

DIFFERENCES IN SENSE OF COMMUNITY BETWEEN STUDENTS IN A MIDDLE
SCHOOL VIRTUAL CLASS VERSUS A TRADITIONAL CLASS

by

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Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

This study examined the difference between students' sense of community in the traditional classroom setting versus the virtual classroom setting with middle school-age students. McMillan and Chavis's sense of community theory served as the theoretical foundation of the study. A quantitative, causal-comparative design was utilized to determine the effects of the variables. Students at a public middle school in Virginia and a virtual middle school in Tennessee participated in this study. Seventy-eight students participated from the public middle school that constituted the traditional setting, and 60 students participated from the virtual middle school that constituted the virtual setting. The students completed the Sense of Community Index 2 (SCI-2) to generate the data for the study. Results of this survey were analyzed using a MANOVA, obtaining results for the students' overall sense of community and the four subscales that made up this survey: reinforcement of needs, membership, influence, and shared emotional connection. Statistical significance was present, rejecting the null hypothesis or sub null hypothesis (post hoc) for the overall sense of community, reinforcement of needs, membership, and a shared emotional connection. The area of influence did not yield statistical significance; therefore, the sub null hypothesis (post hoc) failed to be rejected. Suggestions for future research were provided.

Keywords: middle school, traditional class setting, virtual class setting, online class setting, sense of community, students' feelings

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CHAPTER ONE: INTRODUCTION

Background

The virtual classroom is becoming more prevalent in all academic settings, particularly in K-12 education (Archambault & Crippen, 2009). Virtual classes provide students with access to many educational opportunities that might not otherwise exist. Based on current growth trends, more students will continue to take virtual courses in the future (Rice, 2009). Rice (2009) observed that:

Regardless of how virtual schools are operated, the rise in the number of virtual schools has been dramatic. Forty-two states currently offer either state supplemental programs, full-time online programs, or both, with enrollment growth between 25 and 50 percent and indications that every state now has some form of cyber-school operating within its boundaries. (p. 163)

However, many educators, parents, and stakeholders question if online education is appropriate for students of this age level due to the need for students to experience a sense of community or a sense of belonging to the school and interactions with their peers (Koh & Hill, 2009). The term “sense of community” refers to how well students perceive their needs are met, the degree to which they feel part of a group, how much influence they feel they have in the group, and the emotional connections they share with their teachers and peers (McMillan & Chavis, 1986). Middle school students’ feelings of community are integral to their social, emotional, and academic development. Middle school students’ age is important both developmentally and transitionally regarding school; students of this age typically see peer groups dissolve and form in a much greater capacity during this transitional time (Faircloth & Hamm, 2011).

Research on individuals' sense of community has been done for many years, dating back to 1955 (McMillan & Chavis, 1986). Prior research on the sense of community theory (McMillan & Chavis, 1986) focused on two different constructs: territorial or geographic community and the relational aspects of community. Territorial community refers the comfort individuals feel within the physical environment in which they physically live. Relational community refers to comfort individuals feel in the relationships that are developed among themselves and others around them. The two different aspects of the sense of community are not mutually exclusive (McMillan & Chavis, 1986).

The relational aspect of the sense of community is especially relevant in education. In particular, at the middle school level, the sense of community is one crucial component of the foundation for success that must be laid (Nichols, 2008). The relational aspects of a sense of community directly factor into potential successes or failures when teachers deal with students in traditional versus virtual classes (Faircloth & Hamm, 2011). Success and failure at the middle school level can be associated with students' comfort in the physical environment. Nichols (2008) stated, "The emerging literature on student belonging consistently suggests that the extent to which students perceive they belong in a school setting is related to positive social, psychological, and academic orientations" (p. 146). Nichols (2008) conducted a mixed methods study to explore the students' perceptions of belonging in middle school. Nichols reached several conclusions, one of which was that students' perceived school experience was related to being physically present in school. Next, Nichols concluded that students felt a sense of belonging while at school because of relationships with teachers and/or peers. Based on data from the study, Nichols inferred that a sense of belonging was primarily caused by the relationships that were formed while present at school. Nichols (2008) found that there were

different reasons that students felt sense of belonging; however, regardless of the reasons, those that felt a stronger sense of community found greater satisfaction in school. Students' social, emotional, and academic well-being are all critical in development, and sense of community plays an important role in the success of this development. These basic needs must be met before students will be able to obtain a completely fulfilling environment in which learning is happening at the highest rate possible.

Frydenberg, Care, Freeman, and Chan (2009) found that students' sense of emotional well-being was directly related to their connectedness to school, feeling of belonging, or community. Frydenberg et al. examined the interrelationships between coping styles, emotional well-being, and school connectedness. Frydenberg et al. concluded that "students' sense of emotional wellbeing was positively related to school connectedness" (p. 261). However, the authors mentioned that further studies were needed to establish causal relationships with the idea of school belonging. Zullig, Huebner, and Patton (2011) contended that measures of determining the well-being of students, such as scales that assess levels of the feeling of community, need to be implemented in the school setting to measure student perceptions in these areas. More formal measures of determining a sense of community or a sense of belonging can help schools to make better, more data-driven decisions in order to obtain higher measures of student achievement and student satisfaction (Zullig et al., 2011).

Social connectedness and social structures differ in traditional versus virtual learning environments. Active support from a classroom instructor is often necessary in order to create and maintain social connections within the online learning environment, whereas the group social dynamics that are necessary for productive interactions within the class happen rather easily within the traditional setting (Slagter van Tryon & Bishop, 2012). The context of

interaction within the learning environment is very dependent upon the social structure. The traditional environment provides the setting for students to process and assess the situation and the individuals that are involved in it. In contrast, the virtual environment creates many challenges in maintaining social connectedness among learners (Slagter van Tryon & Bishop, 2009). Many of the strategies that students utilize to enhance communication, such as nonverbal cues, have to be approached differently in the virtual setting, where there are fewer means of sensory communication. Slagter van Tryon and Bishop (2009) stated, “Students in online courses continue to report feelings of social disconnectedness, missing familiar teacher immediacy, and likewise missing interpersonal interactions and social cues they more typically have when learning face to face” (p. 291). The findings suggested that interactions in which students engage in online classroom environments relate directly to the effectiveness of the group learning (Slagter van Tryon & Bishop, 2009).

Recent research attempted to explain the social influences of school motivation based upon the students’ sense of belonging. Goodenow and Grady found that a sense of membership influences students’ commitment to school and their acceptance of educational values (2010). They called for more empirical research on the relationship between academic motivation and engagement. Goodenow and Grady’s (2010) findings indicated that almost all students found school more enjoyable, worthwhile, and interesting when they felt valued in the school environment. This sense of belonging can positively influence school success when students believe that others are supportive and are willing to help when needed. This same study revealed that the feeling of belonging is also influential in children’s perceptions of academic relevance. Academic motivation within school contexts is directly linked to students’ sense of belonging while at school and suggests that a failure to attain a legitimate sense of membership among

students in the school setting be a detriment to the students (Goodenow & Grady, 2010).

Further, research by Osterman (2000) contended that the satisfaction of psychological needs affects individuals' perception, and behavior and events that happen in the social context can influence how well the psychological needs are met. These findings also indicated that the students' acceptance within the school context affected many areas of behavior at school and that the experience of membership can improve attitudes.

There is also background information regarding virtual classes and students' sense of community. Evidence from empirical studies, while conducted primarily at the higher education level, revealed that persistence is a problem for virtual and distance education classes (Rovai, 2002). Rovai (2002) found that persistence in the virtual setting was much stronger in the students who maintained a stronger sense of community than those students who felt more alone or alienated. Promoting a strong sense of community within virtual classes is one way that the virtual setting can be buttressed and additional support can be provided to students. If educators are able to design online courses that facilitate growing a stronger sense of community, then more success could be seen through these virtual programs (Rovai, 2002).

Sense of community refers to how well students perceive their needs are met, the degree to which they feel part of a group, how much influence they feel they have in the group, and the emotional connections they share with their teachers and peers (McMillan & Chavis, 1986).

Middle school students' feelings of community are integral to their social, emotional, and academic development (Faircloth & Hamm, 2011). The sense of community theory has been studied in higher education settings; however, little research can be found that applies this theory to the middle school setting either in a traditional or a virtual environment (Barbour & Reeves,

2009). A sense of community felt within middle school students may increase the likelihood for social, emotional, and academic success. Faircloth and Hamm (2011) stated:

Researchers have demonstrated the significance of peer group affiliations to school adjustment. Recent conceptualizations of sense of belonging as a key underpinning of school engagement underscore the need to explore more fully the link between peer groups and a sense of belonging. (p. 55)

This study sought to determine whether there was a difference in middle school students' sense of community in the virtual learning environment as compared to the traditional learning environment. At the middle school level, the virtual learning environment is one that is still evolving, and there is not a great deal of literature surrounding this this setting. As the virtual setting becomes more prevalent in society, the answers to these questions will need to be sought. This study helps to determine the extent of the difference in the sense of community that middle students feel in the virtual classroom environment versus the traditional classroom environment.

Problem Statement

The satisfaction of psychological needs is an important factor in whether students succeed or fail in the classroom (Osterman, 2000); moreover, the characteristics of the social context influence how well these needs are met. Virtual and traditional classrooms differ in many ways, one of which is the interaction that the students have in the classroom environment. Stodel, Thompson, and MacDonald (2006) conducted a study of learners' perspectives of the virtual setting and found students did learn and achieve in this environment, but reported longing for a more fulfilled educational experience. The students' sense of community can make a major difference in their success and influences their commitment to school and the value they place on learning (Goodenow & Grady, 2010).

A strong sense of community can translate into a greater level of success in school (Faircloth & Hamm, 2011). There are benefits to finding measures of community in the school environment as well as measures of community in individual differences in the virtual environment so that educators can do everything that they can to fully meet the needs of the children they serve (Zullig et al., 2011). The middle school age level is also a critical time, as adolescents are developing an individual sense of belonging. This age group of children has not been studied in great detail regarding the virtual classroom (Barbour & Reeves, 2009). Frydenberg et al. (2009) suggested a need to analyze the relationship between students' sense of community and the success in school. The problem was that while most studies on "sense of community" have been conducted in higher education settings, researchers and educators know little about whether this sense of community phenomenon exists at the middle school level and whether there are noticeable differences in students' sense of community between the virtual learning environment as compared to the traditional learning environment.

Purpose Statement

The purpose of this quantitative, causal comparative study was to examine if there was a statistically significant difference in middle school students' sense of community in the virtual learning environment as compared to the traditional learning environment. Middle school-aged students in both settings completed the Sense of Community Index 2 (SCI-2) to determine their individual feelings of community (Chavis, Lee, & Acosta, 2008b). As educators continue looking for more creative ways to help all students succeed, the virtual classroom environment could become more of an option. The comparison of the virtual environment and the traditional environment yielded information about the students' sense of community in each environment; this information could translate to greater student success.

There were both independent and dependent variables associated with this study. The independent variable within this study was the learning environment. Two different groups made up this variable: students who participated in the traditional learning environment physically at the school and the students who participated in the virtual learning environment via online classroom experiences. The traditional learning environment was operationally defined as an educational brick-and-mortar school environment that contains teacher talk, student talk, student interaction, cooperative learning, teacher-to-student interaction, and student-to-student interaction (Ahern & Repman, 1994). The virtual learning environment was operationally defined as an environment that is completed via a fully online asynchronous format and provides students with equal access to learning resources and communication with teachers, students, and other support services (Palmer & Holt, 2010). Students who participated in the virtual environment primarily utilized the computer and the tools and instruction built into the curriculum as their modalities of learning.

The dependent variables within this study were students' feelings of community within the learning environment. The cumulative feeling of community domain is made up of the following four subscales: reinforcement of needs, membership, influence, and shared emotional connection (Chavis, Lee, & Acosta, 2008b). McMillan and Chavis (1986) stated, "Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 9). The first subscale is reinforcement of needs, defined as "the feeling that members' needs will be met by the resources received through their membership in the group" (McMillan & Chavis, 1986, p. 9). The second subscale, membership, is defined as "the feeling of belonging or of sharing a sense of personal relatedness" (McMillan & Chavis,

1986, p. 9). The third subscale is influence, defined as “a sense of mattering, of making a difference to a group and of the group mattering to its members” (McMillan & Chavis, 1986, p. 9). The fourth and final subscale is a shared emotional connection, or “the commitment and belief that members have shared and will share history, common places, time together and similar experiences” (McMillan & Chavis, 1986, p. 9). The variables for each of these subscales and the scale were measured utilizing a Likert-type scale.

Significance of the Study

Understanding how people learn, whether in the traditional or virtual environment, has given teachers the means to reach and engage more students, many of whom have a difficult time in the instructional environment (Turner, 2011). When students have a stronger sense of community, they are more motivated and have a higher likelihood of social, emotional, and academic success. Faircloth and Hamm (2011) found that membership in a group during the teen years was related to increased interest and satisfaction in school. Additionally, Cemalcilar (2010) found that students with a stronger sense of school belonging were less anxious and lonely than others, were more autonomous, more prosocial, more intrinsically than extrinsically motivated, and more successful in classroom setting.

This study is also significant in society today because the virtual or online format of education is only growing, and the more information that can be obtained for students at the middle school grade level, the better. Archambault and Crippen (2009) noted that online K-12 classes have become a legitimate and growing option for students in the twenty-first century. Harvey, Greer, Basham, and Hu (2014) found the virtual learning environment to be relatively new to K-12 education, as most prior research had been conducted at the university level with adult learners. Harvey et al. (2014) commented that there was a need for additional research in

the K-12 virtual learning environment. Specifically, the authors described a need to explore social interactions in the online environment and found little existing information regarding social interaction and online learning within the K-12 population. Harvey et al. (2014) found that the knowledge in the area of K-12 students in the virtual environment needed to be expanded because online learning was growing so rapidly. Schools will be able to provide a much greater level of support for the various needs of students with a broader base of knowledge. McFarlane (2011) also examined this issue:

The importance of creating a balance between social or affective pedagogy and the pedagogy of technology inclusion and integration might be the ultimate testament of excellent teaching as teachers recognize both the positive and negative aspects of technology as it influences how we learn and survive. (p. 34)

Koh and Hill (2009) discussed weaknesses in virtual education, one of which was a lack of a sense of community. Online learning participants indicated a lack of connection with faculty and other learners and stated that this reduced sense of connection had a negative impact on their overall class experience. Koh and Hill also stated that a similar lack of connection could also be routine in traditional classroom courses. This study is significant in filling the gap in the literature by determining if the lack of connection with students this age and teachers differs between the two environments, therefore yielding information as to the best instructional settings. Further, the Koh and Hill study recommended that more work be done in order to establish effective learning communities. Schools that have supportive communities of students also have help in the maintenance of student motivation, which, in turn, helps to cultivate happiness in learning within students. This study helps the educational community at large by providing a means to determine if the classes taken via the virtual environment can meet

individuals' most basic needs, according to Maslow (1962), so that they may be able to elicit the higher order and critical thinking skills that are required to be present with the more rigorous standards that are now in place.

Research Question

The research question for this study is:

RQ: Is there a significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment?

Null Hypothesis

The null hypothesis for this study is:

H₀: There is no significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment.

Sub-Null Hypotheses (Post Hoc)

H_{01 sub}: There is no significant difference in the feelings of a reinforcement of needs in traditional middle school students over virtual middle school students.

H_{02 sub}: There is no significant difference in the feelings of membership in traditional middle school students over virtual middle school students.

H_{03 sub}: There is no significant difference in the feelings of influence in traditional middle school students over virtual middle school students.

H_{04 sub}: There is no significant difference in the shared emotional connections in traditional middle school students over virtual middle school students.

Definitions

1. *Traditional learning environment* - An educational environment that contains teacher talk, student talk, student interaction, cooperative learning, teacher-to-student

- interaction, and student-to-student interaction (Ahern & Repman, 1994).
2. *Virtual learning environment* - An educational environment that is delivered via an online format that provides students with equal access to learning resources and communication with teachers, students, and other support services (Palmer & Holt, 2010).
 3. *Sense of community* - A “feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan & Chavis, 1986, p. 9).
 4. *Reinforcement of needs* - “The feeling that members’ needs will be met by the resources received through their membership in the group” (McMillan & Chavis, 1986, p. 9).
 5. *Membership* - “The feeling of belonging or of sharing a sense of personal relatedness” (McMillan & Chavis, 1986, p. 9).
 6. *Influence* - “A sense of mattering, of making a difference to a group and of the group mattering to its members” (McMillan & Chavis, 1986, p. 9).
 7. *Shared emotional connection* - “The commitment and belief that members have shared and will share history, common places, time together, and similar experiences” (McMillan & Chavis, 1986, p. 9).

CHAPTER TWO: LITERATURE REVIEW

Introduction

The purpose of this quantitative causal-comparative study was to utilize the sense of community theory to test middle school students' feelings of community within the learning environment in traditional middle school classes and in virtual middle school classes. In testing the sense of community theory (McMillan & Chavis, 1986), a determination can be made as to whether there is a difference in student opinions regarding their personal sense of community in two different school settings, the traditional setting and the virtual setting. These findings give educators information to provide the best and most appropriate instructional settings for students.

Both the traditional setting and the virtual setting are very relevant to society today. The traditional setting is the normal school setting that students physically attend. However, the virtual setting is prevalent in most areas of education, and some researchers suggest that this setting will vastly grow in the upcoming years (Archambault & Crippen, 2009). The students' sense of community within the classroom is a substantial indicator of success socially, emotionally, and academically (Frydenberg et al., 2009).

The sense of community theory (McMillan & Chavis, 1986) gives a basis upon which these environments can be examined to determine if there is a difference in students' sense of community in each environment. There are many sense of community theories that are somewhat related in one form or another; however, the sense of community theory as presented by McMillan and Chavis (1986) is one of the initial theories involving a sense of community that has yielded evidence of validity and reliability and has been extensively researched.

Theoretical Framework

The theory that buttresses this study is the sense of community theory, sometimes known as the psychological sense of community theory. The term “community” can be dualistic in nature (McMillan & Chavis, 1986). One meaning of the term deals specifically with territorial and geographical notions, and the second deals with relational aspects regarding human relationships with no reference to any location (McMillan & Chavis, 1986, p. 3). These two meanings are not mutually exclusive (McMillan & Chavis, 1986, p. 3). Although the majority of the literature found in conjunction with this theory refers to territorial or geographic ideals, this study dealt specifically with the second use of the term in looking at the relational aspects regarding human relationships.

McMillan and Chavis (1986) defined the sense of community as “a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (p. 4). The sense of community theory consists of four different elements: membership, influence, reinforcement, and shared emotional connections (McMillan & Chavis, 1986). There are also sub-elements that are associated with each of the four elements (McMillan, 2011).

The first element of the theory is membership, which is defined as a feeling that individuals invested part of themselves to become members and have a right to belong. Membership is a feeling of belonging or of being a part of a greater group (McMillan & Chavis, 1986). The second element in the theory is influence. Influence is defined bi-directionally and these two forces can work in conjunction with one another:

In one direction, there is the notion that for a member to be attracted to a group, he or she must have some influence over what the group does. On the other hand, cohesiveness is

contingent on a group's ability to influence its members. (McMillan & Chavis, 1986, p. 6)

The third element of the theory is reinforcement, otherwise known as the integration and fulfillment of needs (McMillan & Chavis, 1986). The impetus of the idea behind this element of the theory is that groups of individuals to maintain a positive sense of togetherness and the individual-group relationship is rewarding for members. The final element of the theory is a shared emotional connection. This element deals with a shared history with members of the group. The group members do not need to have participated in the history together in order to share, however, they must be able to identify with the history (McMillan & Chavis, 1986).

Each of the elements of the sense of community theory has sub-elements that are associated with the theory (McMillan, 2011). These sub-elements further describe the primary elements of the theory. McMillan (2011) stated that the complex relationships among all of the elements and the coinciding reinforcing interactions between individuals help to frame the sense of community theory.

The membership element contains four sub-elements: boundaries, emotional safety, sense of belonging, and a personal investment. Boundaries refer to barriers that dictate the individuals who belong and those who do not belong as well as any symbols that denote membership. The next sub-element of emotional safety involves speaking honestly and individuals feeling safe to be vulnerable. A sense of belonging refers to an expectation of belonging, a feeling of acceptance, and an awareness of being welcome. Finally, a personal investment deals with what individuals' sacrifice to belong (McMillan, 2011).

The influence element of the sense of community theory contains five sub-elements. The first of these sub-elements is a personal investment. A personal investment involves the sacrifice

that individuals make to be a member that gives a sense that membership is earned. The community is also more attractive to the individual due to the personal investment that is established. The next sub-element within influence involves community norms influencing members to conform. This sub-element deals specifically with norms and the conforming behavior of individuals within the community. Following this idea, there are three more sub-elements, which are members conforming for consensual validation and the maintenance of cohesiveness within the community, the attraction of members to groups allowing individuals influence over groups, and the influence between the community and the members operating concurrently (McMillan, 2011).

The third element of integration and fulfillment of needs contains six sub-elements. The first of these sub-elements deals with the members' needs being met by the community. Next, there are reinforcements to belong, followed by a shared sense of values. Integrating needs and resources and teaching skills are the next sub-elements within this primary element. Finally, there is a reference to handing off responsibilities from one generation to the next, called generative trading (McMillan, 2011). The fourth and final element from the sense of community theory, a shared emotional connection, contains two sub-elements. These sub-elements are members sharing time with one another and quality time being shared. Events providing shared quality time must have value and closure, and must honor members (McMillan, 2011).

In 1996, McMillan expanded his thoughts on the sense of community theory based upon his reflections in the years since the inception of the theory. McMillan kept the established elements of the original theory; however, he did rename and rearrange the original elements. McMillan reestablished the first element of membership as spirit. The variance in the definition of the two elements is that the spirit element provides for a greater emphasis on a spark of

friendship among individuals. Next, the trust element replaced the influence element. The primary idea behind the concept trust emphasizes trust developing through the community's use of power. Next, the trade element replaced the reinforcement element. The change in thinking with this element was that individuals want safety from shame and are therefore willing to trade independence for this safety. The last element, originally a shared emotional connection, McMillan redefined as art (1996). McMillan described art as the culmination of all elements joined together: "Spirit with respected authority becomes Trust. In turn, Trust is the basis of creating an economy of social trade. Together these elements create a shared history that becomes the community's story symbolized in Art" (McMillan, 1996, p. 322).

This theoretical framework speaks volumes as to the essential components that are necessary for classrooms and schools to be successful in working with students. When students feel a sense of community while in the educational setting, they experience what is a basic building block that a school is built upon and a basic component in the effort to achieve student success. The ideas behind the sense of community theory inform this study because if the components of the theory are not present in the classroom, then the likelihood of student success is not as great. If a sense of community in the virtual environment is found to be comparable to the sense of community in the traditional environment, then educators will have another tool at their disposal in the effort to best meet student needs.

Theoretical History

The development of the sense of community theory came from the George Peabody College of Vanderbilt University (McMillan & Chavis, 1986). The original conceptualization of this theory was presented in a paper by David McMillan in 1976 from the Center for Community Studies (McMillan & Chavis, 1986). The sense of community theory was presented by David

W. McMillan and David M. Chavis in 1986 following many years of work in the area (McMillan & Chavis, 1986). In 1996, David McMillan published new thoughts and takes on the original theory. The original elements of the theory remained; however, there was some rearrangement and alternative wording utilized (McMillan, 1996). Chavis, Hogge, McMillan, and Wandersman (1986) found empirical strength through the Sense of Community Questionnaire. Since the development of the original questionnaire, the Sense of Community Scale 2 has been developed. This scale has proven to be a valid and reliable measure in the determination of a sense of community (Chavis et al., 2008) and has been essential in the utilization of the theory on a practical basis (McMillan, 1996).

The sense of community theory was developed utilizing the ideas and the premises of several different theorists. Doolittle and MacDonald developed a sense of community scale that examined communicative attitudes and behaviors of a social organization at the community or the neighborhood level. Glynn (as cited in McMillan & Chavis, 1986), based on work by Hillery (as cited in McMillan & Chavis, 1986), examined the psychological sense of community of three different settings (McMillan & Chavis, 1986). Social bonding and behavioral rootedness were two correlated and empirically distinct factors that Riger and Lavrakas (as cited in McMillan & Chavis, 1986) examined in their studies on a sense of community. Riger, LeBailly, and Gordon (as cited in McMillan & Chavis, 1986) also did work on the sense of community. Their work centered around feelings of bondedness, extent of residential roots, use of local facilities, and the amount of social interaction with individuals and their neighbors (McMillan & Chavis, 1986). Ahlbrant and Cunningham (as cited in McMillan & Chavis, 1986) viewed the territorial aspect of a sense of community as a core factor to an individual's commitment and satisfaction to a neighborhood (McMillan & Chavis, 1986).

Bachrach and Zautra (1985) examined coping responses and found that a stronger sense of community enabled stronger coping behaviors in individuals. Florin and Wandersman (1984) and Wandersman and Giamartino (1980) also reinforced literature with consistent findings within their studies (McMillan & Chavis, 1986). These theorists, studies, and findings all contributed to the sense of community theory espoused by McMillan and Chavis (1986), but these studies only examined the sense of community based upon territorial and geographic ideas. However, Gusfield (1975) explained that the ideas behind the theory in general would apply equally whether the sense of community is based upon territory and geographic ideas or upon human relational aspects (McMillan & Chavis, 1986).

Nowell and Boyd (2011) suggested that the sense of community theory can be taken even further. Nowell and Boyd (2011) stated, “The focus of our 2010 article was to contribute to the conceptual development of the construct of psychological sense of community (PSOC) by exploring the second-order assumptions of PSOC as represented in prevailing measures” (Nowell & Boyd, 2011, p. 889). A multitude of studies and other ideas that have arisen from these studies have come about over the years; however, the McMillan and Chavis (1986) theory remains the cornerstone to which these studies have been compared.

Informing the Literature

The ideas that buttress the sense of community theory also inform the literature on the topic of students experiencing a sense of community within the educational setting. This idea relates to Gusfield’s (as cited in McMillan & Chavis, 1986) proposal that the definition of a sense of community is multidimensional, and one of these dimensions focuses on human relations components. This study advanced the sense of community theory because it focused upon human relational aspects. The vast majority of the literature that is found for the sense of

community theory specifically deals with the geographical notions of a sense of community. This study specifically dealt with individuals' feeling of belonging in two specific educational settings; this helped to inform the sense of community theory on a much broader basis.

An important aspect of student achievement is that students must feel comfortable and a part of the environment in which they are learning, whether in the traditional setting or the virtual setting. Sari (2012) contended that student motivation, engagement, and commitment to school were all greater in individuals who experienced acceptance in the educational setting. Students must feel a strong sense of community in order to achieve academic success. Cemalcilar (2010) stated, "Research has confirmed a positive association between students' attitudes and affect towards their schools and various academic outcomes, such as academic performance, success expectations, engagement, and academic self-efficacy in all levels of schooling" (p. 245).

Belonging has been demonstrated to support students motivation and engagement, and there is evidence that belonging mediates (accounts for or explains) the relationship between motivation and achievement, suggesting that it serves as an essential underlying experience for engaged, achievement-related behavior. (Faircloth & Hamm, 2011, p. 49)

Literature Review

Sense of Community

Faircloth and Hamm (2011) contended, regarding the students' sense of belonging, that a supportive environment with interaction creates a sense of community that will foster more success within students. "Through such interaction and association within peer networks, early adolescents are theorized to experience validation, acceptance, and affirmation at school" (Faircloth & Hamm, 2011, p. 49). As students feel a stronger sense of community while in

school, they are more likely to build stronger ties to the school, making the chances of success even stronger. Stability and consistency in peer relationships are also very important to children and can help through difficult times and in other transitions.

Relationships and the development of relationships are a critical component in the development of children at the middle school age level. A developmentally responsive middle school environment should foster school-based interpersonal relationships for students of this age ("National Middle School Association," 2010). Students' relationships while at school cultivate the sense of community that they establish while in the school setting. These relationships include both student-student relationships and teacher-student relationships (Ellerbrock & Kiefer, 2014). When students feel a sense of community within these relationships, they feel valued, accepted, included, a part of the whole, and encouraged by others when they are in the educational setting.

The feeling of a sense of community can be looked upon in three different aspects in education: interpersonal relationships (teacher-student and student-student), learning and academic community, and school facilities or activities. Ellerbrock and Kiefer (2014) found that the majority of students attribute belonging beliefs, either positive or negative, to the relationships that they have with their teachers and the quality of those relationships. Therefore, these relationships have a pivotal role in the feeling of a sense of community for students of this age level. In the educational environment, the relationships between the students and non-familial adults at school and friendships and peer acceptance with the other students are important. Schools that help to cultivate these relationships and are responsive to these needs are much more likely to assist students in the development of a positive sense of community among students (Ellerbrock & Kiefer, 2014).

The feeling of a sense of community and the interpersonal relationships that students form during the middle school years contribute to individual development in different ways (Ellerbrock & Kiefer, 2014). Student perceptions regarding belonging while in school have a direct correlation to positive social, academic, and psychological factors (Nichols, 2008). Students feeling a sense of community in the educational environment has a positive correlation with academic achievement, expectancies for success in school, academic efficacy, engagement, and motivation (Ellerbrock & Kiefer, 2014). Students that adopt a stronger sense of community have a greater sense of prosocial goals, more positive behavior in the classroom, and better attendance, and engage in less risky behaviors (Ellerbrock & Kiefer, 2014).

Educators and other school staff members that show care to students while in the educational setting are therein providing students opportunities to receive emotional support. This emotional support that students receive is the support that is needed to strengthen their individual sense of belonging and success while in school (Ellerbrock & Kiefer, 2014). Students need to have at least one non-familial adult at school who understands their needs and enjoys working with them in order to increase the chances of being successful in school. Additionally, students need to have relationships with peers in order to feel the strongest sense of community. Peers provide both academic and emotional support. Peers are sometimes viewed as a greater support than the adults (Ellerbrock & Kiefer, 2014). Peer support gives students the feeling that they can rely on others and helps to develop a sense of community.

The Ellerbrock and Kiefer (2014) study also resulted in data that buttressed the contentions that were made throughout the research. All of the educators who were surveyed and over half of the students described a sense of connectedness between teachers and students that helped to promote school belonging, or a sense of community. All of the teachers provided

feedback that showed responsiveness to student needs helped to promote student belonging while at school. Ellerbrock and Kiefer (2014) also found that adolescents perceived that establishing the feeling of community at school began with student-student relationships. All of the students who were involved in the study contended that acceptance and being known by peers were important in fostering school belonging. Another factor that was established in students' sense of belonging, or community, for both teachers and students was academic and peer support while in the classroom. Ellerbrock and Kiefer (2014) finally established that the root of developing a strong sense of community among students was responsive teacher-student relationships and included responsive student-student relationships. Ellerbrock and Kiefer (2014) stated, "Teacher-student and student-student relationships may play a central role in meeting student needs and fostering school belonging at the middle level" (p. 13). Educators who work toward providing the opportunity for relationships while at school will help promote a stronger sense of community within the school setting.

Most studies that have focused upon a sense of belonging have shown positive effects for children for both social and academic outcomes (Cemalcilar, 2010). Cemalcilar (2010) found that those students who experienced a greater sense of belonging while in the educational setting were motivated more intrinsically than extrinsically and experienced more success in classes. These students were also found to be less anxious, less lonely, and more autonomous and prosocial individuals. Participation in class activities is enhanced by those students who show a stronger sense of community within the class.

Garza, Alejandro, Blythe, and Fite (2014) also examined the role of teacher-student relationships and the impact of these relationships on the student. Within their findings, it was reported that either a positive or a negative response from teachers to students could directly

affect students' self-esteem and the academic success of students. Caring teachers are much more likely to foster a sense of community within the classroom. These caring teachers respond differently to students and demonstrate caring in line with each individual's needs. Garza et al. (2014) reported on the significance that the affective domain played in successful academic development of students. Teachers must consciously know the students and show care for them and their needs, as this tremendously impacts student perceptions regarding school and the students value this teacher-student interaction. Consistently working on these caring relationships with students will assist in student engagement in the classroom and promote learning overall (Garza et al., 2014).

Significantly, Garza et al. (2014) found that when teachers were viewed as caring toward the students, a sense of belonging, or a sense of community among students in the educational environment, was fostered. The sense of community was developed among students when teachers conveyed a sense of family unity, being valued as a member of the classroom, respect, acknowledgment, and emotional support (Garza et al., 2014). The teachers who participated in this study helped to cultivate a sense of belonging by using non-threatening verbal communication and positive non-verbal communication, showing a positive disposition toward students, and utilizing proximity to buttress students. Garza et al. (2014) found that by when teachers provided these emotional supports, more student engagement was achieved and there were fewer behavioral distractions.

Lack of feeling a sense of community or belonging can also bring about very negative effects. Students can feel lonely, alienated or hostile, low academic achievement can result, negative school attitudes can develop, behavioral problems can manifest, risky behaviors can increase, attendance can decline, and higher dropout and delinquency rates can occur.

Satisfaction with school relations and the general school environment are predictive of feeling a strong sense of community (Cemalcilar, 2010). Cemalcilar (2010) contended that even though the majority of the literature that can be found indicated that a strong sense of community is predictive of many school related outcomes, these factors should each be looked at independently, not multi-dimensionally as schools are multi-dimensional organizations.

Relationship building fosters communities within schools that helps to build a positive school culture and a culture where learning is an emphasis (Carlisle, 2011). Carlisle (2011) stated, “This focus is especially profound for educators working with adolescent learners in a middle school setting” (p. 19). The relationships that are established between teachers and students help to cultivate a sense of belonging or a sense of community among students, which will, in turn, result in greater success for students. Constructive peer relationships and a powerful sense of community are both correlated with students’ feeling a positive sense of belonging while in school (Carlisle, 2011). Students’ having a positive sense of belonging is also associated with greater academic success: “Positive peer relationships in school, teacher support and general sense of belonging in school were found to be associated with their (students’) academic expectancies for success” (Carlisle, 2011, p. 21).

Students who have positive relationships with school stakeholders experience a greater sense of belonging in school and are more productive and positive (Carlisle, 2011). “Empathy, self-esteem, self-efficacy, and the quality of relationships that students have with their teachers all help to create a powerful sense of belonging in middle schools” (Carlisle, 2011, p. 21). Positive relationships between teachers and students help students to succeed in school (Carlisle, 2011) and help students build a strong sense of community within the school setting. Once students do establish this strong sense of community or sense of belonging while at school, they

are much more likely to sustain a greater level of academic success. Middle school students will be much more likely to achieve higher grades and a greater level of success in school settings where these elements are present (Carlisle, 2011). A greater sense of belonging while at school serves a dualistic positive role of having an influence on students in both psychological and academic areas (Cemalcilar, 2010).

Students must experience valued involvement, which includes feeling valued, needed and accepted, and must have a perception that their individual characteristics complement the environment in order to establish a sense of belonging, or a sense of community. Many students indicate that the development of a positive sense of belonging comes from developing strong peer relationships and establishing strong relationships with teachers (Sancho & Cline, 2012). Also indicated by students is that a sense of belonging in the school cultivates positive attitudes for learning, emotional well-being, and proactive behavior, while a lack of a sense of belonging fosters withdrawn behavior, negative attitudes to learning, and negative emotions (Sancho & Cline, 2012). Sancho and Cline (2012) also found prior research joining a sense of belonging while at school with emotional well-being and academic success. On the reverse side, they also found prior research that associated a lack of a sense of belonging while at school with negative outcomes.

Much of the educational literature that can be found indicates that an important predictor of school attainment is students having a positive sense of belonging within the school (Cemalcilar, 2010). Cemalcilar (2010) stated, "Identifying the social and contextual factors within schools that are instrumental in enhancing students' sense of belonging is imperative and will extend our understanding of the dynamics underlying students' adjustment in school and their general well-being" (p. 245). The primary factors that contribute to the social context of the

school are the social relationships and the structural and contextual characteristics of the school. The Cemalcilar (2010) study found that students' feelings of a sense of belonging to their schools could be predicted by student satisfaction with social relationships and student satisfaction with school in general.

Cemalcilar (2010) found that social relationships were strongly associated with students' positive feelings regarding school. These social relationships are the perceived quality of relationships with the teachers, administrators, and fellow students. Cemalcilar (2010) also found that structural and contextual factors were strongly associated with students' positive feelings regarding school. These structural and contextual factors are perceived quality of the physical environment in the schools, availability of resources supporting in and out of class activities, and the perception of safety within the school (Cemalcilar, 2010). Schools that create a focus on policies, procedures, and reforms can provide better learning environments to larger groups of students, making the likelihood of cultivating a stronger sense of community for students even greater.

Virtual Learning Environment

As student accountability standards increase and student testing standards become more rigorous (Virginia Department of Education, 2013); educators must find a way to effectively reach children. One vessel that is becoming abundantly more popular is virtual classes. While virtual classes are seen on a larger scale at the post-secondary level, they are not as abundant at the secondary level, in particular at the middle level (Archambault & Crippen, 2009).

Virtual classes could be a means for educators to more effectively get through to students in some circumstances. Archambault and Crippen (2009) stated, "The 21st century educational landscape has also been altered. One of these changes has been the addition of online distance

education, specifically the proliferation of virtual schools in K-12 settings” (p. 363). In the Archambault and Crippen (2009) study, the researchers found that the comparison of the virtual class to the traditional class have both positive and negative characteristics regarding the lack of face-to-face interaction. This is an area that can be more fully defined in measuring the sense of community among the students in the class. Archambault and Crippen (2009) also found that the majority of virtual classes at the K-12 level were found at the high school level, followed by middle school and elementary. Their study predicted that virtual classes will be 10% of all high school classes by 2015 and 50% of all high school classes by 2019 (Archambault & Crippen, 2009).

Harvey et al. (2014) conducted a study that examined middle school students in the online learning environment. An area of concern that was noted throughout this study was the area of social interaction or lack of social interaction. The study that was conducted compared the experiences of middle school students in the traditional environment to the online environment. Areas that students liked about working in the online environment were primarily in the flexibility that was provided, learning on their own, staying home for school, and working online. The greatest factor that the students missed about the traditional setting was missing time to be with friends while at school; 25.7% of the students that were surveyed listed this as a detractor (Harvey et al., 2014). Harvey et al. (2014) found that online learning was an overall positive experience for those students who participated in the study, and most of the individuals had favorable attitudes toward taking online classes. A barrier that was found in completing this study was the lack of social interaction that the students had, which translates into the sense of community that is established among students in the classes. One particular concern with the lack of social interaction and development of a sense of community in the online environment is

the students' social development. While this factor was of great concern to the researchers, it did not appear to be of great concern to the students who were participants in the study. Students were somewhat satisfied with the amount of interaction that was held between the teacher and students while less than half seemed satisfied with the amount of interaction that was held between peers (Harvey et al., 2014); there was not much of a sense of community cultivated among these students in the classes. Participants in the study went on to communicate that while they were satisfied with the interaction and support from teachers and liked the autonomy and flexibility that was provided through online classes, they did miss the social opportunities that were provided in the traditional school setting (Harvey et al., 2014).

Cameron, Morgan, Williams, and Kostelecky (2009) examined the relationship between social tasks and a sense of community within online group work. Cameron et al. (2009) found that no connections between building a sense of community and social tasks. Instructors should put a structure in place for online group work. This process should support the development of scaffolding online group processes, which will buttress the importance of community building and learning (Cameron et al., 2009). A sense of community, whether in the virtual or the traditional setting, has much more to do with the structure and setup of the class and how the teacher teaches the class than the actual physical setting.

In order for students to be fully successful in the school setting, they must be able to sustain a strong sense of community, as this is a building block to school success. Barbour (2012) found that the variety of communication tools that K-12 virtual students used proved to be a poor substitute for in-person or face-to-face interaction. This interaction ties directly into the students' sense of community. Barbour also found, "Research on motivation in the face-to-face classroom has consistently indicated student motivation increases with the level of challenge

and the opportunity for collaboration” (p. 228). This idea of collaboration ties directly into the ideas found within a sense of community. However, if this statement holds true, then the students’ sense of community within each setting is highly dependent upon the classroom structure and setup and the teacher. Students from the Barbour (2012) study indicated that they felt little sense of community with their online classmates or their teacher and they felt as if they were speaking to a computer (Barbour, 2012). Very few respondents felt a sense of community in the virtual classes; they did, however, feel a strong sense of community with the other students who were enrolled in the same online learning courses (Barbour, 2012).

Positive correlations have been found between perceived learning and a strong sense of community in online classes. This idea also buttresses Rovai’s (2002) conclusions that stronger feelings of community are in fact correlated with perceived cognitive learning (Fang Ni & Aust, 2008). Garrison and Anderson (1995) found that positive effects of a sense of community on the learning environment also produce a more positive learning experience (Fang Ni & Aust, 2008). Fang Ni and Aust (2008) concluded that satisfaction in school and student-perceived learning were significant consistent predictors of a sense of community in the classroom. Students in more traditional classes perceived a stronger sense of community over those in the virtual setting. Fang Ni and Aust (2008) found it a necessity for instructors to build a sense of community within the classroom so that student learning and satisfaction were enhanced. They also recommended that more empirical studies be carried out with online learning and a sense of community because they were scarce.

Wallace (2009) found that little research had been conducted on the use and effectiveness of online education with the K-12 population, particularly with younger students. While virtual and online programs have flourished and grown immensely over the last decade, greatly

expanding academic opportunities for students in different situations, much of the growth has been at the higher education level. Online and distance education opportunities for younger children are now seeing the expansion that the higher education area has seen over the last ten years. Virtual programs for younger students are much more readily available and being utilized at a much greater rate for the younger students than ever before (Wallace, 2009). Wallace (2009) explored the utilization of virtual programs primarily with gifted students at younger age levels. Gifted students utilizing virtual technology showed promising outcomes. Additionally, virtual technology provides more access to classes that students may not have access to otherwise. Students found that their educational experience was much more enriched because of the availability of the virtual platform. Students who participated in this study found that they were very well prepared academically for end-of-course tests that were taken following the virtual class. Wallace (2009) found that the research on the effectiveness of the virtual platform for learning, particularly with younger students, was very limited and that much more research was needed because the utilization of the virtual platform for education with younger students was rapidly expanding. The overall evaluations that students completed in the Wallace (2009) study were generally positive; however, there were a few places for improvement. Not all students seemed comfortable asking for help when it was needed, but younger students seemed more comfortable. Instructors cannot see facial expressions to gauge understanding; therefore, asking questions is imperative in the virtual setting. Younger students had more concern with the content and interest with the material, whereas older students were more interested in gaining credit for courses.

Phelan (2012) contended that the idea that a sense of community found in the traditional classroom setting does not support the academic outcomes that many have found. Phelan (2012)

explained that classroom communities are present in both the virtual classroom and in the traditional classroom. Phelan (2012) drew upon Ravai's (2002) idea that the feeling that a sense of community is a substantial factor in attracting and retaining individuals to the virtual setting. However, the literature that is found regarding the importance of a sense of community in the virtual environment does not exclusively support this idea (Phelan, 2012). A portion of the students who value online learning do so because of the independence and flexibility that is available and do not care to engage with peers (Phelan, 2012). Phelan (2012) stated that student achievement and learning goals are supported by learner exchanges and engagement. "Students' interaction with course content, with peers, and with the instructor support students' development of a sense of community, and this in turn supports learner engagement" (Phelan, 2012, p. 34).

Kerr (2005) conducted a research project on online learning communities. She found the development of a learning community within the virtual education setting was very important for success. Regarding the virtual environment, Kerr (2005) found that in order for the learning process to be successful, instructors needed to pay attention to the development of a sense of community within the classroom group. The creation of a learning community that will benefit the students in the virtual setting requires a commitment both from the students and the teacher. Learning has to be an active process in which the teacher and students participate in order to achieve success. Kerr (2005) found the likelihood of success increased when learning communities were established and students did feel more of a sense of community. Recommendations to increase students feeling a sense of community were as follows: educators understanding the benefits of online learning communities, providing training for educators, ensuring educators have a manageable workload and class size, using effective instructional

design, implementing strategies that promote and support the development of online learning communities, and supporting the learners in the community (Kerr, 2005).

In order for educators to establish an environment in which students can feel a sense of community, they should utilize introductions at the beginning of the class. Student ownership has to be encouraged so that each student has more of a stake in the educational process. Instructors should showcase exemplary student work and provide different opportunities for student collaboration. The use of online discussions provides a means for students to get to know one another and build a sense of community with one another. Along with the idea of utilizing online discussions, the creation of a social space for students is also a good way to establish interaction among students and facilitate a greater sense of community among the students who are involved. Finally, instructors have to provide the support that the students need. The environment should be established so that the support can be through either peers or through the instructor; either way, there needs to be this type of tone set to the class in order for the virtual class to be successful (Kerr, 2005).

Traditional Learning Environment

The middle school–age child undergoes a tremendous transition. Classroom-based belonging is very important for these students to feel comfortable in the school setting. Peer networks are often formed from within these classroom settings. Faircloth and Hamm (2011) contended:

Researchers have demonstrated the significance of peer group affiliations to school adjustment. Recent conceptualizations of sense of belonging as a key underpinning of school engagement underscore the need to explore more fully the link between peer groups and sense of belonging. (p. 55)

Peer networks or peer groups create a stronger sense of community among middle school age children. Academic motivation of adolescent students is very important, and the students' sense of classroom belonging is crucial for success (Faircloth & Hamm, 2011). A major question regarding the ideas of Faircloth and Hamm (2011) that manifests is whether the peer networks that were established can be duplicated in the virtual environment.

There is an importance to feeling a sense of belonging or community while at school. Studies have shown that there is a correlation between the academic and psychological needs in students and the students feeling a sense of belonging or a sense of community while at school (Sari, 2012). Sari (2012) reemphasized the importance of students feeling this sense of belonging at school. Student motivation, engagement in learning, and commitment to school are much more likely to be found in those students who experience acceptance in the learning environment (Sari, 2012). Students who exemplify a stronger sense of belonging or community show a significant difference in favor of higher academic achievement (Sari, 2012). It has been well established that a stronger sense of community in school produces more successful students (Sari, 2012); however, again, the question remains whether this relationship would translate to the virtual environment as it is found in the traditional environment.

Teachers and schools in the traditional setting have the luxury to more easily do certain things that helps to build community among students. Schaps (2009) found that supportive relationships among students, teachers, and parents are the center of a caring school community. While these relationships can be created in the virtual setting, the traditional setting allows for more personal interaction among the groups. This interaction is a vital component of building community, which in turn has a direct effect on the students. Schaps (2009) found that students learn better from those individuals with whom they form a relationship and those to whom they

relate the best. Schools that do have strong senses of community also emphasize other qualities that are essential to social participation in addition to academic learning (Schaps, 2009).

There are a few different ideas that schools and teachers can implement in order to build community within the school setting. Teachers should conduct class meetings (Schaps, 2009) at least weekly to possibly bi-weekly dependent upon the need. Class meetings allow students to have the opportunity to get to know one another and the teacher, have autonomy in decisions, and discuss issues that need to be brought forward. Teachers can build learning activities that allow students to collaborate with one another on academic tasks (Schaps, 2009). Allowing time for reflection with these activities provides for an opportunity for students to learn effective communication skills. Mentor or “peer buddy” programs can also easily be established (Schaps, 2009). Programs such as these will help to build and create a supportive school environment. Schools can also have events that directly involve both the students and their families (Schaps, 2009). These events allow families to build comfort with the school while establishing a more caring environment. Schools and teachers can provide service learning opportunities both inside and outside of the school (Schaps, 2009). These opportunities will not only assist in teaching moral and ethical ideas, but will also build partnerships among the students and adults who are directly involved.

Children in middle school have reached a time in life at which social and emotional development is happening at a great rate. Teachers involved in the traditional setting have a real opportunity to cultivate this development among children. Drolet and Arcand (2013) found, “The literature casts light on theoretical and empirical support for the sense of belonging within the school setting as a critical component of the experience and positive development of young teens” (p. 29). Drolet and Arcand (2013) also found the school environment to be critical in

establishing a sense of belonging. At this age, children develop trusting relationships at school. Additionally, social networks that are established during this time manifest as protective factors essential to positive early adolescent development.

Positive social development and a strong sense of school belonging are also closely associated. While a strong sense of community among students does not negate negative behaviors, positive behaviors do stand out that have a great effect on the “whole” child. Drolet and Arcand (2013) found that when children do fit in within the school environment, academic performance tends to be better and there are fewer risk taking behaviors associated with the student. Students also have the opportunity to develop positive relationships with school staff members in those schools that exemplify a strong sense of community. Teachers become role models for students. As role models, teachers become individuals children want to imitate, which translates into great influence and more comfort with the student (Drolet & Arcand, 2013). In the development of a strong sense of community in the school setting, “the relationship sustained by adolescent and mentor is bi-directional: the adult really cares and looks out for the well-being of the young teen; in turn, the latter feels free to open up, becomes receptive, and then accepts this relationship founded on trust” (Drolet & Arcand, 2013, p. 31).

Teachers can also cultivate positive learning communities that provide for the social and emotional development of children (Howell, Thomas, & Ardasheva, 2011). Howell et al. (2011) found that students who communicated a sense of belonging to a school group contributed to factors that allowed for a greater level of social acceptance within the classroom. When students felt a sense of belonging, a safety net was created, allowing students to have more confidence in voicing their opinions in both a constructive and meaningful way. Teachers who create more positive learning environments also help children establish confidence and develop the feeling

that their individual opinions were important (Howell et al., 2011). Personal connections that can be easily established in the traditional classroom setting can help students see the relevancy of the class and content to their personal lives.

When students develop a sense of community with their peer groups while at school, they also develop of emotional attachments throughout the educational process. These emotional attachments become a safe area for students while in the classroom and give them more confidence to participate in the class; they feel as if their voices and opinions are heard and matter (Fitzsimmons & Lanphar, 2011). As students have their voices heard by the class and by the teacher, a collective respect is among all involved. This gives students feelings of being valued and increases competence; as this is happening, the students are also building a collective sense of community among themselves (Fitzsimmons & Lanphar, 2011).

Student opinions also have importance in relation to a feeling of a sense of community. Students who feel as if they belong have communicated that they feel as if the “fit in” at school and as if the individuals at the school are “family” (Hope, 2012). This positive feeling of belonging not only benefits the children in social aspects, but also has greater effects on all school outcomes. Hope (2012) found that when the students experienced a strong sense of belonging to the school, with teachers, and with peers, they produced a significant contribution regarding school outcomes. These outcomes are very important in the way that children engage with the educational process (Hope, 2012).

The feeling of a sense of community cannot be forced among students; however, the appropriate groundwork can be laid by school staff members. Students’ sense of community is a very individual feeling and very personal to individual students. It is different for each individual and is an internal psychological process (Hope, 2012). The quality of the

relationships that students have with both peers and teachers can very directly contribute to this feeling, which has a direct impact on the students' feelings of the school as a whole (Hope, 2012). A positive feeling of a sense of community assists in improving the school experience for children and give students a greater capacity to engage in learning, which, as stated earlier, will lead to improved academic outcomes (Hope, 2012).

Summary

Students' having a sense of community within school is a very important factor to success (Cemalcilar, 2010; Fang Ni & Aust, 2008; Faircloth & Hamm, 2011). Although some studies minimize the impact of this feeling (Phelan, 2012), overwhelmingly, research suggests that when a strong sense of community is present, there is a greater likelihood for student success. There are numerous theories on the sense of community, including the Sense of Community Theory as proposed by McMillan and Chavis (1986), which was utilized for this study. The McMillan and Chavis (1986) theory is a cornerstone to many of the other sense of community or sense of belonging theories that can be found.

In society today, there are many types of learning environments. The predominant environment is the traditional classroom setting in which students are present and face-to-face with an instructor. Another is the virtual or online environment. The virtual environment is growing exponentially. Teachers have to find ways to reach children that they may not have thought of in the past due to increased testing and accountability standards. Many parents also choose to place their children in the virtual setting for various reasons. For whatever reason, the virtual environment is becoming popular in the K-12 setting (Archambault & Crippen, 2009).

This study measured the sense of community for middle school students in the traditional environment versus the virtual environment. Literature can be found regarding students' sense

of community within the traditional classroom environment. However, very little literature can be found regarding a sense of community for virtual students in the K-12 setting, in particular the middle school setting. This research not only addressed the gap within this literature, but it also provided authentic information that individuals may be able to utilize to plan what is best for students today should they decide to go to a virtual environment or remain within the traditional setting. Research cannot be found that specifically compares middle school students in both of these settings; therefore, which setting yields a stronger sense of community for these middle school students is not empirically known at this time.

In education, we constantly seek to find new and better ways to reach the children we serve. We always try to meet social, emotional, and academic needs. This study provided information as to whether there is a variance in students' feelings of community in the traditional versus the virtual environment. This information is important in society today because the virtual environment is becoming more and more prevalent in education and is growing toward younger children. Belonging has been demonstrated to support students' motivation and engagement, and there is evidence that belonging mediates (accounts for or explains) the relationship between motivation and achievement, suggesting that it serves as an essential underlying experience for engaged, achievement-related behavior (Faircloth & Hamm, 2011).

CHAPTER THREE: METHOD

Design

A non-experimental, causal-comparative design was used for this study. In causal-comparative studies, the researcher identifies an independent variable based on how two groups differ, either based on an experience or characteristic. The independent variable cannot be manipulated. Then, the dependent variable is identified or is impacted in some way (Gall, Gall, & Borg, 2007). This study explored an educational phenomenon, students' sense of community, through the study of the differences between two environments. Students' feelings of community served as the dependent variable, and the independent variables were the two different learning environments a virtual classroom setting and a traditional, brick-and-mortar setting. The data for this study were collected through the Sense of Community Index 2 (SCI-2) (Chavis et al., 2008a). The participants of this study were already enrolled in the two different types of classes. Therefore, random assignment or manipulation of the variables was not possible. This study was similar to Rovai and Jordan's, (2004) study; however, middle school students were used rather than college students. Gall et al. (2007) pointed out that causal-comparative research is nonexperimental in nature, whereby the researcher tries to identify or establish a possible cause-effect relationship. The independent variable is not manipulated so that the effects on the dependent variable can be measured. The causal-comparative research design does not allow for a strong cause-and-effect conclusion; however, it is useful for an initial investigation in which manipulation of the independent variable is not possible (Gall et al., 2007). This design is appropriate for the study, as there was an investigation to see if there were significant differences in students' feelings of community in the virtual versus traditional classroom setting.

Research Question

The research question for this study was:

RQ: Is there a significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment?

Null Hypothesis

The null hypothesis for this study was:

H₀: There is no significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment.

Sub-Null Hypotheses (Post Hoc)

The sub-null hypotheses (post hoc) for this study were:

H_{01 sub}: There is no significant difference in the feeling of a reinforcement of needs in traditional middle school students over virtual middle school students.

H_{02 sub}: There is no significant difference in the feeling of membership in traditional middle school students over virtual middle school students.

H_{03 sub}: There is no significant difference in the feeling of influence in traditional middle school students over virtual middle school students.

H_{04 sub}: There is no significant difference in the shared emotional connections in traditional middle school students over virtual middle school students.

Participants and Setting

The population for this study consisted of a convenience sample of middle school students in seventh grade, ranging in age from 12 to 13 years. Convenience samples are defined as those that are chosen due to the accessibility and access to the group being examined (Gall et al., 2007). A convenience sample was chosen for this study because this was the only

reasonable means to examine the population of a middle school-age student in the school setting, and the access that was readily available to the researcher and the familiarity of the researcher to this population in these settings and sites. The limitation to this sample was that the sample was not randomly drawn from the population at large.

One middle school was located in southeastern Virginia, while the other middle school was operated statewide in Tennessee. Access was available to the public school division in Virginia that offered the traditional setting; however, a population of students large enough for the study could not be found in Virginia at the middle school age level for the virtual setting. The school district in Virginia was in a middle-to-upper income community and had an enrollment of approximately 560 students. The school in Tennessee had a total population of approximately 800 students. The virtual school was a well-known virtual institution that serves students in grades K-12. Some of the students were schooled at home, and some were enrolled through a public school division but took online courses.

A convenience sample of 138 students were utilized, including 78 traditional setting students and 60 virtual setting students. This sample size was large enough to give quality information without reaching saturation points. Warner (2013) recommended a group size of 42-54 participants for a medium effect size at the .05 alpha level for a medium effect size of .70. Causal comparative studies should have a minimum of 30 participants in each group (Gall et al., 2007). Creswell (2014) contended that sample sizes in quantitative research should not be so small that it is difficult to achieve data saturation, theoretical saturation, or informational redundancy; however, the sample should not be too large to undertake a deep, case-oriented analysis. Therefore, the sample size of 60-80 in each group well exceeded these recommendations.

Demographic items were included on the survey for data analysis purposes. These items included the students' grade level, ethnicity, and gender. The sample included 138 students, 72 males and 66 females. All of these students were between 12 and 13 years of age and in the seventh grade. There were 96 white students, 12 black students, six Hispanic students, zero Asian students, and 24 students that classified themselves as other that were surveyed.

The online group consisted of 60 students, 30 males and 30 females, and all of these students were between 12 and 13 years of age in the seventh grade. There were 42 white students, six black students, zero Hispanic students, zero Asian students, and 12 students that classified themselves as other that were surveyed. The traditional group consisted of 78 students, 42 males and 36 females, and all of these students were between 12 and 13 years of age in the seventh grade. There were 54 white students, six black students, six Hispanic students, zero Asian students, and 12 students that classified themselves as other that were surveyed.

All of the courses taught in both of these institutions met the standards that each state has established regarding the curriculum in the standards of quality. The students from both sites participated in English, mathematics, science, social studies, and elective classes. The elective classes varied per student, but were classes such as technology or art classes.

Instrumentation

The Sense of Community Index 2 (SCI-2) (see Appendix C) was used to collect data (Chavis et al., 2008a) to measure students' feelings of community, the dependent variable. The different learning environments, a virtual classroom setting and a traditional, brick-and-mortar setting, comprised the independent variable. The SCI-2 measures the overall sense of community in each group of students as well as the students' feelings of reinforcement of needs, membership, influence, and shared emotional connections (Chavis et al., 2008b). This scale is

one of the most frequently utilized quantitative measures of a sense of community within the social science realm (Chavis et al., 2008b). Abfalter, Zaglia, and Mueller (2012) specifically linked this instrument to the educational setting and the virtual community. Reich (2010) recommended the utilization of the SCI-2 with adolescents as a means to gain information utilizing a normed instrument.

Obst, Zinkiewicz, and Smith (2002) linked the SCI-2 to both the geographical and the relational aspects of a sense of community. This instrument uses a 24-item Likert type scale and has been revised from original versions. The revision made the scale both a reliable and valid instrument. Chavis et al. (2008a) described the reliability of the instrument by stating, “The analysis of the SCI-2 showed that it is a very reliable measure (coefficient alpha = .94). The subscales also proved to be reliable with coefficient alpha scores of .79 to .86” (p. 1). The Cronbach alpha levels ranged from .80 to .84 (Obst & White, 2004, p. 697). Chavis, Lee, and Acosta (2008b) also found the SCI-2 to be a valid instrument. Construct validity was determined via confirmatory factor analysis. The correlation with life satisfaction was .320 ($p \leq .01$), the correlation with civic and political participation was .315 ($p \leq .01$), and the correlation with cultural and social participation was .381 ($p \leq .01$). Chavis et al. (2008b) determined that the SCI-2 to be reliable and valid across cultures, languages, and settings. This questionnaire was administered to the students via an online format in which all students logged on and completed the survey.

Students responded with either “Not at All,” “Somewhat,” “Mostly,” or “Completely” to each question asked. Scores were established as 0 for “Not at All,” 1 for “Somewhat,” 2 for “Mostly,” and 3 for “Completely.” Each subscale received a numerical score, as did the entire scale. Each subscale score was calculated utilizing the 0 to 3 scale for each question of the

survey. These scores determined the results from the scale. The range of scores for the entire instrument is 0 to 72. A score of 0 to 12 would indicate that the individual has no feeling of community, a score of 13 to 36 would indicate that the individual has somewhat of a feeling of community, a score of 37 to 60 would indicate that the individual mostly has a feeling of community, and a score of 61 to 72 would indicate that the individual has a complete feeling of community.

The range of scores for each subscale in the instrument is 0 to 18. A score of 0 to 3 would indicate that the individual has no feeling of community, a score of 4 to 9 would indicate that the individual has somewhat of a feeling of community, a score of 10 to 15 would indicate that the individual mostly has a feeling of community, and a score of 15 to 18 would indicate that the individual has a complete feeling of community. The only change made in the administration of the scale was that a definition of the “community” had to be given, and this was defined as the learning environment component of this study. This was permissible and advisable by the instructions of the survey. The survey took the students approximately 5 to 10 minutes to complete and was completed over the time period of a week. Permission to use the SCI-2 is embedded within the directions of the survey (see Appendix C for permission to use the instrument).

Many different studies have utilized the Sense of Community Index 2 as a scale to determine the psychological sense of community. Pretty, Conroy, Dugay, Fowler, and Williams (1996) interviewed 13- to 18-year-old adolescent children and also used the SCI-2 to determine both neighborhood and school scores for the children’s psychological sense of community. Pretty et al. (1996) found older children’s Sense of Community Index 2 scores to be significantly lower, which translated into a lower psychological sense of community. Pretty (1990) conducted

a study utilizing the Sense of Community Index to investigate the psychological sense of community and social climate factors. She found that perceived psychological sense of community is associated with interpersonal networks and support.

Procedures

The first step of this study was to obtain permission from the superintendent of the public school system for the middle school and permission from the principal of the virtual school. A superintendent does not supervise the virtual school; someone acting in the capacity of principal administers the school. Institutional Review Board (IRB) approval was then sought. The supervisor of the virtual school emailed parents of all students in the school a letter describing the study (see Appendix D), a recruitment letter (see Appendix F), and the informed consent letter (see Appendix B). Likewise, the principal of the public school gave all students a hard copy of the letter describing the study (see Appendix D), a recruitment letter (see Appendix E), and the informed consent form (see Appendix B) to take home for parent review. Parents of virtual school students replied to the email that the supervisor sent, giving permission for the student to participate in the study. Parents of students attending the traditional school signed a hard copy of the informed consent letter, and students returned it to the principal of the school. Students were given two weeks to return informed consent letters. Once informed consent letters were returned, the survey was distributed via Survey Monkey to those students whose parents consented to their participation in the study. Prior to taking the survey the students, were given assent letters (see Appendix C) to sign if they wanted to opt out of the survey. Students at the virtual school received an email containing a link to the survey (Appendix G) from the supervisor of the virtual school. They clicked on a link to access the survey and complete the questions. Students attending the traditional school completed the survey online via Survey

Monkey as well; however, they completed the survey in the school computer lab (see Appendix H for instructions). Teachers took the students to the computer lab from their math classes. They typed the direct link to the survey into the browser and then completed the survey. After the scale was administered to all participants, the results were calculated and analyzed.

Data Analysis

Once the surveys were complete, results were downloaded from the Survey Monkey website. Surveys were reviewed for completeness; those with missing items were discarded. An overall sense of community score was calculated along with individual score for each area: feelings of reinforcement of needs, membership, influence, and shared emotional connections (Chavis et al., 2008b). Assumption tests were conducted for outliers, normality, multivariate normal distribution, homogeneity of variance-covariance matrices, and absence of multicollinearity. First, the presence of extreme outliers was checked by using a box and whisker plot, which explains data by showing how spread out the data points are in the sample. Next, using SPSS, the assumption of normality was checked with the Kolmogorov-Smirnov test, which tests to see if the data come from a normally distributed population. If the significance value is less than .05, the assumption would not be met, indicating the data are not from a normally distributed population, or are not normal (Laerd Statistics, 2015). The assumption of a multivariate normal distribution was checked with a scatterplot matrix for each group of the independent variables, the virtual classroom setting and the traditional brick-and-mortar setting. The scatterplot matrix was utilized to check for a linear correlation between the dependent and independent variables by drawing a regression line (Howell et al., 2011). Each of the dependent variables, reinforcement of needs, membership, influence, shared emotional connection, and the overall feeling of community, should have a linear relationship. The assumption of homogeneity

of variance-covariance matrices was checked. This was accomplished via Boxes M test of equality of covariance, determined if the covariance matrices were equal. Boxes M is significant at $\alpha < 0.001$ (Howell, 2011). Absence of multicollinearity was also checked by determining whether the dependent variables were moderately related using a Pearson Product Moment test. The dependent variables should all be moderately related, but any correlation over .80 presents a concern for multicollinearity.

There was also an assumption that all observations were independent of one another (Howell, 2011). This same procedure was utilized in order to determine the result of each hypothesis. A one-way MANOVA with an $\alpha \leq .05$ level was utilized in order to determine whether there was a statistically significant difference between the domain scores (a) the cumulative feeling of community, (b) the reinforcement of needs, (c) the feeling of membership, (d) influence, and (e) a shared emotional connection, as well as overall scores of students in the two groups (virtual classroom or a traditional setting). The MANOVA for the subgroups was completed because statistical significance was found with the cumulative feeling of community. The one-way MANOVA was used to determine if there were significant differences between independent groups on more than one dependent variable (Gall et al., 2007). The analysis was utilized because the study has one independent variable with two groups: (a) the traditional and (b) the virtual setting, and five related dependent variables: (a) the cumulative feeling of community, (b) the reinforcement of needs, (c) the feeling of membership, (d) influence, and (e) a shared emotional connection (Gall et al., 2007). The MANOVA assisted in determining whether the independent variable (school setting) had an effect on the dependent variables (student sense of community, domains, and overall). The variables were analyzed by statistically measuring whether or not the dependent variables differed between the independent variable

groups (Creswell, 2007). Wilks' Lambda test was used to determine statistical significance of the MANOVA. This test examined the study to ensure that there was no difference in the means of the dependent variables for the various groups formed by the independent variables (Creswell, 2007). The MANOVA displayed statistical significance, so post hoc analyses were completed using a follow-up pairwise comparison Bonferroni method. The effect size was calculated using partial Eta squared to determine the magnitude of the effect of the dependent variables upon the independent variables (Morgan, Reichert, & Harrison, 2002).

CHAPTER FOUR: FINDINGS

Research Question

The research question for this study was:

RQ: Is there a significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment?

Null Hypothesis

The null hypothesis for this study was:

H₀: There is no significant difference in middle school students' sense of community in the virtual learning environment versus the traditional learning environment.

Sub-Null Hypotheses (Post Hoc)

H_{01sub}: There is no significant difference in the feeling of a reinforcement of needs in traditional middle school students over virtual middle school students.

H_{02sub}: There is no significant difference in the feeling of membership in traditional middle school students over virtual middle school students.

H_{03sub}: There is no significant difference in the feeling of influence in traditional middle school students over virtual middle school students.

H_{04sub}: There is no significant difference in the shared emotional connections in traditional middle school students over virtual middle school students.

Descriptive Statistics

Demographics of Sample

The descriptive statistics for both groups are included in this section. Each setting had a very similar number of participants and participants by gender. However, there was a disproportionate number of participants by ethnicity. The number of white students in both

settings far exceeded all other ethnic areas. The demographics of the sample are included in

Table 1.

Table 1

Demographics of Sample

Setting	Number of Participant s	Male	Female	White	Black	Hispanic	Other
Traditional Setting	78	42	36	54	6	6	12
Virtual Setting	60	30	30	42	6	0	12
Total	138	72	66	96	12	6	24

SCI-2 Scores

The range of possible scores for each question on the SCI-2 is 0-3. A score of 0 indicates no feeling of community, a score of 1 indicates somewhat of a feeling of community, a score of 2 indicates mostly a feeling of community, and a score of a 3 indicates a complete feeling of community. The average sense of community score reflects the score of the entire survey instrument while the average reinforcement of needs score, the average membership score, the average influence score, and the average shared emotional intelligence scores all reflect the average scores from each of the subgroups that make up the overall sense of community score. The average scores from each of these categories reflects which group, the traditional group or the virtual group, rated higher average scores, both on the instrument as a whole and in each of the subgroups the SCI-2 measured. The average scores for each of the categories of the SCI-2 were as follows in Table 2.

Table 2

Average Scores on Sense of Community Scale and Subscale

	Traditional Setting	Virtual Setting
Average Sense of Community Score	49.3	44.3
Average Reinforcement of Needs Score	12.2	12.8
Average Membership Score	13.4	10.1
Average Influence Score	11.2	10.9
Average Shared Emotional Connection Score	12.5	10.5

Overall sense of community. The overall sense of community descriptive statistics are as follows: virtual sense of community ($M = 1.80$, $SD = .76$, $N = 60$), traditional sense of community ($M = 2.15$, $SD = .54$, $N = 78$), and combined sense of community ($M = 2.00$, $SD = .66$, $N = 138$). These statistics reflect the average scores for each of the settings separately and combined by individual question for the overall sense of community. The overall sense of community descriptive statistics are included in Table 3.

Table 3

Overall Sense of Community Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>N</i>
Traditional Setting	2.15	.54	78
Virtual Setting	1.80	.76	60
Settings Combined	2.00	.66	138

Reinforcement of needs. The reinforcement of needs subgroup descriptive statistics were as follows: virtual reinforcement of needs ($M = 2.40$, $SD = .67$, $N = 60$), traditional reinforcement of needs ($M = 2.08$, $SD = .62$, $N = 78$), and combined reinforcement of needs ($M =$

2.22, $SD = .66$, $N = 138$). These statistics reflect the average scores for each of the settings separately and combined by individual question for the reinforcement of needs. The reinforcement of needs descriptive statistics are included in Table 4.

Table 4

Reinforcement of Needs Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>N</i>
Traditional Setting	2.08	.62	78
Virtual Setting	2.40	.67	60
Settings Combined	2.22	.66	138

Membership. The membership subgroup descriptive statistics are as follows: virtual membership ($M = 1.70$, $SD = .91$, $N = 60$), traditional membership ($M = 2.23$, $SD = .58$, $N = 78$), and combined membership ($M = 2.00$, $SD = .78$, $N = 138$). These statistics reflect the average scores for each of the settings separately and combined by individual question for membership. The membership descriptive statistics are included in Table 5.

Table 5

Membership Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>N</i>
Traditional Setting	2.23	.58	78
Virtual Setting	1.70	.91	60
Settings Combined	2.00	.78	138

Influence. The influence subgroup descriptive statistics are as follows: virtual influence ($M = 1.90$, $SD = .84$, $N = 60$), traditional influence ($M = 2.00$, $SD = .79$, $N = 78$), and combined influence ($M = 1.96$, $SD = .81$, $N = 138$). These statistics reflect the average scores for each of

the settings separately and combined by individual question for influence. The influence descriptive statistics are included in Table 6.

Table 6

Influence Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>N</i>
Traditional Setting	2.00	.79	78
Virtual Setting	1.90	.84	60
Settings Combined	1.96	.81	138

Shared Emotional Connection. The shared emotional connection descriptive statistics are as follows: virtual shared emotional connection ($M = 1.70$, $SD = .91$, $N = 60$), traditional shared emotional connection ($M = 2.31$, $SD = .46$, $N = 78$), and overall shared emotional connection ($M = 2.04$, $SD = .75$, $N = 138$). These statistics reflect the average scores for each of the settings separately and combined by individual question for a shared emotional connection.

The shared emotional connection descriptive statistics are included in Table 7.

Table 7

Shared Emotional Connection Descriptive Statistics

	<i>M</i>	<i>SD</i>	<i>N</i>
Traditional Setting	2.31	.46	78
Virtual Setting	1.70	.91	60
Settings Combined	2.04	.75	138

Results

Null Hypothesis

The null hypothesis is that there was no significant difference in middle school students' *sense of community* in the virtual learning environment versus the traditional learning

environment. Assumption tests were conducted for outliers, normality, multivariate normal distribution, homogeneity of variance-covariance matrices, and absence of multicollinearity. The first assumption of no extreme outliers was checked utilizing a box and whisker plot. There were no extreme outliers; therefore, the assumption that there are no extreme outliers was met. This is illustrated in Figure 1.

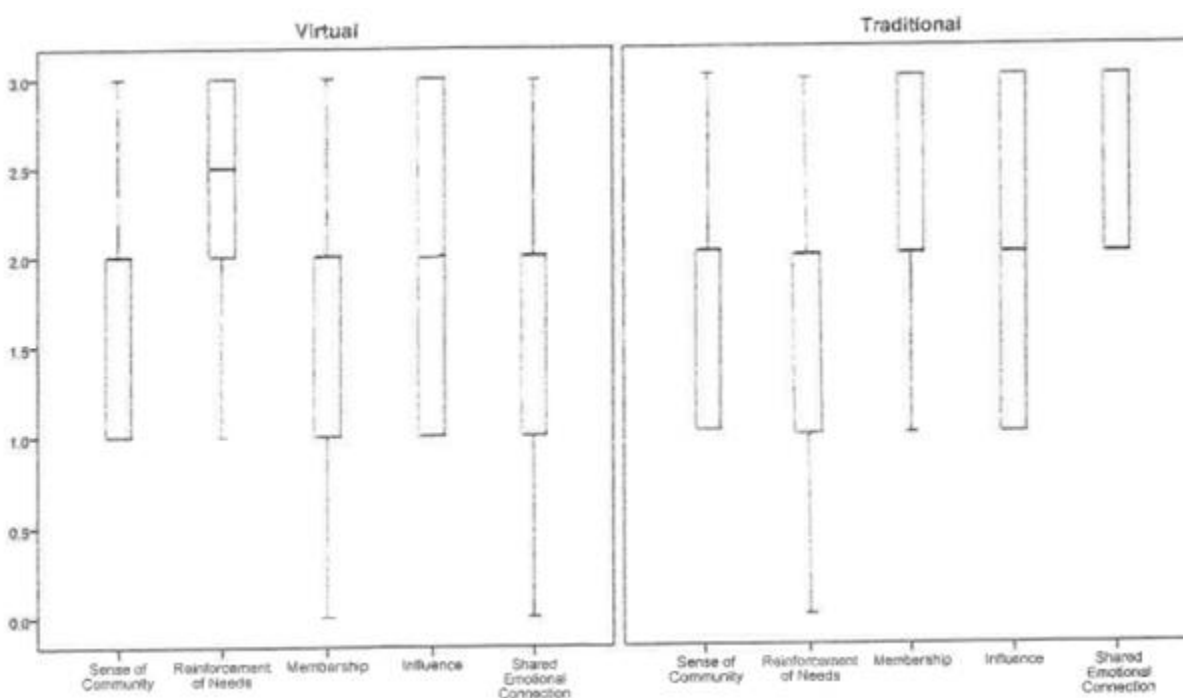


Figure 1. Box and whisker plot.

The next assumption that was checked was the assumption of normality. The Kolmogorov-Smirnov test was utilized to see if the data came from a normally distributed population because the sample size was over 50 individuals. This test yielded a significance level of $p = .061$ for the traditional environment and $p = .058$ for the virtual environment. Both of these values were over the significance value of $p \leq .05$. This is not a statistically significant difference; therefore, the assumption that the data came from a normally distributed population was met and is tenable. This is illustrated in Table 8.

Table 8

Kolmogorov-Smirnov Test

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
Traditional Setting	.382	60	.061
Virtual Setting	.255	78	.058

Multivariate normal distribution was the next assumption to be checked. A scatterplot matrix was developed to test this assumption. The scatterplot matrix yielded a linear relationship between each of the dependent variable groups. This assumption was met and is tenable. This is illustrated in Figure 2.

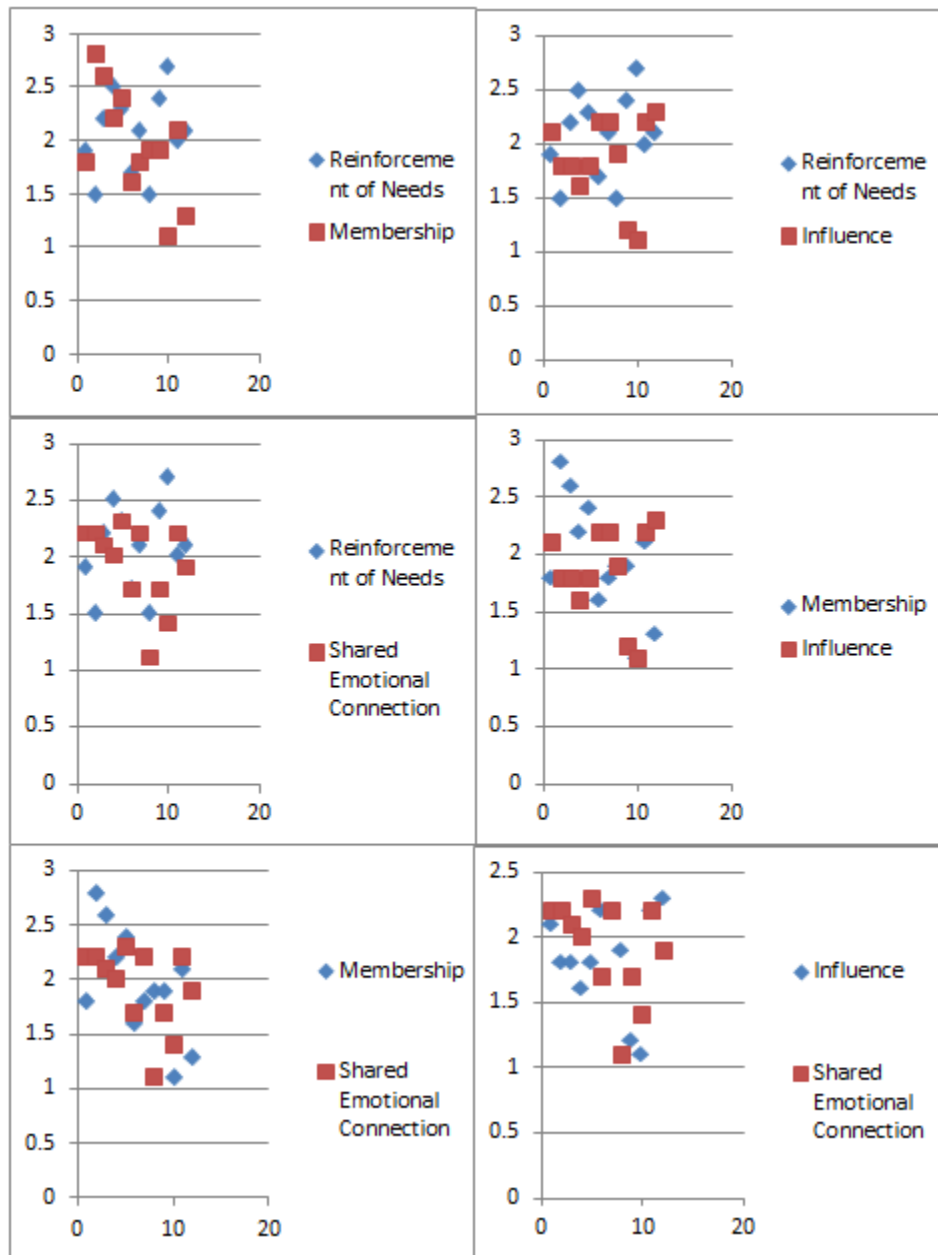


Figure 2. Scatterplot matrix.

Next, the assumption of homogeneity of variance-covariance matrices was checked by Boxes M test of equality of covariance. This test yielded a significance level of $p = .010$, which was over the significance value of $\alpha \leq .01$. This was not a statistically significant difference; therefore, the assumption of equal covariance matrices has been met and is tenable, as illustrated in Table 9.

Table 9

Boxes M Test of Equality of Covariance

Box's M	167.035
F	10.686
df1	15
df2	64506.928
Sig.	.010

The last assumption that was checked was for the absence of multicollinearity. The Pearson Product Moment Test was utilized to determine whether the dependent variables were moderately related by not having a Pearson Correlation $r \geq .80$. The Pearson Correlation variables were all moderately related and none of the variables values were $\geq .80$. The assumption of the absence of multicollinearity has been met and is tenable, as illustrated in Table 10.

Table 10

Pearson Product Moment Test

	Membershi p	Influenc e	Shared Emotional Connectio n	Reinforcemen t of Needs	Sense of Community
Membership					
Pearson Correlation	1	.691	.717	.679	.645
Sig. (2-tailed)		.000	.000	.000	.000
N	138	138	138	138	138
Influence					
Pearson Correlation	.691	1	.650	.593	.718
Sig. (2-tailed)	.000		.000	.000	.000
N	138	138	138	138	138
Shared Emotional Connection					
Pearson Correlation	.717	.650	1	.510	.679
Sig. (2-tailed)	.000	.000		.000	.000
N	138	138	138	138	138
Reinforcement of Needs					
Pearson Correlation	.679	.593	.510	1	.603
Sig. (2-tailed)	.000	.000	.000		.000
N	138	138	138	138	138
Sense of Community					
Pearson Correlation	.645	.718	.679	.603	1
Sig. (2-tailed)	.000	.000	.000	.000	
N	138	138	138	138	138

All of the assumption tests that were performed were met; therefore, utilizing a MANOVA for this study was acceptable. Following the assumption tests, a one-way MANOVA

with a significance level of $\alpha \leq .05$ was utilized to determine if statistical significance was present between the individual scores of the students' sense of community and the students in the virtual and the traditional setting. The Wilks' Lambda test was utilized to determine if there was statistical significance present with the MANOVA. The MANOVA was statistically significant, $F(5, 132) = 34.972, p = .000, Wilk's \lambda = .430, \eta_p^2 = .570$. There was significant evidence to reject the null hypothesis and conclude that there was a difference in the students' sense of community based upon the environment, virtual or traditional, and the overall sense of community scores between the two groups. The magnitude of the effect size for the MANOVA indicates a large effect. This is illustrated in Table 11.

Table 11

Wilks' Lambda Test

	Value	F	Hypothesis df	Error df	Sig.	η_p^2	Noncent. Parameter	Observed Power
Wilks' Lambda	.430	34.972	5.000	132.000	.000	.570	174.858	1.000

There was a significant difference somewhere between the groups; therefore, a post hoc analysis utilizing a pairwise comparison with the Bonferroni method was completed. This post hoc analysis gave a pairwise comparison to determine if there was a statistically significant difference in the two setting within each of the subgroups. The results of this comparison are shown in Table 12.

Table 12

Pairwise Comparison

Dependent Variable	Mean Differenc e	Std. Error	Sig.	95 % Conf. Int. for Diff.	
				Lower Bound	Upper Bound
Sense of Community	.354	.110	.002	.136	.571
Reinforcement of Needs	.323	.110	.004	.541	.105
Membership	.531	.127	.000	.280	.782
Influence	.100	.139	.474	.175	.375
Shared Emotional Connection	.608	.119	.000	.373	.843

Sub-Null Hypothesis One (Post Hoc)

Reinforcement of needs. The first sub-null hypothesis stated that there was no significant difference in the feeling of a reinforcement of needs in traditional middle school students over virtual middle school students. A significance level of $\alpha \leq .05$ was utilized to determine if statistical significance was present for the reinforcement of needs subgroup. The reinforcement of needs subgroup yielded a significance level of $p = .004$, with an effect size of $\eta_p^2 = .060$. This pairwise comparison in the reinforcement of needs subgroup in the virtual and the traditional environment was statistically significant. This statistical significance indicated that there was significant evidence to reject the first sub-null hypothesis and conclude that there was a difference in the students' feelings of reinforcement of needs based upon the environment,

virtual or traditional. The virtual group ($M = 2.40$, $SD = .67$) of students displayed a higher mean difference score over the traditional group ($M = 2.08$, $SD = .62$) of students. The magnitude of the effect size indicates a medium effect for this pairwise comparison. This is illustrated in Table 13.

Table 13

Reinforcement of Needs Pairwise Comparison

Dependent Variable	Mean Difference	Std. Error	Sig.	95 % Conf. Int. for Diff.	
				Lower Bound	Upper Bound
Reinforcement of Needs	.323	.110	.004	.541	.105

Sub-Null Hypothesis Two (Post Hoc)

Feeling of membership. The second sub-null hypothesis is that there is no significant difference in the feeling of membership in traditional middle school students over virtual middle school students. A significance level of $\alpha \leq .05$ was utilized to determine if statistical significance was present for the feeling of membership subgroup. The feeling of membership subgroup yielded a significance level of $p = .000$ with an effect size of $\eta_p^2 = .114$. This pairwise comparison in the feeling of membership subgroup in the virtual and the traditional environment is statistically significant. This statistical significance indicated that there was significant evidence to reject the second sub-null hypothesis and conclude that there was a difference in the students' feelings of membership based upon the environment, virtual or traditional. The traditional group ($M = 2.23$, $SD = .58$) of students displayed a higher mean difference score over

the virtual group ($M = 1.70$, $SD = .91$) of students. The magnitude of the effect size indicates a large effect for this pairwise comparison. This is illustrated in Table 14.

Table 14

Feeling of Membership Pairwise Comparison

Dependent Variable	Mean Difference	Std. Error	Sig.	95 % Conf. Int. for Diff.	
				Lower Bound	Upper Bound
Membership	.531	.127	.000	.280	.782

Sub-Null Hypothesis Three (Post Hoc)

Feeling of influence. The third sub-null hypothesis is that there is no significant difference in the feeling of influence in traditional middle school students over virtual middle school students. A significance level of $\alpha \leq .05$ was utilized to determine if statistical significance was present for the feeling of influence subgroup. The feeling of influence subgroup yielded a significance level of $p = .474$ with an effect size of $\eta_p^2 = .004$. This pairwise comparison in the feeling of influence subgroup in the virtual and the traditional environment was not statistically significant. This lack statistical significance indicated that the third sub-null hypothesis failed to be rejected and there was not a difference in the students' feelings of influence based upon the environment, virtual or traditional. The traditional group ($M = 2.00$,

$SD = .79$) of students displayed a higher mean difference score over the virtual group ($M = 1.90$, $SD = .84$) of students. The magnitude of the effect size indicates a small effect for this pairwise comparison. The difference in the feeling of influence could easily warrant further testing as it did not yield a statistically significant difference and also had a small effect size. This is illustrated in Table 15.

Table 15

Feeling of Influence Pairwise Comparison

Dependent Variable	Mean Difference	Std. Error	Sig.	95 % Conf. Int. for Diff.	
				Lower Bound	Upper Bound
Influence	.100	.139	.474	.175	.375

Sub-Null Hypothesis Four (Post Hoc)

Shared emotional connections. The fourth sub-null hypothesis is that there is no significant difference in the shared emotional connections in traditional middle school students over virtual middle school students. A significance level of $\alpha \leq .05$ was utilized to determine if statistical significance was present for the feeling of shared emotional connections subgroup. The feeling of shared emotional connections subgroup yielded a significance level of $p = .000$ with an effect size of $\eta_p^2 = .161$. This pairwise comparison in the feeling of shared emotional connections subgroup in the virtual and the traditional environment was statistically significant. This statistical significance indicated that there was significant evidence to reject the fourth sub-null hypothesis and conclude that there was a difference in the students' feelings of shared

emotional connections based upon the environment, virtual or traditional. The traditional group ($M = 2.31$, $SD = .75$) of students displayed a higher mean difference score than the virtual group ($M = 1.70$, $SD = .91$) of students. The magnitude of the effect size indicated a large effect for this pairwise comparison. This is illustrated in Table 16.

Table 16

Shared Emotional Connections Pairwise Comparison

Dependent Variable	Mean Difference	Std.Error	Sig.	95 % Conf. Int. for Diff.	
				Lower Bound	Upper Bound
Shared Emotional Connection	.608	.119	.000	.373	.843

CHAPTER FIVE: DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Discussion

The purpose of this quantitative, causal comparative study was to examine if there was a statistically significant difference in middle school students' sense of community in the virtual learning environment as compared to the traditional learning environment. McMillan and Chavis (1986) defined sense of community as "a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together" (p. 4). The sense of community theory consists of four different elements: membership, influence, reinforcement, and shared emotional connections (McMillan & Chavis, 1986). This study focused on the relational aspects of the sense of community.

Null Hypothesis

Overall sense of community. The research hypothesis was that there is no significant difference in the feeling of an overall sense of community in traditional middle school students over virtual middle school students. The data showed that there was significant evidence to reject the null hypothesis and concluded that there was a difference in the students' sense of community based upon the environment, virtual or traditional. The MANOVA was statistically significant, $F(5, 132) = 34.972, p = .000, \text{Wilks}'\lambda = .430, \eta_p^2 = .570$.

The data indicate that both the traditional and the virtual groups of students rated in the category of "mostly" feeling a sense of community. However, the students who participate in the traditional classroom environment had higher overall average scores, showing a stronger sense of community than those in the virtual classroom environment. The average total score on

the survey for the traditional students was 49.3 while the average total score for the virtual students was 44.3.

Faircloth and Hamm (2011) found that interactive and supportive environments helped to cultivate a sense of community among students, and that would, in turn, foster more success. The results of this study also buttressed this contention based on the overall individual scores. The traditional environment, which is more interactive, ranked higher than virtual environment on the overall mean scores. Relationships are a critical component in the development of children, in particular at the middle school age level (National Middle School Association, 2010). The results of the current study align with this same idea based upon the average total scores of each individual area. The traditional environment, which provides more direct support, yielded a higher score than the virtual environment, which provides less direct support.

The relationships that the students establish while at school, both student-student and student-teacher, help to develop the students' sense of community within the educational setting (Ellerbrock & Kiefer, 2014). This study demonstrated that the students in the traditional environment showed a higher individual sense of community; the relationships that they formed on a daily basis while at school with both teachers and other students helped to shape their feelings of a sense of community. Student perceptions regarding belonging while in school have a direct correlation to positive social, academic, and psychological factors (Nichols, 2008). Students feeling a sense of community in the educational environment has a positive correlation with academic achievement, expectancies for school success, academic efficacy, engagement, and motivation (Ellerbrock & Kiefer, 2014). The results of the current study also align with this same idea based on the overall sense of community scores and the traditional environment scoring higher than the virtual environment. The traditional classroom setting provided a higher

average score on the SCI-2 than the virtual classroom setting. This area of relationships directly correlates to the student-teacher and student-student relationships that are established in the traditional environment.

The data for each of these groups of students indicated that they both mostly felt a sense of community while in the educational setting. This sense of community with these groups of students translates to a greater likelihood of overall academic success and more positive school experiences (Ellerbrock & Kiefer, 2014). Ellerbrock and Kiefer (2014) found that when students have a higher sense of community while in the educational setting, they are much more likely to have a greater level of overall academic success and more positive school experiences. The study found that the traditional students would have a slightly greater likelihood of the feeling of a sense of community; therefore, they would have a slightly greater likelihood of seeing success in the educational setting.

Ellerbrock and Kiefer (2014) conducted a study on student connectedness, which helped to promote a sense of community while physically at school. The study found that relationships played an important role in meeting student needs while at school and that these relationships fostered a sense of community at the middle level (Ellerbrock & Kiefer, 2014). As stated earlier, the traditional setting students displayed a higher mean sense of community score. The daily interactions that these students have give them the opportunity to forge stronger relationships with their individual teachers on a daily basis. Garza et al. (2014) also conducted a study that examined teacher-student relationships and the impact of these relationships on the student. The Garza et al. (2014) study found that positive relationships and a sense of community assists with student engagement in the classroom and promotes learning overall.

Sub-Null Hypothesis One (Post Hoc)

Feeling of reinforcement. The first sub-null hypothesis was that there is no significant difference in the feeling of a reinforcement of needs in traditional middle school students over virtual middle school students. The reinforcement of needs subgroup yielded a significance level of $p = .004$ with an effect size of $\eta_p^2 = .060$. This pairwise comparison in the reinforcement of needs subgroup in the virtual and the traditional environment is statistically significant. This statistical significance indicates that there is significant evidence to reject the first sub-null hypothesis and conclude that there is a difference in the students' feelings of reinforcement of needs based upon the environment, virtual or traditional.

The data indicate that both the traditional and the virtual groups of students rated in the category of “mostly” feeling a reinforcement of needs. However, the students who participated in the virtual classroom environment have higher average scores, showing a stronger feeling of reinforcement of needs than those in the traditional classroom environment. The average reinforcement of needs score on the survey for the traditional students was a 12.2, while the average total score for the virtual students was 12.8.

The students feeling a reinforcement of needs is “the feeling that members’ needs will be met by the resources received through their membership in the group” (McMillan & Chavis, 1986, p. 9). This idea behind the sense of community theory revolves around groups of individuals maintaining a positive sense of togetherness and the individual-group relationship being rewarding for members (McMillan & Chavis, 1986). Even though the overall sense of community score was greater for the traditional students, the virtual students have a more specifically defined group which participates together, and this group has been together in their virtual cohort for several years. Group membership is an important factor in the reinforcement of needs domain scoring higher for the virtual students.

In a study conducted by Harvey et al. (2014), it was found that students were satisfied with the amount of interaction that was held between peer groups and the interaction and support from the teachers. In Kerr's (2005) study, she found that developing a learning community in virtual education was essential for success. Virtual school settings have designed and structured courses around this idea so virtual groups of students could easily feel more of a reinforcement of needs with the one another. This aligns with the results from the current study in regard to the reinforcement of needs score from the SCI-2. The virtual classroom setting yielded a higher score than the traditional classroom setting.

Sub-Null Hypothesis Two (Post Hoc)

Feeling of membership. The second sub-null hypothesis is that there is no significant difference in the feeling of membership in traditional middle school students and virtual middle school students. The feeling of membership subgroup yielded a significance level of $p = .000$ with an effect size of $\eta_p^2 = .114$. This pairwise comparison in the feeling of membership subgroup in the virtual and the traditional environment is statistically significant. This statistical significance indicates that there is significant evidence to reject the second sub-null hypothesis and conclude that there is a difference in the students' feelings of membership based upon the environment, virtual or traditional.

The data indicate that both the traditional and the virtual groups of students responded in the category of "mostly" for a feeling of membership. However, the students who participate in the traditional classroom environment had higher average scores, showing a stronger feeling of membership than those in the virtual classroom environment. The average membership score on the survey for the traditional students was a 13.4, while the average total score for the virtual students was 10.1.

The students feeling of membership is “the feeling of belonging or of sharing a sense of personal relatedness” (McMillan & Chavis, 1986, p. 9). Membership is a feeling of belonging or being a part of a greater group (McMillan & Chavis, 1986). Traditional students have a much greater amount of personal interaction with substantially more individuals on a daily basis. These students may not feel as connected with specified groups, but they do have more of a connection overall with the individuals with whom they interact daily. Constructive peer relationships and a powerful sense of community are both correlated with students’ feeling a positive sense of belonging while in school (Carlisle, 2011). The current study also supported this in regard to the average overall scores for membership on the SCI-2. The traditional classroom setting provided higher average scores than the virtual classroom setting. The traditional classroom students had a higher rate of personal interaction with peers and teachers daily, and this translated to a greater feeling of membership while at school.

Faircloth and Hamm (2011) found significance among peer group affiliations to school adjustment and also found that peer groups create a stronger sense of community among middle school–age children. This study shows that overall group affiliations are greater with the traditional students while specified group interactions were greater among virtual students. Drolet and Arcand (2013) found middle school–age children develop many relationships and establish peer networks, and these group membership interactions are critical components of developing a strong sense of community. The current study supports the idea of group affiliations being stronger in the traditional setting. The average scores for the feelings of membership were higher for the traditional setting than the virtual setting.

Sub-Null Hypothesis Three (Post Hoc)

Feeling of influence. The third sub-null hypothesis is that there is no significant difference in the feeling of influence in traditional middle school students and virtual middle school students. The feeling of influence subgroup yielded a significance level of $p = .474$ with an effect size of $\eta_p^2 = .004$. This pairwise comparison in the feeling of influence subgroup in the virtual and the traditional environment is not statistically significant. This lack of statistical significance indicates that the third sub-null hypothesis fails to be rejected and there is not a difference in the students' feelings of influence based upon the environment, virtual or traditional.

The data indicate that both the traditional and the virtual groups of students responded in the category of “mostly” with a feeling of influence. The students who participate in the traditional classroom environment have slightly higher average scores, showing a stronger feeling of influence than those in the virtual classroom environment; however, the difference in the two scores is very minor. The average influence score on the survey for the traditional students was a 11.2, while the average total score for the virtual students was 10.9. The area of influence is the only variable studied that did not indicate statistical significance.

The students feeling of influence is “a sense of mattering, of making a difference to a group and of the group mattering to its members” (McMillan & Chavis, 1986, p. 9). Individuals make personal investments in the influence domain. Virtual students were shown to have higher reinforcement of needs scores, which primarily dealt with more individualized groups; traditional students had higher membership scores, which primarily dealt with groups on a larger scale. All students, particularly at the middle school–age level, have a desire to make a difference to the group. Cameron et al. (2009) examined the relationship between social tasks and a sense of

community within online group work. Cameron et al. (2009) found that the scaffolding of online group processes was very important to community building and student learning. This contention was supported by the scores from this subgroup in the current study in that they were almost equal and had closer scores than any of the other comparisons. Barbour (2012) found that virtual students felt a lower sense of community within classes; however, they did feel a stronger sense of community with those students that were enrolled within the same groups as themselves. This contention is also supported by the current study.

Schaps (2009) found group interaction to be a vital component to feelings of membership and building a sense of community among students. Schaps (2009) went on to contend that supportive relationships among students, teachers, and parents are the center of a caring school community. Given the survey results for this subgroup, this appears to be valid for both the traditional and the virtual groups. A critical component to establishing a groups structure is the medium that both groups have, the teacher.

Sub-Null Hypothesis Four (Post Hoc)

Shared emotional connections. The fourth sub-null hypothesis is that there is no significant difference in the shared emotional connections in traditional middle school students and virtual middle school students. The feeling of shared emotional connections subgroup yielded a significance level of $p = .000$ with an effect size of $\eta_p^2 = .161$. This pairwise comparison in the feeling of shared emotional connections subgroup in the virtual and the traditional environment is statistically significant. This statistical significance indicates that there is significant evidence to reject the fourth sub-null hypothesis and conclude that there is a difference in the students' feelings of shared emotional connections based upon the environment, virtual or traditional.

The data indicate that both the traditional and the virtual groups of students responded in the category of “mostly” with a feeling of shared emotional connections. However, the students who participate in the traditional classroom environment have higher average scores, showing a stronger feeling of shared emotional connections than those in the virtual classroom environment. The average shared emotional connections score on the survey for the traditional students was a 12.5, while the average total score for the virtual students was 10.5.

The students feeling a shared emotional connection is “the commitment and belief that members have shared and will share history, common places, time together, and similar experiences” (McMillan & Chavis, 1986, p. 9). The traditional classroom setting is more advantageous for this subgroup. Generally speaking, students in the traditional setting have matriculated on throughout the years with one another; therefore, there is a much greater likelihood that they have a shared or similar history. This could also be true of the virtual setting; however, finding programs such as this that students would have been in consistently throughout their school careers is difficult.

Cemalcilar (2010) found social relationships were strongly associated with students’ positive feelings regarding school. These social relationships are ones that get stronger over time, and as students get to know each other over the years and interact daily, the relationships matter more and the students develop a history with one another. Students also develop emotional attachments to one another over time as they establish a history with one another. These emotional attachments become safe areas for students and give them more confidence to participate and more of a feeling that they matter (Fitzsimmons & Lanphar, 2011). The setup of the traditional school alone lends itself to these factors being more present so students can develop a stronger sense of a shared emotional connection.

Conclusions

Based upon the study that was conducted and the literature that was reviewed, the traditional classroom environment offers the best environment for middle school-aged students to cultivate a strong sense of community. Statistical significance was present that dealt with the overall sense of community among the traditional and the virtual students, rejecting the null hypothesis. Statistical significance was also present in three of four of the sub-null hypotheses, reinforcement of needs, membership, and shared emotional connections, rejecting these three of the four sub-null hypotheses. Statistical significance was not present with the influence sub-null hypothesis, failing to reject the sub-null hypothesis. The traditional classroom environment offered higher survey scores for the overall sense of community score, the membership subgroup, the influence subgroup, and the shared emotional connection subgroup. The virtual classroom environment offered higher survey scores in the reinforcement of needs subgroup.

Three factors stood out in the literature and the survey data. The first factor is the lack of statistical significance between the traditional and the virtual groups of students in the influence subgroup of the SCI-2. The survey scores buttress the contention that middle school-age students have a need in their individual development to matter to others and to be a part of the group. This subgroup was an outlier among the four due to the fact that middle school is a critical time in the physiological development of children; regardless of the environment, children this age have a need to matter to others.

The second factor that stood out was with the reinforcement of needs subgroup of the SCI-2. This subgroup was the only measured component of the survey in which the virtual environment scored higher than the traditional environment. The result occurred because the virtual environment setup is much more intentional in efforts to elicit a feeling of membership

with specific groups, or classes in this case. Resources are given specifically to the students in the virtual classes with the intention of cultivating group or class membership.

The third factor is that the traditional classroom environment offers the best setting for middle school-aged students to cultivate a strong sense of community in the educational setting. However, it is evident that a sense of community can be developed in both the traditional and the virtual environment. The virtual environment has to be very carefully planned and intentionally carried out in order to make the chance of developing a sense of community with this age group of children a reality.

Implications

Several implications can be drawn from this study. This study and the results from this study advanced the knowledge of the theory because there is a very limited amount of information regarding the Psychological Sense of Community Theory as it specifically relates to human relationships in the school setting. No information could be located that linked this theory to the educational setting specifically at the middle school level. This study gave an entirely new facet of information in the advancement of the Psychological Sense of Community Theory.

An area in which this study adds to the existing body of knowledge and helps to close the gap in literature is the determination if there is a difference in the connection that students and teachers have at the middle school age level in the virtual class environment as compared to the traditional class environment. The findings from this study imply that there is a significant difference in students' feelings of community in the two different settings. The students in the traditional setting felt more of a sense of community. However, both the traditional group of students and the virtual group of students did respond in the category of "mostly" feeling a sense

of community, which implies that students in both of these settings at this age level do have somewhat of a feeling of belonging at school.

The study also found that individual subgroups did have some variance in both significance and in which group that scored higher on the rating sheet. The subgroup of influence did not yield a statistically significant difference in the two different settings. The subgroup of reinforcement of needs rated higher in the virtual environment as compared to the traditional environment. This was the only rating with all of the factors studied where the virtual environment rated higher than the traditional environment. All of this information is significant because it provides more information regarding the sense of community with middle school students in the virtual setting and the traditional setting and gives more in-depth knowledge about these students.

Other pertinent information gained from this study that helps to close the gap in the literature and also helps practitioners is the fact that more relevant information is now added to the body of literature. Practitioners can utilize this information in order to fully meet the needs of the students that they serve. The area of virtual education is becoming much more prevalent in public education; however, there is very little information regarding virtual education at the middle school age level. This study gives information that allows practitioners to have more confidence in trying different ways to reach and engage more children. This study added to the body of literature and helped to close the gap in the literature in finding that the virtual classroom settings are appropriate for the middle school student regarding the sense of community. While the traditional setting did have a significantly higher rating, students in the virtual setting did respond that they “mostly” felt a sense of community.

This study also resulted in relevant information regarding basic needs pertaining to a sense of community being met in the virtual environment for middle school–age students. The data that contributed to the body of literature are that the basic needs for middle school–age students of reinforcing needs, the feeling of influence, the feeling of membership, and students having shared emotional connections is present. While the traditional setting did yield higher scores, with the exception of the reinforcement of needs subgroup, the study for the virtual setting did imply that the students still “mostly” felt a sense of community regarding these factors. Teachers in the traditional setting should make more of a concerted effort to reinforce of student needs, which requires students to feel a stronger sense of group membership. When the basic needs are met, higher order needs can be elicited in the classroom setting.

Limitations

Several limitations can be found in this study. Threats to external validity lie in the generalizability of the study results (Gall et al., 2007). Generalizability refers to the extent to which the results of the study could be practically generalized to the entire population from the sample population. To combat this limitation, the largest sample population that could be found was utilized for the study. This would, in turn, maximize the generalizability of the results of the study.

The next limitations are threats to internal validity. The first falls within participant non-accordance in following the appropriate survey guidelines or a failure to actually read the questions and give an appropriate response. To control this limitation, the guidelines were reviewed with the traditional participants directly before completing the survey, and the guidelines were clearly stated to the virtual participants in the literature immediately preceding the survey. The next limitation to internal validity came with the administration of the survey.

This limitation could sway the results of the entire study; to attempt to minimize this limitation, the individuals who administered the survey were trained in the same manner and all procedures were very clearly stated.

There are also limitations that could be considered threats inherent to the design of this study. The selection threat to validity is a concern to the internal validity of the study. Results do not account for those responses that were ignored or not answered by respondents. A concern also has to be noted within the results of the study: there are no statistical controls to address non-responses within the survey, so surveys that were not complete were discarded. The distribution of the students' ethnicity could also be considered a limitation, as both samples had a large percentage of white students and a limited number of non-white students in all other categories. The sample that was utilized can also be considered to be a limitation. Due to the nature and design of the study, a convenience sample had to be utilized rather than a random sample of students. Another limitation was the fact that the study had to be performed in two different school districts in order to get a sample large enough.

Recommendations for Future Research

There are a few different recommendations for future research that can be drawn from this study. The first recommendation comes directly from the study. The subgroup of influence, when students felt that they mattered to the group, for the middle school-age students did not yield a statistically significant difference between the traditional setting and the virtual setting. This subgroup should be further researched; it was the only variable within the entire study that did not yield statistically significant findings. While children in this age group are emotionally developing, this specific area could play a large factor in individual development, as the study indicated that the scores for each area, traditional and virtual, were almost identical.

The next recommendation for future research also came directly from the study. The subgroup of reinforcement of needs, the feeling that needs are met by membership in a group, was the only subgroup to yield higher results in the virtual environment than the traditional environment. The reason for this subgroup being an outlier from all of the other variables that were studied should be investigated further.

The last recommendations for future research are in the areas of student motivation and academic achievement of middle school–age students in the virtual and the traditional environment. This study’s results revealed that traditional students showed significantly more of a sense of community than the virtual students; however, both results showed that the students in both settings “mostly” have a sense of community in their individual setting. To close the gap in the literature to an even greater extent, the areas of student motivation and academic achievement should be researched to determine whether there is a difference between the virtual setting and the traditional setting in these areas. This research, coupled with the data gained from the feeling of a sense of community, would give a very thorough picture of the settings that are and are not successful as alternatives for middle school students.

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Appendix A: IRB Approval Letter

LIBERTY UNIVERSITY

INSTITUTIONAL REVIEW BOARD

March 24, 2016

Brandon Ratliff

IRB Approval 2462.032416: Differences in Sense of Community between Students in a Middle School Virtual Class Versus a Traditional Class

Dear Brandon,

We are pleased to inform you that your study has been approved by the Liberty IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,



Administrative Chair of Institutional Research
The Graduate School

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Appendix B: IRB Approved Informed Consent Letter

The Liberty University Institutional
Review Board has approved
this document for use from
3/24/16 to 3/23/17
Protocol # 2462.032416

CONSENT FORM

The Difference in a Sense of Community Feeling with Middle School Students in Virtual and Traditional Classes

Brandon Ratliff
Liberty University
School of Education

Your child is invited to be in a research study of middle school students' feelings of community in the traditional classroom and the virtual classroom. Your child was selected as a possible participant because of his/her current involvement, either in the traditional middle school classroom, or the virtual middle school classroom. I ask that you read this form and ask any questions you may have before allowing your child to be in the study.

This study is being conducted by Brandon Ratliff, a doctorate student in the School of Education at Liberty University.

Background Information:

The purpose of this study is to determine if there is a difference in middle school students' feelings of community (belongingness) in the traditional classroom and the virtual classroom.

Procedures:

If you agree for your child to be in this study, I would ask your child to do the following things: Complete the anonymous survey that will be provided electronically. This survey should only take 5 – 10 minutes to complete and no identifying information will either be asked for or taken. The survey is called the Sense of Community Index – 2 (SCI-2), which is a validated and reliable survey that has been well established over the years.

Risks and Benefits of being in the Study:

There is no more risk to participating in this survey/study than the participants would encounter in everyday life.

The benefits to participation are in the information that will be gained via this study. Individuals will not receive any direct benefit from participating in this study. Educators and parents may be able to gain information as to the most appropriate settings for students to participate in, in the educational process, so that students can receive the best education possible. This study will also provide information for an up and coming area, middle school students participating in virtual classes, and the appropriateness of these classes for students in this age group.

Compensation:

There will be no compensation provided for participation in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. There will be no

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Protocol # 2462.032416

personally identifying information taken with the participation in this study. All of the data that is received will be stored on a jump drive, which will be kept in a locking file cabinet in which the researcher will have the only access. The data from this study will be destroyed after a three year time period.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision of whether or not your child participates will not affect your or your child's current or future relations with Liberty University or your child's school, whether the virtual school or the traditional school. If you decide that your child may participate, your child is free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Brandon Ratliff. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [redacted]. The dissertation chair is Dr. [redacted].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Carter 134, Lynchburg, VA 24502 or email at [redacted].

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature of parent or guardian: _____ Date: _____

Signature of Investigator: [redacted] Date: 3/28/16

Appendix C: IRB Approved Assent Form

The Liberty University Institutional
Review Board has approved
this document for use from
3/24/16 to 3/23/17
Protocol # 2462.032416

Assent of Child to Participate in a Research Study

What is the name of the study and who is doing the study?

The name of this study is the Differences in Sense of Community between Students in a Middle School Virtual Class Versus a Traditional Class. Brandon Ratliff is the principle investigator for the study.

Why are we doing this study?

I am interested in studying the difference that 7th grade students feel in the sense of community (belongingness) in the traditional class setting versus the virtual classroom setting. The information gained from this study will help educators to better plan educational opportunities for children.

Why are we asking you to be in this study?

You are being asked to be in this research study because you are a 7th grade student at one of the research sites.

If you agree, what will happen?

If you are in this study you will complete a 5 minute 24 question survey electronically.

Do you have to be in this study?

No, you do not have to be in this study. If you want to be in this study, then tell the researcher. If you don't want to, it's OK to say no. The researcher will not be angry. You can say yes now and change your mind later. It's up to you.

Do you have any questions?

You can ask questions any time. You can ask now. You can ask later. You can talk to the researcher. If you do not understand something, please ask the researcher to explain it to you again.

Signing your name below means that you want to be in the study.

Signature of Child

Date

_____- Researcher - _____
Dr. _____- Dissertation Chair - _____

Liberty University Institutional Review Board,
1971 University Blvd, Carter 134, Lynchburg, VA 24515
or email at _____

Appendix D: Parent/Student Letter Describing the Study

Dear Parents/Guardians and Students:

My name is Brandon Ratliff, and I am conducting a research study to investigate the relationship between students' sense of community in the traditional classroom setting versus the virtual classroom setting with middle school age students. Students at a public middle school in Virginia and a virtual middle school in Tennessee will participate in this study. The students will complete the Sense of Community Index – 2 (SCI-2) in order to generate the data for the study. Results of this survey will be analyzed for the students' overall sense of community and the four subscales that make up this survey: reinforcement of needs, membership, influence, and shared emotional connection. Results will be reported and suggestions for future research provided. I have obtained permission to complete this study through the supervisor of each organization and through the Institutional Review Board of Liberty University.

Procedures:

If you consent for your student to participate in the study, they will be asked to complete an anonymous survey, called the Sense of Community Index-(SCI-2) that will be provided electronically via Survey Monkey. This survey should only take 5 – 10 minutes to complete, and no identifying information will either be asked for or taken. Teachers or administrators from the site that your student attends will administer the survey.

Students are not required to participate in this study, and there is no consequence for non-participation. All information that is gained from this study is confidential and no students or schools will be identified; all of this information is confidential. No student names or other identifying markers will be collected in the survey, only answers to the actual survey questions. There will be no compensation provided for participation in this study.

The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records.

Contacts and Questions:

The researcher conducting this study is Brandon Ratliff. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at [REDACTED], [REDACTED]. The dissertation chair is Dr. [REDACTED].

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24502 or email at [REDACTED]

Appendix E: Traditional Student Recruitment Letter

March 21, 2016

Dear Parent/Guardian:

As a graduate student in the education department at Liberty University, I am conducting research as part of the requirements for a Doctorate degree. The purpose of my research is to determine the difference in the sense of community that 7th grade students feel in the traditional classroom versus the virtual classroom, and I am writing to invite your child to participate in my study.

Participants in this study will be 7th grade students from a traditional middle school and a virtual middle school. If you are willing to allow your child to participate, your child will be asked to complete a 24 question survey. The survey is the Sense of Community Index – 2. It should take approximately 5 minutes for your child to complete and will be completed electronically on the SurveyMonkey website. Your child's participation will be completely anonymous, and no personal, identifying information will be required.

For your child to participate, return the consent document to your child's principal. A consent document will be sent home with your child one week before the survey administration. Please sign the consent document and return it to the principal within one week.

Sincerely,

Brandon Ratliff

Appendix F: Virtual Student Recruitment Letter

March 21, 2016

Dear Parent/Guardian:

As a graduate student in the education department at Liberty University, I am conducting research as part of the requirements for a Doctorate degree. The purpose of my research is to determine the difference in the sense of community that 7th grade students feel in the traditional classroom versus the virtual classroom, and I am writing to invite your child to participate in my study.

Participants in this study will be 7th grade students from a traditional middle school and a virtual middle school. If you are willing to allow your child to participate, your child will be asked to complete a 24 question survey. The survey is the Sense of Community Index – 2. It should take approximately 5 minutes for your child to complete and will be completed electronically on the SurveyMonkey website. Your child's participation will be completely anonymous, and no personal, identifying information will be required.

For your child to participate, reply to the email that your child's principal sends with a statement that you give consent for participation. A consent document will be emailed one week before the survey administration. Please reply to the principal to give consent within one week.

Sincerely,

Brandon Ratliff

Appendix G: SCI-2 Survey Instrument

<http://www.communityscience.com/pdfs/Sense%20of%20Community%20Index-2%28SCI-2%29.pdf>

Appendix H: SCI-2 Survey Instructions

Please respond to the following 24 questions regarding your feelings of community (feelings of belonging) in your classroom setting. You will either respond: Not at All, Somewhat, Mostly, or Completely. Each question asks how you feel about your community in relation to different aspects of the community as a whole. **You are answering the extent to which you feel you belong in your individual classroom setting for each question.** Please select the answer for each question that applies to you regarding your individual feelings