016) warned readers that Gephi was a complicated tool that offered too many choices for anyone unfamiliar with these concepts and that it would need to be easier to use and understand before instructors set out to use.

**Describing relationships using SNA.** Social network diagrams may be used to describe many types of relationships that individuals, organizations, or entities may share. Some relationships are inherently one-way, such as Alex supervises Ben, or Cara is the parent of Dave. These are one-way directed ties. In a network diagram such relations are depicted with directed lines indicating who supervises whom or who is the parent of whom. Other relationships are inherently reciprocal, or undirected, such as group membership. For example, Alex attended the same conference as Ben. This relationship would be indicated by a line but with no directional indicator. Still other relationships may be unidirectional or bidirectional, such as Alex trusted Ben. This relationship would be shown with a directed line from Alex to Ben. If Ben also trusted Alex, then the line would have arrows at both ends to indicate that the relationship was reciprocated (Borgatti et al., 2018; Wasserman & Faust, 1994).

**Network types.** The researcher was interested in exploring two main types of networks as part of the distance learning cohort experience. The network types include those that may develop during a student's first semester. These include an academic network, also called an instrumental network, and a friendship network, also known as an expressive network (Borgatti et al., 2018).

**Instrumental networks.** Instrumental networks were created when students interact for academic purposes, and ties were created; their interaction was a way to help the individual meet a goal (Ibarra, 1993; Moolenaar & Slegers, 2010), which in this case would be an academic

goal. For example, instrumental networks can be created within a required discussion forum. Friendship networks can be developed out of academic networks.

**Expressive networks.** Expressive networks could be created when students make social connections by turning to each other for support and motivation (Moolenaar & Slegers, 2010). For example, expressive networks can be created during those required course assignments as well as any other time throughout the cohort program.

**Examining relationships using SNA.** Ellwardt et al. (2012) conducted a quantitative study of two networks in the workplace. While instrumental networks are formed in the workplace, researchers were interested in the development of the gossip network with the friendship network. Data was collected at three different times throughout one year. Participants, forty-five co-workers, were asked to rate the extent to which they had a relationship with each co-worker and describe the kind of relationship using five-point Likert-type statements. They were also given a list of co-workers and asked to identify with whom they have “engaged in informal, evaluative talking about absent colleagues” (p. 626). Past research regarding friendship networks focused on SNA at the dyad level or nodal level of analysis while Ellwardt et al. (2012) were interested in exploring the network level.

Maudlin et al.’s (2017) research focused on three networks: academic, friendship, and professional. The researchers examined the social interaction or ties that developed within the first month of an online cohort. They analyzed the whole network of one hundred forty-four master’s level students to find out how homophilous the subgroups were based on the ties that formed. Students tended to create ties with other students that are more like themselves, usually based on life experiences, profession, or beliefs and attitudes (Baker-Doyle, 2012; Maudlin et al., 2017). Future research on cohorts should focus on desired characteristics of graduates

concerning leadership and collaboration, such as democratic values, the nature of homophily in friendship and colleague selection, and the impacts on careers (Myers et al., 2015).

Social network analysis would allow instructors to identify students in those classes who contributed to the “most valuable and interesting content” (Hernandez-Garcia, 2016, p. 12). Avella, Kebritchi, Nunn, & Kanai (2016) also used social network learning analytics for ‘tracking and predicting student behavior.’ Avella et al. (2016) cited Arnold and Pistilli’s (2012) idea of using big data to create an early intervention program... (p. 7). Analysis of posted messages would allow for early identification of non-participants and instructor intervention. Additionally, instructors could made note of more popular topics or help re-focus threads that go off-topic. Instructors could also identify what concepts were being misunderstood and redesign the course as needed when they used social network learning analytics.

Thormann et al. (2013) used SNA software, Ucinet (Borgatti, Everett, & Freeman, 2002), to explore how the use of student moderators in an asynchronous discussion board (ADB) affected student interaction and critical thinking in an online master’s course. The researchers assigned a different number of student moderators to each class and analyzed the resulting social networks. The instructor modeled how discussions should be conducted, and after three sessions, students from the class would choose a topic to ‘moderate.’ Although the ADB student moderators were not required to complete an assignment to post during the discussion, they were responsible for the material and had to create a final report. Their job as ADB moderator helped students stay focused, extended and tied concepts together, and encouraged debate. In the final report, the moderator turned in a summary of the students’ ideas, perspectives, and any misunderstandings of new concepts.

Thormann et al.'s (2013) analysis showed that increasing the number of student moderators did not have a significant impact, but the use of student moderators was valuable and promoted critical thinking and participation among students. These results were in agreement with Hara, Bonk, & Angeli (2000), Seo (2007), Thormann (2008), and Thormann & Zimmerman (2012), who also found that there were benefits to having one or more student moderators. Thormann et al. (2013) looked to Poole (2000) and Murphy (2005) whose research indicated the use of student ADB moderators helped to build student-centered learning communities in an online course, which was part of a constructivist approach to enhance critical thinking (Newman, Webb, & Cochrane, 1995). "Students reading each other's posts can think critically and possibly create deep learning that transforms their present knowledge into new knowledge" (Smith, 2015, p. 230).

**Network patterns.** Koole and Stack (2016) conducted a qualitative study with twenty-three doctoral students in four different cohorts from 2008 to 2011. Although their research focused on identity positioning within the social network, they used surveys and conducted semi-structured interviews to explore the relationships, or patterns, amongst and between academic and non-academic networks. Koole and Stack (2016) used open coding to discover emerging themes related to network learning that supported technology as a means to "mediate and co-create relationships" (p. 42). Cohort members described how they managed relationships with each other and how they situated themselves within the cohort. One participant said

I would say that some of them get upset when you don't agree with them. Others try really, really hard not to disagree with anybody. So, as a result, I find a lot of the discussions that are supposed to happen to be very shallow (p. 49).

Cohort members needed to learn to offer their opinions as well as accept opinions different than their own (Koole and Stack, 2016).

**Using SNA to analyze collaboration.** Luhrs and McAnally-Salas (2016) used two SNA software programs, SNAPP and Gephi, to analyze student interaction in asynchronous discussion forums in thirty-two online courses for five years. SNAPP, Social Network Adapting Pedagogical Practices, allowed the researchers to download and analyze the network data. This capability was available through a learning management system, such as Canvas. SNAPP produced real-time analysis and visualization based on the node size and link thickness, which indicated the frequency of interaction. Gephi was used to calculate the Collaboration Index (CI), which incorporated the three types of interaction (student-student; student-teacher; student-content) explained by Anderson's (2003) Equivalency Theorem. The analysis of these interactions using the CI helped identify classes with discussion boards that had the most student-student interaction. A high CI indicated high levels of interaction that were dispersed evenly throughout the group of students.

Descriptive text from discussion boards, such as topics and responses, was helpful to analyze along with CI. This method was a "practical and relatively simple way to precisely and effectively identify differences in levels of collaboration" among students (Luhrs & McAnally-Salas, 2016, p. 42). Luhrs and McAnally-Salas (2016) suggested more research needed to be done to explore factors that contribute to increased collaboration in an online course.

Cowan and Menchaca's (2014) mixed-method study consisted of sixty-eight students that were part of a hybrid educational technology master's program between 2000 and 2010. The researchers triangulated data from alumni surveys, focus group interviews, and an alumni reunion. They used SNA to identify that students created and maintained connections

throughout the program. Some participants attributed their advancements at work to graduating the program. One participant said, “I have a broader understanding of the opportunities and challenges of my job, and my pay went up!” (p. 65). They shared how the connections they made and kept after the program led “to gaining expertise, the application of knowledge, and the redefinition of success” (Cowan & Menchaca, 2014, p. 63).

Collaboration with cohort members had a strong impact on the development of their professional knowledge and positively affected their performance at work. Students reported feeling “a sense of community among their cohort and said they used their cohort to create a professional network of their peers” (Blankenship & Gibson, 2016). Barnett et al.’s (2000) research suggests, “The cohort experience can directly affect students’ leadership practices in the workplace” (p. 259).

**Using SNA to identify presences.** Tirado et al. (2012) also used a mixed-methods approach and focused on the analysis of the three presences (social, teaching, and cognitive). The purpose of their research was to analyze seventy-three students during collaborative group activities for a six-week online graduate course. The content analysis component was used on text from the asynchronous discussion boards and supported findings from the social network analysis. Examples of how messages from discussion boards were analyzed:

- “*You’re welcome, Ines. If anybody still can’t see it, they can contact either of us, and we will copy it here as a message...*” (p. 9). This excerpt was an example of cognitive presence and showed evidence of the group’s cohesiveness.
- “*...If you click on ‘students,’ you will see the names of all the students in the group... (We are 10). Each of us presents a case, and two are selected...*” (p. 9). This excerpt was an example of social presence and showed evidence of centralization.

In addition to the CoI (Garrison et al., 2000) content analysis, Tirado et al. (2012) created a structural equation model (SEM), which indicated there is a high correlation between cohesion and centralization. Tirado et al.'s (2012) research showed "the positive effects of centralization in social presence and cognitive presence, as revealed by the SEM, would suggest the need to increase the messages sent to all students during the knowledge construction process" (p.15). Tirado et al. (2012) looked to Wang and Li (2007), whose research also showed that SNA "provides a new paradigm and methods for assessing knowledge building in online learning communities" (p.5). From a constructivist perspective, students need to interact to understand meaning more completely and to produce new knowledge (Gunawardena et al., 1997).

**Using SNA to identify cohort patterns.** On the social network diagram for Cowan and Menchaca's study (2014), a node represented an "actor," which was either an instructor or a student. The size of the node was based on how many other actors they interacted with. The larger the node meant there was more interaction. The thickness of the lines that connected the nodes indicated the frequency of interactions. Cowan and Menchaca (2014) explained that connectedness was the "degree to which all actors and groups of actors within a network are completely connected" (p. 51).

Cowan and Menchaca (2014) used SNA and a 'value creation framework' (VCF) to analyze the cohorts of a hybrid online master's course. Wegner, Trayner, and De Laat (2011) created the VCF. Wegner et al.'s (2011) research supports the idea that student learning experiences should be about "development of knowledge through social exchange with others" (p. 45). Cowan and Menchaca (2014) compared the networks before, during, and after the program and found that the number of ties increased along with the connectedness during the program. Although some connections were lost between cohort members after the program,

cohort members remained connected to the program. Remaining connected after the program “lead to gaining expertise and the application of knowledge” (p. 63).

Qualitative responses were gathered to support the data collected from the SNA and VCF. Student responses were evident in the value of taking the time to develop a sense of community within a cohort from the very beginning. Some students’ comments about cohorts:

- *“Cohort was like family.”*
- *“My cohort was incredibly supportive DURING [my course work]. From the first face-to-face meeting, I felt relief: finally, people who are similar to me! Being part of this group gave me confidence...”*
- *“... was a wonderful program because of the support provided by the cohort. I also feel I can depend on cohort members for any further support I might need in my career.”* (p. 64)

The SNA showed strong connections between and among the cohort members. Network connections were analyzed with and without the presence of faculty and staff, and results clearly showed that the professors and staff facilitators were directly responsible for the development of this cohesive cohort.

The benefits of participating in a cohort are invaluable for any student in an educational leadership graduate program. This may be a tough transition for professors, as some may need to attend professional development workshops to learn to implement cohorts into their programs. Students gain so much from being part of a cohort during their program and continue to reap the benefits long after graduation. The use of social network analysis would be a valuable tool as part of the continuous improvement process. Evidenced-based strategies used for course design

and program improvements can provide objective measures beyond which professors can produce through introspection and reflection.

## **Analyses**

Hernandez-Garcia et al.'s (2016) case study analysis consisted of four hundred and fifty-six students and their professors within an online master's course. One of the visuals indicated that student performance was higher in classrooms that were student-centered rather than teacher-centered classrooms. A class was identified as teacher-centered or student-centered based on what "actor" was the central node. It was also noted that there was a positive relationship between the larger diameter size and higher performing classes. Although a more thorough analysis would be needed to investigate why there was a difference between the two classes (Hernandez-Garcia et al., 2016).

Online course designers should use social network models that show strong collaboration and set up activities and assignments so that the students were encouraged to have more student-student interaction (Hernandez-Garcia et al., 2016; Luhrs and McAnally-Salas, 2016). This recommendation was based on evidence from social network analysis and the premise that "online learning communities can be as strong as or stronger than conventional learning communities" (Robertson and Webber, 2004, p. 10). Hernandez-Garcia et al.'s (2016) "study might be seen as 'just the tip of the iceberg': social networking learning analytics is a relatively new field and, as such, we are just beginning to be aware of its possibilities and scope of application in the educational landscape, both from a learning data visualization perspective and from the statistical analysis of SNA metrics" (p. 14).

**Social network research model.** Baker-Doyle’s (2012) research explored how support systems affected teachers’ first-year experience by examining social networks. While this was not an online program, Baker-Doyle (2012) used social network analysis to look at the types of support that were found to be effective. In 2015, Baker-Doyle provided a research model, as shown in Figure 3, which is based on her 2012 study on how to conduct a mixed-methods study that combined SNA and both qualitative and quantitative data.

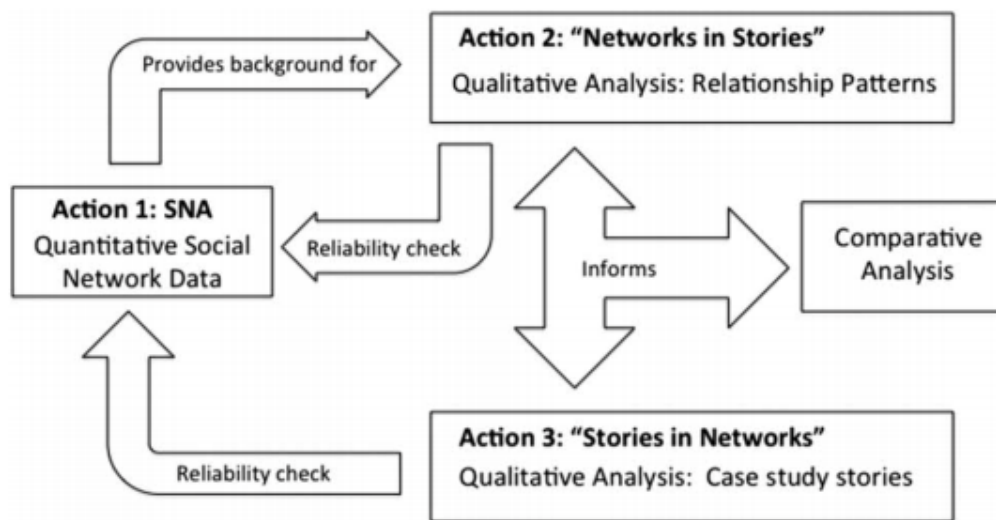


*Figure 3.* A tri-modal model for social network research from Baker-Doyle (2015).

This tri-modal model for social network research is in alignment with Creswell and Plano-Clark’s (2018) explanatory sequential research design. The researcher’s quantitative phase (collection of social network data) was followed by and guided the qualitative phase (collection of archival data from course discussion boards and group texts; and semi-structured interviews). Relationship patterns were identified using new and archival data. ‘Case study stories’ emerged from the semi-structured interviews (Baker-Doyle, 2012).

The continuous improvement and identification of research-based strategies of online courses directly affect educational leadership preparation programs as they have courses that

have been or are transitioning to an online format. Best practices for this transition or improvement of courses could be found by examining the social network structure of a distance learning educational leadership cohort, which was guided by exploring social presence. This literature review sought to identify problems and solutions for transitioning and to answer the question of what constitutes quality online interaction for students in educational leadership programs regarding the nature and purpose of interaction as a support mechanism and use of legitimate forums for debate.

### **Summary**

Based on the literature identified in the search using the following keywords: distance learning, cohorts, educational leadership, and social network analysis, there were few empirical studies that focused on distance learning cohorts. In response to the need for the development of cohorts with graduate programs, the use and development of social presence is a critical factor in any approach. While there were other possible frameworks or approaches, they all had a social presence in common. The indicators of social presence within Garrison et al.'s (2000) CoI framework guided research for the improvement of distance learning courses. These findings can be transferred to longer-term relationships, such as those found in cohorts, and used for future research to inform improvements for distance learning cohorts. While this literature review examined many aspects of the framework, the research focused on the role of social presence within the cohort experience of distance learning graduate programs.

### **Chapter III: Methods**

The attrition rates for doctoral programs across the country are about fifty percent (Council of Graduate Schools, 2010), and retention for online courses has also been a problem (Hendricks & Bailey, 2014). Understanding best practices for designing courses and cohorts is significant to the success of graduate students in distance learning programs. One purported benefit of cohorts is the student-student interactions that encourage social construction of knowledge, knowledge diffusion, exposure to diverse opinions, as well as create a supportive and trusting environment (Bista & Cox, 2014; Brindely et al., 2009; Pemberton & Akkary, 2010). Guided by the social presence within Garrison et al.'s (2000) Community of Inquiry, this study focused on student interactions and the development of relationships within a cohort (Crosta et al., 2016). To explore the interactions, the researcher chose to use social network analysis, which allows educators to analyze the student-student interaction (Crosta et al., 2016; Giri et al., 2014; Hernandez-Garcia et al., 2016). Social presence, which is reflected in student-student interactions, is important to the development of cohorts in an online environment (Garrison et al., 2010; Swan et al., 2014).

#### **Purpose of Study**

The purpose of this mixed-methods case study (Creswell & Plano-Clark, 2018) was to explore the relationships that develop within the graduate-level educational leadership distance learning cohort at a large public university in the south. For this study, a distance learning cohort program was defined as a program with a group of students beginning at the same time with the same course sequence with a major component of course assignments and support in an online format. By exploring Main University's educational leadership distance learning cohort, the

researcher hoped to identify strategies that could be used to inform future distance learning cohort programs.

Consequently, the central research question (*how do doctoral students experience the educational leadership distance learning cohort program in terms of the Community of Inquiry's (Garrison et al., 2000) social presence at a large public university in the south?*) guided this study. The researcher studied the cohort from a network perspective and analyzed student-student interaction within the expressive (friendship) and instrumental (academic) networks through which the interactions took place. A mixed-methods case study allowed the researcher to get a closer look at one particular cohort by combining multiple sources of data (Merriam & Tisdell, 2016).

### **Reflexivity Statement**

As the primary instrument for the qualitative data collection, the researcher needed to identify and monitor her biases. The process of introspection was continuous as the researcher kept a journal to reflect on her experiences, attitudes, and assumptions that influenced the entire process (Merriam & Tisdell, 2016; Peshkin, 1988). This reflection informed the researcher “about the qualities that have emerged during their research, and [she] can at least disclose to the readers where self and subject became joined” (Peshkin, 1988, p. 17).

The researcher worked as a classroom teacher for about fifteen years before going to graduate school. She graduated with her masters’ degree from Main University in 2015 and started the doctoral program the same year. As a doctoral student, she worked as a graduate assistant for the educational leadership department and was not part of a cohort. Keeping this in mind, when developing the survey instrument and interview questions, she needed to remember to not ask questions based on expected responses. Even as a doctoral student in the same

program she would be considered an outsider, which made it even more important for the researcher to build rapport with potential participants (Berg & Lune, 2012).

The researcher's faculty advisor was one of the professors of the educational leadership program being studied, and her interest in this particular cohort developed due to her close personal relationship with one of the cohort members. Because of this relationship with one of the cohort members, the researcher learned about ways the cohort developed. The researcher was motivated by the thought that Main University's program faculty could possibly use findings from this study as part of their professional continuous improvement cycle.

### Research Design and Rationale

**Explanatory sequential case study.** In order to explore the cohort experience of graduate-level distance learning education leadership students, an explanatory sequential mixed-methods case study design (Creswell & Plano-Clark, 2018) was used. This design was appropriate since the researcher collected quantitative data first. The researcher then collected extensive qualitative data to help expand upon the quantitative results (Creswell & Plano-Clark, 2018). Figure 4 shows how this design aligned with data collection and analysis.

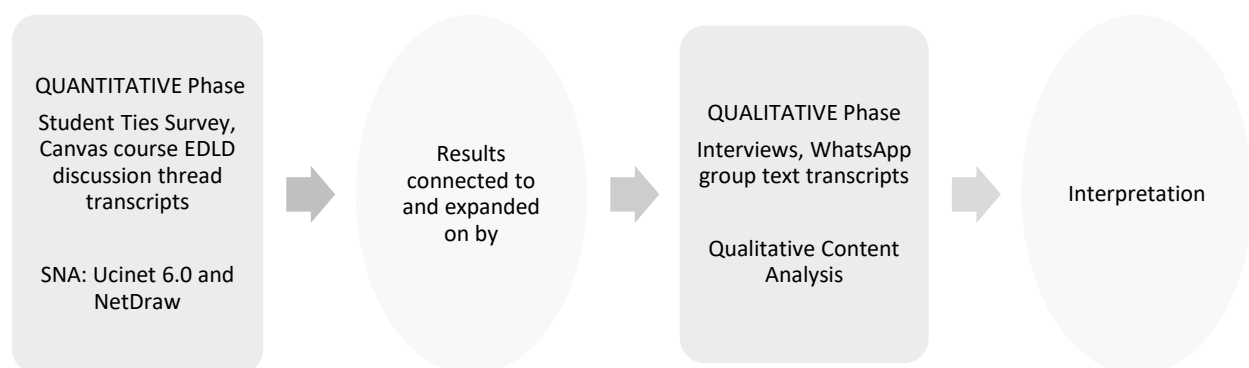


*Figure 4.* Adapted from The Explanatory Sequential Design (Creswell & Plano-Clark, 2018).

In the first phase, the quantitative phase of the study, social network survey data and archived data from an educational leadership course was collected from Canvas for the whole Ph.D. cohort, which consisted of thirteen members. The educational leadership course was an introductory first-semester course that consisted of only these thirteen doctoral students. The quantitative data was collected to assess social presence and check for correlation between networks and subgroups. The second phase (the qualitative phase) data collection allowed the researcher to get a more in-depth look at the cohort. The qualitative data came from transcripts from WhatsApp group text messages and interviews with six members of the cohort. This qualitative analysis allowed the researcher to expand on the quantitative results as she explored the distance learning cohort experience through the social presence lens for graduate-level educational leadership students. Since more research was needed on *distance learning educational leadership cohorts*, this explanatory sequential case study design proved to be very useful.

**Rationale.** As described previously, the explanatory sequential case study design gave the researcher the ability to study the cohort with both breadth and depth. Social network data and transcripts from the educational leadership course data were collected during the first phase of the study to provide a broad view of the cohort's interaction, i.e., the whole network (Borgatti et al., 2018). Exploring the whole network rather than just a sample of students within the network gave details more representative of the experience (Borgatti et al., 2018).

Social network data has shown to reveal patterns of interaction, both academic and social, that were in alignment with the interview protocol. Interviewing, which was essential to exploring the cohort experience, allowed the researcher to gain valuable insight (Knapp, 2017; Merriam & Tisdell, 2016) from distance learning cohort members. "A critically missing

component of research is about those actively engaged in learning – the candidates – and their lived and learned experiences” (Browne-Ferrigno & Muth, 2012, p. 10). The researcher was guided by a constructivist approach, as she focused on hearing the participants’ voices as they shared their experiences (Onwuegbuzie, Johnson, & Collins, 2009; Guba & Lincoln, 1994). In alignment with this ontological framework, the researcher chose in vivo coding as one of the cycles of coding, which was appropriate “for interview transcripts as a way of attuning [herself] to participants’ perspectives and actions” (Saldana, 2016, p. 73).

When the researcher selected a case study design, she used elements from different approaches. The combination of both quantitative data and qualitative data allowed her to maintain alignment with the research questions (Yin, 2002) and remain committed to a constructivist approach with the use of interviewing (Merriam, 1998). A case study is essential for exploring a “real-life, contemporary bounded system (a *case*) ...over time through detailed, in-depth data collection involving multiple sources of information, and in rich context... and reports case descriptions and case themes” (Creswell, 2013, p. 97).

With relationships being the focus of this explanatory sequential case study, the researcher needed interviews to explore the individual’s experience while getting a picture of the whole cohort from different perspectives (Knapp, 2017). Since relationships depend on social presence, the Community of Inquiry framework (Garrison et al., 2000) informed the selection of the research questions and contributed to the selection of this research design (Creswell, 2013; Merriam, 1998). This mixed-methods approach allowed for the “greatest potential to enhance the explanatory power” by “employing a recursive or iterative approach to analysis, by having interlinked research questions, and to have both quantitative and qualitative data for a nested or identical sample of participants” (Creamer, 2018, p. 97).

## Research Questions

The overarching question for this study (*how do doctoral students experience the educational leadership distance learning cohort program at a large public university in the south?*) was examined in terms of the Community of Inquiry's (Garrison et al., 2000) social presence.

1. How do the patterns of interaction among cohort members differ between the expressive and instrumental networks?
  - 1a. Correlation between strength of ties
  - 1b. Connectedness of networks
2. What elements of social presence were evident through interaction in the expressive and instrumental networks?
3. What elements of social presence were evident through the lived experience of cohort members?

While the overarching research question implies a qualitative priority, the study was conducted using mixed-method (Creswell & Plano-Clark, 2018). The first research question was quantitative, measuring relationships in terms of number and strength of ties. The second question was entirely mixed, relying on both the quantitative elements of social networks and the context in which the network was built. The third question was entirely qualitative, describing how cohort members interpreted their experience.

In order to answer these questions, the researcher explored the cohort using three levels of analysis. At the dyad level, the researcher examined the presence or absence of ties between each possible pair in the expressive and instrumental networks. At the nodal level, she examined if and how the ties were overlapped between the instrumental and expressive network and how

this connected to the cohort experience. The researcher analyzed the cohesiveness of the cohort as a whole at the network level.

## **Participants**

**Sampling.** The researcher used a nonprobability purposeful sampling for both phases of the mixed-methods case study, which was appropriate for a design that included an emphasis on qualitative research (Merriam & Tisdell, 2016). It was a purposeful sampling because the researcher wanted to “discover, understand, and gain insight” from this cohort, and she assumed that she selected a sample “from which the most can be learned” (Merriam & Tisdell, 2016, p. 96). While the second phase of the study also used a purposeful sampling, the participants were a subgroup of the cohort, a nested sample (Creamer, 2018).

There were thirteen members of a recent doctoral cohort: seven members were new, and six members applied and were accepted into the doctoral program after completing their educational specialist (EdS) degree. The students that just completed the EdS program had been a cohort for five semesters before merging with the new Ph.D. students. While the students just completing their EdS degree would have just two core educational leadership courses with the new students, they would have up to four research courses and several electives together. All the students participated in ice breaker activities and met the educational leadership team as they began their doctoral program. The cohort began with a formal face-to-face orientation to meet one another as the “new Ph.D. cohort” and had three face-to-face sessions for each course during the semester.

This case study was bounded by time and location (Berg & Lune, 2012; Merriam & Tisdell, 2017). The researcher focused the study on the first semester at Main University, a large public university in the south. Inclusion criteria also included their acceptance into the distance

learning educational leadership cohort that began the fall semester. The sampling approach was also considered an etic approach (Borgatti et al., 2018) to sampling as the cohort was bounded together by membership in the same Ph.D. cohort program. While it is understood that students have ties outside their cohort, the researcher only looked at ties within the cohort.

**Recruiting.** After receiving approval from the Institutional Review Board (IRB), the researcher began the process of informed consent by emailing each of the thirteen members of a recent fall cohort. Cohort members received the same recruitment script and Letters of Consent to sign for each research activity in which they agreed to participate. Signed consent forms were required before the confidential electronic social network survey would be sent out.

Permission was also granted through the IRB (Appendix E), and consent was received to obtain archival data from the first-semester course transcripts within the learning management system, group text messages, and interviews with up to six of the participants. The interviewees were chosen after a thorough analysis of the social network and went through the consent process before being interviewed.

**Rationale.** The researcher chose this particular cohort group because they seemed to be representative of a Main University distance learning educational leadership cohort. Knowing that the cohort began their program with a formal face-to-face orientation, started a group text that was used regularly; and were a part of a required online weekly discussion thread from their first-semester educational leadership course, the researcher saw these as potential data sources. She wanted to analyze those data and conduct interviews to explore the cohort experience.

While the cohort and these experiences may not have been unique, they are as unique as the individuals who make up any cohort at the start of each program. Each cohort member contributes to and influences the cohort as a whole – that is what makes it unique. At the same

time, it is not unique. A cohort is a living system, which is made up of three things: (1) elements, the students, (2) interconnections, the relationships, and (3) purpose. Cohort members work together towards a common goal, which is the purpose of a cohort (Meadows, 2008). “Structure determines what behaviors are latent in the system” (p. 89). Before making any changes, Meadows (2008) recommended to watch the system at work and draw “structural diagrams” (p. 172) to get a clearer picture of what is happening.

### **Data Collection**

The researcher collected new and existing data for this explanatory sequential case study. The collection of new data involved the use of surveys and interviews. Archival data consisted of transcripts from the Canvas course discussion thread and Whats App group text messages. These existing data were retrieved electronically. One from the professor whose course was saved on Canvas and uploaded, and the other sent from a participant by email to the researcher. Transcripts from the discussion threads and the group text were from the first semester of the doctoral program. While both surveys and interviews were conducted in the second year, participants were asked to reflect on their first semester in a doctoral program.

**Social network survey.** The researcher created the Student Ties survey (Appendix A), consisting of two social network questions, and sent electronically using Qualtrics. The social network questions were worded carefully to ask participants about their perceptions of the frequency of communication and strengths of personal relationships with each of the other cohort members. As shown in Table 4, these two social network questions were in alignment with the Community of Inquiry’s social presence framework (Garrison et al., 2000).

Table 4

*Social Network Survey Questions Aligned with Social Presence*

| <b>Social Presence</b>                                                                                                                                                                                | <b>Question</b>                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Affective expression (friendship) <ul style="list-style-type: none"> <li>• Getting to know other participants</li> <li>• Communicating using different mediums, including technology-based</li> </ul> | How often do you communicate with each cohort member, either by text, email, Skype, phone, face-to-face, etc.? |
| Open communication (feeling comfortable) <ul style="list-style-type: none"> <li>• Communicating in course discussions</li> <li>• Interacting with other participants</li> </ul>                       | How would you rate the strength of your relationship with each cohort member?                                  |
| Group cohesion <ul style="list-style-type: none"> <li>• Collaborating with others</li> </ul>                                                                                                          | SNA of both strength of personal relationship and communication questions                                      |

*Note:* Descriptions adapted from Social Presence indicators (Swan et al., 2008)

Using standard question formatting for SNA, a relational scale was developed to show each students' perceived strength of ties in the expressive network (Borgatti et al., 2018). To avoid the neutral response, participants were prompted with a six-point Likert type scale which was within the range of "the optimal number of response categories" (Dillman, Smyth, & Christian, 2014, p. 153). These included *most often* to *never* for frequency of communication and *closest* to *not close at all* to describe his or her relationship with each cohort member. Each question provided the names of all cohort members to help with recall (Borgatti et al., 2018). Participants were asked to leave responses about themselves blank. The second set of questions pertained to career, employment status, and state of residence during the first year of the doctoral program. This gave the researcher a brief overview of the basic attributes of cohort members.

Because communication is inherently reciprocal, a tie was said to exist if one of the two indicated on his or her survey that there was communication. This tie allowed the researcher to create a visualization of the communication patterns within the network even if not all the surveys were returned. Since this was a symmetric relationship, the researcher could fill in missing data as needed (Borgatti et al., 2018). However, all cohort members consented. After each participant returned a signed copy of the consent form, they were emailed the electronic

survey via Qualtrics. Participants were able to take the survey using their phone or computer. Printed copies of the survey would be made available upon request in case participants preferred this option to the electronic version. The researcher entered the data for each cohort member to create an adjacency matrix, which was then uploaded to Ucinet to generate descriptive statistics to examine the strength of ties, correlation, and connectedness (Borgatti et al., 2018).

**Archival data.** In order to be consistent with the data collection timeline, which focused on the first-semester experience, the researcher collected archival data from transcripts. Two sets of transcripts were available from the cohort's first semester of the Ph.D. program. Data sources included: required weekly discussion threads and group text messages.

*Discussion threads.* The researcher was able to get a closer look at the instrumental (academic) network and identify patterns of interaction in an online discussion forum taken from an educational leadership course in their first semester of the program. The professor required that each student send an initial post and respond to two other classmates of their choice at least ten of the fourteen weeks. The researcher collected one-mode data, which was a single list of ties (Borgatti et al., 2018), to indicate to whom each cohort member responded for each discussion for each week of the first-semester educational leadership course. The one-mode data for the fourteen discussions was turned into an adjacency matrix.

Borgatti et al. (2018) defined an adjacency matrix as a “matrix in which rows and columns represent nodes and an entry in row  $i$  and column  $j$  represents a tie from  $i$  to  $j$ ” (p. 23). The nodes were the cohort members, and the adjacency matrix was created to show the sum of ties between the cohort members. Table 5 shows an excerpt from an adjacency matrix with four actors in this network and to whom each student posted. Descriptive statistics were calculated from these data. Diagonals are filled zeroes since no one would not post to oneself. The matrix

would be read beginning with the row. Using an example with four cohort members, the first row indicates that Halie posted to Iris three times; Mark twice, and Kris five times. A complete analysis would allow the researcher to get a closer look at the student-student interaction and see if each cohort member interacted with different cohort members or if they only connected to the same group of cohort members.

Table 5

*Adjacency matrix of discussion board postings for four students*

|       | Halie | Iris | Mark | Kris |
|-------|-------|------|------|------|
| Halie | 0     | 3    | 2    | 5    |
| Iris  | 0     | 0    | 1    | 1    |
| Mark  | 1     | 3    | 0    | 1    |
| Kris  | 3     | 0    | 0    | 0    |

*Group messaging app.* Data from WhatsApp, a group-messaging application for smartphones, were uploaded from documents sent by participants. In order to be consistent with the timeframe of the discussion thread, this data set included messages for the first semester of their cohort experience. All names and identifying information were changed to pseudonyms.

**Interviews.** After the social network analysis was complete, interviewees were selected based on the social network analysis after examining the strength of ties within the network. Students within small clusters of cohort members had strong mutual connections. Such clusters may be an indication of a community of learners with a strong social presence. Likewise, members of the cohort lacking significant ties, also called isolates might be indicators of a limited social presence. The researcher selected six cohort members with different levels of social presence to interview. Acknowledging that there were multiple realities, the interviewer and interviewee co-created meaning from the interviews and shared archival data (Josselson, 2013; Merriam & Tisdell, 2016).

The researcher conducted semi-structured interviews with six of the distance learning educational leadership cohort members. Interview protocol (Appendix B) was informed by the research purpose and conceptual framework of the study to encourage interviewees to share descriptive responses (Brinkmann & Kvale, 2012). Josselson (2013) stressed the importance of “paying attention to *both* the content and process of the interview at the same time” (p. 9). As a way to prompt the participants to share their experience, the researcher chose open-ended *experience-near* questions (Josselson, 2013).

Each interview was about forty-five minutes. Due to circumstances for the participants, one of the six was conducted and recorded using an iPad with an iPhone for back up. The other five were conducted via videoconferencing. The researcher recorded the interviews so she could be attentive to the interviewees and focus on their experience. She set aside time immediately following the interview to listen to the interview, transcribe, and extract relevant information (Brinkmann & Kvale, 2012).

### **Data Analysis**

Using the social presence element within Garrison et al.’s (2000) Community of Inquiry as a framework, social network analysis and qualitative content analysis were used to answer the research questions. Table 6 shows how the researcher used appropriate data aligned with the research questions.

Table 6

*Alignment of Research Questions with Data Collection and Analysis*

| Central Question: How do doctoral students experience social presence (Garrison et al., 2000) in the educational leadership distance learning cohort program at a large public university in the south? |                                                                                                                                                                                       |                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Sub-research Questions                                                                                                                                                                                  | Data Collection                                                                                                                                                                       | Data Analysis                                                                                                         |
| 1. How do the patterns of interaction among cohort members differ between expressive and instrumental networks?                                                                                         | <ul style="list-style-type: none"> <li>▪ Electronic Student Ties Survey (expressive)</li> <li>▪ Archived transcripts: Canvas course EDLD Discussion Threads (instrumental)</li> </ul> | Ucinet 6.0<br>correlation,<br>connectedness                                                                           |
| 2. What elements of social presence are evident through interactions in the expressive and instrumental networks?                                                                                       |                                                                                                                                                                                       | NetDraw<br>visualizations<br>Social network analysis<br>Strength of ties                                              |
| 3. What elements of social presence are evident through the lived experience of cohort members?                                                                                                         | <ul style="list-style-type: none"> <li>▪ Interview protocol</li> <li>▪ Archived transcripts: WhatsApp group messages</li> </ul>                                                       | Qualitative content analysis<br>a priori coding<br>Qualitative content analysis<br>in vivo coding<br>inductive coding |

**Social network analysis.** Data from both the Student Ties survey and the discussion thread transcripts were used to identify patterns of interaction. The researcher created adjacency matrices using the data from the surveys and discussion threads separately and then uploaded them to Ucinet 6.0 (Borgatti et al., 2002) for analysis. In order to analyze the network in terms of the number and strength of ties, the data set was dichotomized at increasing levels of tie strength. At lower levels of dichotomization, networks have a great number of ties, and at higher levels, connections become sparser. This dichotomy allowed the researcher to distinguish tightly connected individuals from relative isolates. Ucinet 6.0 provided statistical data, such as correlation, connectedness, and density.

A Quadratic Assignment Procedure (QAP) correlation, similar to Pearson's  $r$ , allowed for correlation of whole matrices as it accounts for the fact that the relations are not independent

(Borgatti et al., 2018). For example, if one individual had five ties, five other individuals must have at least one. This measurement enabled the researcher to compare the strength of ties between dyads, or pairs of students, in the expressive and the instrumental networks. The researcher used NetDraw, a program within Ucinet software (Borgatti et al., 2002), to create the visual representation of the networks in order to examine the expressive and instrumental networks; and the average strength of ties within and between the two networks. The average strength of ties would show different networks. A high correlation between the networks would be an indicator that students were limiting their academic (instrumental network) engagement to students within their expressive (friendship) network.

Connectedness describes the different ways to measure group cohesiveness (Borgatti et al., 2018). Measures of connectedness for this study included network centralization, density, and a comparison of tie strength in and between the expressive and instrumental networks. The researcher analyzed the density looking to see if there was one central figure within the cohort and centralization measured the evenness in the network (Borgatti et al., 2018). If few individuals possessed most of the ties, the network would have high centralization. Evenly distributed ties would be indicative of low centralization. The researcher was also interested in density to determine the number of actual ties compared to the number of possible ties.

**Qualitative content analysis.** The researcher used both inductive and deductive content analysis, emergent and a priori themes, based on social presence for transcripts. The researcher would allow for themes to emerge as she read and began initial coding for the interview transcripts and group messaging texts. The researcher was looking for elements of social presence within the group texts that aligned with the evidence revealed during the interviews. A priori themes were used in an analysis of the discussion board transcripts. A codebook

(Appendix C) was made and included terms that were operationalized for this study (Saldana, 2016). She revealed a more detailed description by analyzing text and conducting interviews and got a better understanding of the cohort experience using multiple data sources (Merriam & Tisdell, 2016).

### **Trustworthiness and Credibility**

The researcher used validation strategies to show the study's trustworthiness and credibility through the lens of the researcher, participants, and of the audience (Creswell & Miller, 2000).

In order to enhance credibility, the researcher did the following

- used best practice when creating the Student Ties survey instrument to ensure as close to a one-hundred percent response rate as possible by
  - including only those questions critical to the purpose of the study that related to the conceptual framework to avoid burden on participants;
  - providing names of cohort members on the survey, so participants did not have to rely on their memory;
  - using relational questions only after participants have had a chance to get to know each other for a while (Borgatti et al., 2018);
- selected participants using purposeful sampling, nested sampling (Creamer, 2018), and maximum variation (Schwandt, 2015);
- checked the correlation between relationship ties and communication ties for measurement validity (McMillian, 2016) of expressive network;
- triangulated SNA data with transcripts from interviews and archived data;
- used thick, rich descriptions during analysis; and

- conducted follow up interviews and sent a summary of analysis as member checks (Merriam & Tisdell, 2016).

These strategies enhanced trustworthiness and credibility as well as increased the transferability of findings (Merriam & Tisdell, 2016).

Keeping with the constructivist approach, the researcher used multiple data sources as well as included disconfirming evidence (Creswell & Miller, 2000).

The participants also contributed to the trustworthiness of the research. They

- answered survey questions and shared information during interviews honestly and to the best of his/her ability; and
- were a part of member checking as a way of “assessing whether the interpretations accurately represent them (Creswell & Miller, 2000).

The researcher provided thick, rich descriptions and relied on the peer review process to enhance credibility for the audience. These validation strategies, aligning well with a constructivist approach, allowed the researcher to gain valuable insight as she gained credibility with her participants throughout the study.

### **Ethical Considerations**

During the design phase, the researcher thought about how she would approach the cohort she wanted to study. Empathy and integrity were emphasized when it came to planning and implementing a research design (Brinkmann & Kvale, 2015). The researcher considered many issues: consequences for the participants, confidentiality, and how much involvement, if any, they would have interpreting. She gave the participants a brief overview of the risks and how the risks would be minimized, the purpose of the study, and what exactly to expect (Burg & Lune, 2012).

There would be minimal risks or consequences for the participants. The researcher took precautions to eliminate or reduce the risk for each of the following: breach of confidentiality, psychological risk, and coercion. She minimized the risk of confidentiality by using pseudonyms for each participant's name on surveys, interview transcripts, discussion thread data, and group text data; and using a pseudonym for the university. All the data to include social network survey data, text from interviews, discussion threads, text messages, and the audio recordings were securely stored and then destroyed through shredding or deleting after completing the study. Participants were reminded that they did not have to answer all questions, and they could withdraw at any time to minimize the risk of discomfort. In order to reduce the risk of coercion, the researcher reminded the students that participation was voluntary, and if they decided not to participate, it would not jeopardize their relationship with the university, the department, or anyone involved in the research study.

When the researcher received permission from the IRB (Appendix E) to conduct the research study, she began the recruitment process. Participants consented to each of the research activities beginning with the electronic survey and the discussion thread data. Separate letters of consent were collected for permission to use transcripts from the WhatsApp group text messages and to conduct interviews with the six cohort members (Berg & Lune, 2014).

### **Significance and Limitations**

The researcher explored the cohort experience for a distance learning educational leadership graduate program because she believed that the cohort program was a major factor in the success of each member and the cohort as a whole. Consistent with the university's mission, the department faculty showed interest in this research as a part of their continuous improvement cycle (Ph.D. Handbook, 2017). Cohort programs should be developed and maintained (Bista &

Cox, 2014; Brindely et al., 2009), especially as more courses and programs have moved to an online format. There is a gap in the literature regarding how to build and maintain cohorts in distance learning programs (Bista & Cox, 2014; Boling et al., 2012; Choi et al., 2005; Ladyshevsky & Taplin, 2014; Myers et al., 2015; Robertson & Webber, 2004). The findings from this study can be used to guide continuous program improvements at Main University for future cohorts for the distance learning educational leadership program.

Limitations included

- responses to Student Ties survey and interview questions were based on students' perceptions and their best recollections;
- wording of the Student Ties survey could have specified at which point in time during the first semester to reflect on;
- questions on Student Ties survey could have included about whether cohort members knew each other before the Ph.D. program began, how long they knew each, and in what context; and
- archival data were from one course and group texts from one semester in the first year of the program.

## **Summary**

This chapter was an explanation and rationale for the research design, data collection, and analysis. This explanation included how the research design, data collection, and data analysis were aligned with each other and with the research questions. Chapter Three also described strategies for credibility and ethical issues as well as the significance and limitations of the study. The researcher describes the results, implications, and recommendations for future research in the next two chapters.

## **Chapter IV: Results**

As stated in Chapter 1, the purpose of this explanatory sequential mixed-methods case study was to explore social presence (Garrison et al., 2000) for graduate-level students in a distance learning educational leadership cohort during the first semester of their program. Online educational leadership programs can produce equivalent learning experiences to traditional face-to-face programs (Ladyschewsky & Taplin, 2014; Schlosser & Simonson, 2009). Cohorts, which have been an essential part of effective educational leadership preparation programs (Darling-Hammond et al., 2007; Davis, 2016; Donmoyer et al., 2012), can play a major role when achieving this equivalence. However, there is a gap in the literature and a need for research on how to build and maintain cohorts, or community of learners, for online and hybrid classes (Bista & Cox, 2014; Boling et al., 2012; Choi et al., 2005; Ladyschewsky & Taplin, 2014; Myers et al., 2015; Robertson & Webber, 2004). Student-student relationships are crucial to the development and success of a cohort (Barnett et al., 2000; Bentley et al., 2004; Donmoyer et al., 2012). The development of authentic social presence is needed within distance learning cohorts (Berry, 2017, 2018; Crosta et al., 2018; Thorpe et al., 2007). The researcher intended that the findings from this study be used to inform development of future cohorts for a distance learning educational leadership program.

### **Overview**

By exploring Main University's educational leadership distance learning cohort, the researcher hoped to identify strategies that could be used to inform future distance learning cohort programs. The first phase of this mixed-methods study, which included the results from the quantitative analysis, allowed the researcher to answer the first two research questions, and helped identify the participants needed for the qualitative data collection. The second phase

analysis allowed the researcher to expand upon the quantitative results. After studying student-student interaction within the cohort from a network perspective, she conducted interviews to hear from the participants about their lived experience. This chapter reports the patterns of interaction and elements of social presence that were evident within the cohort. It is organized by the phases of the mixed-method study and described concerning the research questions.

### **Research Questions**

The central question was: How do doctoral students experience social presence (Garrison et al., 2000) in the educational leadership distance learning cohort at a large public university in the south?

1. How do the patterns of interaction among cohort members differ between the expressive and instrumental networks? 1a. Correlation between strength of ties; 1b. connectedness within networks
2. What elements of social presence were evident through interaction in the expressive and instrumental networks?
3. What elements of the social presence were evident through the lived experience of cohort members?

### **Phase One**

With an emphasis on quantitative data collection and analysis, the first phase allowed the researcher to collect basic information about the cohort members, answer the first two research questions, and to purposefully select cohort members for phase two. Data sources consisted of transcripts from an online discussion thread for an educational leadership course and electronic surveys in which participants were asked to reflect on their first semester. The researcher analyzed weekly discussion board transcripts from the course for patterns of interaction. The

electronic *Student Ties Survey* allowed the researcher to explore the strength of personal relationships and the frequency of communication within the cohort. The second research question used the same data sources. While social network analysis was used on both sets of data, the researcher added a qualitative content analysis of the discussion thread transcript. This content analysis allowed the researcher to identify elements of social presence within the instrumental network. Both data sources, the discussion thread transcripts and the *Student Ties Survey*, allowed the researcher to look at the patterns of interaction between cohort members within and between the expressive and instrumental networks.

**The cohort.** The participants shared their first-semester cohort experience in terms of social presence (Garrison et al., 2000). All thirteen graduate students who enrolled in the educational leadership distance learning cohort program participated. Recall that this study focused on experiences related to graduate students, who began with a formal face-to-face orientation and had three face-to-face sessions for each course during the semester. These cohort members were in the same program with the same course sequence, where many of its assignments and support were provided in an online format. Each participant completed the electronic survey, titled *Student Ties Survey*, sent via Qualtrics to their email, and consented to an analysis of transcripts.

While all were beginning their doctoral journey, seven of these graduate students were new; the other six just completed their Educational Specialist degree at Main University. The cohort consisted of nine women and four men. All but two lived in the state. Of the two cohort members that lived out of state: one lived in a neighboring state, and the other lived in the northeast. While pursuing their doctorate, eleven of the thirteen cohort members worked full time as educators in one of the following capacities: teacher, instructional coach, program

administrator, instructional coach, assistant principal, or principal. The two cohort members that did not work were full-time students during the first semester. Pseudonyms were used for each cohort member and all identifying information that was shared throughout the study.

**Patterns of interaction.** The first research question (*how do the patterns of interaction among cohort members differ between expressive and instrumental networks?*) was answered in terms of correlation and connectedness. The expressive network, also called the friendship network, was operationalized within the Student Ties Survey based on the reported frequency of personal communication and the perceived strength of that personal relationship among members during the first semester. These constructs offer two different measures to operationalize the expressive network. Participants were asked how often they communicated with each cohort member and to indicate the perceived strength of their relationship with each cohort member. While the Student Ties Survey was conducted in the second semester of the second year of their program, they were asked to reflect on their first semester. The instrumental network, also known as the academic network, was operationalized within the first-semester educational leadership course when students interacted online for completion of assigned coursework. Student interactions data were collected from the archived discussion thread transcripts were used to identify these ties based on whom each cohort member posted. Ucinet (Borgatti et al., 2002) was used for descriptive statistics and NetDraw, a feature within Ucinet, was used to create visualizations to analyze the expressive and instrumental networks.

**Correlation.** There were three Quadratic Assignment Procedure (QAP) correlation tests to run: (1) to check the measurement validity (McMillian, 2016) of the expressive network, which was operationalized using communication ties and relationship ties; (2) to check the correlation between the communication ties and discussion ties; and (3) to check the correlation

between the relationship ties and discussion ties. The communication ties and relationship ties represent the expressive network, and the discussion ties represent the instrumental network. QAP correlation, similar to Pearson's  $r$ , is also known as the 'observed' correlation (Borgatti et al., 2018).

The QAP correlation (Borgatti et al., 2018) report showed a strong correlation (0.835) between the communication ties and the relationship ties and is statistically significant ( $p = 0.0002$ ). These results supported the idea that communication ties and relationship ties were distinct, yet closely related ( $r^2 = 0.6987$ ) constructs. The results supported the appropriateness of the measures in describing the expressive network (McMillian, 2016).

The results of the QAP correlation report between the strength of ties in the expressive network based on communication and the strength of ties in the instrumental network based on the discussion thread showed a small positive ( $r = 0.2270$ ) but statistically significant ( $p = 0.0106$ ) correlation explaining 5.2% of the variance in instrumental tie strength ( $r^2 = 0.0515$ ). The results of the QAP correlation report between the strength of ties in the expressive network based on relationships and the strength of ties in the instrumental network based on the discussion thread showed a small positive ( $r = 0.2264$ ) but statistically significant ( $p = 0.0116$ ) correlation explaining 5.1% of the variance in the instrumental tie strength ( $r^2 = 0.0513$ ). These results suggest that the strength of ties within the expressive network was not a predictor of the strength of ties within the instrumental network. The results indicated that students in the instrumental network were conversing online with cohort members with whom they were not as close and outside their expressive network. The researcher took a closer look at the discussion thread data, which showed more about student interactions in the instrumental network.

**Connectedness.** To explore connectedness in the instrumental network, the researcher examined the patterns of interactions between cohort members, specifically the researcher explored the extent to which students posted to different cohort members on the discussion board each week. Recall the subgroups were formally established as the EdS group merged with the new Ph.D. group as they all began their doctoral journey together. Measures of connectedness included network centralization, density, and comparison of tie strength within and between the formally established sub-groups (Borgatti et al., 2018).

Centralization is a measure of evenness in the network (Borgatti et al., 2018). In highly centralized networks, few individuals possess most ties, while ties are evenly distributed in low centralized networks. The centralization of the network is computed from the relative difference in network centrality among all network members. The postings analyzed were from the archived discussion thread.

The assignment from the course discussion required students to post at least ten responses throughout the course within the online discussion thread. Throughout the course, each student could post to as many as twelve other students since students may respond more than the required number of times. Likewise, each student could receive posts from twelve different people. The researcher counted the raw number of posts sent and received between each pair of students. This value was then dichotomized at a threshold of zero to indicate the presence or absence of a tie (Borgatti et al., 2018). The resulting relation allowed the researcher to compute centralities, the number of different people each cohort member posted to (outdegree) the number of different people each member received posts from (indegree).

The data in Table 7 shows centralities (Borgatti et al., 2018) for each cohort member. The value for centrality revealed the number of different cohort members to which each sent posts and number of different cohort members from which each received a post. Normalization, *nOutdegree* and *nIndegree*, allowed for comparison between columns (Borgatti et al., 2018). These resulting centrality figures revealed that cohort members engaged with as many as eleven different cohort members and as few as four different cohort members during the first semester online educational leadership course. The *nOutdegree* and *nIndegree* was the *normalized* result, which allowed for easier comparison and indicated what percent of the cohort they interacted with by sending posts (*nOutdegree*) or receiving posts (*nIndegree*). On average, students posted to and received posts from seven different cohort members throughout the semester, which meant, on average, they each interacted with fifty-eight percent of the cohort. Computing individual centrality allowed the researcher to analyze the network.

Table 7

*Indegree and Outdegree Centrality*

|       | Outdegree | Indegree | nOutdegree | nIndegree |
|-------|-----------|----------|------------|-----------|
| Halie | 10        | 6        | 0.83       | 0.50      |
| Iris  | 9         | 8        | 0.75       | 0.67      |
| Mark  | 9         | 4        | 0.75       | 0.33      |
| Kris  | 8         | 11       | 0.67       | 0.92      |
| Bev   | 9         | 8        | 0.75       | 0.67      |
| Cara  | 6         | 10       | 0.50       | 0.83      |
| Emma  | 5         | 8        | 0.42       | 0.67      |
| Marie | 7         | 10       | 0.58       | 0.83      |
| Ed    | 9         | 6        | 0.75       | 0.50      |
| Matt  | 8         | 8        | 0.67       | 0.67      |
| Annie | 10        | 10       | 0.83       | 0.83      |
| Erik  | 8         | 9        | 0.67       | 0.75      |
| Kate  | 4         | 4        | 0.33       | 0.33      |

While the indegree and outdegree centrality analyzed nodes, cohesion analyzed dyads, and centralization allowed the researcher to analyze the whole network. The resulting centralization of the dichotomized instrumental network for outdegree was 0.0194 and the indegree was 0.284, which were both relatively low. These results are indicative of a relative evenness of the number of different students that students were posting to and receiving posts from. There was no central figure among cohort members within the instrumental network.

When looking at the level of network cohesion, the same discussion thread data dichotomized at greater than zero, showed the density was 0.654 and that there were 102 connections made of the 156 possible connections. This meant sixty-five percent of the cohort interacted with each cohort member at least once in the first-semester online discussion thread. This was an indication that students interacted with many different cohort members exposing students to diverse opinions and perspectives.

The researcher analyzed the diversity of postings within and between the formally established subgroups. Recall the formally established subgroups within the cohort were the students that were new to Main University and students that just completed their EdS degree. The importance of group membership was their familiarity with one another. The researcher used a one-tailed t-test to compare instrumental network tie strength within and between formally established subgroups. The test revealed that ties were stronger within subgroups than between them. There was a small but statistically significant tendency (Cohen's  $d = 0.467$ ;  $p = 0.026$ ) for students to post to those within their formally established subgroup. This was consistent with the data comparing strength of ties within the expressive network and instrumental network.

**Visualizations.** Network visualizations were created using Ucinet's NetDraw (Borgatti et al., 2002). These visualizations gave a closer look at the communication ties and the relationship

ties within the expressive network. Recall that cohort members were asked the frequency at which they communicated with each cohort member. Using a Likert scale, participants indicated their frequency of communication from 0 (never) to 5 (most often) and their perceived strength of relationship from 0 (not close at all) to 5 (closest). The researcher dichotomized the results at each level and identified the level at which isolates appeared. The goal was to identify the highest common level at which cohort members were still connected. Everyone was at least a level two, which means they all had someone with whom they *sometimes* communicated and with whom they felt *somewhat* close.

Recall that it is at the lowest level of dichotomization when networks have a greater number of ties, and at higher levels, connections become sparser, revealing more tightly connected individuals and the relative isolates. All visualizations have been generated in same format using a circular shape with the names appearing in alphabetical order making it easier to see the changes in ties from one level to the next (Borgatti et al., 2018). The visualizations show all of the Ph.D. cohort members with the circular nodes to represent the EdS subgroup and the square nodes to represent the new Ph.D. subgroup.

Figures 5-8 showed the strength of communication ties within the expressive network. According to Figure 5, there were no isolates when the communication ties were dichotomized at greater than one, indicating a level two or higher and a rating of at least *sometimes*. All cohort members had at least two cohort members, and on average, each member had seven cohort members with whom they communicated at least *sometimes*. One student had as many as eleven students with whom they communicated at least *sometimes*. In the network of thirteen students, there were 100 of the 156 possible ties. The density of the network based on communication ties at a threshold of greater than one was 0.641, or 64%.

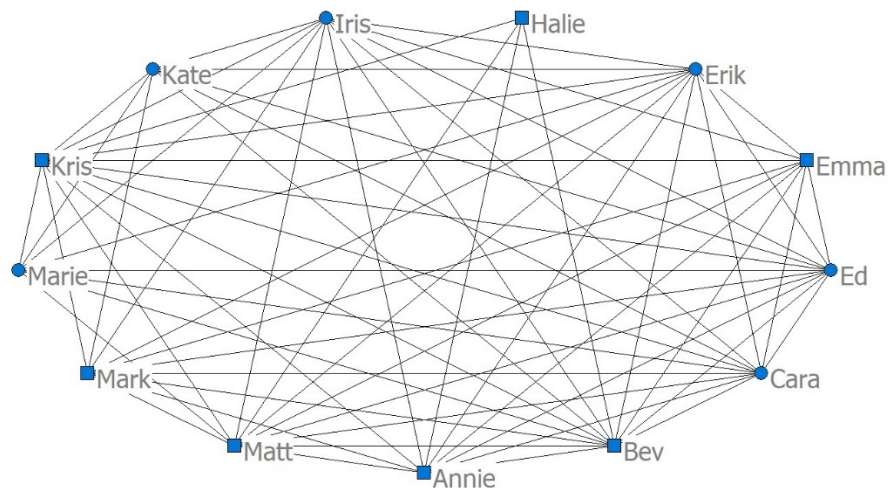


Figure 5. Communication ties: Students who communicated at least *sometimes*.

The communication network of the students who communicated at least *often* is shown in Figure 6. Halie appeared as an isolate when the communication ties were dichotomized at greater than two, indicating a level three or higher and a rating of at least *often*. The other twelve cohort members communicated at least *often* with at least two cohort members, and on average, each member had four cohort members, and some communicated at least *often* with as many as ten. There were 62 of the 156 possible ties when dichotomized at greater than two. The density based on communication ties at a threshold of greater than two was 0.397, or 40%.

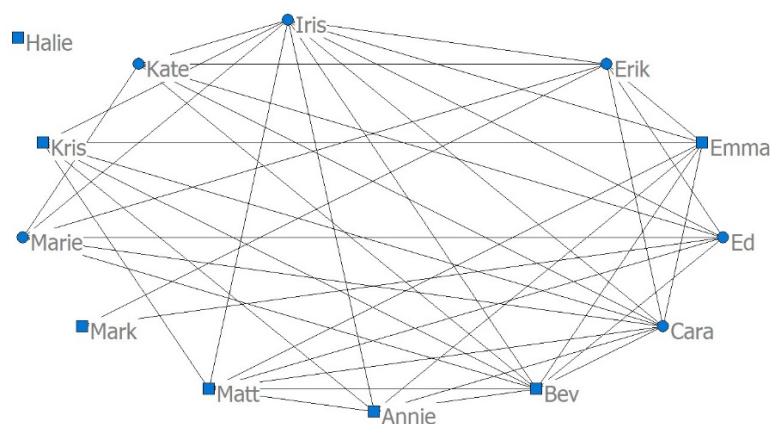


Figure 6. Communication ties: Students who communicated at least *often*.

According to Figure 7, Mark appeared as an additional isolate when the communication ties were dichotomized at greater than three, indicating a level four or higher and a rating of at least *very often*. This visualization showed Halie and Mark as isolates and revealed that eleven cohort members indicated that they communicated at least *very often* with at least one cohort member, and on average each member had three cohort members, and some indicated that they communicated at least *very often* with as many as seven. There were 41 of the 156 possible ties at this level. The density of the network based on communication ties at this level was 0.263, or 26%.

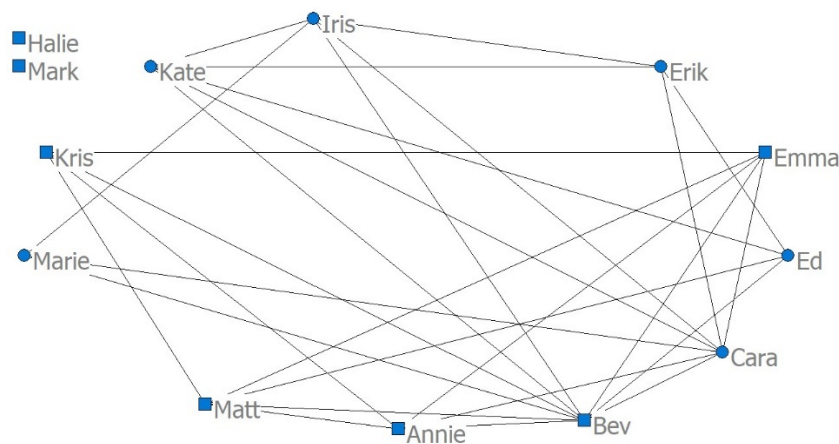


Figure 7. Communication ties: Students who communicated at least *very often*.

There were no additional isolates when communication ties were dichotomized at greater than four, indicating a level five and a rating of *most often*. According to Figure 8, the visualization showed two isolates and revealed that nine cohort members indicated they spoke *most often* to at least one cohort member and as many as four, and on average, each member had two cohort members. There were 20 ties of the 156 possible ties at this level of dichotomization. The density of the network based on communication ties at this level was 0.128, or 13%. At this level, it was evident that there was one cohesive subgroup made up of Annie, Bev, Emma, Kris,

Matt. They were part of the new Ph.D. cohort members and teachers, although Matt was not working full-time. Bev acted as a bridge to other subgroups. Bev and Kate, who had known each other before the start of the program, acted as connectors or bridges between the two groups (Borgatti et al., 2018). Kate was also a connector. She was part of the triad with Ed and Erik. All three of them were assistant principals. Kate also had a prior connection with Iris, who was an instructional coach. Subgroups seemed to form based on connections and whether they were new or EdS coming into the Ph.D. program. The square nodes represent the new Ph.D. subgroup, and the circular nodes represent the subgroup that was part of EdS program first.

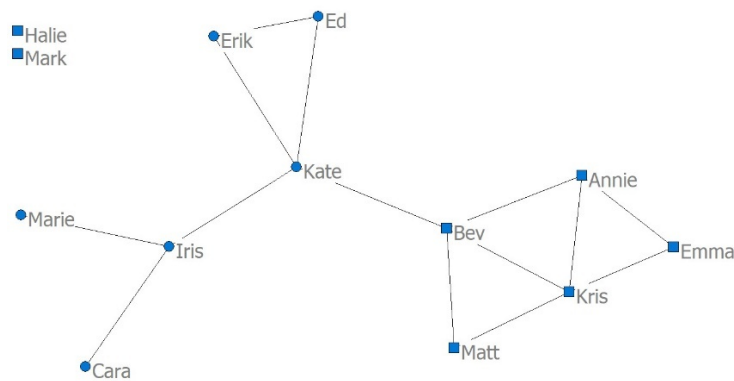


Figure 8. Communication ties: Students who communicated *most often*.

Figures 9-12 showed the strength of relationship ties within the expressive network. According to Figure 9, there were no isolates when the relationship ties were dichotomized at greater than one, indicating a level two or higher. This visualization revealed that all cohort members were *sort of close* with at least one cohort member and on average, each member had six cohort members. Two students had as many as eleven students with whom they were at least sort of close. In the network of thirteen students, there were 83 of the 156 possible ties at a dichotomization of greater than one. The density of the network based on relationship ties at this level was 0.532, or 53%.

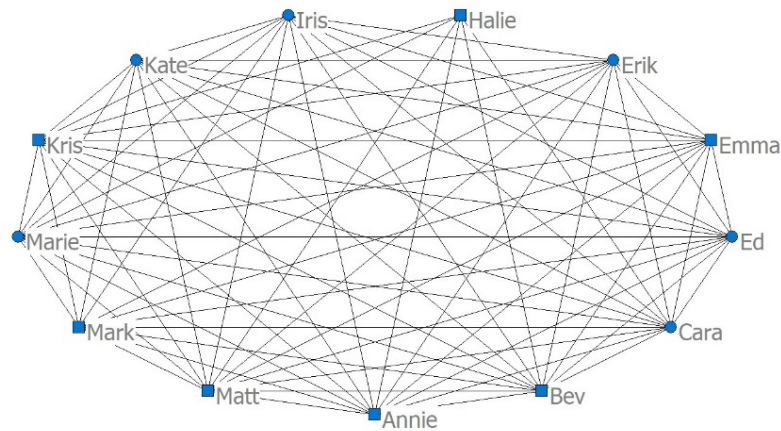


Figure 9. Relationship ties: Students at least *sort of close* to other cohort members.

According to Figure 10, two cohort members, Halie and Mark, appeared as isolates when relationship ties were dichotomized at greater than two, indicating a level three or higher and a rating of at least *close*. This visualization revealed that eleven cohort members were *close* with at least two cohort members and on average, each member had three cohort members. One student had as many as eight students with whom they were at least *close*. In the network of thirteen students, there were 48 of the 156 possible ties at a dichotomization of greater than two. The density of the network based on relationship ties at this level was 0.307, or 31%.

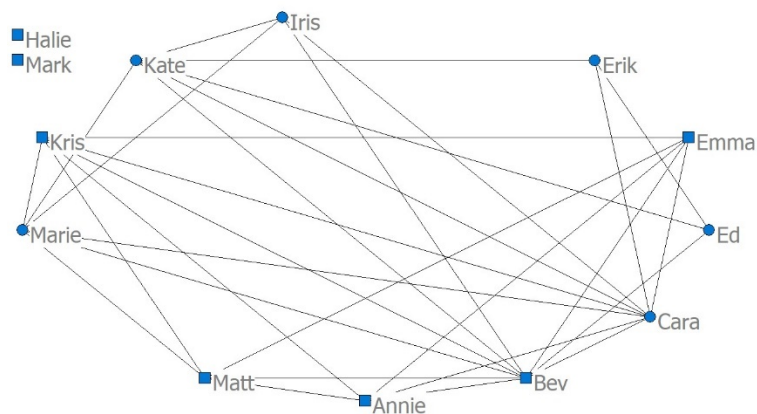


Figure 10. Relationship ties: Students at least *close* to other cohort members.

According to Figure 11, there were no additional isolates when the relationship ties were dichotomized at greater than three, indicating a level four or higher and a rating of at least *very*

*close*. This visualization showed the two isolates and revealed that eleven cohort members were *very close* with at least two cohort members. One student had as many as eight students with whom they were at least *very close*, and on average, each member had three cohort members. In the network of thirteen students, there were 38 of the 156 possible ties at a dichotomization greater than three. The density of the network based on relationship ties at this level was 0.244, or 24%.

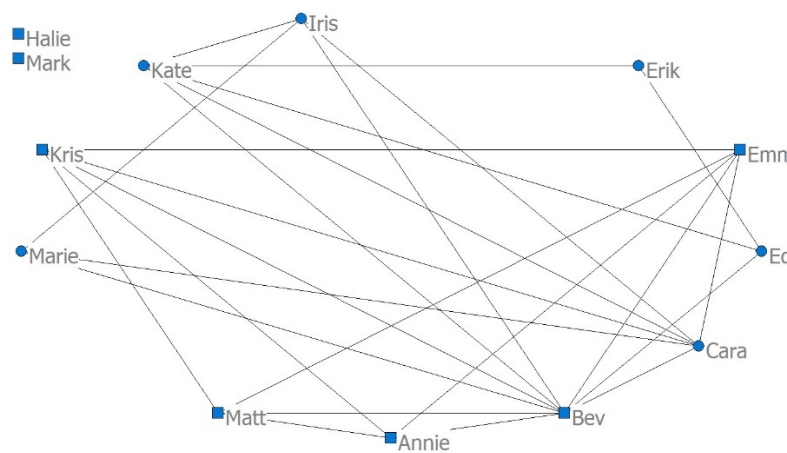


Figure 11. Relationship ties: Students at least *very close* to other cohort members.

According to Figure 12, there were no additional isolates when the relationship ties were dichotomized at greater than four, indicating a level five and a rating *closest*. This visualization showed two isolates from the previous dichotomization and revealed that eleven cohort members were *closest* with at least one cohort members and on average, each member had two cohort members. Two students had as many as four students with whom they were *closest*. In the network of thirteen students, there were 19 of the 156 possible ties at a dichotomization of greater than four. The density of the network based on relationship ties at this level was 0.121, or 12%.

As with the communication ties, relationship ties at this level revealed one cohesive subgroup made up the five of the new Ph.D. cohort members, Annie, Bev, Emma, Kris, and

Matt, with Bev as a bridge. Recall this cohesive group was made up of teachers and Bev knew Kate before the program. Bev, connected or bridged the new Ph.D. subgroup with the Ed.S. subgroup. Kate, Erik, and Ed were all assistant principals. Cara and Marie were both teachers, while Iris was an instructional coach. The isolates, Mark and Halie, were both parts of the new Ph.D. cohort. Mark was an assistant principal who lived out of state, and Halie, an international student, was a teacher who was not working during her time in the program. Recall that the square nodes represent the new Ph.D. cohort, and the circular nodes represent the subgroup that was part of the EdS program first.

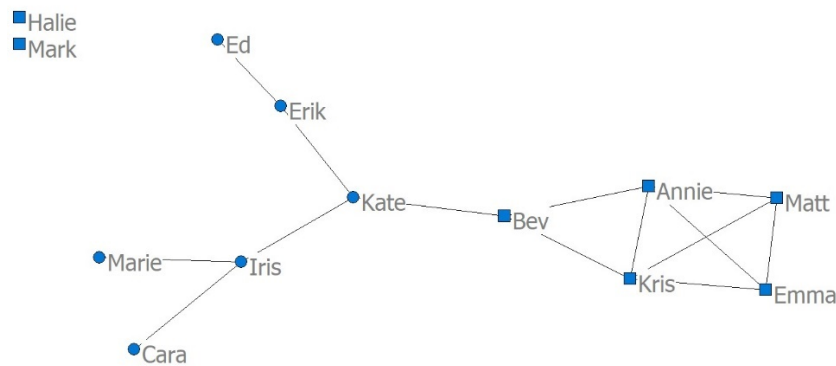


Figure 12. Relationship ties: Students *closest* to other cohort members.

**Elements of social presence.** The second research question (*what elements of social presence were evident through interaction in the expressive and instrumental networks?*) was answered by analyzing the network visualizations generated for each network and by conducting a qualitative content analysis of the comments from the discussion boards to identify social presence. The researcher was not looking to see that everybody was connected to everybody in the expressive network but to see that each cohort member had somebody with whom they connected. In the qualitative content analysis of the instrumental network, the researcher was looking, not at individual interactions, but types of interactions that were specific indicators of

social presence. The indicators of social presence (Garrison et al., 2000) included dialogue in which cohort members were conversing, participating, disagreeing, sharing perspectives, and all interactions that convey a sense of belonging or a sense of community and fit into three a priori themes: affective communication, open communication, and group cohesion (Swan et al., 2008).

**Visualizations.** As shown in the SNA visualizations of the expressive network, cohort members developed relationships and communicated with one another throughout the first semester. Recall the visualizations of relationship or closeness ties were presented in the order of increasing strength. That is, the first visualization presented ties of all strength levels while the last showed only the highest level of strength of ties in the expressive network. At a dichotomization of one, indicating level two or higher, as shown again in Figure 13, every cohort member had one or more persons with whom they reported feeling at least *sort of close*. This was the highest level at which all cohort members were still connected.

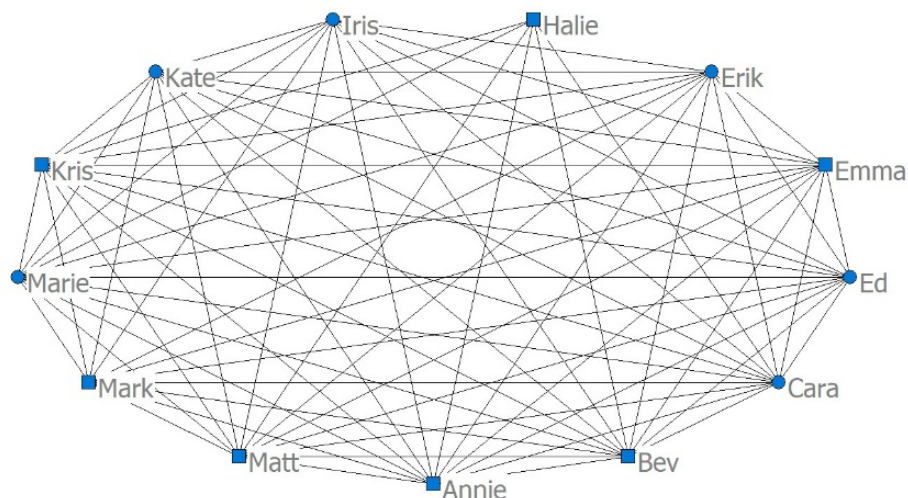


Figure 13. Relationship ties in the expressive network.

Likewise, the visualizations of communication ties were presented in order of increasing frequency. The visualization shown in Figure 14, shows that every cohort member had at least four or more cohort members with whom they communicated with at least *sometimes*. This

visualization was at a dichotomization of two, level two or higher, and the highest level at which all cohort members were still connected.

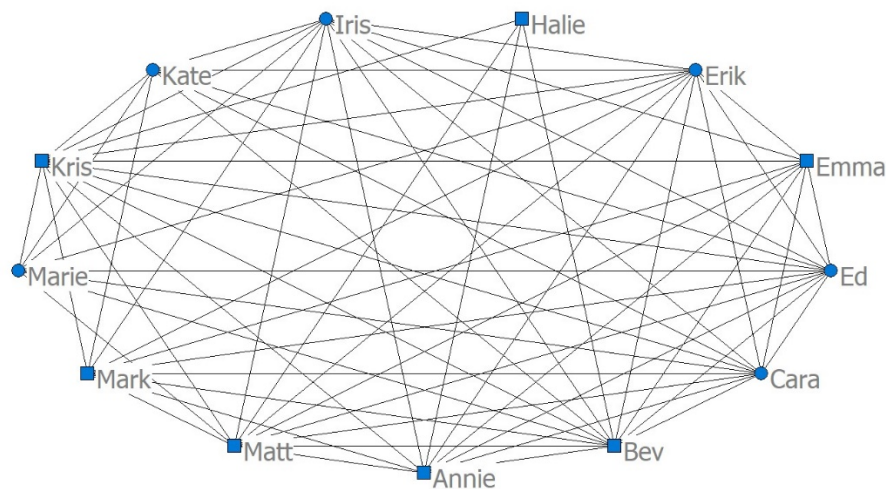


*Figure 14. Communication ties in the expressive network.*

Various elements of social presence were found each week on the discussion boards. The next three SNA visualizations show ties based on social presence within the instrumental network. Ties were based on the number of social presence interactions with each cohort member throughout the semester. The researcher analyzed the evidence of social presence that was embedded in the assigned discussion posts.

Figure 15 indicates that every cohort member had at least two social presence interactions with each cohort members on the discussion board throughout the semester. For example, Halie has at least two social presence ties with seven different cohort members. Cara has at least two social presence interactions with six different cohort members, and Kate has at least two social presence interactions with two different cohort members.

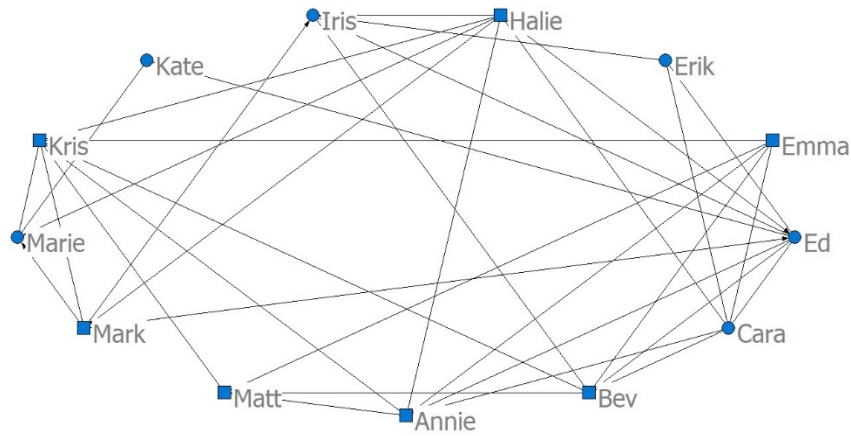


*Figure 15. Social presence in the instrumental network: At least two ties.*

Figure 16 shows cohort members with whom each had at least three social presence interactions throughout the semester. For example, Kris had at least three social presence ties with six different people. Kate had at least three social presence interactions with Ed and Marie. Erik had fewer social presence ties and appeared as an isolate in the instrumental network. Recall that Erik did not appear as an isolate in the expressive network. Although Halie and Mark appeared as isolates in the expressive network, they both had a stronger social presence in the instrumental network. Halie had at least three social presence interactions with three different cohort members, and Mark showed evidence of social presence ties with one cohort member.

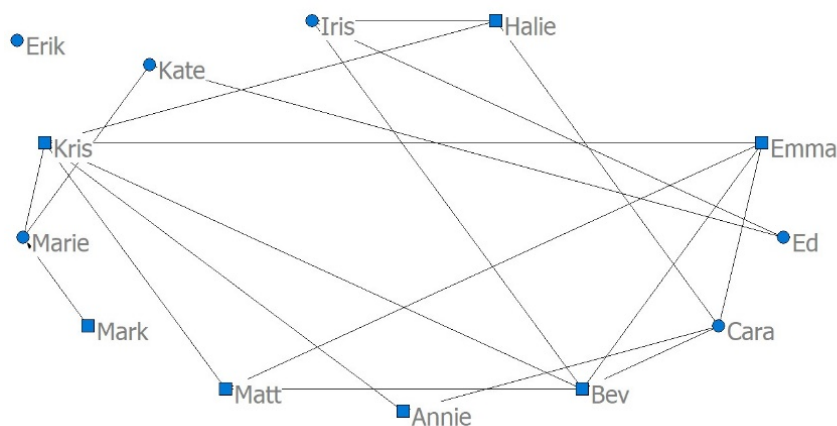


*Figure 16. Social presence in the instrumental network: At least three ties.*

Figure 17 indicates that five students had at least five social presence interactions throughout the semester. For example, Bev and Emma each stayed connected to Matt, who also remained connected to Kris. Kris remained connected to both Matt and Halie. These five students were all part of the new Ph.D. subgroup. The other eight members, two of whom were new, had less than five social presence interactions, and appeared as isolates.

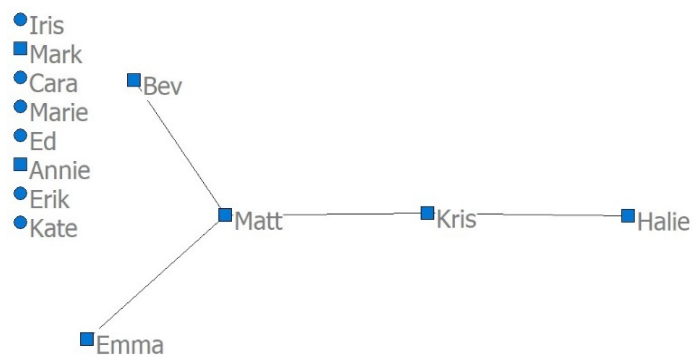


Figure 17. Social presence in the instrumental network: At least five ties.

**Qualitative content analysis.** The researcher analyzed the content of the discussion board posts for evidence of social presence within the instrumental network. This evidence of social presence (Garrison et al., 2000) fit into one of three a priori themes: affective communication, open communication, and group cohesion (Swan et al., 2008). These themes are directly related to the social presence indicators as discussed in Chapters Two and Three. The examples below are representative of the themes of social presence identified within the instrumental network. Focusing on the relevant dialogue, the researcher used segments, rather than entire posts to identify evidence of each social presence theme.

*Affective communication.* Affective communication (Swan et al., 2008) includes expressing feelings, emotions, gratitude, disclosure of personal information, etc. The following

quotes from the discussion board are representative examples of observed affective communication

- *Welcome... and congratulations on...* (Post, Matt to Halie, September 4).
- *Thank you for referencing the text to help with [concept...]* (Post, Annie to Emma, September 24).
- *...just wanted to say how I loved how you ended your post [with that quote.]* (Post, Iris to Bev, September 30).
- *Get back in the game, Marie!* (Post, Kris to Marie, November 20).
- *...Just taking a break. It feels fantastic! Gobble Gobble!* (Post, Marie to Kris, November 20).
- *Thanks very much for your clarification, Kris.* (Post, Halie to Kris, November 21).

The above quotes were representative of the dialogue on the discussion boards throughout the semester. These quotes were indicators of social presence (Garrison et al., 2000) and evidence that interaction, making impressions, and conversing amongst cohort members took place, and they convey a sense of belonging. This is the foundation for open communication.

*Open communication.* The discussion board provided evidence that students engaged one another in new concepts. Through this engagement, students demonstrated the ability to address opposing views. Evidence of this ability suggests social presence (Garrison et al., 2000) in the form of open communication (Swan et al., 2008). The following quotes from the discussion board were representative examples of observed open communication

- *I agree, but do you think [the principal's] credibility would weaken if she did that?* (Post, Ed to Mark, September 4).

- *You really gave me another point of view into [concept]...I particularly like how your strategy addresses...* (Post, Emma to Kris, September 2).
- *You make a number of excellent points, especially about... However, I disagree with...* (Post, Mark to Marie, September 17).
- *Your examples [from your professional experience] ... gave this entire discussion a new perspective.* (Post, Kris to Mark, September 18).
- *I appreciate the connections that you made [regarding...] After reading your response, I also wondered about... [poses questions]* (Post, Ed to Annie, September 24).
- *Your post revealed important information. However, [other approach] should also be examined...* (Post, Bev to Emma, September 26).
- *I disagree that the... [explained based on own experience in field] ...* (Post, Kris to Matt, September 27).
- *You made a lot of great points. However, I believe that...* (Post, Mark to Kris, September 10).
- *You make a good case... but recall that one of the theories...* (Post, Matt to Bev, September 3).

The above quotes represented open communication, which leads to the development of group cohesion among cohort members (Swan et al., 2008). The quotes revealed students' ability to disagree and share perspectives. These social presence indicators (Garrison et al., 2000) were revealed as cohort members participated and interacted on the discussion boards.

*Group cohesion.* Group cohesion (Swan et al., 2008) is the third theme of social presence (Garrison et al., 2000) identified on the discussion board to include the following: using inclusive

pronouns, such as *we* or *us*, addressing cohort members by name, etc. The following quotes are representative examples of observed group cohesion

- *I am also going to think about several people's responses as I reply to your post... As you are currently a principal, I appreciate your insights...* (Post, Annie to Ed, September 18).
- *...acknowledge some of the many excellent observations posted by our colleagues that helped to inform my response...* (Post, Kris to Ed, September 10).
- *I like your choice of [tool] for analysis...What if, for example, we ... [poses idea and question...]* (Post, Matt to Halie, October 23).
- *I agree with you. However, I think we must consider...* (Post, Emma to Kris, October 13).
- *I totally agree with your point. We, as educators, have so much...* (Post, Cara to Emma, October 21).

The above quotes were representative of group cohesion among cohort members (Swan et al., 2008) and revealed students' sense of community on the discussion board. This is a social presence (Garrison et al., 2000) indicator evident as cohort members collaborated on the discussion boards.

There were three themes of social presence (Garrison et al., 2000): open communication, affective communication, and group cohesion (Swan et al., 2008), evident through a qualitative content analysis of the discussion board. Affective communication, which was found throughout the transcript, allows for the development of a sense of belonging as students converse and make impressions on one another. As students experience this sense of belonging, open communication, also evident throughout, allows students to share perspectives and express

disagreement. Finally, group cohesion seen through the numerous instances of inclusive pronouns enabled collaboration and a sense of community.

Elements of social presence were evident through student interaction in the expressive and instrumental networks. The researcher used both social network analysis and qualitative content analysis to identify these elements. Personal connections forged among cohort members made dialogue rich in affective communication, open communication, and group cohesion. Each contributed to a cohort experience rich in social presence. The analysis revealed that each cohort member's expressive network included at least one person with whom they connected as well as evidence of social presence within the instrumental network.

## **Phase Two**

The second phase emphasized qualitative data collection and analysis. The researcher used results from the quantitative phase to inform sampling in this next phase and to get a closer look at the cohort experience. Interview protocol (Appendix B) was developed to explore the cohort experience. Other data sources included transcripts from follow up interviews and from WhatsApp group text messages. During the interviews, the researcher asked participants to reflect back to the beginning of their doctoral journey, and the group text messages were from that first semester when they were just starting out. Both these data sources allowed the researcher to answer the third research question by identifying elements of social presence (Garrison et al., 2000) that were evident through the lived experience of cohort members.

**Subgroup within the cohort.** The participants for phase two were selected from a subgroup within the cohort. This subgroup or nested sample (Creamer, 2018) was identified using visualizations from the quantitative social network analysis in phase one. The researcher identified this cohesive subgroup within the cohort as shown in Figure 18. The nodes within the

boxed area indicate the cohort members who participated in phase two. The researcher purposefully chose four strongly connected participants: Annie, Bev, Emma and Kris, and the two isolates, Halie and Mark. This purposeful selection allowed for maximum variation (Schwandt, 2016). The subgroup consisted six of the seven new Ph.D. cohort members. While all had experience as educators, only five of the six cohort members worked full-time as they began their doctoral journey. Annie, Bev, and Emma were teachers, and Kris was a school counselor. Of the two isolates, Mark was a principal who lived out of state. Halie was an international student who lived near campus and was not working.

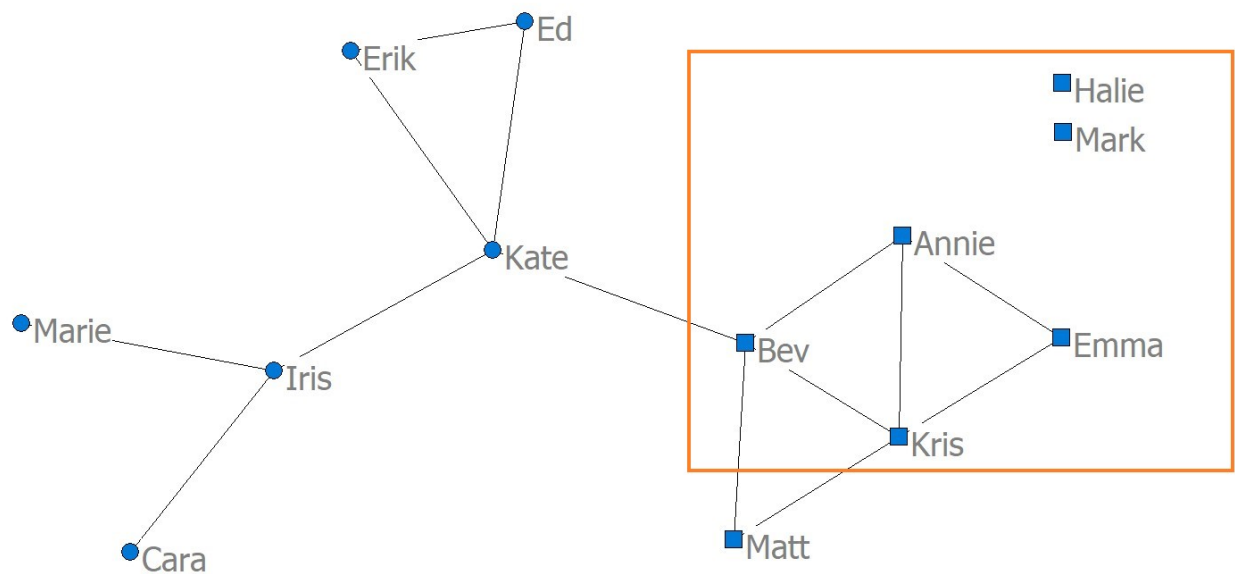


Figure 18. Social network analysis showing all cohort members.

**Elements of social presence.** The third research question (*what elements of social presence were evident through the lived experience of cohort members?*) expanded upon the results regarding elements of social presence found through student interaction from the data generated in phase one (Creswell & Plano-Clark, 2018). The results of the qualitative content

analysis of both archival data from WhatsApp group text messages and new data from interviews allowed for triangulation (Merriam & Tisdell, 2017) and provided a picture of the whole cohort from different perspectives (Knapp, 2017).

To learn about their lived experience, the researcher created an interview protocol to (1) learn about the cohort members' overall experience; (2) how they made connections; (3) what each cohort member felt was significant in shaping the cohort; and (4) how they handled times of stress during the first semester. Follow up interviews were conducted to check understanding (Merriam & Tisdell, 2016) and get a complete picture of their cohort experience based on the stories they shared concerning social presence (Garrison et al., 2000). The researcher sent a draft of the results to the interview participants as a member check. WhatsApp text was analyzed and coded. After analyzing six interviews, six follow up interviews, and almost two thousand lines of text from WhatsApp, common themes emerged from all transcripts. The themes, not directly aligned with the interview protocol, emerged from the stories that the participants shared. The WhatsApp data supported the stories shared. The findings for the third research question were organized in terms of social presence using the emergent themes from the relevant stories shared by interviewees.

Table 8 highlights the emergent themes and sub-themes that contained evidence of social presence (Garrison et al., 2000) shared by the participants during the interview and revealed throughout the group text messages from the first semester.

Table 8

*Themes and Sub-themes: Evidence of Social Presence*

| First Impressions                                                                                                                                                                                                                                                       | Program Structure                                                                                                                                                                                                                                                                                                     | Support System                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Introductory activities</li> <li>• Leadership inventories</li> <li>• First face-to-face meeting and introductions</li> <li>• Introduction to WhatsApp</li> <li>• Informal discussions</li> <li>• Formal discussions</li> </ul> | <ul style="list-style-type: none"> <li>• Design of educational leadership program</li> <li>• Planned course curriculum</li> <li>• Structure of the cohort model</li> <li>• Planned Educational Leadership Ph.D. program orientation / Meet &amp; Greet</li> <li>• Use of Canvas Learning Management System</li> </ul> | <ul style="list-style-type: none"> <li>• Using WhatsApp and other social media for cohort communication</li> <li>• Trusting and relying on one another</li> <li>• Reaching out to ask questions</li> <li>• Venting about school or work</li> <li>• Collaborating/ share ideas</li> <li>• Holding/ being held accountable</li> </ul> |

**First impressions.** All the cohort members who were interviewed shared stories of how they connected with other cohort members as they started on their Ph.D. journey. *First impressions* included social presence indicators, such as interactions where students were able to converse, make impressions, and develop a sense of belonging. Students were able to make connections from the very beginning at the Meet and Greet, throughout the semester on Canvas, using WhatsApp text messaging, or other technology; and during the three face-to-face sessions. Learning what they had in common and gaining an understanding of what he or she and each of their cohort members “brought to the table” [Annie, Interview, June 6] was significant in making authentic connections.

Bev and Kris shared how it was “nerve-wracking” to start this journey, not knowing what to expect [Bev, Interview May 28] and “wondering how they all fit together” [Kris, Interview, May 21]. Annie, Bev, and Halie pointed out how it was helpful that the group was told “this is your cohort” at the Meet and Greet, and they would “need to learn to rely on each other.” Annie said she felt that everyone seemed very open to the idea of doing this together. Annie also

shared that she was determined to “take every opportunity along this journey and cherish each and every moment...[She] told this to [herself] and to the cohort” [Annie, Interview, June 6, Lines 163-166]. Bev recalled how impactful the Meet and Greet at Dr. Davis’ house

*None of us knew each other when we responded to the email about attending...I didn’t recognize any of the names, so I was excited to see someone that I knew, my sorority sister. There was also a sorority sister of mine that I didn’t know. Meeting [and getting to know] new people made me feel comfortable. We played games that helped us open up about who we were* [Interview, Line 51-60].

Bev elaborated about the games that were helpful

*We got a penny... and had to tell what happened in our lives that year. [It] was an opportunity where you really got to know one another...Dr. Davis also asked us to share what we hoped to gain from the Ph.D. program. And so, when you listen to everyone and hear what they hope to gain, that gave you a sense of why we are here and how we can help each other...* [Interview, Lines 347-354].

In contrast, without being prompted, Emma shared that she found the face-to-face Meet and Greet to be “*frantic and disjointed*” [Line 53]. She went on to say that the first face-to-face session was when she felt the real connections were made.

*I didn’t even remember anybody’s name so that to me that wasn’t as significant as turning up on the first day in seminar with Dr. Smith...* [Interview, Line 57-58].

Emma said connections were made during Dr. Smith’s seminar when the cohort got together, started working, established norms, and set up the WhatsApp group text message [Interview, Lines 58-66]. Bev shared that they “learned each other’s likes and dislikes; they learned each other’s work ethic” [Interview, Line 28]. Annie also brought up learning how everyone’s “work ethics all meshed together” [Lines 52-53]. Halie shared that she loved the courses she studied and the cohort, which has been helpful [Line 22-24]. Each cohort member described how significant this first session was in making connections as a cohort.

As cohort members introduced themselves, Annie and Mark shared how they had plans for many years to attend Main University for their Ph.D. Emma said knew she wanted to go back to school for her Ph.D. but was in search of the right [university]. Each had a different story and different backgrounds, but they began to feel connected to their cohort members as they learned they all had common ground of wanting to be the best educators they could be. Bev had the same sentiment and added that the fact that they all chose the route of a Ph.D. also bonded them. “Who would know better what you’re going through than people going through the same journey?” [Bev, Interview, Lines 204-205]. Annie shared that she felt everyone took a risk and allowed themselves to be vulnerable with each other as they worked together and got to know one another [Lines 106-107]. These interactions allowed them to get to know one another as they found their place within the group.

Kris credited Annie for “probably being the first to just really be open with the ‘we’ and ‘us’ and ‘we’re all going to do this together’” [Interview, Line 94] and for “stepping forward and taking the reins” [Interview, Line 58].

*People would defer to each other based on strengths. All of us began to see what we were best at. There’s also that recognition of what we are not best at, and that’s okay because we all had our strengths... and each other* [Kris, Follow up, Line 19-21].

Bev identified herself as the ‘worrywart’ and explained how she would help be sure to remind everyone of deadlines. Annie described how Bev’s role extended to helping set up WhatsApp [Emma, Line 74] to be sure everyone was keeping up assignments and keeping in touch in between their face-to-face sessions. Interactions such as this seemed to leave distinct impressions on the cohort.

All the stories that were shared were about how they were able to make connections and get to know each other as they began the program. These connections played a significant role for students as they began to develop a sense of belonging within a cohort.

**Program structure.** All cohort members that were interviewed were asked what they felt was significant in shaping their cohort. The *program structure* theme emerged as the researcher heard participants credit the university and program structure throughout the interview. *The program structure* is defined as being related to opportunities created for cohort members to interact, converse, make impressions, develop a sense of belonging, disagree, share perspectives, collaborate, and develop a sense of community. First semester courses included introspective and reflective activities, such as leadership and personality inventories and surveys, that helped each cohort member learn more about themselves and others. Students developed social presence through these experiences. The cohort members shared stories about how Main University and its professors provided these opportunities to develop their cohort.

Mark shared how he felt

*The first seminar was very helpful to lay the foundation... and Dr. Smith provided structure for people to get to know one another... the structure and the climate and the support that Dr. Smith put in place really lead to a positive cohort model* [Lines 85-91].

Kris recalled how the professors spoke to everyone, new and EdS, as a group telling them they would need to support each other [Interview, Lines 36-39]. Kris felt the professors “really facilitated the forming of bonds and friendships between them by telling them they were going to need to stick together...” [Interview, Lines 40-42]. Annie also shared a similar sentiment

*I think Main actually started on real good footing with us by saying, ‘This is your cohort.’ So, that kind of planted the seed in our head...* [Lines 145-146].

Based on her experience as an educator, Annie commented on Main's Educational Leadership curriculum

*... the way they do things, it fuses networking fuses collaboration, and it forces you to work together in a good way... So, I see how they built the courses- for that peer to peer relationship, and at the Ph.D. level you want people to think outside the box and solve problems together [Lines 102-107].*

Bev shared how she felt Main helped students make these connections with group projects. Students got to know one another and were able to establish that support system. [Line 46] Bev and Mark also commented on the structure. They both saw the value in the face-to-face interaction but thought it was nice not have to go to class every week [Mark, Interview, Lines, 42-43], and the face-to-face sessions allowed for cohort members to establish relationships [Bev, Interview, Lines 311-313].

Although students were told by the professors that were all in the same Ph.D. cohort, Emma shared that she felt confused by the students that were called *EdS*. She did not realize how much the courses overlapped and that the *EdS* students were actually on the same track [Lines 92-94]. If it were not for the two groups beginning as one Ph.D. cohort, students would not have made as many connections. Cara and Erik were two from the *EdS* group that Emma began to connect with [Lines 151]. Bev shared that she discovered she knew Kate, who was one of the *EdS* students from her sorority and was introduced to another sorority sister, Iris was also part of the *EdS* to Ph.D. program. Finding out that Iris also part of her sorority helped her feel comfortable and

*knowing them helped me make connections... and that opened up some relationships and networking opportunities. So I appreciated that...the people you meet in your cohort, they introduce you to other people and when you talk about things you're interested in, or maybe jobs that you're seeking if they know*

*someone in that area that can help you and lead you in the right way and vice versa [Lines 76-86].*

After the first Meet and Greet, Bev gravitated towards Annie, Emma, and Kris. They were all part of the new Ph.D sub-group and established a strong bond. Bev felt like they knew each other their whole lives and they began working closely together right away [Lines 96-99]. It wasn't until the third semester that Bev had classes again with the EdS group and started forming bonds with them. Bev remained connected to Annie, Emma, Kris, and the rest of the new Ph.D. sub-group. They would have classes with them again as they moved through the program. Emma made a similar comment about clicking with the cohort right away [Lines 218].

Mark added that even though it was more structured, the required discussions on Canvas encouraged students to interact [Line 48-49]. Halie commented on being aware of the leadership skills that she was learning from her courses and how she liked discussions because when there was

*communication in the group...you collaborate with each other and share ideas, listen, and respond to others. So, then we gain more knowledge when we share ideas and listen to ideas, especially those ideas that are not what we expect. We would negotiate meaning and ask them to share more about their ideas to make it more clear... [Lines 34-38].*

Transcripts from WhatsApp group text messages indicated that cohort members encouraged others to post to the discussion boards, and they discussed concepts before and after posting.

All the first semester courses are introspective and reflective. There were many activities, such as leadership and personality inventories and surveys, that helped each cohort member learn more about themselves and others. As they began working together, they used the concepts they had learned. For example, when Annie stepped forward to lead the group, they thought back to

an activity from [Clifton] StrengthFinders and recognized Annie taking the lead as her strength [Kris, Lines 97-101].

Another opportunity for cohort interaction came when the program coordinator sent out advisory emails. Emma shared that the advisory emails for upcoming semester's courses were helpful, and this always prompted a discussion about courses they would be taking [Lines 43-46]. WhatsApp transcripts indicated that conversations about keeping track of the plan of study were frequent.

**Support system.** All cohort members shared stories of support and how important it was throughout the program. The theme *support system* includes social presence indicators related to interactions where cohort members demonstrate a sense of belonging; they are participating, disagreeing, sharing perspectives; and display a sense of community. Students were able to develop a support system that they all felt was vital to their success within the program. Annie stated that she would not know what she would do without the support of the cohort...there were times they just really needed each other to stay on track and motivate each other [Interview, Lines 16-23]. Annie described the cohort as each member contributing and sometimes, it felt like “we were all in a lifeboat, and everybody grabs an oar” [Line 92]. Annie also acknowledged she thought their grades were better because working in a cohort means you have people to bounce ideas off and collaborate [Interview, Lines 51-53]. While they developed close relationships and were like “brothers and sisters,” there were also times when they disagreed. Since they all valued their relationships and acknowledged how difficult the journey was, they would come around knowing that they needed each other [Lines, 81-94].

At the very start of the interview, Bev shared the emotional support she felt

*The cohort gives you support on days where you feel like it's too much, you just can't do it, why did I choose this? For me, it's a blessing to have these individuals*

*in my life. We have busy schedules; we check on each other. Even though some of us moved and we live in different places, we still support each other...* [Interview, Lines 35-41].

Emma said that she could not have done it without the cohort... the connections led to relationships. Some of the relationships became more personal, and some remained strictly professional. Emma shared that while she was not as close to some people in the cohort of thirteen, they were all colleagues and knew that she could call on them for help [Interview, Lines, 145-152], such as when Emma reached out to Erik for a project that was unrelated to Main's coursework [Follow up, Lines 15-16]. The WhatsApp transcript indicated that Emma was a very active participant and sent and received texts almost daily. At the end of our interview when asked if she had anything she would like to add, Emma shared an analogy to describe the cohort program

*...it's sort of like an arranged marriage. Your parents want the very best for you. You may not have chosen that particular person, but they want the very best for you. When you're doing a Ph.D., those people have [been through same selection process], and they have been chosen for you...* [Lines 226-233].

Kris shared a story about needing help and venting to Emma and Annie before reaching out to Matt.

*...somebody said, 'hey, Matt took that course, and he really knows that [concept]. I thought I haven't spoken to Matt since last semester... it's been a long time. So, out of nowhere, I call and say, 'hey, I am having trouble and immediately he was right there. He dropped everything and tended to it as if it were his emergency. That's kind of characteristic of our cohort. When somebody says, I'm having a problem. It's just 'drop everything,' sort of like family* [Lines 222-230].

The WhatsApp group text message itself was evidence of the cohort's support for one another during the first semester. Bev created a texting group on the WhatsApp messaging app and named it *Ph.D. cohort*. Members used a link to join. Six cohort members were active

participants. The longest span with no texts was four days. WhatsApp text messages contained questions and answers about current and upcoming assignments and technological issues, venting about school and work, sharing feeling of being overwhelmed, reflection on leadership practices, recommendations for resources, networking, pictures, lots of humor, and words of encouragement.

As previously stated, Bev was identified as an organizer and nurturer. Many texts revealed these qualities. Transcripts from WhatsApp indicated that Bev frequently checked in on how everyone was doing, how everyone was feeling, and sent reminders of deadlines. Bev shared that she had several text messaging groups, including one with the Kate and Iris.

*...We'd text during the week to check on each other, just to say, have a great week, and we would vent to each other about our work week. We just always send each other encouraging words [Lines 106-108].*

Bev also recalled the times her cohort would check on her when she was leaving work to make it home in time for a class via Skype. Emma and Kris would text her and see that she was on her way and let the professor know Bev was on her way to class [Lines 168-171].

Halie shared that she felt most connected to the cohort using WhatsApp group messaging during the first semester. It was “the beginning of WhatsApp chatting and [everybody] was sending pictures” [Interview, Line 124-127]. Transcripts indicated that Halie sent and received both academic and social texts regularly during the first semester. Halie recalled times of cohort members helping her figure things out and clarifying questions, but there were times when she texted questions and received no responses. In those cases, she knew she could email or call her professors. Halie said she understood that everybody had families and full-time jobs that could make it more difficult to respond at times. Halie shared that participating in group projects was

another way that helped her feel connected [Lines 21-22]. Bev said the same thing about group projects [Follow up interview, Line 44-45].

Mark admitted he was not a very active member of the group texting and called himself a passive participant. He said

*... I didn't contribute a lot, but [WhatsApp] was definitely helpful being able to see what people were saying and the things they were working on, what assignments were particularly challenging or what there was a need for clarification on and [information] about the technical pieces of completing assignments. I think from a distance learning perspective, it's an additional piece of motivation to help you stay encouraged because everybody in the program is focused on balancing a lot of aspects of their lives, too [Lines 56-74].*

It was particularly encouraging for Mark to see these texts when he would get home from work at ten or eleven at night and then need to finish a paper. People would have to clarify questions, and in many cases, they were not the only ones with the questions. So, Mark “was always benefitting even if [he] wasn't asking the questions” [Follow Up Interview, Line 41]. WhatsApp transcripts showed that these kinds of questions came up a lot and were tremendously helpful for everyone. During the interviews, students used the following words and phrases to describe their cohort: positive, supportive, helpful, trusting, genuine, like having their own cheerleaders, lifelong friends, and professionally, a safe haven for each other. WhatsApp transcripts were evidence of consistent, continuous support within the cohort.

The three emergent themes: first impressions, program structure, and support system highlight social presence experiences. Focusing on all relevant social presence data, the themes emerged from stories shared by interviewees, not the interview questions. Each of these three themes discussed were results from the analysis of new and existing data to include: transcripts

from interviews and WhatsApp text messages. Having six cohort members share their stories gave insight into the distance learning educational leadership cohort experience.

## **Summary**

The researcher conducted this mixed-methods study to explore how graduate students experienced social presence (Garrison et al., 2000) in the educational leadership distance learning cohort at a large university in the south. The researcher identified (1) how patterns of interactions among cohort members differed between expressive and instrumental networks; (2) what elements were evident through interaction in expressive and instrumental networks; and (3) what elements were evident through the lived experience of cohort members. The results presented in this chapter were based on analysis of archival data, from discussion board transcripts and group message texts, and new data from surveys and interviews. The researcher organized results by themes within each research question.

The first two research questions emphasized the quantitative analysis to explore the ties between cohort members. The qualitative analysis of transcripts from WhatsApp text messages and discussion threads supported the exploration of cohort interaction. The third research question was answered when six cohort members shared their experiences. The analysis of the transcripts from the interviews and WhatsApp text messaging were organized into codes and themes. Three salient themes emerged: first impressions, program structure, and support system. These themes summarized the elements of social presence that were evident through the lived experience. The analysis of all three research questions allowed the researcher to explore how cohort members experience social presence in an educational leadership distance learning program at a large university in the south.

## **Chapter V: Conclusion**

The purpose of this mixed-method explanatory sequential case study was to explore the distance learning cohort experience for graduate-level educational leadership students. Chapter Five provides a summary of the study and major findings while making connections to previous literature. The researcher also identifies the implications for practice and recommendations for future research.

### **Summary of the Study**

Guided by Garrison et al.'s (2000) social presence from the Community of Inquiry framework, the researcher explored the distance learning cohort experience. With more graduate programs being offered in an online format, there was a need for research-based strategies when structuring the program, particularly in terms of developing and maintaining a community of learners. The central question that guided the study asked how doctoral students experienced social presence (Garrison et al., 2000) in the educational leadership distance learning cohort at a large public university in the south. The three main research questions that helped answer this central question:

1. How do the patterns of interaction among cohort members differ between expressive and instrumental networks? 1a. Correlation between strength of ties; 1b. connectedness within networks
2. What elements of social presence were evident through interaction in the expressive and instrumental networks?
3. What elements of the social presence were evident through the lived experience of cohort members?

An explanatory sequential mixed-method case study (Creswell & Plano-Clark, 2018) was used to answer these questions. This two-phase design allowed the researcher to explore the cohort experience in both breadth and depth. This was a study focused on the first-semester experience of thirteen doctoral students in the distance learning educational leadership cohort at a large public university in the south. Bounded by time and location, the researcher used multiple sources of data including surveys and online discussion thread transcripts in the first phase, followed by group text messages and interviews in the second phase.

The researcher began the study by collecting data to quantify the whole network and identify elements of social presence before exploring the individual's experience. This was accomplished by having participants take a survey to indicate the perceived strength of ties and the frequency of communication with each cohort member. Participants also shared the story of how they experienced (Guba & Lincoln, 1994; Onwuegbuzie et al., 2009) social presence within their cohort which allowed the researcher to get a picture of the whole cohort from different perspectives (Knapp, 2017; Merriam & Tisdell, 2016). The qualitative data, which provided rich context, complemented the quantitative data (Creswell, 2013).

All thirteen cohort members were participants in the first phase. A nested sample (Creamer, 2018) of six was selected through social network analysis (SNA), which included four cohort members with varying degrees of social presence and two isolates. This sampling provided maximum variation (Schwandt, 2015). This mixed-method approach to sampling used the whole network for breadth, and the subset for depth represented the cohort (Creswell & Plano-Clark, 2018).

Multiple data sources used for this study provided evidence of social presence among cohort members that captured the collective experience. The analysis allowed the researcher to

explore patterns of interaction and elements of social presence among cohort members within and between expressive and instrumental networks. Descriptive data and SNA visualizations were generated using quantitative data from the survey and discussion boards. Following the qualitative content analysis of interviews and group text messaging transcriptions, the researcher created a codebook to identify themes (Bernard & Ryan, 2010). The findings from the quantitative and qualitative analysis of this study focused on evidence of social presence (Garrison et al., 2000) within the distance learning educational leadership cohort.

These findings were organized by research question. The findings from the first two questions were organized by *patterns of interaction* and *elements of social presence*, respectively. The findings from the third question were organized, not based on research question or interview questions, but rather by the emergent themes from the interview data, which were *first impressions*, *program structure*, and *support system*. While these findings are not generalizable, they are transferable due to the researcher's purposeful selection of participants using maximum variation and analysis of data using thick, rich description (Merriam & Tisdell, 2016).

### **Major Findings Related to Literature**

Each research phase revealed distinct insights concerning social presence (Garrison et al., 2000) within the cohort and its influence on the individual's experience. This study was in alignment with Garrison et al.'s (2000) concept of social presence within the Community of Inquiry framework. Through the use of quantitative and qualitative data sources, findings suggest the importance of social presence for a community of learners.

**Patterns of interaction.** The first research question asked how the patterns of interactions between cohort members differed within the expressive network and the

instrumental. The quantitative findings indicated that the strength of ties in the expressive network (friendship network) was not a predictor of strength of ties in the instrumental network (academic network). That is, academic engagement was not limited to just cohort members with whom they felt close. These findings suggest that cohort members were just as likely to engage academically (instrumental network) with cohort members outside their expressive network (friendship network). Network visualizations revealed the expressive networks formed based on membership within new or EdS subgroup. Cohort members that were part of the new Ph.D. group formed a cohesive subgroup within the expressive network.

According to the interview data, cohort members shared how they reached out to other cohort members with whom they were not as close when they needed to. One cohort member played an active role in setting up the WhatsApp group messaging. Another cohort member shared that even though he was a passive participant, he depended on reading the group text messages for support and motivation. The group text messages contained clarification and information to some tough questions about the assignments that were already asked and answered by the time he got to work on them. Cohort members valued the connections and felt part of the cohort even if they were not close to a particular individual. Both quantitative and qualitative findings suggest that students were proactive during this process by engaging with cohort members outside their expressive network and making use of their resources. These findings supported Knowles' (1980) theory of adult learning. The researcher's next step was to analyze the elements of social presence within the networks.

**Elements of social presence.** The second question asked what elements of social presence were evident through interactions in the expressive and instrumental networks. The quantitative data from the first research question showed that these networks were not the same.

Findings from the Student Ties survey suggest that everybody in the cohort had at least one other cohort member on which they could rely on the expressive network. Interactions found across the network boundaries were evidence of the cohort developing social presence outside their expressive network. The qualitative findings from the formal discussions in the instrumental network revealed evidence of three a priori themes or categories of social presence (Garrison et al., 2000). Elements of social presence in the instrumental network were identified by analyzing dialogue within the assigned course discussion threads. The a priori themes used to identify the social presence in the instrumental network were *affective communication*, *open communication*, and *group cohesion* (Garrison et al., 2000). These themes helped highlight important aspects of the dialogue that took place on the discussion boards.

Both qualitative and quantitative findings suggest that students did not limit exposure to different ideas and opinions. Through the use of discussion boards, a majority of cohort members connected in their instrumental network with cohort members outside of their expressive network. One cohort member, a relative isolate in the expressive network, connected with peers, and remained connected at higher levels within the instrumental network. These findings indicate that students in the instrumental network were conversing online and sharing perspectives with cohort members with whom they were not as close and outside their expressive network. This finding also supports Smith's (2015) research that indicated students were able to have meaningful discussions about new concepts that would not necessarily have taken place if it were not for the required discussion post assignments. Meaningful conversations were evident as cohort members used social presence behaviors or indicators in the instrumental network, which was beneficial for collaboration and learning perspectives of others. These social

presence indicators also suggested a sense of community among learners (Garrison et al., 2010) within the cohort.

Focused on social presence indicators, the researcher took advantage of the interview and text messaging data from informal discussions to uncover three emergent themes: first impressions, program structure, and support systems. Both new and existing data gave more insight into how students experienced social presence during their first semester. These qualitative findings emphasized the significance of student-student interactions and the role these connections played in the cohort experience.

***First impressions.*** Introductory activities that encouraged student-student interactions helped create a sense of belonging. These interactions led to connections that fostered a sense of belonging. Formal and informal activities and conversations brought about an understanding of common feelings, such as being nervous and being overwhelmed; and an understanding of the common goal they shared. During the interview, many students felt a connection from the beginning as they got to know each other, as they got a sense of what each would be contributing, and when they were told that were a cohort and should support each other. These revelations supported Berry's (2017) qualitative research finding that "being designated as members [of the community of learners] gave students a shared identity and sense of belonging" (p. 45). The findings were also in alignment with Brindley et al. (2009) and Pemberton and Akkary (2010), who emphasized the importance of establishing a sense of community at the very beginning by giving students a chance to get to know one another and to reflect on common goals.

Cohort members expressed the importance of relationships throughout the whole academic journey but particularly during the first semester. They shared how valuable they felt

the various activities were in their development as a cohort. This is in alignment with findings from Bentley et al. (2004) and Bista and Cox (2014), who found “that cohort members became a team as they bonded over shared experiences and commitment to the same academic goals.” The qualitative findings suggest that social presence played a major role in the development of relationships within the cohort.

***Program structure.*** According to cohort members, the professors provided students with opportunities to interact. Many participants attributed the connections and the relationships they made with students in their cohort to the university’s program structure and their professors. During the interview, cohort members shared how appreciative they were that they had the kind of opportunities that allowed them to interact and to get to know one another. Several commented on the formal activities, such as personality inventories or required discussions on Canvas, and others commented on the informal ones, such as group texting or chatting with cohort members during a group project. This suggests that both kinds of activities demonstrated how cohort members needed to rely on one another, and suggests that both kinds of activities helped foster a sense of belonging and a sense of community. Students appreciated and took advantage of opportunities to interact with other cohort members.

These findings revealed the importance of program structure in the development of social presence and supported the many studies that have identified cohorts as an essential part of educational leadership programs (Darling-Hammond et al., 2007; Davis, 2016; Donmoyer et al., 2012). There were many opportunities to promote interaction among cohort members. Student-student interaction helped with feelings of isolation. Interaction that included exposure to differing opinions and perspectives helped develop habit of mind, which is important for effective leadership.

While participants were not asked about the program structure, this theme emerged either when participants were asked about what experience was most significant in shaping their cohort or if they had any additional comments at the end of the interview. This finding also supported Bush et al.'s (2010) research that found "teaching presence is critical in establishing a learning environment that will allow the social and cognitive presences to take shape and create a community where learning can be effective" (p.11).

**Support system.** Cohort members agreed that support was vital to their academic journey. During the interviews, cohort members shared stories of checking up on one another, holding each other accountable, what they felt having a cohort contributed, emotionally and academically, and how this was not something they felt they could do without support. At least two cohort members said that if there were not a formally established group, they would have tried to find their own. This finding suggests that the cohort experience gave them the support they needed to remain focused as they moved along through the program. This study supports previous research that found cohort programs encourage the development of a supportive learning environment (Bista & Cox, 2014; Brindely et al., 2009; Pemberton & Akkary, 2010).

The themes that emerged from the qualitative findings suggest that social presence played a major role in the development of relationships with cohort members; social presence was an important part of the program and developed through program activities and coursework; cohort members provided the support needed through the relationships that developed within the cohort.

### **Implications for Practice**

Cohorts have been an essential part of effective leadership preparation programs in traditional settings (Davis, 2016; Donmoyer et al., 2012). Cohorts contribute to learning environments that encourage student engagement and foster the development of support systems

(Bista & Cox, 2014; Pemberton & Akkery, 2010) and should be established in distance learning contexts. By incorporating strategies to develop social presence, professors will be setting their students up for a positive cohort experience. While a commitment to the development of a cohort takes an initial investment of time and energy, it is crucial to its success (Myers et al., 2015). Findings from this study support the need for cohorts and indicate the need for the development of social presence within cohorts.

Findings from this study should be shared with program leaders and professors in the educational leadership department who are interested in the building or maintaining distance learning cohorts as part of the continuous improvement process. Some strategies should be implemented that would encourage the development and sustainability of a cohort. The department should implement a mandatory face-to-face orientation at the start of the program. Program coordinators should design cohort teambuilding events with some feedback mechanism. This would allow students to get to know one another and integrate subgroups (new and EdS) and professors to monitor the health of these cohorts. Professors should coordinate introductory events and activities for program and within courses and consider the impact on students. They should enhance discussion board activities within courses and monitor discussion boards for possible isolates. Awareness of social presence is a major implication for practice for students, as well. Students require awareness of social presence and its potential value to the cohort. Professors should encourage students to reflect on the benefits of their cohort experience and to take advantage of the opportunities.

It is crucial to promote mutually supportive relationships among students. Cohort members reach out to one another and rely on one another for support, emotionally and academically. Starting with the right experiences can help cohort members in building their

support system. The planning and implementation of introductory activities, to include orientation into the program and ice breakers within each course, is crucial to the development of social presence within a cohort. If a cohort is made up of two groups, the face to face orientation should include teambuilding activities beginning in their formally established subgroups and then activities that allow them to get to know cohort members from the other group. For example, pair up one new and one EdS, and after a couple of minutes of getting to know each other, have them introduce each other to the whole group. With an awareness of the value of social presence, cohort members should reflect on the need for support and the benefits of the cohort experience as they move from whole-group activities to small group activities to pairs.

Professors should implement introductory activities within each course. They must not assume that students already know one another at the beginning of a course. While some students might already know each other, ice breaker activities help develop a sense of belonging with that group. These activities should include the use of inclusive group text messaging, which was a vital part of this cohort's support system.

Several weeks into the first semester, professors should consider conducting a survey to check on how students feel about their cohort experience at that point. This kind of formative feedback could be used to assess student perceptions of strategies used as their cohort was starting out or based on the needs a particular cohort. In order assess students' perceptions of connections with cohort members, the survey (Appendix D) could ask the students to indicate how much impact each factor, such as program orientation or first class sessions, had on how they felt connected with their cohort; to indicate with how many cohort members they felt close; and with how many cohort members they communicated. A mid-semester survey would allow for time to provide additional opportunities for student connections as needed. Surveys taken at

the end of the first semester, end of the first year, or at the end of the program could be used as a summative assessment that could inform planning of events and activities for the next cohort.

Discussion thread activities should be used to encourage student connections with the goal of authentic self-expression (Crosta, 2016). The better able students are to engage in authentic expression online, the sooner they can grow their support system. However, professors must help establish a learning environment conducive to the development of social presence (Bush et al., 2010). This begins with providing opportunities for cohort members to develop a sense of belonging through interaction and getting to know one another. Once students feel comfortable, they are more likely to share perspectives and present opposing views. This is the foundation for group cohesion, which is more likely after collaboration and building a sense of community.

Program coordinators and professors should strongly consider the strategies listed above as they design opportunities using technology and during online or face-to-face interactions to encourage the development of social presence. Professors might consider using findings to help build relationships and develop a sense of community within the cohort as it applies to their current or future students for each course within the program.

### **Recommendations for Future Research**

While this study provided the researcher an opportunity to explore a distance learning educational leadership cohort program, there were specific constraints, i.e., one cohort, first semester of program, that the researcher worked with in order to focus her research. This could be seen as another limitation. Several variations came to mind as the researcher was conducting this mixed-method study.

Further research extending the boundaries, i.e., a longer period or at a different university location or using two more cohorts from the same or different years. Replicating the study to include different contexts would increase transferability of findings.

Researchers might also consider using a different Community of Inquiry (CoI) lens and asking different questions in order to focus on another presence within the CoI (Garrison et al., 2000), such as teaching presence or cognitive presence rather than social presence. Likewise, future research could study the distance learning cohort experience considering the interaction among the three presences of CoI. This would be significant for a deeper understanding of the interconnectedness of social presence, cognitive presence, and teaching presence as they relate to distance learning.

Further research could be conducted after teaching cohorts specifically about Garrison's (2000) CoI's social presence theory and assessing the impact that awareness had on cohort members. Questions to assess student perceptions of connections with cohort members could be used to determine the extent to which each factor, such as program orientation, introductory activities, group texts, etc., had on their feelings of connectedness. A longitudinal study would be significant in capturing long term outcomes of social presence awareness within the cohort experience, such as grades, degree completion, satisfaction, or job placement.

Another possibility would be to replicate the study using a master's level cohort program that is completely online or to use a professional military education program with self-paced online cohorts. Such studies could illustrate the challenges of promoting social presence with the benefits of face-to-face interactions.

Other recommendations for future research evolved from the limitations of this study. Since responses to the Student Ties survey were based on students' perceptions and their best

recollections of communication, future research might collect that data for this construct that would reflect actual frequency. Another possibility for future research also includes changing data collection. The Student Ties survey could have specified the point in time during the semester to reflect on regarding frequency of communication and perception of a relationship with each cohort member. The survey could also include questions about whether cohort members knew each other before the Ph.D. program began, how long they knew each, and in what context they knew each other.

### **Concluding Remarks**

This study explored the distance learning educational leadership cohort experience at a large university in the south in terms of social presence using Garrison et al.'s (2000) Community of Inquiry framework. The researcher focused on student interactions to gain insight and identify strategies that could be used to develop social presence within cohorts. This study contributes to the literature by demonstrating the use of a mixed-method design to explore this phenomenon. Another contribution was using social network analysis for educational purposes to connect social presence and the distance learning cohort in the context of educational leadership. The results of the study could be used to inform continuous improvement efforts and development of future cohorts. This study helped fill gaps in the literature and research on building and maintaining cohorts or community of learners for distance learning educational leadership programs using social network analysis. I hoped that professors would be able to use the findings from my study. As a student, educator, and researcher, I believe that graduate students will benefit from the efforts put forth to emphasize the value of social presence within the distance learning educational leadership cohort program.

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**Appendix A**  
**Student Ties Survey**

### **“Student Ties Survey”**

Content of survey that was sent electronically using Qualtrics

**DIRECTIONS:** Please reflect back to the first semester of your doctoral experience as you answer the first of each set of questions. For Question 1 and Question 2, indicate how often you communicated or communicate with each cohort member. For Question 3 and Question 4, choose the degree to which you felt close or feel close to each cohort member. Do not respond to questions for your own name. At the end of each set of questions, you will be asked if you would like to share additional comments. Please be sure you have entered responses for those questions you choose to answer and ignore prompts to answer the ones left intentionally blank. Please answer questions 5-8 about your career status and place of residence. Thank you for your time and attention to these questions!

Cohort member names listed on survey sent to participants for each Likert scale question.

1. Please reflect back on the communication during the first semester of your doctoral program. On a scale from (5) most often to (0) never, about how often do you think you communicated with each of the following cohort members, either by text, Skype, phone, e-mail, face-to face, etc.?
2. Using the same scale from (5) most often to (0) never, about how often do you currently communicate with each of the following cohort members, either by text, Skype, phone, e-mail, face-to Face, etc.?
3. Is there anything you wish to add pertaining to communication with cohort members?
4. Please reflect back on your personal relationships during the first semester of your doctoral program. Using a scale from (5) closest to (0) not close at all, how would you rate the strength of your relationship with each of the following cohort members?
5. Using the same scale, (5) closest to (0) not close at all, how would you rate the strength of your relationship with each of the following cohort members currently?
6. Is there anything you wish to add pertaining to personal relationships with cohort members?
7. In what capacity have you worked or are you working in the field of education?  
Choices include teacher, principal, assistant principal, instructional coach, other.
8. Are you or were working full time during your first year of the doctoral program?
9. Were you living in the state of Alabama during the first two years in a doctoral program? YES or NO
10. If you were not living in the state of Alabama, please indicate where you lived.

***The Auburn University Institutional Review Board has approved the content of this document for use from 03/26/2019 to -----. Protocol # 19-086 EP 1903***

**Appendix B**  
**Interview Protocol**

## Interview Protocol

**Introduction:** My name is Susan Slear. I am a graduate student for the Educational Leadership department. I WILL TURN ON THE RECORDER NOW. Is that okay? Thank you again for your willingness to be part of my research and talk with me. I will be using a pseudonym for your name and for the university to maintain confidentiality. Only pseudonyms will be used in my dissertation. If you would like, I will send you a copy of the transcript when it is complete. The recording will be deleted after transcription is complete. *Review informed consent.* Do you have any questions about this process?

### **Big Q (Conceptual question)**

How do doctoral students experience social presence (Garrison, Anderson, & Archer, 2000) in the educational leadership distance learning cohort program?

**Recruitment question:** I want to learn more about the educational leadership distance learning cohort program in regard to student interactions and connecting with other cohort members. I would like to hear about your experience.

### **Little q's (experience-near questions)**

1. Please tell me about your experience interacting with cohort members and making connections.
2. Tell me about your overall experience in the program so far.
3. Tell me about an experience from the beginning that you felt was significant in shaping your cohort.
4. Describe a stressful situation from the first semester.
5. How did you handle that stressful situation?
6. Describe any activities (educational or non-educational) that have helped you through this process.

**Closing:** Wrap up/ Summarize.

I appreciate you taking the time to share your experience. If you think of anything else you would like to share or have any questions, please contact me. I will contact you within two weeks for clarification if needed, is that still okay? *Contact information provided on Informed Consent form.* Thank you.

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Protocol # 19-086 EP 1903

## **Appendix C**

### **Codebook**

## Codebook

| CODE              | KIND     | OPERATIONAL DEFINITION                                                                                                                                                                                                                                                                                         | EXAMPLES FROM DATA                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| First Impressions | emergent | Related to interactions where cohort members were able to converse, make impressions, and develop a sense of belonging.                                                                                                                                                                                        | <i>Lines 347-354 (Bev's Transcript)</i><br>... and had to tell what happened in our lives that year. [It] was an opportunity where you really go to know one another...Dr. Davis also asked us to share what we hoped to gain from the Ph.D. program. And so, when you listen to everyone and what they hope to gain, that gave you a sense of why we are here and how we can help each other... |
| Program Structure | emergent | Related to creating opportunities for cohort members to interact, converse, make impressions with the goal of having students develop a sense of belonging; and for cohort members to participate, interact, disagree, share perspectives, collaborate. Opportunities created to develop a sense of community. | <i>Lines 114-116 (Kris's Transcript)</i><br><br>-discussed Main University's professors and how they deliberately created the curriculum for students to network and collaborate.<br><br><i>Lines 88-91 (Mark's Transcript)</i><br>-discussed the professors' creation of the cohort model and structure, climate, and support of the cohort model.                                              |

|                |          |                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Support System | emergent | Related to interactions where cohort members were able to develop a sense of belonging; they were participating and interacting; disagreeing, sharing perspectives and develop a sense of community. | <p><i>Lines 213- 217 (Bev’s Transcript)</i><br/>I can call upon them if I have a question – even if we're not in the same class, chances are they've already had the class. This cohort gives you that support system. So, for me it has been a blessing having these individuals in my life.</p> <p><i>Lines 56-57 (Halie’s Transcript)</i><br/>I remember Matt and Emma helped me [so] much.</p> <p><i>Lines 227-230 (Kris’s Transcript)</i><br/>I called and said ‘Hey, I’m having a problem’ and it was like immediately right there. He dropped everything and tended to it as if it were his emergency. This characterized our cohort.</p> <p><i>Lines 55-62 (Mark’s Transcript)</i><br/>I was not the most active member in the group chats, or any of the cohort discussions... I think just the encouragement and seeing other people are struggling to balance to get everything done, what assignments have been particularly challenging or what was there a need for clarification on. [WhatsApp] was definitely beneficial.</p> |
|----------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **Appendix D**

### **Sample Cohort Survey for Program Improvement**

## Sample Cohort Survey for Program Improvement

**The purpose of this survey is to receive your input concerning how connected you felt to other students within your cohort. This will be a component of our continuous program improvement efforts. Every cohort is a vital part of our program and we value your thoughts. This survey is anonymous. Individuals will not be identified in any way.**

Q1. How much impact did each of the following have on you in terms of making connections and building relationships with members of your cohort?

|                                                | Strongest Impact      | Strong Impact         | Some Impact           | No Impact             | Not Applicable        |
|------------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Program orientation                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cohort group texts                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| First class session, specify which one:        | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other method of communication, please specify: | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Project/s, please specify:                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other, please specify:                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q2. Please reflect on your relationships the first semester of your doctoral program. With how many cohort members did you feel close to throughout the first semester?

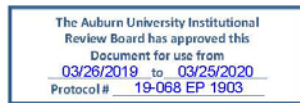
Q3. Please reflect on your communication the first semester of your doctoral program. With how many cohort members did you feel you were able to communicate throughout the first semester?

Q4. Please reflect on your communication during the first semester of your doctoral program. With how many cohort members did you communicate regularly throughout the semester?

Q5. If there is anything you wish to add regarding connections with your cohort, please share below.

**End of Survey**

**Appendix E**  
**IRB Approvals**



## RECRUITMENT EMAIL

*(This is a brief version of the consent document.)*

Dear \_\_\_\_\_,

My name is Susan Slear, a graduate student from the College of Education, Educational Foundations, Leadership, and Technology at Auburn University. I would like to invite you to participate in my research study to explore the distance learning educational leadership cohort experience. You have been selected to participate since you are a member of the Educational Leadership doctoral program beginning \_\_\_\_\_. Please do not participate if you are not a member of this cohort.

As a participant, you will be asked to participate in an (1) electronic survey titled "Student Ties Survey" that will be sent to you by email via Qualtrics and take about fifteen to twenty minutes. I am also asking that you allow me to use your posts to the required (2) discussion threads from your first semester course titled, *Introductory Educational Leadership: Theory and Practice*. Based on the analysis, I will ask up to six participants if they would be willing to participate in (3) an interview lasting thirty to forty-five minutes. Lastly, cohort members that were part of the ongoing (4) WhatsApp group text message called *PhD Cohort* from August to December [YEAR]. I am asking for your permission to analyze text from these messages. For example, if a text message said, "I need to find someone working on same topic as me." This would be categorized as seeking support. If the text began with, "I see what you are saying, but I found that..." it would be categorized as sharing perspectives.

I have listed an overview of the risks, compensation, benefits, privacy issues and other information that may help you make a decision about whether or not you would like to participate.

- **Risks:** Breach of confidentiality is the risk associated with participating in this research study due to the use identifiable data on the "Student Ties Survey." The use of the Qualtrics for the electronic survey presents no greater risk than everyday use of the Internet.
- **Compensation/ Benefits:** There will be no compensation or direct benefits. However, if you participate in this study, indirect benefits include: (1) reflection on cohort experience may lead to personal growth and professional development; and (2) information from this study may be used to benefit future cohort members in the program. I cannot promise you that you will receive any or all of the benefits described.
- **Cost:** There will be no cost for participants who participate in this study.
- **Privacy issues:** Any data obtained in connection with this study will remain confidential. The researcher will use pseudonyms for all names and will not use any identifying information in the analysis or presentation. The use of the Qualtrics for the electronic survey presents no greater risk than everyday use of the Internet. No e-mail or IP addresses will be collected from the web server.

The findings of this research study will be used to fulfill an educational requirement for a dissertation; and may also be used to create presentations or publications.

If you would like to participate in this research study, please sign the corresponding consent form or forms and provide me with your official Auburn email address. I will provide a copy of each of the informed consent forms for documentation.

Do you have any questions now? If so, please ask them by responding to this email, Susan E. Slear at [ses0082@auburn.edu](mailto:ses0082@auburn.edu) or you may contact my advisor, Dr. Ellen H. Reames, at [reamseh@auburn.edu](mailto:reamseh@auburn.edu).

Thank you,  
Susan Slear  
Doctoral Candidate

Attached: Informed Consent Forms

- Electronic Survey
- Discussion Thread (from Canvas Course)
- WhatsApp group text-message
- Interview

|                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The Auburn University Institutional<br/>Review Board has approved this<br/>Document for use from<br/><u>03/26/2019</u> to <u>03/25/2020</u><br/>Protocol # <u>19-068 EP 1903</u></p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



COLLEGE OF EDUCATION  
DEPARTMENT OF EDUCATIONAL FOUNDATIONS,  
LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL STAMP  
WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

(ELECTRONIC SURVEY) PARTICIPANT INFORMED CONSENT  
for a Research Study entitled

*“A Mixed Methods Study: Understanding Student Ties  
in a Distance Learning Educational Leadership Cohort”*

**You are invited to participate in a research study.** I am asking you to participate in a research study titled “A Mixed Methods Study: Understanding Student Ties in a Distance Learning Educational Leadership Cohort.” I will describe this study to you and answer any questions that you may have. The study is being conducted by Susan E. Slear, under the direction of Ellen Reames, Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology.

**What this study is about:** The purpose of this research is to explore the distance learning educational leadership cohort program in terms of social presence (Garrison et al., 2000). The researcher’s intent is to identify strategies that could be used to inform future program improvements. You were selected as a possible participant in this research study because of your status as a member of the distance learning educational leadership cohort that began in the \_\_\_\_\_ of \_\_\_\_\_ and age 19 or over.

**What I will ask you to do:** If you agree to participate in my research, I will ask you to complete an electronic survey titled “Student Ties Survey” that will be sent to you via Qualtrics to your Auburn email address. There are a total of eight questions regarding your perceptions of social presence, which can be answered using computer or mobile device. Your total time commitment for this research study will be approximately fifteen to twenty minutes.

**Risks and discomforts:** Breach of confidentiality is the risk associated with participating in this research study due to the use identifiable data on the “Student Ties Survey.”

**Benefits:** If you participate in this study, you can expect no direct benefits. However, indirect benefits include: (1.) reflection on cohort experience may lead to personal growth; and (2.) information from this study may be used to benefit future cohort members in the program. I cannot promise that you will receive any of the benefits described.

**Compensation for your participation:** There will be no compensation offered.

**Costs involved:** There are no costs related to participation in this study.

Participant’s Initials \_\_\_\_\_  
Page 1 of 2



4036 HALEY CENTER  
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**Taking part is voluntary** and you can withdraw at any time during the study. You may refuse to participate before the study begins. If you change your mind about participating, discontinue at any time (by closing browser), or skip questions that may make you feel uncomfortable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, Department of Educational Foundation, Leadership, and Technology or those people involved in this research study.

**Privacy/Confidentiality/Data Security:** Your privacy will be protected. Every effort will be made for data obtained in connection with this study to remain confidential. I will use pseudonyms for all names and will not use any identifying information in the analysis or presentation. The use of Qualtrics for the electronic survey presents no greater risk than everyday use of the Internet. No e-mail or IP addresses will be collected from the web server. The findings of this research study will be used to fulfill an educational requirement for a dissertation; and may also be used to create presentations or publications.

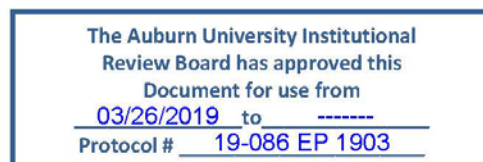
**If you have questions about this study,** please ask them now or contact Dr. Ellen H. Reames at [reamseh@auburn.edu](mailto:reamseh@auburn.edu) or Susan E. Slear at [ses0082@auburn.edu](mailto:ses0082@auburn.edu). A copy of this consent document will be given to you to keep for your records.

**If you have questions about your rights as a research participant,** you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone 334-844-5966 or e-mail at [IRBadmin@auburn.edu](mailto:IRBadmin@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

\_\_\_\_\_  
Participant's signature/ Date      Investigator obtaining consent / Date

\_\_\_\_\_  
Printed Name      Printed Name





COLLEGE OF EDUCATION  
DEPARTMENT OF EDUCATIONAL FOUNDATIONS,  
LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL  
INFORMATION WITH CURRENT DATES  
HAS BEEN ADDED TO THIS DOCUMENT.)

**(DISCUSSION THREAD) PARTICIPANT INFORMED CONSENT  
for a Research Study entitled**

***“A Mixed Methods Study: Understanding Student Ties  
in a Distance Learning Educational Leadership Cohort”***

**I am asking you to participate in a research study** titled “A Mixed Methods Study: Understanding Student Ties in a Distance Learning Educational Leadership Cohort.” I will describe this study to you and answer any questions that you may have. The study is being conducted by Susan E. Slear. The faculty advisor for this study is Ellen Reames, Associate Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology.

**What this study is about:** The purpose of this research is to explore the distance learning educational leadership cohort program in terms of social presence. My intent is to identify strategies that could be used to inform future program improvements. You were selected as a possible participant in this research study because of your status as a member of the distance learning educational leadership cohort that began in the \_\_\_\_\_ of \_\_\_\_\_ and age 19 or over.

**What I will ask you to do:** If you agree to participate in my research, I am asking for your permission to analyze text from your posts to the required weekly discussion threads from your first semester course titled, Introductory Educational Leadership. If I have your permission to use your posts, your instructor will send me the file contain the fourteen weekly discussion threads from the \_\_\_\_\_ of \_\_\_\_\_. The text will provide valuable information about your \_\_\_\_\_ distance learning educational leadership cohort experience.

**Risks and discomforts:** Breach of confidentiality is the risk associated with participating in this research study due to the use identifiable data. To minimize this risk, pseudonyms will be used once the discussion thread transcripts are downloaded. The use of the electronic data sent presents no greater risk than everyday use of the Internet.

**Benefits:** If you participate in this study, you can expect to no direct benefits. However, an indirect benefit is that information from this study may be used to benefit future cohort members in the program. I cannot promise you that you will receive the benefit described.

Participant's Initials \_\_\_\_\_  
Page 1 of 2



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**Compensation for your participation:** There will be no compensation offered.

**Costs involved:** There are no costs related to participation in this study.

**Privacy/Confidentiality/Data Security:** Your privacy will be protected. Any data obtained in connection with this study will remain confidential. I will use pseudonyms for all names and will not use any personally identifying information in the analysis or presentation. The findings of this research study will be used to fulfill an educational requirement for a dissertation; and may also be used to create presentations or publications.

**Taking part is voluntary** and you may withdraw at any time during the study. You may refuse to participate before the study begins. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, Department of Educational Foundation, Leadership, and Technology or those people involved in this research study.

**If you have questions** The main researcher conducting this study is Susan E. Slear, graduate student at Auburn University. Please ask any questions you have now. If you have questions later, you may contact Susan E. Slear at [ses0082@auburn.edu](mailto:ses0082@auburn.edu) or at \_\_\_\_\_ or the faculty advisor for this study, Ellen Reames, Associate Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology at [reamseh@auburn.edu](mailto:reamseh@auburn.edu). A copy of this consent document will be given to you for your records.

**If you have questions regarding your rights as a participant in this research study**, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at [IRBAdmin@auburn.edu](mailto:IRBAdmin@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

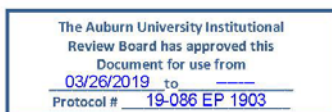
**HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.**

\_\_\_\_\_  
Participant's signature/ Date

\_\_\_\_\_  
Investigator obtaining consent/ Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Printed Name



Page 2 of 2



COLLEGE OF EDUCATION  
DEPARTMENT OF EDUCATIONAL FOUNDATIONS,  
LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS  
IRB APPROVAL INFORMATION WITH CURRENT DATES  
HAS BEEN ADDED TO THIS DOCUMENT.)

**(WhatsApp) PARTICIPANT INFORMED CONSENT  
for a Research Study entitled**

***“A Mixed Methods Study: Understanding Student Ties  
in a Distance Learning Educational Leadership Cohort”***

**I am asking you to participate in a research study** titled “A Mixed Methods Study: Understanding Student Ties in a Distance Learning Educational Leadership Cohort.” I will describe this study to you and answer any questions that you may have. The study is being conducted by Susan E. Slear. The faculty advisor for this study is Ellen Reames, Associate Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology.

**What this study is about:** The purpose of this research is to explore the distance learning educational leadership cohort program in terms of social presence. The researcher’s intent is to identify strategies that could be used to inform future program improvements. You were selected as a possible participant in this research study because of your status as a member of the distance learning educational leadership cohort that began in the \_\_\_\_\_ of \_\_\_\_\_ and age 19 or over.

**What I will ask you to do:** If you agree to participate in my research, I am asking for your permission to analyze text from the ongoing group text message called PhD Cohort using What’s App from \_\_\_\_\_ to \_\_\_\_\_. Only one of the cohort members needs to download and email to me but I need your permission in order to use your individual messages. The text will provide valuable information about your distance learning educational leadership cohort experience.

**Risks and discomforts:** Breach of confidentiality is the risk associated with participating in this research study due to the use identifiable data. To minimize this risk, pseudonyms will be used once the transcripts are downloaded. The use of the electronic data sent via email presents no greater risk than everyday use of the Internet.

**Benefits:** If you participate in this study, you can expect no direct benefits. However, an indirect benefit is that information from this study may be used to benefit future cohort members in the program. I cannot promise that you will receive the benefit described.

Participant’s Initials \_\_\_\_\_  
Page 1 of 2

The Auburn University Institutional  
Review Board has approved this  
Document for use from  
03/26/2019 to \_\_\_\_\_  
Protocol # 19-086 EP 1903

4036 HALEY CENTER  
AUBURN, AL 36849-5221

TELEPHONE:  
334-844-4460

FAX:  
334-844-3072

www.auburn.edu

**Compensation for your participation:** There will be no compensation offered.

**Costs involved:** There are no costs related to your participation in this study.

**Privacy/ Confidentiality/ Data Security:** Your privacy will be protected. Any data obtained in connection with this study will remain confidential. The researcher will use pseudonyms for all names and will not use any personally identifying information in the analysis or presentation. The findings of this research will be used to fulfill an educational requirement for a dissertation; and may also be used to create presentations or publications.

**Taking part is voluntary** and you may withdraw at any time during the study. You may refuse to participate before the study begins. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, Department of Educational Foundation, Leadership, and Technology or those people involved in this study.

**If you have questions:** The main researcher conducting this study is Susan E. Slear, graduate student at Auburn University. Please ask any questions you have by contacting her at [ses0082@auburn.edu](mailto:ses0082@auburn.edu) or at \_\_\_\_\_ or the faculty advisor for this study, Ellen Reames, Associate Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology at [reamseh@auburn.edu](mailto:reamseh@auburn.edu). A copy of this consent document will be given to you to keep if you choose to participate.

**If you have questions regarding your rights as a subject in this research study,** you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone 334-844-5966 or e-mail at [IRBadmin@auburn.edu](mailto:IRBadmin@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

**HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.**

\_\_\_\_\_  
Participant's signature/ Date

\_\_\_\_\_  
Investigator obtaining consent/Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Printed Name





COLLEGE OF EDUCATION  
DEPARTMENT OF EDUCATIONAL FOUNDATIONS,  
LEADERSHIP AND TECHNOLOGY

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS  
IRB APPROVAL INFORMATION WITH CURRENT DATES  
HAS BEEN ADDED TO THIS DOCUMENT.)

(INTERVIEW) PARTICIPANT INFORMED CONSENT  
for a Research Study entitled

*“A Mixed Methods Study: Understanding Student Ties  
in a Distance Learning Educational Leadership Cohort”*

**I am asking you to participate in a research study** titled “A Mixed Methods Study: Understanding Student Ties in a Distance Learning Educational Leadership Cohort.” I will describe this study to you and answer any questions that you may have. The study is being conducted by Susan E. Slear, under the direction of Ellen Reames, Associate Professor in the Auburn University Department of Educational Foundation, Leadership, and Technology.

**What this study is about:** The purpose of this research is to explore the distance learning educational leadership cohort program in terms of social presence. The researcher’s intent is to identify strategies that could be used to inform future program improvements. You were selected as a possible participant in this research study because of your status as a member of the distance learning educational leadership cohort that began in the \_\_\_\_\_ of \_\_\_\_\_ and age 19 or over.

**What I will ask you to do:** If you agree to participate in my research, I will conduct an interview with you at a time and location of your choice. The interview will involve questions about your distance learning educational leadership cohort experience. It should last about thirty to forty-five minutes. With your permission, I will audiotape and take notes during the interview. Teleconferencing will only occur if you find it more convenient to conduct the interview via ZOOM. In this case, the researcher will only record audio. The recording is needed to accurately record the information you provide, and will be used for transcription purposes only. If you agree to be audiotaped but feel uncomfortable at any time during the interview, I can turn off the recorder at your request. Or if you don’t wish to continue, you can stop the interview at any time. I expect to only conduct one interview. However, a follow-up interview may be needed for clarification. If a follow-up is needed, I will contact you by e-mail within two weeks of our initial interview. The follow up should take no longer than ten minutes.

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Participant’s Initials \_\_\_\_\_  
Page 1 of 3

**Risks and discomforts:** Breach of confidentiality is a risk associated with participating in this study due to the identifiable data. The use of electronic data presents no greater risk than everyday use of the Internet. To minimize this risk, pseudonyms will be used in the interview transcription and analysis. Data files will be saved using Auburn's cloud storage, BOX on a secure, password-protected computer. The findings of this research will be used to fulfill an educational requirement for a dissertation; and may also be used to create presentations or publications.

**Benefits:** If you participate in this study, you can expect to no direct benefits. However, indirect benefits include: (1) reflection on cohort experience may lead to personal growth; and (2) information from this study may be used to benefit future cohort members in the program. I cannot promise you that you will receive any or all of the benefits described.

**Compensation for your participation:** There will be no compensation offered.

**Costs involved:** There are no costs related to participation in this study.

#### **Audio/Video Recording**

An audio recording device is needed to record the interview for transcription. If teleconferencing via ZOOM is necessary, only the audio recording feature will be used. Any audio recordings and transcriptions will be deleted by the completion immediately after transcriptions are complete.

Please sign below if you are willing to have this interview audio recorded if conducted via ZOOM. You may still participate in this study if you are not willing to have the interview recorded.

- ☐ I do not want to have this interview recorded.  
☐ I am willing to have this interview recorded:

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**Taking part is voluntary** and you may withdraw at any time during the study. You may refuse to participate before the study begins. If you change your mind about participating, discontinue at any time. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, Department of Educational Foundation, Leadership, and Technology or those people involved in this research study.

#### **Privacy/Confidentiality/Data Security**

Your privacy will be protected. Any data obtained in connection with this study will remain confidential. The researcher will use pseudonyms for all names and will not use any personally identifying information in the analysis or presentation. The data files will be stored securely in a locked desk and on password-protected laptop. Audio recordings will be deleted after transcriptions and transcription data will be deleted or shredded at the completion of the study.

Participant's Initials \_\_\_\_\_  
Page 2 of 3

**If you have questions about this study**, please ask them now or contact Dr. Ellen H. Reames, Associate Professor and the faculty advisor for this research study, at [reamseh@auburn.edu](mailto:reamseh@auburn.edu) or Susan E. Slear at [ses0082@auburn.edu](mailto:ses0082@auburn.edu). A copy of this consent document will be given to you to keep for your records if you are chosen to participate in the interview.

**If you have questions about your rights as a research participant**, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone 334-844-5966 or e-mail at [IRBadmin@auburn.edu](mailto:IRBadmin@auburn.edu) or [IRBChair@auburn.edu](mailto:IRBChair@auburn.edu).

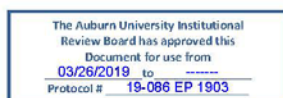
HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO PARTICIPATE.

\_\_\_\_\_  
Participant's signature/ Date

\_\_\_\_\_  
Investigator obtaining consent / Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Printed Name



(Email to send to participants after receiving  
signed informed consent for electronic survey)

Dear \_\_\_\_\_,

Thank you for agreeing to participate in my research study titled, "A Mixed Methods Study: Understanding Student Ties." You are receiving this email because I have received your signed informed consent form indicating your willingness to participate. A goal of this research is to explore the distance learning educational leadership cohort program in terms of social presence. The researcher's intent is to identify strategies that could be used to inform future program improvements.

This survey consists of eight questions and should take about fifteen to twenty minutes to complete. To begin, click on link.

[Qualtrics: Student Ties Survey](#)

This survey is confidential. Your participation is voluntary, and if you come to a question you prefer not to answer please skip it and go on to the next. If you have any questions, please email Susan Slear at [ses002@auburn.edu](mailto:ses002@auburn.edu) or my faculty advisor, Dr. Ellen Reames at [reamseh@auburn.edu](mailto:reamseh@auburn.edu).

Thank you for your time and attention to this survey.

Much appreciation,  
Susan E. Slear  
Doctoral Candidate  
College of Education  
Auburn University

|                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The Auburn University Institutional<br/>Review Board has approved this<br/>Document for use from<br/><u>03/26/2019</u> to <u>-----</u><br/>Protocol # <u>19-086 EP 1903</u></p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|