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## **“What’s happening?” Assessing the Sustainability of Virtual Professional Learning Communities on Social Media: A Quantitative Study of ‘Sense of Community’**

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To the Graduate Council:

I am submitting herewith a dissertation written by Matthew Hensley entitled ""What's happening?" Assessing the Sustainability of Virtual Professional Learning Communities on Social Media: A Quantitative Study of 'Sense of Community'." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Teacher Education.

Stewart Waters, Major Professor

We have read this dissertation and recommend its acceptance:

Stewart Waters, Pamela Angelle, Joshua Kenna, Joshua Rosenberg

Accepted for the Council:

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(Original signatures are on file with official student records.)

“What’s happening?”  
Assessing the Sustainability of Virtual Professional Learning Communities on Social  
Media: A Quantitative Study of ‘Sense of Community’

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Matthew Hensley  
May 2021

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## Abstract

While research has highlighted the multifaceted benefits of Twitter as an informal professional learning resource, there remains a lack of literature that adequately teases apart the dynamic underpinnings of these types of informal professional learning communities (Thacker, 2017; Visser et al., 2014). Greenhow & Gleason (2012) posited that there is a need to better understand Twitter's place within the education profession, as well as "how participants understand their experiences and place within the Twitter community and beyond" (p. 473).

Grounded in 'sense of community' theory, this study examined 'sense of community' as a construct supporting the #SSChat community's sustainability. Additionally, I endeavored to determine whether a statistically significant correlation existed between perceived SOC and sustainability of #SSChat community participants, and whether statistically significant correlations existed between each of the four independent SOC tenets and sustainability.

Findings from this study produced implications to inform future strategic planning efforts to strengthen the #SSChat community on Twitter. Moreover, they support the #SSChat as a viable form of social studies education professional development and have implications for similar social media-based informal professional learning communities, as well as the field of social studies education in general.

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## **Chapter 1**

### **Introduction**

*“Social media isn’t a fad, it’s a fundamental shift in the way we communicate.”*

- Erik Qualman, 2012

The long-standing adage that “teachers are lifelong learners” is quite fitting given that the profession places emphasis on continuous professional development. The professional learning experiences of teachers have been identified as fundamental components to improve student achievement in P-12 schooling (Ball & Cohen, 1999; Elmore, 2002; Thacker, 2017). For decades, a plethora of professional learning resources and scholarship have been produced and made available for teachers to refine and reinforce their craft (Borko, 2004; Desimone, 2009). Typically, they are made available in the form of professional development (PD) workshops and seminars where teachers are expected to attend, listen, and retain information being delivered with minimal engagement on their part (Borko, 2004; Desimone, 2009). Teachers are then expected to employ the newly learned pedagogical strategies and frameworks from their professional development within their respective content areas and classrooms (Borko, 2004; Desimone, 2009). Education researchers have questioned whether this passive approach to communicating professional learning is truly effective (Borko, 2004; Grant, 2003; Thacker, 2017). In fact, professional learning opportunities, specifically in the area of social studies education, have been criticized by teachers for being inadequate and lacking (Borko, 2004; Grant, 2003). The dearth of quality social studies teacher professional learning opportunities across the United States has been attributed to a lack of funding and importance placed on social studies professional development in comparison to other content areas such as literacy and mathematics (Grant, Swan, & Lee, 2012; Thacker, 2017).

In her 2017 study, Emma Thacker posited that with the marginalization of social studies professional learning opportunities, social studies teachers are likely seeking out professional learning beyond the traditional models of professional development provided by their schools and districts. Thus, she called for further exploration into social studies teachers' professional learning using a broader lens to analyze the possible manifestations of both formal and informal professional learning (Thacker, 2017). A major implication from Thacker's (2017) study was that "PD is where teachers are learning" (p.37). One manifestation that is of increasing interest is the initiation and development of informal online communities of learning by educators on social media platforms (Catlett, 2018; Carpenter & Krutka, 2014; Langhorst, 2015; Trust, Krutka, & Carpenter, 2016; Visser, Evering, & Barrett, 2014).

Social media are rapidly defining the modern culture across the globe as societies continue to adapt and evolve in the digital age. The global citizenry is becoming increasingly more dependent on these platforms' multimodal functionality as a means of staying connected, informed, entertained, or a combination of all three (Kwak Lee, Park, & Moon, 2010; Wojcik & Hughes, 2019). Users can communicate visually by editing and posting images on Instagram and SnapChat, and also creating and sharing videos on TikTok or YouTube. Additionally, users can microblog, update a personal status, share articles, images, meme's, gifs, and videos on Twitter, Facebook, and other social media. With a vast array of users, including the general public, professionals, celebrities, athletes, politicians, businesses, organizations, institutions, and other entities and networks making a social presence on these applications, social media platforms organically act as intersectional hubs for communication, entertainment, and news (Kwak et al., 2010; Waters & Hensley, 2019).

In 2019, Pew Research investigated social media use by U.S. adults and identified the most popular social media platforms in terms of active users. Perrin & Anderson (2019) found that YouTube was the most popular social media platform with 73% of U.S. adults reporting being active users followed by Facebook (69%), Instagram (37%), Pinterest (28%), Snapchat (24%), Twitter (22%), WhatsApp (20%), and Reddit (11%). While users of social media typically have accounts on multiple platforms, Pew Research also found that certain demographics of individuals were more likely to use certain social media platforms than others (Perrin & Anderson, 2019; Wojcik & Hughes, 2019). For example, Wojcik & Hughes (2019) further analyzed Perrin & Anderson's (2019) larger social media study to find that the 22% of identified Twitter users were unique in comparison to users of other social media platforms. Wojcik & Hughes (2019) found that while Twitter users were generally representative of the broader U.S. population, the demographic of Twitter users was actually more highly educated (most users possessing at least a bachelor's degree or higher) and had higher annual gross incomes than users of other social media platforms. While Twitter may not be the most popular of the social media outlets available in terms of active users (Wojcik & Hughes, 2019), the unanticipated activities and behaviors (e.g. posts, number of followers, retweets, likes, hashtag creation and use) taking place on Twitter, (Djick, 2011; Krutka, 2017; Wojcik & Hughes, 2019), have garnered attention, particularly in the realm of education research (Abe & Jordan, 2013; Carpenter & Krutka, 2014; Krutka, 2017; Trust et al., 2016).

Since its inception in 2006, Twitter has served as a virtual outlet for users to post (or tweet) their reactions to the broad question "What's Happening?" in real-time with a brief statement of 280 characters or less shared with followers (Wojcik & Hughes, 2019).

Over time, the number of users on Twitter has grown exponentially from a reported 50 million monthly users world-wide in 2009 (Visser et al., 2014; Rao, 2009) to nearly 321 million monthly users in 2019 (Wojcik & Hughes, 2019). Twitter's diverse user range coupled with its multimodal functionality (Kwak et al., 2010) potentially affords individual users the autonomy to form and join robust virtual social networks tailored to their interests and needs (Coleman, Rice, & Wright, 2018; Langhorst, 2015). Social networks have been characterized as any group or organizational affiliation with whom an individual can associate or identify with; they can be formed based on common interests, socio-economic status, education, political ideology, and other associations (Campbell, 2013). Under this definition, Twitter organically operates in the form of a virtual social network; that is, it permits users to communicate and transfer information similar to traditional face-to-face social networking except with the added amenity of being able to do so anytime and from nearly anywhere (Campbell, 2013; Lantz-Andersson, Lundin, & Selwyn; 2018; Visser et al., 2014; Yoakam, 2019). For example, networks related to education include users from around the globe interested in related topics such as teaching and learning, education policy, and socio-cultural issues related to school. These networks provide information and allow users to share ideas related to improving and furthering the field of education.

Education researchers exploring social media have investigated the potential value of Twitter as a virtual social network that enables and fosters informal professional learning for P-12 educators, specifically those teaching social studies (Catlett, 2018; Howard, 2019; Langhorst, 2015; Lantz-Andersson et al., 2018; Trust et al., 2016; Visser et al., 2014; Yoakam, 2019). On July 6, 2010, social studies teachers and pioneer users of teacher Twitter's #EdChat network, Ron Peck (@Ron\_Peck) and Greg Kulowiec (@gregkulowiec) established the #SSChat out of a

dialogue surrounding the need for social studies-specific discussions to support social studies teachers on Twitter (Krutka, 2017). The following week on July 12, 2010 the #SSChat hashtag was born and embedded in tweets for a chat related to technology integration in social studies (Krutka, 2017). Since the genesis of #SSChat, social studies teachers and scholars alike have established an informal, open professional learning community using the #SSChat hashtag. Members of this community actively and passively engage one another through information contribution and consumption to intentionally foster learning, collaboration, and support for social studies education and content anytime and anywhere (Carpenter & Krutka, 2014; Langhorst, 2015; Trust et al., 2016; Visser, et al., 2014). Teachers engaging in informal professional development communities, such as #SSChat find these learning opportunities to be more enriching and beneficial than traditional professional learning opportunities due to the self-directed nature, which allows teachers to better fulfill their individual needs via a more timely and convenient medium (Staudt Willet, 2019; Sturm & Quaynor, 2020; Visser, Evering, & Barrett, 2014).

### **Statement of the Problem**

While research has highlighted the multifaceted benefits of Twitter as an informal professional learning resource, there remains a lack of literature that adequately teases apart the dynamic underpinnings of these types of informal professional learning communities (Thacker, 2017; Visser et al., 2014). Greenhow & Gleason (2012) posited that there is a need to better understand Twitter's place within the education profession, as well as "how participants understand their experiences and place within the Twitter community and beyond" (p. 473). Additionally, there is a dearth of literature that supports whether or not informal professional

learning communities, such as the #SSChat are sustainable (Abfalter, Zaglia, & Mueller, 2012; Howard, 2019). Sustainability is a key characteristic of professional learning as it speaks to the overall cohesiveness and strength of the community (Darling-Hammond, 2009). It can be identified through critical behaviors such as information contribution and consumption, self-disclosure, and intention to leave the community (Bateman, Gray, & Butler, 201; Mamonov et al., 2016). Sustainability may also translate into more specific behaviors, such as collaboration after the initial professional development and through the development of a shared repertoire of practices to be drawn upon at a later time (Darling-Hammond et al., 2017; Lave & Wenger, 1991).

Understanding the relationship between sustainability and ‘sense of community’ (SOC) on virtual social networks is worthwhile because the relationship is a robust indicator of the virtual community’s overall viability and strength (Mamonov, Koufaris, Benbunan-Fich, 2016). Until this point, research involving virtual social networks has mainly highlighted behavioral factors such as participation within the community (Mamonov et al., 2016). From there, research evolved into focusing on attitudinal factors, such as commitment, and attachment to the virtual community (Mamonov et al., 2016). Assessing the sustainability of online virtual networks using the ‘sense of community’ framework is insightful as ‘sense of community’ plays a motivational role that is positively and significantly related to the critical behaviors associated with sustainability (e.g. information contribution, information consumption, and self-disclosure, and intent to leave the community) (Bateman, Gray, & Butler, 2010; Mamonov et al., 2016). By assessing the sustainability of the #SSChat and the potential impact that the SOC tenets on sustainability, perhaps it will contribute to the understanding overall strength, viability, and



legitimacy of the virtual learning community as a professional learning and development resource for social studies teachers.

Visser et al. (2014) point out, some administrators are reluctant to accept involvement in Twitter communities as a sufficient form of teacher professional development due to no indication of its viability and sustainability, thus they do not readily recommend their teachers to take part in this. Research should contribute to the conversation regarding whether online learning communities, like #SSChat possess foundational tenets of professional learning communities i.e. content collaboration and sustained duration through mutual relationships (Darling -Hammond et al., 2017; Lave & Wenger, 1991), which are key to a transformation or enhancement of classroom practice (Darling -Hammond et al., 2017; Lave & Wenger, 1991; Visser et al., 2014).

The problem(s) highlighted in this study is that there is a need to better understand the dynamic underpinnings and foundations of informal virtual learning communities for social studies educators (Thacker, 2017) and whether they are sustainable (Abfalter et al., 2012). Thus, this dissertation explored one manifestation of professional learning that is of increasing interest, the #SSChat community on Twitter. The #SSChat has been described as a virtual learning community where teachers can actively and passively engage with one another to foster open discussions related to social studies education (Carpenter & Krutka, 2014; Langhorst, 2015; Trust et al., 2016); thus, I sought to investigate whether a correlation exists between perceived ‘sense of community’ and sustainability to determine the #SSChat communities’ general viability as a resource for social studies teacher PD. Since this dissertation investigated the dynamics of a learning community, specifically by measuring the ‘sense of community’ of the

#SSChat participants, this study was appropriately grounded and informed by Chavis' & McMillan's (1986) Sense of Community theoretical framework.

These gaps in the research are salient problems to be addressed, especially as manuscripts advocating for the use of social media to inform teachers' professional practices continue to proliferate (e.g. Abe & Jordan, 2013; Catlett, 2018; Carpenter & Krutka, 2014; Kenna & Hensley, 2018; Langhorst, 2015; Trust et al., 2016; Waters & Hensley, 2019). In a nomological sense, the behaviors and participants of #SSChat emulate many of the same characteristics as face-to-face professional learning communities (PLCs) (Carpenter & Krutka, 2014; Krutka, 2017; Staudt Willet, 2019; Sturm & Quaynor, 2020). Thus, evaluating and measuring the #SSChat participants' 'sense of community', which includes the constructs of feeling and recognition of membership, influence, integration and fulfilment of needs, and shared emotional connection (McMillan & Chavis, 1986) is a reasonable place to begin unpacking this phenomenon and potentially determine if the 'sense of community' (SOC) of the #SSChat is correlated with sustainability (Mamonov, Koufaris, Benbunan-Fich, 2016; McMillan & Chavis, 1986). Highlighting the relationship, if any, between 'sense of community' and sustainability of virtual professional learning communities on social media, such as #SSChat on Twitter may strengthen their legitimacy as a professional learning opportunity in the eyes of social studies teachers, teacher leaders, and administrators, while also explaining why social studies teachers continue to participate in the learning community (Abfalter et al., 2012; Gruzd, Wellman, Takhteyev, & Tiryakian, 2011; McMillan & Chavis, 1986; Visser et al., 2014). As mentioned earlier, the relationship between SOC and sustainability has been identified as an indicator of community viability (Mamanov et al., 2016). Thus, determining potential correlations between

the individual SOC tenets and sustainability may highlight refinement and reinforcement areas to support the continued development and growth of the #SSChat as virtual learning community.

### **Purpose of the Study**

The purpose of this study was to examine ‘sense of community’ as a construct supporting the #SSChat community’s sustainability. In doing so, first the intention was to measure the SOC i.e. membership (sense of belonging), influence (sense of mattering), integration and fulfillment of needs (needs being met within community), and shared emotional connection (shared histories and similar experiences) of #SSChat members (Chavis, Lee, & Acosta, 2008; McMillan & Chavis, 1986). Then, I sought to measure the sustainability of the #SSChat community. Additionally, I endeavored to determine whether a correlation existed between perceived SOC and sustainability of #SSChat community participants, and whether statistically significant correlations existed between each of the four independent SOC tenets and sustainability.

### **Research Questions**

The research questions that guided this study were:

1. What is the ‘sense of community’ among #SSChat participants on Twitter?
2. What is the measure of sustainability among #SSChat participants on Twitter?
3. Is there a statistically significant relationship between perceived ‘sense of community’ and sustainability of #SSChat members on Twitter?
4. Is there a statistically significant relationship between the four independent SOC tenets (e.g. membership, influence, integration and fulfillment of needs, and shared emotional connection) and sustainability of the #SSChat members on Twitter?

McMillan & Chavis' Sense of Community theory served as a research framework to guide and inform this study. The SOC theoretical framework allowed me to appropriately analyze the data and findings through the four theory-laden tenets of membership, influence, fulfilment of needs, and shared emotional connection (Chavis et al., 2008). The Sense of Community Index-II (SCI-II) was employed in this study to gauge the #SSChat learning community's 'sense of community' by measuring participants' perceptions of membership, influence, fulfilment of needs, and a shared emotional connection related to the community (Chavis et al., 2008). The SCI-II is a validated and reliable quantitative research instrument designed to process the data through the four tenets and gauge the 'sense of community' of various types of communities, including those that are online (Abfalter et al., 2012; Chavis et al., 2008).

### **Definition of Terms**

To begin, it is necessary to provide a glossary of terms that are used throughout this dissertation. The following definitions have been taken from various researchers, each of whom has engaged in research related to 'sense of community', social media, and learning communities.

*Social Media* – web platform or application that fosters communication and collaboration among users through the creation and sharing of various content (Sloan & Quan-Haase, 2016).

*Microblog(ging)* – short written content that is published on various social media platforms i.e. tweets on Twitter (Krutka, 2017).

*Twitter* – A multimedia microblogging social media platform that allows individuals to create and share tweets that are no more than 280 characters in length (Krutka, 2017).

*Hashtag* – metadata tag used on social media platforms to track posts with certain themes or content (Krutka, 2017).

*#SSChat* – Twitter hashtag used to share and discover information related to the teaching and learning of social studies (Krutka, 2017).

*Informal Professional Learning* – any form of learning for educators that is not organized by the school district (Thacker, 2017).

*Professional Learning Community* – group of individuals teaching the same content and subject with the intent of learning a shared repertoire of practices (Wenger, Trayner, & De Laat, 2011).

*Professional Learning Network* – group of individuals that do not necessarily teach the same content but share resources and information with one another to support colleagues teaching and learning (Campbell, 2013; Wenger et al., 2011).

*Sense of Community (SOC)* – a theoretical construct made up of an individual’s perceived feeling of membership, influence, integration and fulfilment of needs, and social emotional connection (Chavis et al., 2008; McMillan & Chavis, 1986).

### **Significance of the Study**

As social studies education researchers continue to better understand the impacts of informal learning, such as communities of learners on Twitter, understanding these groups’ ‘sense of community’ and its potential relationship to sustainability is salient. The affordances of informal professional learning are that social studies teachers and scholars alike are able to call upon one

another for support and to share resources and insight to positively impact practice. Teachers may take advantage of the benefits of social media platforms like Twitter through typical behaviors on social media (e.g. information contribution and consumption). All this can cause one to hypothesize that this community is fostering a strengthened ‘sense of community’ therein (Carpenter & Krutka, 2014; Krutka, 2017; Trust et al., 2016). ‘Sense of community’ as a construct has shown to be a strong indicator of whether members actually feel a sense of belonging, whether the individual members matter and can impact the community, whether members are having their needs met, and finally, whether the group possesses a shared emotional connection that contributes to their overall cohesiveness (Mamonov et al., 2016; McMillan & Chavis, 1986). Moreover, sense of community can be a strong indicator of sustainability of virtual communities on social media networks (Mamonov et al., 2016). This study is significant because it seeks to not only measure the ‘sense of community’ of the #SSChat on Twitter, but seeks to identify which of the four tenets of sense of community has the strongest impact on sustainability to support the continued growth of the #SSChat as resource for social studies teachers’ professional learning. Doing so will ideally highlight refinement and reinforcement factors that can then be used to fine tune and strengthen the #SSChat as an informal professional learning community for social studies teachers and scholars alike.

This is not the first study to investigate the relationship between sustainability and SOC. In fact, Mamonov et al. (2016) conducted a quantitative study that identified ‘sense of community’ as a contributing factor to sustainability of online social networks on Facebook. I sought to extend this work by evaluating the specific SOC tenets and their individual relationships to

sustainability. By conducting Pearson r correlation analyses between the tenets of ‘sense of community’ and sustainability, perhaps areas of reinforcement and refinement can be identified for the #SSChat learning community on Twitter, which has shown to be a popular Web 2.0 tool among educators (Carpenter & Krutka, 2014).

Thus, this study may produce implications for #SSChat leaders and co-moderators, technology enthusiasts, administrators, studies teachers, teacher leaders, and other teacher educators involved in creating and identifying professional development for social studies teachers. Ideally, the information produced will contribute to the research literature by explaining the dynamic underpinnings of the community of learners who participate in the #SSChat. Moreover, the findings may potentially determine if ‘sense of community’ as a construct supports the sustainability of the #SSChat community, as it has been shown to do in other social networks (Mamonov et al., 2016). This study will also ideally provide a status of the #SSChat community to determine which components of SOC have the greatest impact to sustain and grow the community, as well as which are the weakest components so steps can be taken to strengthen the virtual learning community.

### **Delimitations**

This study is delimited to the voluntary participants of the #SSChat community who completed the SOC Index-II on Twitter. This research study involved a survey of Twitter users who engage with the hashtag #SSChat to create, share, learn, and/or support content related to social studies education to examine their perceived sense of community. The survey was disseminated on Twitter via a public tweets that tagged potential participants and through direct messages to participants. Both the tweets and direct messages included the link to the survey, as

well as the hashtag, #SSChat. Completion of the survey was voluntary and anonymous; therefore, participants of the survey were delimited to social studies teachers, scholars, and other enthusiasts on Twitter who regularly engage with the #SSChat hashtag and self-identify as a member of the #SSChat community. This means that findings are not necessarily generalizable to other virtual informal professional learning communities on Twitter, such as Twitter users who follow hashtags, like #EdChat, #PEChat, and #GeoChat, or self-identify as a member of the learning communities associated with these hashtags.

### **Positionality Statement**

I find it necessary for the reader to understand my personal assumptions regarding reality, knowledge, and truth to better grasp my positionality and agency related to this research study. My ontological and epistemological views align closely with a post-positivist paradigm, which posits that there is one objective reality to be observed; however, there is an understanding that there are multiple perceptions of that same reality (Guba & Lincoln, 1985). In relation to this study I believed that ‘sense of community’ (as a construct) was present among #SSChat users. However, it was understood that perceptions and measures of ‘sense of community’ would differ among #SSChat members based on their individual world view and past experience of participating in the #SSChat Twitter community. Still yet, this one construct (‘sense of community’) can be measured to reveal an approximation of the dynamic underpinnings of the #SSChat community. The positionality I bring to the research helps explain why a quantitative research design was used in this study to measure the ‘sense of community’ of the #SSChat community.



I also find it necessary to highlight my experiential knowledge and background regarding this research phenomenon for validity and full disclosure purposes. I am no stranger to the #SSChat community or to the use of Twitter as a form of informal professional development. In fact, I personally identify as a member of the #SSChat community. I have contributed and consumed practitioner strategies and other resources by actively engaging with the #SSChat community on Twitter. Moreover, I have published both peer-reviewed publications and conference proceedings on pedagogical frameworks and personal experiences with Twitter to support the professional development of social studies educators interested in implementing social media into their practice. I believe that my background allows me to be very familiar, attentive, and aware of this particular research topic and setting. I acknowledge that my engagement and familiarity with the #SSChat community may act as a confounding variable, as the results may not be what I expect them to be given my involvement and investment with the #SSChat community. However, I have made a substantial effort to thread the Sense of Community theoretical framework throughout this study to demonstrate agency in all aspects of the study. Moreover, I have made solid efforts to follow quantitative methods that are elucidated upon further in Chapter Three. By following my research design, I aspire to produce the high quality and objective research to measure 'sense of community' and determine its potential relationship and impact on sustainability among the #SSChat Twitter community participants.

### **Conclusion**

This quantitative research study was organized into five chapters. Chapter one included a brief introduction to the topic, statement of the problem, purpose of the study, research questions, brief overview of the theoretical framework employed, significance of the study, delimitations of

the study, and the researcher's positionality statement. Chapter Two included a review of the appropriate and relevant literature related to the study, as well as an explanation and justification for the theoretical framework. Chapter three included a discussion regarding the methods, procedures, and the overall quantitative research design employed. Chapter four presented the research findings. Lastly, Chapter five included a discussion regarding the study implications, limitations, and future research recommendations.

## **Chapter 2 Literature Review**

In Chapter one, the study was introduced, research questions were outlined, and the purpose and significance of the study was shared. In Chapter two, a review of extant and relevant literature related to the study is provided. I highlight the value of Web 2.0 tools and social media in the field of education. I also explore informal learning for social studies teachers and social media as an informal professional learning resource. Then, I describe the #SSChat as a virtual community to support social studies teaching and learning. Finally, I introduce McMillan & Chavis' (1986) Sense of Community theoretical framework, while also making a case for its relevance and salience for investigating and measuring the sustainability of the #SSChat community presented in this study.

### **Value of Web 2.0**

Since its inception, teachers have been “surfing” the internet to find materials, lessons, and other content resources to supplement not only their professional learning, but their pedagogical practice as well (Culp, Honey, Mandinach, & Bailey, 2003). The term Web 2.0 was coined around 1999 to characterize a major upgrade in Internet technologies that allow users to go beyond simply receiving information via Internet, which was the case with Web 1.0 technologies (Pan & Franklin, 2011). Rather, Web 2.0 allowed teachers access and use of the internet to create, share, and learn by leveraging web tools, such as blogs, wikis, online videos, other online applications, such as those managed by Google or Microsoft, and social media applications (Pan & Franklin, 2011). The main characteristic that delineates Web 2.0 from its predecessor, Web 1.0 is that the former promotes and fosters interactivity within the website itself, and by extension, among the individual users (Pan & Franklin, 2011).

While the internet serves as a virtual repository of information that can be updated in real time, the value of Web 2.0 in supporting teacher professional development is that the multimodal functionality of these web tools fosters the creation of social learning environments, providing opportunities for validation and appreciation of creative work (publishing), peer support (collaboration), and task-related support (managing) (Mao, 2014). Teachers may use Web 2.0 tools to virtually collaborate, share resources, and even create materials and resources that can be conveniently shared, which was less possible via Web 1.0. (Pan & Franklin, 2011). However, as with other forms of professional development and learning, effectiveness and value are contingent on teacher motivation, effort, and willingness to leverage the tools in an effective way (Mahapatra, 2015).

One Web 2.0 tool that has garnered attention by educators and education researchers alike is social media. Social media sites like Twitter, Facebook, and Instagram offer capabilities to foster communication and collaborative opportunities with other professionals conveniently in the palm of the hand. When used purposefully, social media's multimodal communicative functionalities may maximize collaboration, publication, management, and interactivity within the community on the platform (Mao, 2014). However, as with any Web 2.0 tool, the effectiveness of social media on teacher learning depends on the willingness and motivation of the individual teacher to leverage the functionality to appropriately meet their needs (Mao, 2014; Pan & Franklin, 2011).

### **Social Media: A Social Networking Resource for Teachers**

One specific Web 2.0 tool that has been used by educators to support informal professional learning is social media, specifically social media platforms like Twitter (Catlett,

2018; Carpenter & Krutka, 2014; Langhorst, 2015; Trust et al., 2016; Visser et al., 2014). Twitter has gained popularity by educators due to its unique functionality to foster collaboration with specific groups and individuals, while not being shut off from the wide array of other users (Catlett, 2018; Krutka, & Carpenter, 2016). This has in turn led to the initiation and development of virtual social learning communities (Catlett, 2018; Carpenter & Krutka, 2014; Langhorst, 2015; Trust et al., 2016; Visser et al., 2014). Due to the ever-evolving functionality of internet tools, sites, and other applications, broad descriptions of what constitutes a web-based platform as being social media can be problematic in the realm of research (Sloan & Quan-Haase, 2016). The following characteristics are used by SAGE Handbook of Social Media Research Methods (2016) to qualify a web platform as being social media:

1. “Have the capability to support user-generated content in forms such as images, text, videos and statuses (Sloan & Quan-Haase, 2016, p.5).”
2. “Provide a means for users to connect with one another (through follows or likes on Twitter, friendship connections on Facebook) (Sloan & Quan-Haase, 2016, p.5).”
3. “Support various means for members to engage with one another in the form of collaboration, community building, participation, sharing, linking and other means (Sloan & Quan-Haase, 2016, p.5).”

Research highlights that educators of multiple disciplines have adopted Twitter as an informal virtual meeting hub to support professional learning and networking needs. In fact, Yoakam (2019) found in their mixed methods study that teachers from diverse content areas ranging from 6-10 years of experience credited their Twitter PLN for aiding them in reaching their professional goals. In that same study, teachers with one to five years of experience and twenty-one plus years valued the resources that came from the Twitter online community. Teachers engage on Twitter by following various accounts, liking and retweeting other tweets

and published content, and engaging in conversations, which are commonly referred to as “chats” (Carpenter & Krutka, 2014; Krutka, 2017). In doing so, teachers are able to network with other professionals, while simultaneously promoting mastery of content knowledge and best practices related to the field of education (Carpenter & Krutka, 2014). More specifically, Carpenter & Krutka (2014), Krutka, 2017, Staudt Willet (2019), and Sturm & Quaynor (2020) all highlight that Twitter enables teachers to draw inspiration for innovative teaching ideas, access support, and assuage the feeling of isolation that teachers can face in certain school contexts. Sturm & Quaynor (2020) and Staudt Willet (2019) conducted qualitative research studies that concur with Carpenter & Krutka’ (2014) quantitative survey study suggesting that the learning communities on Twitter act as affinity spaces where collaborative dialogue may birth ideas, activities, and other content related to teaching and learning that is engaging. This type of virtual communication and engagement is becoming increasingly common given the progression of the digital age. Educators have the ability to tailor their Twitter account to meet their professional learning needs in a personalized and opportune way by choosing to follow and not follow certain accounts and hashtags. To this end, Twitter organically operates in the form of a virtual social network for educators; that is, it permits users to communicate and transfer information similar to traditional face-to-face social networking, but through internet capable technologies (e.g. computers, tablets, smart phones, and other smart devices) (Campbell, 2013; Lantz-Andersson et al., 2018; Visser et al., 2014; Yoakam, 2019).

### *Virtual Learning Communities on Twitter*

Within the voluminous networks on Twitter are identifiable education communities including users who uniquely distinguish themselves by embedding a common hashtag (i.e.,

#EdChat, #PEChat, #EngChat, etc.) within their tweet (Gruzd et al., 2011; Howard, 2019; Langhorst, 2015; Lewis & Rush, 2013; Visser et al., 2014). At their core, these communities were established to host virtual collaboration that offers teachers opportunities for self-directed informal professional learning tied specifically to a content area (Howard, 2019; Langhorst, 2015; Trust et al., 2016; Carpenter & Krutka, 2014; Visser et al., 2014). These individual communities emulate some of the same features as face-to-face PLCs, but with the added convenience of being able to participate and access anytime and from almost anywhere (Carpenter & Krutka, 2014; Staudt Willet, 2019). In fact, when Staudt Willet (2019) revisited Carpenter & Krutka's (2014) study on 'how' and 'why' teachers use Twitter, they found that 64.66% of #EdChat community participants mainly shared scholarly work, shared resources and information, such as blogs, videos, job postings, and grant opportunities. These are all similar resources, materials, and information that would be shared in face-to-face learning communities and networks.

Research supports that the behaviors and activities on Twitter seemingly possess the qualities necessary for a learning community to support professional learning outlined by both Darling-Hammond et al., (2017) and Lave & Wenger, (1991), such as sustained duration through mutual relationships (Britt & Paulus , 2016) and content collaboration (Carpenter & Krutka, 2014). Sturm & Quaynor (2020) found that virtual communities on Twitter met many of Darling-Hammond's et al. (2017) and Lave & Wenger's (1991) attributes of an effective and meaningful professional learning community, except for the attribute of 'active learning' because the participation in Twitter chats was not job-embedded. However, Staudt Willet's (2019) study did not support that #EdChat helped combat teacher isolation or evoked a 'sense of community'

among participants observed through the TAGS (Twitter Archiving Google Sheet) behavioral trace measure. Also, Staudt Willet (2019) posited that the content shared in #EdChat may be too overwhelming and broad to fully meet the needs of teachers. This finding suggests that content-specific discussions on Twitter may be more beneficial in supporting the professional learning needs of teachers participating in virtual learning communities on Twitter (Staudt Willet, 2019). Findings from this study imply that the activities and behaviors on Twitter communities, identified by Mamanov et al., (2016) as information contribution, information consumption, and self-disclosure might fall short of the full qualifications of a robust professional learning community that adequately supports teacher learning (Darling-Hammond, 1990; Darling-Hammond et al., 2017; Lave & Wenger, 1991). While Staudt Willet's (2019) research is salient, their study did not employ a validated or reliable measure of 'sense of community', such as the Sense of Community Index – II (Chavis, Lee, & Acosta, 2008) to determine if a 'sense of community' actually existed within Twitter community participants. Rather, they qualitatively analyzed tweets employing a behavioral trace measure, which involved tracking hashtags associated with specific online communities on Twitter using TAGS software to identify tweets with hashtags to then be qualitatively analyzed. This gap in the research can be highlighted to support the case that there is a need to explore Twitter communities in a different way to better understand their dynamics when it comes to supporting teacher learning (Staudt Willet, 2019). One particular virtual community that has been highlighted in the literature for exhibiting robust characteristics to support teacher professional learning is the #SSChat Twitter community (Carpenter & Krutka, 2014; Krutka, 2017; Staudt Willet, 2019; Sturm & Quaynor, 2020). #SSChat is a social studies education virtual learning community that has presence among



multiple social media platforms and is officially recognized and supported by the National Council for the Social Studies (NCSS). Since November 2011, the #SSChat network has held a collaborative workshop at the NCSS conference and serves to support social studies education enthusiasts interested in the teaching and learning of social studies (Krutka, 2017).

### **Exploring (In)Formal Professional Development for Social Studies Teachers**

In 2017, social studies education researcher, Emma Thacker, explored the dynamics of informal professional learning opportunities for social studies teachers. She highlighted that there is a dearth of quality social studies teacher professional learning opportunities across the United States. She attributes this issue to a lack of funding and importance placed on social studies professional development in comparison to other content areas such as literacy and mathematics. The lack of emphasis placed on social studies teacher professional learning is attention-grabbing, especially given the extensive and complex nature of social studies curriculum and standards that teachers are expected to teach, and students are expected to learn (NCSS, 2020). Despite the marginalization of social studies professional learning opportunities, Thacker (2017) found that social studies teachers are seeking out professional learning beyond the traditional models of professional development provided by their school districts. Thus, there is a need to further explore studies teachers' professional learning using a broader lens to evaluate the possible manifestations of both formal and informal social studies professional learning to support the field (Thacker, 2017).

In understanding the differences between formal and informal learning, Eraut (2004) suggested placing the two forms of learning on a continuum rather than thinking of them as mutually exclusive or independent forms of learning. Some of the distinguishing factors between

formal and informal learning along the continuum's progression are that the latter does not necessarily follow a set structure or have a designated professional (e.g. teacher, lead teacher, curriculum specialist, or administrator) to guide the learning. For example, formal learning might include a district or school administrator mandated meeting, session, roundtable, and/or workshop. An example of informal learning is any form of learning that is not mandated by the district or school administrators i.e. a teacher discovering an article, book, and/or web resource and then spontaneously recommending the resource to a colleague some time during the school day or after hours. Extant research surrounding the topic of social studies teacher professional development is heavily focused on formal learning (Thacker, 2017). However, research suggests that social studies teachers expressively value informal learning over formal learning as it allows for a balance of self-guided learning, such as independent professional reading from multiple sources and collective learning opportunities, such as spontaneous collaborative meetings with colleagues of the same content area (Thacker, 2017). Still yet, the value of informal learning experiences is contingent on the direct relevance it has to the specific classroom context and whether the professional learning process supports the needs of teachers in a sustainable way (Darling Hammond et al., 2017; Thacker, 2017). Research conducted by Darling Hammond et al. (2017) and Lave & Wenger (1991) concur with Thacker (2017) to suggest that effective and sustainable professional learning experiences are grounded in learning communities that emphasize content, collaboration, coaching, coherence, and sustained duration. One area where informal learning emerges is in social studies professional learning communities (PLCs) and professional learning networks (PLNs) (Lave & Wenger, 1991; Thacker, 2017). These are learning groups that can be formed at the volition of the teachers involved and where

collaboration and support is fostered to aid participating teachers in reaching their professional endeavors, while also refining their pedagogical practice (Lave & Wenger, 1991; Thacker, 2017).

#### *PLC vs. PLN*

For the purposes of this study, it's important to note the distinction between PLCs and PLNs as they are two terms that are often used interchangeably in education research, but have significant distinguishing characteristics. While PLCs and PLNs are not entirely mutually exclusive, at their core, both systems of learning have different operational components that support teachers' professional learning differently through the common facet of collaboration. In the realm of education, collaboration is defined by Friend and Cook (2013) as "interactions between at least two co-equal parties voluntarily engaged in shared decision-making toward a common goal" (p. 6). What collaboration *is* and how it actually *manifests* are quite different. PLCs and PLNs are solid examples of this reality. According to Wenger (2009), PLCs require social participation from individual members to engage in shared pedagogical practices, while also working together as a community to refine and strengthen those practices in situated learning experiences i.e. collaboration meetings with all social studies teachers (Wenger, 2009). PLNs are any group or organizational affiliation with whom an individual can associate or identify; they can be formed from interests, socio-economic status, education, political ideology, and other associations (Campbell, 2013). PLNs are broader collaborative systems and may encompass members from multiple diverse communities i.e. national or state level organizations and conferences where individuals beyond teachers who are interested in the social studies are in attendance (Campbell, 2013).

Both PLNs and PLCs may enrich the professional learning of teachers depending how and for what reasons they are used. Some schools and districts have adopted PLC and PLN models with weekly, bi-weekly, and/or monthly meeting where teachers are expected to collaborate, discuss and sometimes draft curriculum, scope and sequence plans, and other materials used to supplement instruction (Thacker, 2017). Nonetheless, research suggests and supports that robust professional development, whether formal or informal, is essentially wherever the teachers are engaging in a learning process collaboratively to support their overall pedagogical and professional practice (Darling-Hammond et al., 2017; Lave & Wenger, 1991; Thacker, 2017). Thus, the possible manifestations of informal professional learning, particularly those using a community model, need to be identified and investigated for effectiveness. In doing so, effective forms can be refined and shared to offer support to all social studies teachers who may or may not be receiving adequate professional learning opportunities from their school or district.

In investigating the informal learning opportunities afforded through PLNs and PLCs, it is important to note that they do not have to be solely face-to face interactions with other individuals. In fact, since the advancement of Web 2.0, teachers now have the ability to join and contribute to virtual professional learning communities (VPLC) and networks (VPLN) online. These virtual communities and networks afford teachers the opportunity to engage in affinity spaces where “just-in-time” knowledge may be readily shared and attained to support the teaching and learning of content (Sturm & Quaynor, 2020).

### **#SSChat: Network, Community, Both**

The #SSChat is a social studies-specific derivative of the more comprehensive forerunner #EdChat (Krutka, 2017), which was previously mentioned. The primal purpose of the #SSChat was to establish a virtual learning community for social studies teachers and enthusiasts to connect professionally by sharing resources, ideas, research, and other conceptualizations related to the teaching and learning of social studies education (Krutka, 2017). What began as a synchronous weekly virtual conversation thread by social studies Twitter users in 2010 has since evolved into a broader asynchronous network, also. While #SSChat still hosts its weekly scheduled synchronous chats, the increased follower base and engagement has extended the conversation(s) of social studies education to be ongoing nearly 24/7 by simply embedding the #SSChat hashtag to a tweet and posting it on Twitter. Aside from engaging in the weekly chat that is usually themed and specific to certain areas within social studies, participants may pose questions, share classroom activities, student work, field trips, pictures from visits to significant places, news and research articles, and more anytime and from nearly anywhere (Krutka, 2017). The #SSChat has been described as a network that simultaneously operates as a community with varying levels of participation due to the many opportunities that arise for members who participate (Krutka, 2017). However, for the purposes of this study, it was examined through the lens of a virtual professional learning community (VPLC) aligning with its primal purpose to support the professional learning needs of social studies teachers and scholars who engage therein.

Given the ubiquitous presence of smart phones and social media, the #SSChat serves as a regularly updated repository for teaching resources ideas, and activities for social studies

teachers of all school contexts (Carpenter & Krutka, 2014; Krutka, 2017). Teachers who may face isolation and/or other contextual factors that marginalize the social studies-specific professional learning opportunities may engage in the #SSChat community as a form of informal professional development. They can do so by interacting with the #SSChat hashtag in real-time or by looking at archived chats and interactions by using Twitter's application program interface (API) search function (Krutka, 2017). The affordances of informal professional learning via Twitter chats, such as the #SSChat are that participants may call upon one another for support and share resources and insight to positively impact practice (Carpenter & Krutka, 2014; Staudt Willet, 2019) These actions coalesce and contribute to fostering a strengthened community of learners through the #SSChat (Carpenter & Krutka, 2014; Krutka, 2017; Krutka et al., 2016; Mamonov et al., 2016; Sturm & Quaynor, 2020).

Research conducted by Sturm & Quaynor (2020) demonstrated that teachers participating in Twitter chats, like the #SSChat formed communities that subsequently supported their professional learning. Moreover, the behaviors and interactions in virtual learning communities similar to the #SSChat emulate the practices and elements of a 'sense of community' by engaging in the chats via information contribution and consumption, and self-disclosure (Bateman et al., 2011; Mamonov et al., 2016). All which are actions and behaviors that have shown to strengthen the overall learning community (Mamonov et al., 2016). The #SSChat community has extended its presence beyond Twitter through Facebook groups, virtual book clubs, and even some face-to-face meetings at the National Council for the Social Studies to reach more individuals that might benefit from what the community has to offer (Krutka, 2017). While the #SSChat serves as a resource to support social studies teachers' teaching and

learning, as with similar Twitter communities, research highlights limitations regarding its role as an informal professional learning community.

A key component of a professional learning community is that individual members of the community engage in professional learning (either independently or collectively), then collaborate with other community members, learning of practices, and then work to refine them into shared practices for the community to execute (Wenger et al., 2011). A significant limitation of the informal learning via virtual learning communities, such as the #SSChat is that participants are falling short of engaging in shared practices following their learning experiences (Staudt Willet 2019; Thacker, 2017). Perhaps, this is attributed to the broad scope of courses and disciplines that fall under the vast subject of social studies i.e. economics, history, civic, and government.

For example, two social studies teachers (one who teaches 11<sup>th</sup> grade U.S. history and another who teaches Advanced Placement Government) might participate in a #SSChat that focuses on effectively using and analyzing primary source documents to answer document-based questions (DBQs) or participate in structured academic controversies (SACs). While the two teachers may be teaching completely different social studies curriculums, they can still take the skills discussed in the chat and adapt it to meet their students' needs or draw inspiration for other activities in their own course. They may also share similar activities they have employed in their classrooms to contribute to the chat. However, there is no way to determine if they are, in fact engaging in shared practices step-by-step that have been discussed during the synchronous chat. The AP Government teacher may adopt the dialogic discussion model or the strategy for analyzing documents and apply that to their course, while the history teacher may focus more on

historical thinking skills to help students craft new narratives regarding the past. Still yet, participants in virtual groups like the #SSChat find the collaboration and sharing of information, methods, activities, and skills through focused chats appropriate and valuable in their pursuit for informal professional learning (Carpenter & Krutka, 2014; Krutka, 2017; Sturm & Quaynor, 2020).

#SSChat participants engage in collaborative conversations and develop a shared repertoire of practices and strategies at the conclusion of chat topic (Krutka, 2017). Again, although there is no way to determine if all #SSChat participants employ the collective repertoire produced through a #SSChat, the conversations are archived in Twitter's application programming interface (API) and may be retrieved by participants whenever desired by searching the #SSChat hashtag (Krutka, 2017). Despite limitations of not fully meeting Darling-Hammond's et al.(2017) and Lave & Wenger's (1991) formal definition of PLC, a community exists nonetheless and social studies teachers report that it does support their professional learning needs (Carpenter & Krutka, 2014; Krutka, 2017; Staudt Willet, 2019; Sturm & Quaynor, 2020). Given the marginalized state of social studies professional learning (Thacker, 2017), the #SSChat exists as a resource for social studies teachers to explore and to support their needs as social studies education professionals. Thus, investigations should be conducted to further discover the foundational undergirding of the #SSChat community to identify areas of refinement and reinforcement.

For the purposes of this study and to meet the aforementioned research objectives, the #SSChat will be investigated and analyzed as a virtual learning community. McMillan and Chavis' (1986) Sense of Community theory was applied to this study to help better understand



the dynamics of the #SSChat community as an informal professional learning community through the tenets of membership, influence, fulfillment of needs, and shared emotional connection (McMillan & Chavis, 1986). Since its creation as a theoretical framework and construct, 'sense of community' (SOC) has been employed to investigate both face-to-face and virtual contexts. Measuring the 'sense of community' will offer a robust indication of the overall strength of the #SSChat as a relational community (McMillan, 1986). Moreover, research conducted by Mamonov et al. (2016) suggests that 'sense of community' plays a significant role in the sustainability of the online virtual communities, like the #SSChat. This is salient information to discern in determining if #SSChat meets Darling-Hammond's (2017) and Lave & Wenger's (1991) 'sustained duration' characteristic, which is necessary component for robust professional learning grounded in communities. However, there is a dearth of research literature that adequately identifies which of the individual tenets of the 'sense of community' have the strongest relationship to sustainability of virtual communities. This information would be important for future strategic planning efforts that seek to refine and reinforce elements of the #SSChat community to make it more robust, relevant, and appealing for social studies teachers to take advantage of. Below, the Sense of Community (SOC) theoretical framework that informed this study is expounded upon. Additionally, each of the four tenets that make up the SOC construct are defined and research is shared that demonstrates how the #SSChat community emulates the SOC tenets. In doing so, the case for employing McMillan and Chavis' (1986) SOC theoretical framework to guide and inform the research study and findings, which explored the #SSChat 'sense of community' and its potential relationship to sustainability is established and supported.

### **Theoretical Framework**

The theoretical framework that informed this study was McMillan and Chavis' (1986) Sense of Community Theory (SOC). SOC is a relatively new theory that evolved as a response to shortcomings of traditional community research, which lacked a "coherently articulated perspective," focused directly on the sense of community and which used research measures that did not stem from a standard definition of sense of community (McMillan & Chavis, 1986, p. 8). In their development of the SOC theory, McMillan and Chavis (1986) created a theory and explanation that would be applicable to a broader definition(s) of community as outlined by Gusfield (1975). The first definition of community was a "territorial/geographical" notion of community and the second a "relational" one that focused on the quality of human interactions and relationships (Gusfield, 1975, p.16). Thus, McMillan and Chavis' (1986) SOC theory encompassed four broad elements that were applicable to Gusfield's (1975) dichotomous definition of 'community' and were reflective of a strong 'sense of community'. These four essential tenets of SOC include:

1. Membership; i.e., sense of belonging (McMillan & Chavis, 1986, p. 9).
2. Influence; i.e., sense of mattering (McMillan & Chavis, 1986, p. 9).
3. Reinforcement and fulfillment of needs; i.e., needs being met within community (McMillan & Chavis, 1986, p. 9).
4. Shared emotional connection; i.e., shared histories and similar experiences (McMillan & Chavis, 1986, p. 9).

Each of the four core elements are elucidated upon further below, as well as extant research that has employed the SOC theory and its tenets. It is believed that the #SSChat community emulates these four tenets and justification for the use of the SOC theory is shared below.

### *Membership*

The first element of the SOC theory is membership. Membership is the most complex of the four tenets that coalesce to define a 'sense of community'. Membership, in brief, refers to the sense of belonging that a person feels once they have made an investment in becoming a part of a community (McMillan & Chavis, 1986). McMillan and Chavis (1986) describe five attributes of membership: boundaries, emotional safety, a sense of belonging and identification, personal investment, and a common symbol system. All of these attributes of membership coalesce to form a foundation of understanding of who is and who is not a member of a specific community.

Membership in the #SSChat community aligns with McMillan and Chavis' (1986) description and is exhibited regularly through participants' engagement. The members of the #SSChat establish a boundary for their community by including the #SSChat hashtag in their posts (Staudt Willet, 2019; Sturm & Quaynor, 2020). This common symbol embedded in Tweets not only aids in identifying members, but it demonstrates sense of belonging and investment as members are cognizant that by appending that hashtag to their post, other members within the group will be alerted or can easily access their tweet for a specific reason (Krutka, 2017). While the hashtag establishes a theoretical boundary that contributes to the emotional safety i.e. feeling of belonging to the community (Sturm & Quaynor, 2020), it also is open and welcoming to new participants and members that might benefit from actively or passively engaging in the community (Krutka, 2017; Staudt Willet, 2019; Sturm & Quaynor, 2020).

### *Influence*

The second element of the SOC theory is influence. McMillan and Chavis (1986) describe influence as the sense and feeling of mattering. Mattering refers to how much power individual group members have to influence the community in some way. Despite group members being bound by membership attributes that potentially promote an idea of conformity, McMillan and Chavis (1986) posit that this is not necessarily negative. Members of a community should feel that they have the individual freedom to be able to express themselves and their ideas; however, the desire to conform by community members speaks to the cohesiveness of a group (McMillan & Chavis, 1986). Strong communities value and appreciate individual differences and contribute to establishing norms for the group; however, group members should also feel empowered to question group norms should they feel obligated to do so (McMillan & Chavis, 1986).

#SSChat seemingly lends itself to the opportunity for its members having influence by nature of the synchronous chat and contributing information (Krutka, 2017). Sturm & Quaynor's (2020) study suggest that #SSChat promotes the tenet of influence by serving as an affinity space that fosters teacher agency, and as a venue for marginalized voices to be heard. When questions are posted on Twitter, the diverse corpus of participants are solicited to share their perspectives, activities, and resources in response to the queries being published on the #SSChat feed. Relatedly, participants are invited to extend the discussion and share their knowledge, expertise and wisdom as it relates to a particular topic. Members may give praise for innovative and useful ideas, ask for clarification and further instruction regarding activities, ask for feedback regarding student engagement, and further unpack and address social studies skills and practices in a

constructive and positive way (Sturm & Quaynor, 2020). This interactivity among chat members exhibits the coaching element that Darling-Hammond et al. (2017) posits as being crucial to the successful professional learning and development of teachers within their learning community. The #SSChat includes members who are passionate about the social studies and demonstrate their influence in the #SSChat by sharing their ideas and conceptualizations of social studies in the virtual affinity space (Quaynor & Sturm, 2020). In doing so, #SSChat participants know they are not sending their posts into the void of cyberspace, but rather to a community of social studies enthusiasts who engage with the #SSChat hashtag.

#### *Reinforcement and Fulfilment of Needs*

The third element of the SOC theory is reinforcement and fulfilment of needs. McMillan and Chavis (1986) translate the element fulfilment of needs as reinforcement. Reinforcement in regard to the SOC theory is the motivation that encourages groups to maintain cohesiveness and continue to rely on each other for the fulfilment of their needs (McMillan & Chavis, 1986). Groups with a strong sense of community are able to appropriately fit members together who rely on each other to meet their individual needs (McMillan & Chavis, 1986). Members bound by certain attributes are likely to have similar needs and reasons for joining a particular community. Therefore, individual members must work as a cohesive unit to support each other achieve their goals and meet their needs (McMillan & Chavis, 1986). If groups are not meeting the needs of their members, there is a risk of losing reinforcement and the group's overall sense of community is weakened.

#SSChat community members emulate the tenet of integration and fulfilment of needs through information consumption. Though Sturm & Quaynor's (2020) study posit that Twitter

chats, like the #SSChat are limited in their ability to entirely fulfill the needs of participating teachers, research by Darling-Hammond et al. (2017) supports that similar types of engagement visible in Twitter chats has the potential to fulfill teachers needs for both active learning and collaboration, especially if participation was to transition and be accepted as a job-embedded practice (Sturm & Quaynor, 2020). Given the primal purpose of the #SSChat, which is to support the professional learning needs of social studies teachers on Twitter, it seems necessary to investigate this tenet of SOC to discern to what extent the #SSChat is meeting its primal purpose. While not every topic or chat may be directly beneficial to the participants, some of the ideas, skills, and activities may spark ideas for participant's subject area or may be applicable to current and future lessons (Krutka, 2017; Staudt Willet, 2019). Moreover, participants have the option to submit topic ideas for chats, or even guest moderate a chat that is focused on a particular topic that is of interest to them as it relates to social studies (Krutka, 2017).

As previously stated, the #SSChat has grown beyond a hashtag that is simply included in tweet. Rather, its presence has extended to multiple outlets to communicate and collaborate with the chat leaders through face-to face conference presentation and Facebook groups and websites to ask questions and make requests to support social studies education endeavors (Krutka, 2017). Lastly, as stated above, the function of using the hashtag, #SSChat allows all discussions to be archived and searched using Twitter's API function, thus allowing teachers the option to mine through previous #SSChat threads to potentially find a discussion that might be useful and/or fulfill their professional learning needs.

### *Shared Emotional Connection*

The final tenet of the SOC theory is the presence of a shared emotional connection among the members within the community. Essentially, a shared emotional connection is fostered when members possess a shared history; however, the members do not have to have participated in the history at the same time (McMillan & Chavis, 1986). McMillan and Chavis (1986) posit that a shared emotional connection also comes when group members have a considerable number of positive interactions with one another, thus constructing a team mentality that is set up to experience success, which contributes to the overall cohesion of the group (McMillan & Chavis, 1986).

#SSChat participants are diverse (Krutka, 2017). Participants include in-service/preservice/former social studies teachers, social studies teacher educators, and/or individuals involved in various social studies-affiliated organizations (Krutka, 2017). Research supports that members involved in Twitter communities, like the #SSChat are able to openly share their emotions and are invested and engaged under a common interest or objective (Hur & Brush's, 2009; Macias & Garcia's, 2016) , and in the case of the #SSChat that common interest would be social studies education. Aligning with the thought process of McMillan and Chavis (1986), these participants may not all have the same occupation, but still have the potential to develop a shared emotional connection through their consistent positive interactions with one another in the online community (Staudt Willet, 2019). By embedding the #SSChat hashtag or searching it using Twitter's API function, participants are automatically given the opportunity to interact with one another as much, or as little as they wish. Thus, if participants are willing and motivated to effectively leverage the tool for professional learning (Mahapatra, 2015; Pan &

Franklin, 2011), they have the potential to establish a shared emotional connection with other participants and support one another's professional learning endeavors (Hur & Brush 2009; Macias & Garcia, 2016; Staudt Willet, 2019).

Recognizing the four core elements of SOC, McMillan and Chavis (1986) defined SOC theory 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” (McMillan & Chavis, 1986, p. 9). Given this definition, researchers now possess a more concrete theoretical framework by which to ground future studies that seek to identify and gauge a group’s ‘sense of community’ as a construct rather than strictly a notion. Moreover, understanding the nature of ‘sense of community’ and the elements that coalesce to form this construct, may allow researchers to extensively explore the dynamic innerworkings of other types of Twitter communities that support informal teacher learning in unique and diverse way (Staudt Willet, 2019).

### **Evaluating the SOC of #SSChat**

Since this study focused on measuring the ‘sense of community’ (SOC) of #SSChat participants on Twitter, employing McMillan’s & Chavis’ (1986) SOC theory to ground and inform the process is appropriate. Returning to the Gusfield’s (1975) “relational” definition of a community, social studies teachers and scholars interact and engage with one another on Twitter in multiple ways, including, but not limited to: microblogging, chats, sharing resources, thoughts/concerns, and other supportive/informative dialogue regarding the profession (Carpenter & Krutka, 2014; Staudt Willet, 2019; Sturm & Quaynor, 2019). These actions of information contribution and consumption transcend their community to mirror as a sustainable



social environment that provides professional and pedagogical resources and support for social studies education (Bateman, et al., 2011; Krutka, 2017).

Employing the SOC theory to measure the ‘sense of community’ of online learning communities like the #SSChat on Twitter is not an anomaly. In fact, Shea (2019) measured the sense of community among 2036 State University of New York college students taking 100% online summer classes and employed the SOC theory to frame and inform the study. The SOC theory is idiosyncratic in that it goes beyond simply identifying what a community does or how they are structured and operate, but rather it focuses on measuring the members’ recognition of cohesion and shared learning goals within the community. This information is informative, especially as research is furthered to understand the dynamic underpinnings associated with communities of learners in online environments like the #SSChat. Moreover, the measure of SOC in relation to sustainability may indicate whether the #SSChat community meets Darling-Hammond’s et al. (2017) and Lave & Wenger’ (1991) posited attributes necessary for meaningful professional learning (e.g. sustained duration).

### **Extending the SOC Theoretical Framework and Field of Social Studies Education**

As social studies education researchers continue to better understand the impacts of informal learning, such as virtual learning communities on Twitter, understanding the ‘sense of community’ of these groups is vital. The affordances of informal professional learning are that social studies teachers and scholars alike are able to call upon one another for support and share resources and insight to positively impact practice. From this, one can hypothesize that this community is fostering a strengthened ‘sense of community’ therein. SOC is a strong indicator of whether members actually feel a sense of belonging, whether the individual members matter

and can impact the community, whether members are having their needs met, and finally, whether the group possess a shared emotional connection that contributes to their overall cohesiveness (McMillan & Chavis, 1986). Research by Mamonov et al. (2016) demonstrate that SOC does, in fact, play a significant role in the sustainability of online social networks and communities on social media, specifically measuring contributions made by participants, information consumed by participants, and participants intention to leave the community (Bateman, et al., 2010; Mamonov et al., 2016).

An empirically validated understanding of the #SSChat ‘sense of community’ and its correlation to sustainability produced implications that aid in understanding the overall strength and sustainability of #SSChat as an adequate informal professional learning community (McMillan & Chavis, 1986; Shea, 2019). In assessing the sustainability of the #SSChat in relation to SOC, perhaps it can be determined whether the community possesses Darling-Hammond’s et al. (2017) and Lave & Wenger’ (1991) corroborated attributes of content, collaboration, coaching, coherence, and sustained duration, which are key to an effective and sustainable professional learning experience. The research presented in this study extended both the SOC theoretical framework and the field of social studies education research. The former was achieved by investigating the foundational undergirding of the #SSChat, highlighting the relationship between SOC and sustainability, and finally employing the SOC frame to target areas of refinement and reinforcement to support continued and sustained growth of the #SSChat community. The latter was achieved by responding to Thacker’s (2017) recommendation of identifying and examining possible manifestations of social studies teacher informal professional learning of social studies teachers by studying the #SSChat community.

By detailing the nuances of the #SSChat, social studies teachers might be made aware of this resource to assuage the potential marginalization of professional learning, or to simply learn more. Moreover, teacher leaders, school administrators, and other school personnel responsible for the professional development of social studies teachers might consider exploring the idea of accepting #SSChat participation as an option for professional development (PD). Lastly, as Krutka (2017) states, “learning in the #SSChat network is not about the destination, but the journey” (p. 2197). Measuring the ‘sense of community’ and highlighting the four SOC tenets as refinement and reinforcement areas may provide direction and guidance along the #SSChat journey to continue supporting meaningful and effective teaching and learning of social studies education.

### **Conclusion**

Chapter two reviewed relevant literature related to the study by exploring informal learning for social studies teachers, social media as an informal learning resource for social studies teacher, and the #SSChat as a virtual community to support social studies teaching and learning. Also, the SOC theoretical framework, which guided this study was introduced and expounded upon, while also making a case for its relevance and salience for investigating the #SSChat community. Chapter three outlined the methods, procedures, and the overall quantitative research design employed, as well as how it all ties in to the ‘sense of community’ theoretical framework.

### Chapter 3 Methods

In Chapter two, relevant literature related to social studies teachers' virtual informal learning, specifically the manifestation of social media use and the #SSChat community on Twitter was discussed. I highlighted that social studies teachers and teacher educators are taking advantage of the #SSChat community and that they are engaging in activities and critical behaviors that emulate strong components of professional learning communities. Namely, these behaviors include, information contribution, information consumption, and self-disclosure (Bateman, et al., 2010). Also, the 'sense of community' (SOC) theoretical framework was introduced and threaded throughout the literature review to make a justifiable case for its use as an appropriate framework to guide and inform this study. Measuring the SOC and highlighting the four SOC tenets as refinement and reinforcement areas will ideally aid in supporting meaningful and effective professional learning of social studies teachers that participate in the #SSChat. Chapter three outlines the methods, procedures, and overall quantitative design of this study that was also heavily informed by the SOC theoretical framework outlined in Chapter two. Together, the literature and framework enabled me to better examine the #SSChat through a critical lens to discern its viability as a robust community that might be sustainable and aid social studies teachers' informal professional learning in the future.

After revisiting Carpenter & Krutka's (2014) study of 'how' and 'why' teachers use Twitter, Staudt Willet (2019) called for a need to use diverse methods and analyses to better grapple and understand the foundational undergirding of Twitter communities, like the #SSChat and their impact on teacher professional learning. Since research consistently refers to the #SSChat as a virtual learning 'community' for social studies teachers (Krutka, 2017; Staudt

Willet, 2019; Sturm & Quaynor, 2020), it seemed necessary and appropriate to measure the SOC of #SSChat participants. McMillan & Chavis' (1986) theory has since been applied to a number of other community contexts both educational and non-educational to gauge the SOC as an indicator of community strength and cohesiveness, as well as a construct that feeds into the sustainability of a community. Evaluating the #SSChat using the SOC framework allowed me to investigate the foundational undergirding of the #SSChat community and highlight the relationship between SOC and sustainability. Moreover, it would produce findings that might potentially aid in future strategic planning efforts to strengthen the #SSChat community on Twitter to support continued and sustained growth of the #SSChat community on Twitter.

### **Institutional Review Board**

After drafting the research design and procedures, a request to the university's Institutional Review Board to conduct this study was made, and then approved. The IRB review number for this study is UTK IRB-20-05962-XM. All documentation for permission to conduct the study, as well as the consent cover letter used during the instrument dissemination process to inform potential participants approved by the University of Tennessee IRB office, is located in the appendices of this dissertation.

### **Research Design**

This study employed a quantitative research design that involved using survey research methods, informed by the SOC theoretical framework, which guided the entire study. Studies involving the SOC have been both quantitative and qualitative. However, given the purpose of this study to assess the SOC of the #SSChat community and its correlation to sustainability, it seemed appropriate to employ a quantitative survey research design and use a reliable and valid

quantitative instruments that directly reflected the four tenets of the SOC framework (Chavis, Lee, and Acosta, 2008) and sustainability (Mamanov et al., 2016).

To begin, I contacted the #SSChat co-moderators by messaging the #SSChat's official Twitter account (@SSChatNetwork) and informed them of my study and that I would be reaching out to members. I then made a general post on Twitter explaining that I would be studying the activities and behaviors of the #SSChat community. The Tweet revealed my identity as a researcher and included a link to a consent cover letter explaining the research purpose and procedure(s). The tweet included the hashtag, #SSChat so as to reach the target community. Potential participants were tracked using a behavioral trace measure tool called TAGS (Twitter Archiving Google Sheet). It was employed to discern information, such as the number of tweets posted, retweets, retweets with comments, and other activity involving the #SSChat hashtag by participants every hour of every day. These behaviors matter because they are the functions by which the #SSChat community members can visibly exhibit their engagement and involvement with the #SSChat community on Twitter.

Behaviors were traced over a span of twelve months to track community members who not only participate in the weekly synchronous chat on Monday evenings at 7:00PM (EST), but to also track the behaviors of community members who participate asynchronously throughout the weeks. Total number of Tweets traced was 4,874 unique tweets. Total number of potential #SSChat participants was 1,583. Once identified, potential participants were contacted through Twitter by tagging them to tweets with the survey link and through private direct messages. In both, potential participants were invited to complete an online survey that included the Sense of Community- II Index (SCI-II) and sustainability items. SOC and sustainability were assessed

separately and then, correlations were run to determine if a significant relationship existed between SCI-II scores and the sixteen sustainability items' scores.

The anticipated duration of a single participant's participation in the survey research study was one day. Participants were invited to complete the survey (a fifty-two-item questionnaire) one time via Twitter. The survey was administered online via Question Pro. A link to the survey was embedded in the tweets and direct messages. The anticipated time needed to complete the survey was approximately thirty to thirty-five minutes. The survey was active for six weeks with a weekly reminder sent out each week via Twitter to remind and invite potential #SSChat community participants to complete the survey if they had not done so already.

### **Research Questions**

1. What is the 'sense of community' among #SSChat participants on Twitter?
2. What is the measure of sustainability among #SSChat participants on Twitter?
3. Is there a statistically significant relationship between perceived 'sense of community' and sustainability of #SSChat members on Twitter?
4. Is there a statistically significant relationship between the four independent SOC tenets (e.g. membership, influence, integration and fulfilment of needs, and emotional connection) and sustainability of the #SSChat members on Twitter?

### **Null Hypotheses**

1. A 'sense of community' does not exist among #SSChat participants on Twitter.
2. A measure of sustainability does not exist among #SSChat participants.

3. There is no statistically significant correlation between perceived ‘sense of community’ and sustainability of #SSChat members.
4. There is no statistically significant correlation between the four independent SOC tenets (e.g. membership, influence, integration and fulfilment of needs, and emotional connection) and sustainability of the #SSChat members on Twitter?

### **Population**

Due to the voluntary and expansive nature of Twitter chat participation, identifying the exact population size, and to a further extent a sample size from that population who identify as part of the #SSChat community would be arduous to accomplish (Carpenter & Krutka, 2014). Staudt Willet (2019) suggests employing a behavioral trace measure to identify individuals who regularly interact and engage with a hashtag. In their 2019 study, Staudt Willet revisited Carpenter & Krutka’s (2014) report of ‘how’ and ‘why’ teachers use Twitter by analyzing teacher behaviors on Twitter using TAGS (Twitter Archiving Google Sheet). TAGS. allows for the tracking of information, such as the number of tweets posted, retweets, and other activity by participants who engage with the #SSChat hashtag (Hawksey, 2014; Staudt Willet, 2019). Using the TAGS software, the #SSChat was traced over a span of one year. Potential participants were identified as part of the population if they engaged with the #SSChat by doing at least one of the following actions within the specified time frame:

1. Posting a tweet using the hashtag i.e. asking/answering questions, and sharing social studies related content.
2. Retweeting a post that included the #SSChat hashtag.
3. Retweeting with a comment using the #SSChat hashtag.



4. Commenting on a post with the #SSChat hashtag.

The above actions were used as qualifications for being identified as an engaged #SSChat community member as these behaviors could be tracked by the T.A.G.S software (Hawksey, 2014). After one year, 1,583 of potential participants were identified as visibly meeting the qualifications as a participant in the #SSChat community. A link to the survey was disseminated using Twitter via tweets that tagged potential participants (identified using TAGS), which invited them to complete the survey and included the #SSChat hashtag. Potential participants were also sent a direct message, if personal Twitter privacy settings permitted, with the survey link and an explanation of the research they were being invited to participate in.

Since the survey instrument was disseminated on Twitter using the #SSChat hashtag, there was potential risk of unintended chain referral (or snowball sampling). Thus, reaching other #SSChat community members who may identify as part of the community, but whose behaviors may be passive and/or less visible i.e. observing #SSChat activity, liking a tweet with the #SSChat hashtag, or posting a tweet without including the hashtag. In an effort to ensure that all responses were representative of the #SSChat community, potential participants, including those not originally tagged in the Tweet were asked to confirm whether or not they identified as a member of the #SSChat community before they began the survey. To limit potential duplicate responses, participants were asked to share their Twitter handle in the demographics section of the survey. Also, potential participants who completed the SCI-II index, but did not affirm that they identified as a member of the #SSChat community, were removed from the data set.

## **Participants**

The total population for this research study consisted of 1,583 potential #SSChat participants who met the qualifications for being an active participant. I aimed to obtain at least 10% response rate before conducting my statistical analyses. Of the 1,583 potential participants, a total of 175 responses were collected. After data cleaning, 166 (10.5 % response rate) usable responses were collected. Unusable responses were determined to be any SOC-II indexes that were incomplete or those that did not affirm that the participants identified as members of the #SSChat community. Moreover, screening questions in the demographic section of the survey were used to identify any respondents that might be underage or not associated with the broader social studies education network. SCI-II indexes that did not meet the aforementioned criteria were not included in the analysis so as not to skew the data.

### **Instrumentation: SCI-II & Sustainability Items**

#### *Sense of Community Index-II (SCI-II) Items*

The SOC theoretical frame was an appropriate lens to analyze the results for this study because it included a theory-based, reliable, and valid research instrument designed to measure and gauge the ‘sense of community’ of various communities, including those that are online (Chavis et al., 2008). Since the 1986 development of the SOC theory, instruments have been developed to study the SOC of various relational communities in both face to face and virtual contexts. The first version of the instrument, referred to as the Sense of Community Index (SCI), is a twelve-item scale developed by McMillan & Chavis in 1986 to accompany their SOC theory (Chavis et al., 2008). In 2008, as a response to further research in the field of community research, the SCI was updated to the Sense of Community Index-2 (SCI-II). The redesigned SCI-

II index includes a twenty-four-item scale with four subscales, which better reflect the four SOC tenets of membership, influence, integration and fulfilment of needs, and shared emotional connection (Chavis et al., 2008). These four tenets coalesce to provide a lens to examine and understand ‘sense of community’ as a construct in an applied community context (Chavis et al., 2008).

In 2007, Anita Blanchard created a version of the SOC instrument designed to analyze the sense of virtual community (SOVC) among online groups have been developed. However, Abfalter, Zaglia, & Mueller (2012) conducted a follow up on Blanchard’s measure by running statistical analyses that supported the SCI-II index to be a more robust instrument to measure SOC in both face-to-face and virtual contexts. Therefore, the SCI-II was used to analyze the SOC of the #SSChat community in this study. The SCI-II is a valid and reliable instrument to measure a group’s perceived sense of community. Chavis, Lee, & Acosta (2008) analysis of the SCI-II showed that it is a very reliable measure (coefficient alpha= .94).

Permission to use the SCI-II index for this research study was solicited from instrument developer, McMillan via correspondence through the Research Gate website. Also, I completed an online form requesting permission to use the instrument for dissertation study. The Community Science team granted me permission to use the instrument and they emailed a copy of the SCI-II index directly to me along with scoring instructions. Email correspondence with permission is attached in the appendices of this dissertation.

### *Sustainability Items*

The second part of the survey instrument included; sixteen items crafted by Mamanov et al. (2016) to measure the sustainability of the #SSChat virtual community was added to the

survey. The items were assessed separately from the SCI-II index items, but participants completed them at the same time as part two of the survey. The sustainability items and they are broken into three subscales designed to measure participants' recognition of behaviors that are critical to sustainability for all virtual communities (Mamanov et al., 2016). The behaviors include, (1) information contribution and information consumption, (2) self-disclosure, and (3) intent to exit the community (Bateman, et al., 2010; Mamanov et al., 2016). The information contribution and consumption section included nine items. The self-disclosure section includes five items. The intention to exit section includes two items. Thus, sustainability was measured on three separate scales. The three sustainability scales can be found in Appendix B at the end of this dissertation. Employing survey items to measure sustainability aside from using the TAGS behavioral trace measure (described above) alone was necessary as it allowed me to report a more in-depth narrative of #SSChat behaviors related to sustainability. While TAGS allowed me to see visible participation patterns of use of the #SSChat hashtag (posting tweets, retweeting, and retweeting with a comment), it did not allow me to study some of the less visible forms of participation, such as an individual users' "likes" of tweets that included the #SSChat hashtag or the various ways that information was consumed.

Mamonov et al., (2016) evaluated the sixteen sustainability items using convergent validity, discriminant validity, and construct reliability. The convergent validity evaluation assessed each of their items using cross-loadings and all items had loading factors 0.7 in their respective scales (Mamanov et al., 2016). The discriminant validity evaluation compared interconstruct correlations with the square root of the average variance extracted for each construct, which was above 0.7 in all cases and the square root (Mamanov et al., 2016). Finally,

the construct reliability evaluation used both composite reliability and Cronbach's alpha, which demonstrated that appropriate internal consistency for all survey items was achieved with all values above 0.7 (Mamanov et al., 2016). These procedures informed and aided in the further development of the instrument (Creswell, 2007; Mamanov et al., 2016).

I received permission via email correspondence to use Mamanov's et al. (2016) survey instrument to measure sustainability of the #SSChat virtual community for this research study. Email correspondence granting me permission to use Mamanov's et al., (2016) sustainability items for this research study is attached in Appendix D at the end of this dissertation.

### **Data Analysis**

Data analysis began with a data cleaning process where non-response, incomplete response, and erroneous data (i.e. underage responses, responses from individuals that did not identify as part of the broader social studies education network etc.) were removed from the data set to improve accuracy of the analysis. An overall score for the SCI-II index was determined by adding together all twenty-four items, while the four subscales were scored by the sum of the related survey items corresponding to each of the four SOC tenets (e.g. membership, influence, integration and fulfilment of needs, and emotional connection). Descriptive statistical analyses were run on the collected data to highlight demographic characteristics of respondents, the SCI-II score, the SCI-II subscale scores, and the sustainability items score using SPSS computing software. The overall mean, standard deviation, and reliability statistics from part one (e.g. SCI-II index) and part two (e.g. three sustainability scales) of the survey were determined for the #SSChat community. Means were used to interpret findings on the original scales and individual one-sample t-tests were used to determine if the overall means for SOC, the four SOC subscales,

and the three sustainability scales were statistically significant. These analyses allowed me to answer research questions one and two.

Inferential statistical analyses were also run using Pearson correlation statistics to examine the relationship between the overall SCI-II score and the three sustainability scales of the #SSChat community participants. Moreover, four additional correlation analyses were run to test the relationship between each of the four SOC tenets and the three sustainability scales. Lastly, a multiple regression analysis was run to determine which, if any, of the four SOC tenets (independent variables) had the greatest impact on sustainability (dependent variable). These inferential statistical analyses allowed me to determine potential correlations between SOC and sustainability of the #SSChat, as well as which of the four ‘sense of community’ tenets might be driving sustainability. These analyses allowed me to answer research questions three and four, while also identifying potential areas of refinement and reinforcement to strengthen the #SSChat community.

### **Conclusion**

Chapter three outlined the methods, procedures, and the overall quantitative research design employed for this study. The ‘sense of community’ (SOC) framework elucidated in Chapter two was woven throughout the methods, thus grounding all procedures and statistical analyses conducted not only in quantitative research literature, but in the grander SOC theory. The findings from the methods employed and expounded upon above are presented in the Chapter four Results section and presented analytically following the four tenets of the SOC theoretical framework.

## **Chapter 4 Findings**

In Chapter three, the quantitative methods, research design, and instrument used to measure both SOC and sustainability were explained and related back to the SOC theoretical framework. Moreover, an explanation for running Pearson R correlations and regression analyses to meet the objectives of the study was provided. In Chapter four, the findings from the statistical analyses and procedures are presented. I began by sharing descriptive data to provide context of the sample for this study. I then structured the chapter to respond directly to my four research questions.

### **Descriptive Analysis**

The original sample included 175 #SSChat participants. After data cleaning, the final sample included 166 participants. Descriptive statistics and frequencies were obtained to understand sample characteristics including age, gender, race/ethnicity, occupation in education, geography of school setting (if applicable), and highest level of education. The mean age of respondents was 39 years, with an age range of 22–77 years. The greatest percentage of the sample (39%) was between the ages of 30 and 39. Table 1 summarizes the age range of the participants. Of the 166 respondents, 61 were male (36.7%) and 70 were female (42.2%). Table 2 summarizes gender characteristics. The plurality of study participants was white (n= 61, 64.5%), followed by black/African-American (n=21,12.7%), then Hispanic (n=4, 2.4%), and Asian (n=2, 1.2%). Table 3 summarizes ethnicity characteristics.

Table 1

## Participant Ages

<b>Age</b>	<b>N=</b>	<b>Sample Percentage</b>
22-29	33	17.4%
30-39	65	39%
40-49	37	25%
50-59	26	15.6%
60 +	5	3%

Table 2

*Gender Characteristics*

<b>Gender</b>	<b>N=</b>	<b>Sample Percentage</b>
Male	61	36.7%
Female	70	42.2%
Other	2	1.2%
Prefer not to answer	33	19.9%

Table 3

## Ethnicity Characteristics

<b>Ethnicity</b>	<b>N=</b>	<b>Sample Percentage</b>
Black	21	12.7%
Asian	2	1.2%
Hispanic	4	2.4%
White	107	64.5%
Other	8	4.8%
Prefer not to answer	24	14.5%



Most respondents (n=116, 69.0%) were teachers, followed by teacher educators and higher education faculty (n=24, 14.5%). Table 4 summarizes the various occupations of respondents. These data were particularly important because they allowed me to glean the #SSChat community's core member base. In regard to geography, study participants reporting working in suburban school districts (n=55, 33.1%), followed by urban (n=49, 29.5%), and then rural (n=43, 25.9%) were relatively balanced. Table 5 summarizes the geographical characteristics of the participants' school setting.

Lastly, in regard to highest level of education, a total of 104 participants (62.7%) reported having a master's degree. This was followed by 19 participants (12.7%) reporting having a doctorate and 17 participants (10.2%) reporting having a bachelor's degree. Table 6 summarizes the various educational levels of the #SSChat community.

Once all descriptive statistics were run on the demographic data, I was able to glean a better understanding of *who* makes up the #SSChat community on Twitter. This knowledge was salient as it provided a necessary contextual lens as I interpreted findings for each research question below, and when providing implications and discussions of the findings in Chapter five.

### **Research Question 1**

*What is the 'sense of community' among #SSChat participants on Twitter?*

The first section of the survey consisted of the Sense of Community Index-2 (SCI-II). Reliability testing of the SCI-II index was conducted using Cronbach's Alpha and produced a coefficient alpha of .910. The sum of all twenty-four SCI-II index items was calculated with the highest possible score being 72. Once the sum for all 166 #SSChat community participants was computed, this resulted in a mean score of 41.

Table 4

*Occupation Characteristics*

<b>Occupation</b>	<b>N=</b>	<b>Sample Percentage</b>
Administrator	1	.6%
Education Consultant	2	1.2%
Education Non-Profit Representative	3	1.8%
Educational Technology Specialist/Coach	3	1.8%
Former Teacher	1	.6%
Museum Educator	1	.6%
N/A	6	3.6%
Social Studies Curriculum Specialist/Coach	4	2.4%
Teacher	116	69.9%
Teacher Educator/Higher Education Faculty	24	14.5%
Teacher Leader	5	3.0%

Table 5

*Geographic Characteristics*

<b>School Setting</b>	<b>N=</b>	<b>Sample Percentage</b>
Rural	43	25.9%
Urban	49	29.5%
Suburban	55	33.1%
Other	19	11.4%

Table 6

*Educational Attainment*

<b>Education</b>	<b>N=</b>	<b>Sample Percentage</b>
Bachelor's	17	10.2%
Master's	104	62.7%
Education Specialist	12	7.2%
Doctorate	19	12.7%
Prefer not to answer	12	7.2%

Chavis et. al (2008) recommend using the following question to interpret results, “How important is it to you to feel a sense of community with other community members?” They posit that this question correlates with overall sense of community (Chavis et. al, 2008). Thus, means were used to interpret findings on the original four-point scale (Not at All = 0, Somewhat = 1, Mostly = 2, Completely = 3). The overall SOC mean was 1.71 (SD =.424). This indicated that on average, #SSChat community members overall fell between *somewhat* and *mostly* when asked how important it is for them to feel a sense of community with other community members. While the above findings provide a status of ‘sense of community’ among #SSChat members, it is necessary to evaluate the status of the core tenets that contribute to SOC to understand the foundational undergirding of the #SSChat community. There are four subscales that make up overall SOC. These subscales include, membership, influence, reinforcement and fulfilment of needs, and shared emotional connection. Mean scores and standard deviations for each of the four SOC subscales were summarized below.

### **Membership**

The first subscale of the SCI-II Index is membership and includes items seven through twelve. Reliability testing on these items produced a coefficient alpha of .819, which suggests acceptable reliability for this subscale. The mean for membership was 1.50 (SD =.564) for the six membership items. This indicated that on average, #SSChat community members fell between *somewhat* (1) and *mostly* (2) when asked how important membership is for them to feel a sense of community within the #SSChat community. This highlights that the #SSChat community members in this study do report a feeling and recognition of membership. Means and standard deviations for Membership subscale items are summarized in Table 7.

## **Influence**

The second subscale of the SCI-II Index is influence and includes items thirteen through eighteen. Reliability testing on these items produced a coefficient alpha of .797, which suggests acceptable reliability for this subscale. The mean for influence was 1.67 (SD=.519) for the six influence items. This indicated that on average, #SSChat community members fell between *somewhat* (1) and *mostly* (2) when asked how important influence is for them to feel a 'sense of community' within the #SSChat community. This finding is noteworthy because it highlights that the #SSChat community members in this study do report a feeling and recognition of influence. Another interesting finding to point out from this subscale is the mean for item eighteen (2.20), which is the only mean above 2 (*mostly*). This indicated that, on average, #SSChat community members *mostly* feel that the #SSChat has good leaders. Mean scores and standard deviations for each of the influence subscale items are summarized in Table 8.

## **Reinforcement and Fulfilment of Needs**

The third subscale of the SCI-II Index is reinforcement and fulfilment of needs and includes items 1 through 6. Reliability testing on these items produced a coefficient alpha of .838, which suggests acceptable reliability for this subscale. The mean response was 1.91 (SD=.540) for the six reinforcement and fulfilment of needs items. This indicated that on average, when asked how important reinforcement and fulfilment of needs is for them to feel a sense of community within the #SSChat community, #SSChat community members report *mostly* (2). This finding is important as it emphasizes that #SSChat community members in this study report a feeling that their needs are being met within the community.

Table 7

*Membership Subscale Scores*

<b>Sense of Community- II Index Items</b>	<b>Mean Score</b>	<b>SD</b>
Membership -7. I can trust people in this community.	1.91	.617
Membership - 8. I can recognize most of the members of this community.	1.62	.640
Membership - 9. Most community members know me.	1.33	.753
Membership - 10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos.	1.37	.902
Membership - 11. I put a lot of time and effort into being part of this community.	1.37	.816
Membership - 12. Being a member of this community is part of my identity.	1.36	.914

Table 8

*Influence Subscale Score*

<b>Sense of Community Index Items</b>	<b>Mean Score</b>	<b>SD</b>
Influence -13. Fitting into this community is important to me.	1.46	.764
Influence - 14. This community can influence other communities.	1.71	.675
Influence - 15. I care about what other community members think of me.	1.55	.763
Influence - 16. I have influence over what this community is like.	1.29	.851
Influence - 17. If there is a problem in this community, members can get it solved.	1.77	.716
Influence -18. This community has good leaders.	2.20	.668

Two interesting findings to point out from this subscale are the means for item four (2.02) and item six (2.05), which are the only means above 2 (*mostly*). This indicated that, on average, #SSChat community members *mostly* feel that membership in the #SSChat makes them feel good, and that community members have similar needs, priorities, and goals. Mean scores and standard deviations for each of Reinforcement and Fulfilment of Needs items are summarized in Table 9.

### **Shared Emotional Connection**

The fourth subscale of the SCI-II Index is Shared Emotional Connection and includes items 19 through 24. Reliability testing on these items produced a coefficient alpha of .750, which suggests acceptable reliability for this subscale. The mean response was 1.77 (SD = .485) for the six shared emotional connection items. This indicated that on average, when asked how important shared emotional connection is for them to feel a sense of community within the #SSChat community, #SSChat community members report *mostly* (2). Similar to reinforcement and fulfilment of needs, this finding is noteworthy as it highlights that #SSChat community members report a feeling and recognition of a shared emotional connection. Two interesting findings to point out from this subscale are the means for item twenty-three (2.10) and item twenty-four (2.02), which are the only means above 2 (*mostly*). This indicated that, on average, #SSChat community members *mostly* feel hopeful about the future of the #SSChat, and that community members care about each other. Mean scores and standard deviations for each of Shared Emotional Connection items are summarized in Table 10.

From all this, I was able to reject my null hypothesis that a ‘sense of community’ of community does not exist among members of the #SSChat community.

Table 9

*Reinforcement and Fulfillment of Needs Subscale*

<b>Sense of Community Index Items</b>	<b>Mean Score</b>	<b>SD</b>
Reinforcement - 1. I get important needs of mine met because I am part of this community.	1.72	.731
Reinforcement - 2. Community members and I value the same things.	1.96	.587
Reinforcement - 3. This community has been successful in getting the needs of its members met.	1.91	.689
Reinforcement - 4. Being a member of this community makes me feel good.	2.02	.797
Reinforcement - 5. When I have a problem, I can talk about it with members of this community.	1.82	.888
Reinforcement - 6. People in this community have similar needs, priorities, and goals.	2.05	.655

Table 10

*Shared Emotional Connection Subscale Scores*

<b>Sense of Community Index Items</b>	<b>Mean</b>	<b>SD</b>
Shared Emotional Connection - 19. It is very important to me to be a part of this community.	1.61	.688
Shared Emotional Connection - 20. I am with other community members a lot and enjoy being with them.	1.39	.805
Shared Emotional Connection - 21. I expect to be a part of this community for a long time.	1.93	.634
Shared Emotional Connection - 22. Members of this community have shared important events together, such as holidays, celebrations.	1.52	.884
Shared Emotional Connection - 23. I feel hopeful about the future of this community.	2.10	.699
Shared Emotional Connection - 24. Members of this community care about each other.	2.02	.643

The overall mean response of SCI-II items was 1.71. A One-Sample t-test was used to test if the overall mean SOC was significantly different from 1 (*somewhat*). The results of the t-test yielded  $t=21.63$ ,  $df=165$ ,  $p<.001$ . This indicated that on average, when asked how important it is for #SSChat community members to feel a ‘sense of community’ with other community members, participants perceived feeling of ‘sense of community’ was significantly greater than *somewhat* (1).

## **Research Question 2**

*What is the measure of sustainability among #SSChat participants on Twitter?*

The second section of the survey consisted of sixteen questions designed to gauge sustainability. Originally, Mamanov’s et. al (2016) sixteen sustainability items were going to be used as one scale for sustainability. However, once Cronbach’s Alpha was run on all sixteen items, a coefficient alpha less than 0.7 was produced. This led me to break the sixteen items into three separate scales, as they each measure three separate tenets of sustainability. The first scale gauged how often #SSChat community members engaged in information contribution and consumption (Sustainability 1). The second gauged #SSChat community members’ self-disclosure (Sustainability 2). The third and final scale gauged #SSChat community members’ intent to leave the #SSChat community (Sustainability 3).

### **Sustainability 1: Information Contribution and Consumption**

Sustainability 1 includes items twenty-five through thirty-three. Reliability testing using Cronbach’s Alpha produced a coefficient alpha of .913, which suggests acceptable reliability for this scale. The mean response was 3.82 (SD =1.08) was for all nine items. This indicated that on average, #SSChat community members were engaging in actions related to sustainability



approximately *two to three times a month*. Table 11 summarizes the means and standard deviations of Sustainability 1 items to highlight which actions #SSChat community members were doing most often to least often.

### **Sustainability 2: Self-Disclosure**

Sustainability 2 includes items thirty-four through thirty-eight. Reliability testing using Cronbach's Alpha produced a coefficient alpha of .853, which suggests acceptable reliability for this scale. The mean response was 2.89 (SD=1.10) was calculated for all four items. Table 12 summarizes the means and standard deviations of Sustainability 2 items to highlight which items #SSChat community members most agreed with and least agreed with.

### **Sustainability 3: Intent to Leave**

Sustainability 3 includes items thirty-nine and forty. Reliability testing using Cronbach's Alpha produced a coefficient alpha of .888, which suggests acceptable reliability for this scale. The mean response was 2.29 (SD=1.33) was calculated for both items. This indicated that on average, #SSChat community members *disagreed* with the sustainability items related intent to leave the #SSChat community. Table 13 summarizes the means and standard deviations of Sustainability 3 items to highlight which items #SSChat community members most agreed with and least agreed with.

From all this, I was able to reject my null hypothesis for Research Question 2 that a measure of sustainability does not exist among #SSChat community participants. For Sustainability 1, the mean response (3.82) was calculated for all nine items. A One-Sample t-test was run to determine if Sustainability 1 was greater than 3 (*once a month*). The results of the t-test were  $t=9.69$ ,  $df=165$ ,  $p<.001$ . This indicated that on average, #SSChat community members

were engaging in information contribution and consumptions via #SSChat approximately *two to three times a month*. For Sustainability 2, the mean response (2.89) was calculated for all four items. Another One-Sample t-test was run to determine if Sustainability 2 was different from 4 (*neutral*). The results of the t-test were  $t=-12.32$ ,  $df=165$ ,  $p<.001$ . This indicated that on average, #SSChat community members *somewhat disagreed* with sustainability items related to self-disclosure. Finally, for Sustainability 3, the mean response (2.39) was calculated for both items. A final One-Sample t-test was run to determine if Sustainability 3 was different than 4 (*neutral*). The results of the t-test were  $t=15.61$ ,  $df=165$ ,  $p<.001$ . This indicated that on average, #SSChat community members *disagreed* with the sustainability items related intent to leave the #SSChat community.

### **Research Question 3**

*Is there a statistically significant relationship between perceived 'sense of community' and sustainability of #SSChat members on Twitter?*

There is a significant positive correlation between overall 'sense of community' and Sustainability 1 ( $r=.161$ ,  $p=.039$ ). This indicated that as 'sense of community' increases among #SSChat community members, their engagement in more information contribution and consumption via the #SSChat increases. There is no statistically significant correlation between overall 'sense of community' and Sustainability 2 ( $p = .251$ ) or between overall 'sense of community' and Sustainability 3 ( $p = .495$ ). However, since a statistically significant correlation exists between overall SOC and Sustainability 1, I was able to reject my null hypothesis that there is no relationship between perceived 'sense of community' and sustainability of #SSChat members on Twitter. Table 14 summarizes the correlations between overall 'sense of community' and the three sustainability scales.

Table 11

*Sustainability 1 Information Contribution and Consumption*

<b>Sustainability 1</b>	<b>Mean</b>	<b>SD</b>
Sustainability 1 - 25. How often do you read comments on other #SSChat users' posts?	4.33	1.353
Sustainability 1 - 26. How often do you review "likes" posted by other #SSChat users?	3.92	1.479
Sustainability 1 - 27. How often do you view pictures posted by other #SSChat users on Twitter?	4.07	1.476
Sustainability 1 - 28. How often do you read #SSChat status updates on Twitter?	4.32	1.460
Sustainability 1 - 29. How often do you watch videos posted by other #SSChat users on Twitter?	3.65	1.382
Sustainability 1 - 30. How often do you comment on other #SSChat users' posts?	3.65	1.378
Sustainability 1 - 31. How often do you "like" posts made by other #SSChat users?	4.08	1.469
Sustainability 1 - 32. How often do you post pictures on Twitter using the #SSChat hashtag?	3.11	1.473
Sustainability 1 - 33. How often do you post status updates using the #SSChat hashtag on Twitter?	3.27	1.236

Table 12

*Sustainability 2 Self-Disclosure*

<b>Sustainability 2</b>	<b>Mean</b>	<b>SD</b>
Sustainability 2 - 34. I often talk about myself when engaging with the #SSChat community on Twitter.	3.25	1.467
Sustainability 2 - 35. I usually talk about myself for fairly long periods at a time when engaging with the #SSChat community.	2.78	1.207
Sustainability 2 - 36. I often discuss my feelings about myself when engaging with the #SSChat on Twitter.	2.76	1.256
Sustainability 2 - 37. I intimately disclose who I really am, openly and fully in my conversations when engaging with the #SSChat community.	3.07	1.486
Sustainability 2 - 38. I often disclose intimate, personal things about myself without hesitation when engaging with the #SSChat community.	2.63	1.242

Table 13

*Sustainability 3 Intent to Leave*

<b>Sustainability 3</b>	<b>Mean</b>	<b>SD</b>
Sustainability 3 - 39. I have frequent thoughts of leaving the #SSChat community on Twitter?	2.31	1.180
Sustainability 3 - 40. I frequently think of deleting my profile from Twitter.	2.27	1.192

Table 14

*Correlations between Overall SOC and Sustainability*

<b>Overall Sense of Community</b>		
	r	p-value
Sustainability 1	.161	.039
Sustainability 2	-.090	.251
Sustainability 3	-.053	.495

#### Research Question 4

*Is there a statistically significant relationship between the four independent SOC tenets (e.g. membership, influence, integration and fulfilment of needs, and emotional connection) and sustainability of the #SSChat members on Twitter?*

There is a positive correlation between reinforcement and fulfilment of needs and Sustainability 1 ( $r=.164$ ) and the correlation is statistically significant ( $p\text{-value} = .034$ ). This indicated that as #SSChat community members' feeling that their needs are being met increases, their engagement in information contribution and consumption via #SSChat increases.

There is a positive correlation between influence and Sustainability 1 ( $r=.165$ ) and the correlation is statistically significant ( $p\text{-value} = .034$ ). This indicated that as #SSChat community members' feeling that their community has influence increases, their engagement in information contribution and consumption increases.

There is a positive correlation between shared emotional connection and sustainability 1 ( $r=.176$ ) and the correlation is statistically significant ( $p\text{-value} = .023$ ). This indicated that as #SSChat community members' feeling of a shared emotional connection with other community members increases, their engagement in information contribution and consumption via #SSChat increases.

Membership was the only subscale that did not have a statistically significant relationship to sustainability. This indicated that there are things over and above 'sense of community' as it is measured using this index that influence Sustainability 1 (information contribution and consumption).

A Pearson correlation analysis highlighted significant modest correlations among the four SOC variables (see Appendix F). To further investigate the relationship between

Sustainability 1 (dependent) and ‘sense of community’ (independent), a multiple regression analysis. Table 16 summarizes the results from the multiple regression analysis. An interesting finding from the multiple regression analysis highlighted the relationship between membership and Sustainability 1 ( $\beta = -.208$ ,  $t = -2.030$ ,  $p\text{-value} = .044$ ). This indicated that when accounting for the effects of the other ‘sense of community’ tenets, membership was actually driving sustainability. Specifically, there is a statistically significant inverse relationship between membership and Sustainability 1.

Thus, from these findings, I am able to reject the null hypothesis that there is no statistically significant correlation between the four independent SOC tenets, except for the SOC subscale of Membership. Table 15 summarizes the correlations between the four ‘sense of community’ subscales and three scales of sustainability.

Table 15

*Correlations between SOC Subscales and Sustainability*

	<b>Sustainability 1</b>		<b>Sustainability 2</b>		<b>Sustainability 3</b>	
	r	p-value	r	p-value	r	p-value
<b>Reinforcement</b>	.164	.034	-.091	.241	-.106	.173
<b>Membership</b>	.022	.783	-.121	.119	-.014	.861
<b>Influence</b>	.165	.033	-.046	.553	-.046	.553
<b>Shared Emotional Connection</b>	.176	.023	-.021	.790	-.003	.969

Table 16

*Multiple Regression between SOC Subscales and Sustainability 1*

<b>SOC Tenets</b>	<b>Standardized Beta Coefficients</b>	<b>p-Value</b>
<b>Reinforcement</b>	.130	.161
<b>Membership</b>	-.208	.044
<b>Influence</b>	.134	.199
<b>Shared Emotional Connection</b>	.155	.127

## **Chapter 5 Implications and Discussion**

In Chapter four, I presented findings for each of my four research questions. I shared descriptive data to provide context of the sample and inferential data to identify correlations between the #SSChat members' 'sense of community' and three separate measures of sustainability (e.g. information contribution and consumption, self-disclosure, and intent to leave). In Chapter five, the implications from the research findings are shared. Specifically, I discuss how these findings have implications for aiding in future strategic planning efforts to strengthen the #SSChat community on Twitter. I then discuss how the findings support the #SSChat as a viable form of social studies education professional development and share considerations for pre-service teachers, higher education faculty, in-service teachers, administrators and/or professional development coordinators. Finally, I share how this study has implications for similar social studies informal professional learning communities, as well as the field of social studies education in general. This chapter concludes with a discussion highlighting the limitations of this study, as well as suggestions for future research.

The purpose of this study was to examine 'sense of community' as a construct supporting the #SSChat community's sustainability. I endeavored to determine whether a statistically significant correlation existed between perceived SOC and sustainability of #SSChat community participants, and whether a statistically significant correlations existed between each of the four independent SOC tenets and sustainability. The data analyses for this study yielded significant findings. Specifically, these findings allowed me to provide a better understanding of the dynamic innerworkings and interactions of the individuals within the #SSChat community. Additionally, I was able to glean recommendations to ultimately strengthen the #SSChat learning



community as an informal professional development resource that supports meaningful and effective teaching and learning of social studies education.

### **Evaluation of the #SSChat Community**

While all four SOC tenets were significantly greater than *somewhat* (Reinforcement and Fulfilment of Needs = 1.91; Membership = 1.50; Influence = 1.67; Shared Emotional Connection = 1.77), it is apparent that there are areas to be strengthened within the #SSChat community. Identifying these areas of strength and improvement could advance more directed efforts to support the informal learning experiences of the social studies community members that participate in the #SSChat on Twitter. Since sustained duration is one of the key indicators of a robust professional learning community, Pearson  $r$  correlations were run to determine the relationship between overall SOC, as well as the individual SOC subscales of the #SSChat and sustainability. Sustainability as measured by self-disclosure (Sustainability 2) and intent to leave (Sustainability 3) were not impacted by SOC. There was, however, a statistically significant relationship between SOC and information contribution and consumption (Sustainability 1). By conducting these inferential analyses, I was able to leverage the SOC framework as an evaluation model to determine reinforcement and refinement areas for the #SSChat leaders and co-moderators to take into consideration. The analyses in this study produced findings that support ‘sense of community’ as a construct that undergirds the sustainability of the #SSChat community on Twitter.

Because certainly there is always room for growth and improvement with any professional learning community, the subsequent sections are meant to provide considerations for areas of strength and improvement for the #SSChat community. Information garnered from

these findings have potential to aid leaders, co-moderators, and members as they evaluate the #SSChat community for future strategic planning efforts to develop it into a more appealing and robust informal professional learning resource for social studies education teachers and enthusiasts.

### *Reinforcement and Fulfilment of Needs*

Findings from this study support that the #SSChat community seems to be successful in meeting the needs of its community members. Reinforcement and fulfilment of needs received the highest mean (1.91, SD= .540) of all four of the SOC subscales. A Pearson r correlation indicated that as #SSChat community members' feeling that their needs are being met increases, their engagement in information contribution and consumption via #SSChat also increases. Given the nature and purpose of the #SSChat community as a virtual community where social studies enthusiasts can consume and contribute information to positively impact practice and support one another, these findings were not surprising.

Perhaps, the positive correlation between integration and fulfilment of needs and Sustainability 1 (information contribution and consumption) is attributed to the findings from item six (2.02, SD = .655) and item five (1.82, SD = .888). For the former, #SSChat community members in this study reported having similar needs and priorities, and for the latter they reported feeling that they can call upon others within the community for support to help solve problems and answer questions they may encounter in the field of social studies. Figure 1, Figure 2, and Figure 3 are examples of Twitter users reaching out to the #SSChat community for answers to their social studies pedagogical queries.

Moreover, since the #SSChat has grown beyond the weekly synchronous chat and also acts as an asynchronous network, #SSChat members and co-moderators not only engage in discussion during the weekly chats, they also respond to asynchronous discussions as well, which emphasizes the communal aspect of the #SSChat. This reality allows community members to take advantage of the collaborative activity to support the teaching and learning of social studies nearly anytime and anywhere by posting and following posts with the #SSChat hashtag on Twitter.

#### *Shared Emotional Connection*

Findings from this study highlight that shared emotional connection received the second highest mean (1.77, SD =.485) of all four SOC subscales. A Pearson  $r$  correlation indicated that as #SSChat community members' feeling of a shared emotional connection with community members increases, their engagement in information contribution and consumption via #SSChat also increases. Likewise, with reinforcement and fulfilment of needs, these findings were not unanticipated. Given the nature of the #SSChat community, information contribution and consumption happen when community members interact with one another. Thus, #SSChat community members have the potential through their discussions, chats, and other interactions to develop a shared emotional connection that is grounded in their common interest of social studies education. Perhaps, the positive correlation between shared emotional connection and Sustainability 1 (information contribution and consumption) is attributed to the reality that #SSChat members share a common connection with each other. The plurality of participants in this study were social studies teachers (69.9%) followed by social studies teacher educators/higher education faculty (14.5%). This implies that the crux of their shared connection

is social studies education. The #SSChat on Twitter is the common space that allows for the connections to continuously develop through discussions where community members can pull from their current and past experiences and engage in meaningful and purposeful discussions surrounding the teaching and learning of social studies.

Moreover, two interesting findings that speak to the significance of a shared emotional connection among #SSChat community members are the means for item twenty-three (2.10,  $SD=.699$ ), and item twenty-four (2.02). Item twenty-three asks #SSChat participants to describe how hopeful they are about the future of the #SSChat community and item twenty-four asks to describe how much #SSChat community members care about one another. These data support that despite #SSChat discussions being almost exclusively virtual via Twitter, #SSChat community members care about one another and feel that is important to be a part of the community. Likewise, maybe the feeling of a shared emotional connection has led them to report that they plan to remain a part of the #SSChat community and that they feel hopeful about the #SSChat's future. Figure 4 is an example of #SSChat users exhibiting their connections and appreciation for the dialogue that is produced from #SSChat community members.

### *Influence*

Influence received the third highest mean (1.67,  $SD=.519$ ) of all four SOC subscales. Pearson r correlation indicated that as #SSChat community members' feeling that their community has influence increases, their engagement in information contribution and consumption via the #SSChat increases. Similar to reinforcement and fulfilment of needs and shared emotional connection, these findings were descriptive of the #SSChat community.



Figure 1. Example Tweet: Reinforcement and Fulfilment of Needs

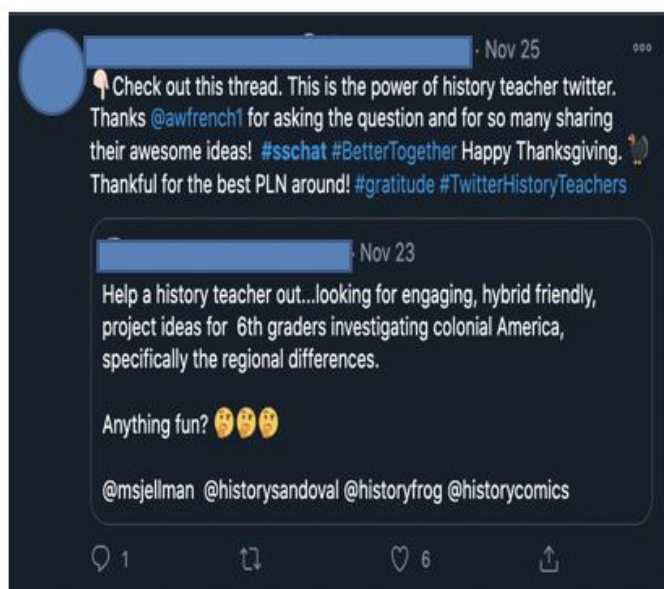


Figure 2. Example Tweet: Reinforcement and Fulfilment of Needs



Figure 3. Example Tweet: Reinforcement and Fulfilment of Needs

Given the nature of the #SSChat community, when chat questions in general are posted on Twitter, community members (e.g. teachers, scholars, and other social studies enthusiasts) are solicited to share their perspectives, activities, and resources in response to the posts published using the #SSChat hashtag.

The positive correlation between influence and Sustainability 1 (information contribution and consumption) may be attributed to the findings gleaned from the means for item fourteen (1.71, SD =.675), item eighteen (2.20, SD=.698), and item seventeen (1.77, SD= .716). These findings support that while #SSChat members in this study *somewhat* feel that they individually have influence over what the #SSChat community is like, they have a more significant feeling that the #SSChat community can influence other communities. Despite #SSChat discussions being almost exclusively virtual via Twitter, #SSChat community members *mostly* feel that the #SSChat has good leaders, and they feel that community members can work together to solve issues and problems that may arise within the field.

These findings suggest that perhaps members feel that the topics and queries discussed on the #SSChat thread are meaningful beyond the field of social studies and address elements of theory and practice that are applicable to other education communities beyond the #SSChat. Moreover, members may feel that the way in which co-moderator's facilitate discussions foster an environment that welcomes the sharing of experiences and perspectives to solve issues of shared concern within the field of social studies.

Figure 5 is an example of #SSChat community members exhibiting their influence within the community by sharing their experience, perspectives, and insight to answer a synchronous chat question. Figure 6 is another example of an #SSChat community member exhibiting their

influence asynchronously by sharing a link to a web page with digital resources that he has created and feels that other social studies teachers might use. While the #SSChat is informal and does not necessarily have any authority to directly influence pedagogical practice, #SSChat members, conceivably, may be empowered to take knowledge they have contributed and consumed from discussions and share it with their own school level or district level PLCs.

Similarly, teacher educators have the opportunity to leverage the advantages of the #SSChat community with their community of pre-service teachers in their methods courses. In this way, the #SSChat has potential to indirectly influence social studies teaching and learning practices through its community members that are working in the field daily or about to enter the field.

### *Membership*

Membership received the lowest mean (1.50, SD= .564) of all four of the SOC subscales. Also, a Pearson r correlation indicated that there was no statistically significant relationship between membership and information contribution and consumption i.e. Sustainability 1 via #SSChat on Twitter. This indicated that as #SSChat community's feeling of membership increases, there is no tendency for Sustainability 1 (information contribution and consumption) to change in a specific way. While certainly some elements of membership are apparent at face-value (e.g. participation), these findings imply that there are things over and above 'sense of community' as it is used to measure membership that influence Sustainability 1 (information contribution and consumption). To further investigate the relationship between membership (independent) and Sustainability 1 (dependent), a multiple regression analysis was run ( $\beta = -.208$ ,  $t = -2.030$ ,  $p\text{-value} = .044$ ).





Figure 4. Example Tweet: Shared Emotional Connection



Figure 5. Example Tweet: Influence



Figure 6. Example Tweet: Influence

This finding indicated that when accounting for the effects of the other SOC tenets' (e.g. influence, reinforcement and fulfilment of needs, and shared emotional connection), there is a significant inverse relationship between membership and Sustainability 1.

These interesting findings from the statistical analyses for membership certainly support considerations for #SSChat leaders, co-moderators, and members to take into account to strengthen their community. #SSChat members share the common connection of social studies, perhaps, users recognize this as a community to promote the teaching and learning of social studies and do not focus on other core social aspects of the community. For example, item seven (1.91, SD = .617) demonstrates that #SSChat participants in this study report feeling that they can trust people in the community. However, according to item nine (1.33, SD = .753) and item twelve (1.36, SD = .914), participants report lower levels of feeling that other #SSChat community members know them, or that being a part of the community is part of their personal identity.

This information is salient for the #SSChat leaders and co-moderators to consider if they care to better understand the dynamic nature of their community members beyond just those individuals that participate in the weekly chat. The aforementioned findings concur with Krutka's (2017) assertion that the #SSChat is a network that simultaneously operates as a community with varying levels of participation due to the distinct ways in which members can engage with the community. However, the ambiguous understanding of what constitutes membership may help explain the negative relationship between the SOC tenet of membership and Sustainability 1 that was identified by the multiple regression analysis ( $\beta = -.208$ ,  $t = -2.030$ ,  $p\text{-value} = .044$ ). For example, some people might not think they are a member if they do not

participate in the weekly synchronous chats regularly. Others might intrinsically feel that they are a member of the community simply because they follow the #SSChat hashtag or #SSChat Twitter account and sporadically interact (e.g. read, like, comment, and/or retweet) with other community members' posts with the embedded hashtag. Also, once individuals intrinsically feel that they are a part of the #SSChat community, they may not participate as often in the information contribution and consumption of information as often as they did when they first became involved with the community because they feel that they are "in" the community. Regardless, these findings imply that the threshold for membership in the #SSChat community might be a personal intrinsic feeling rather than individuals meeting specific qualifications or requirements to become a member. Thus, individuals interested in the community participating have the freedom to directly and indirectly participate, either synchronously or asynchronously as little or much as they prefer by engaging with the hashtag.

To address this, #SSChat leaders and co-moderators could attempt to provide more opportunities for all community members to engage in both synchronous and asynchronous discussions, not just the members that participate in the weekly chat. For example, when #SSChat community members are discussing a particular social studies topic, co-moderators, leaders, and members could more frequently tag notable experts to join the virtual conversations by sharing their thoughts regarding social studies topics. Moreover, scholars and exemplary teachers, and pre-service teachers who may not have Twitter accounts could be invited to join the conversation. These actions might encourage not only recognized experts to create a Twitter account and join the #SSChat, but they might also inspire other pre-service teachers, teachers, and teacher educators to view the #SSChat community as a valuable space to exchange and

ideas. Thus, they might be more eager to join and put time and effort into being a more active member of the community. By expanding the #SSChat community this way to better balance the members (e.g. pre-service teachers, teachers and teacher educators/scholars), it is possible that the more frequent dialogues and interaction could also aid in on-going efforts to break down the dissonance that has long existed between scholarship theory and teachers' practice. Moreover, efforts to address and understand membership as a building block of the community might lead to increased cohesiveness and regular participation rather than sporadic participation by community members.

#### **#SSChat as a Viable Virtual Social Studies Education Professional Development**

Effective and robust professional learning happens when teachers participate in collaborative communities of practice that emphasize content, collaboration, and sustained duration (Darling-Hammond, 2017; Lave & Wenger, 1991; Thacker, 2017). Data from item six (2.05 SD =.655) and item three (1.91, SD = .689) demonstrate that the #SSChat community members *mostly* feel that they have similar needs as each other and that the community is successful in getting their needs met. Relatedly, it was gleaned from item four (2.02, SD =.797), and item five (1.82, SD =.888) that #SSChat community members *mostly* feel being a part of the #SSChat community makes them feel good, and they feel that they can share problems they may have with the community. These findings affirm that the #SSChat serves as a virtual affinity space where community members are able to call upon one another for support and exchange resources and information to positively impact social studies teaching and learning. Moreover, they suggest that when teachers and social studies enthusiasts engage with one another on Twitter via the #SSChat, the community has potential to support their overall pedagogical

practice and professional learning by fulfilling their needs as professionals. Thus, it can be implied that #SSChat community members value the informal professional learning that takes place through the interactions on Twitter.

This study supports ‘sense of community’ as a construct that influences sustainability, which is a key characteristic of an effective professional learning experience according to Darling-Hammond’ (2017) and Lave & Wenger’s (1991). Thus, there are implications for pre-service teachers, higher education faculty (e.g. teacher educators and scholars), in-service teachers, and administrators/professional development specialists regarding the #SSChat as a viable virtual social studies education professional development resource. These implications and consideration are shared in detail below.

#### *Pre-service teachers*

Pre-service teachers looking to get involved with the #SSChat community need only to create a Twitter account and begin following the #SSChat hashtag by searching for it using the app’s API (application program interface) function. In doing so, they can view “top” tweets that include the hashtag, which are determined by how much interaction certain tweets receive (e.g. likes, retweets, and replies). They can also see the latest tweets that have been posted using the hashtag and individual users who include the #SSChat hashtag in profile “bios.” This allows pre-service teachers an ease of access to begin contributing and consuming information related to teaching and learning social studies, while also making connections and building personal networks with practicing teachers and education scholars on Twitter even before they officially begin their careers.

As aforementioned, item five (1.82, SD = .888) and item seventeen (1.91, SD = .689) highlight that #SSChat members feel that they can come to the community with problems they are facing in the field, and that the community is successful in helping them solve their problems. By engaging in the #SSChat community, pre-service teachers might become better acquainted with some of the obstacles that social studies teachers face in their daily practice as they strive meet the demands of an ever-changing curriculum. More importantly, they may be able to see how this community of teachers and scholars can work together overcome them. Pre-service teachers may also use the hashtag to connect with other teacher candidates and practicing teachers in the field and see different styles and approaches to teaching social studies that may not be as visible in their educator preparation program (EPP) courses or field placements. Moreover, they can contribute to #SSChat discussions themselves by sharing recent and relevant theory and research-based approaches learned in their current EPP course work, which practicing educators could benefit from as well.

### *Higher Education Faculty*

In addition to the implications for pre-service teachers, there are also considerations for higher education faculty that can be gleaned from this study. In 2017, NCSS issued core competencies and standards (e.g. content knowledge, application of content through planning, design and implementation of instruction and assessment, social studies learners and learning, and professional responsibility and informed action) to prepare pre-service social studies teachers (NCSS, 2017). The purpose of these competencies is to narrow the gap between theory learned in EPP coursework and actual clinical practice (Herczog, 2013; NCSS, 2017). While these competencies are valuable for social studies teachers to enter the f

field, research suggests and supports that professional development is more robust when grounded in a 'community' (Darling-Hammond et al., 2017; Lave & Wenger, 1991; Thacker, 2014, 2017). Findings from this study demonstrate that the #SSChat community possesses a 'sense of community' (1.71, SD =.424), which is an indicator of overall community viability and strength. Additionally, the data analyses show that there is a significant positive correlation between overall 'sense of community' and sustainability i.e. information consumption and contribution ( $r = .161$ ,  $p = .039$ ). This supports that #SSChat meets Darling-Hammond's (2017) and Lave & Wenger's (1991) 'sustained duration' characteristic, which is a necessary component for robust professional learning communities.

These findings support that social studies teacher education faculty should not only encourage their pre-service teachers' endeavors to engage with the #SSChat community, but also consider joining and engaging with the community themselves. As mentioned above, pre-service teachers can engage with the #SSChat community to become better acquainted with the realities associated with social studies teacher's daily practice. Social studies teacher educators can build on this even further by using the chat to supplement methods courses, specifically by identifying specific examples of the NCSS social studies standards and competencies in varied contexts. For example, given the relatively balanced geography of #SSChat community members (e.g. suburban,  $n=55$ , 33.1%; urban,  $n=49$ , 29.5%; rural,  $n=43$ , 25.9%) who participated in this study, social studies teacher educators could analyze examples of the competencies being shared by #SSChat members and discuss the impact and influence of various geographical and social contexts on teachers' and scholars' perspectives shared in their tweets.



Additionally, item five (1.82, SD = .888) and item seventeen (1.91, SD = .689) highlight that #SSChat members feel that they can share problems they are facing in the field, and that the community is successful in helping solve that problem. Thus, the #SSChat could perhaps be a supplementary outlet for social studies teacher educators to stay in tune with what is actually happening in social studies classrooms and other methods courses beyond the realm of their EPP institution they serve. This information would make social studies teacher educators more knowledgeable of the diverse teaching contexts in the field, thus, situating them to make better informed instructional decisions to better serve and prepare their preservice teachers to teach in a variety of settings. Moreover, they could contribute their knowledge, expertise, and insight to the community by participating in both the synchronous and asynchronous #SSChat discussions.

#### *In-service teachers*

Similar to pre-service teachers and university faculty, in-service teachers who are interested in getting involved with #SSChat community need only to create a twitter account to begin following and participating in the #SSChat hashtag by searching for it using Twitter's API function. Item two (1.96 SD =.587) and item three (1.91, SD = .689) reveal that the #SSChat community members *mostly* feel that they value the same things and that the community is successful in getting the profession needs of its community members met. These findings support that the #SSChat community can serve as a robust outlet for in-service teacher by which they can strengthen their individual professional networks. The #SSChat has teachers, administrators, curriculum specialists from across the globe, which all share a common connection of social studies education. Moreover, it serves as a platform where community members can nurture their

connection as they progress through the field i.e. job searching, curriculum and resource exchange, social networking, exhibiting work.

Relatedly, it was gleaned from item four (2.02, SD =.797), and item five (1.82, SD =.888) that #SSChat participants *mostly* feel that being a part of the #SSChat community makes them feel good, and they feel that they can share problems they may have with the community. This implies that they can engage in the on-going social studies conversations and contribute and consume information to support the furtherment of social studies education by transforming informal conversations into robust and informal professional development. Moreover, this study supports that the #SSChat users have a shared emotional connection (1.77, SD = .484), which may aid in combatting isolation by having an outlet to open up and share out to a group of colleagues in the same field to receive support and affirmation when the profession reaches peaks of stress i.e. change in curriculum standards. Additionally, it can serve as a platform to showcase work that they and their students are doing in the classroom, while also sharing their progress or struggles with other community members.

#### *Administrators and Professional Development Coordinators*

Lastly, the findings from this study have implications for administrators and school district professional development coordinators. Teacher leaders, school administrators, and other school personnel responsible for the professional development of social studies teachers might consider using the findings from the SOC to strengthen social studies professional development (PD) in their schools and school districts. Despite limitations of not fully meeting Darling-Hammond's et al. (2017) and Lave & Wenger's (1991) formal definition of PLC, a 'sense of community' exists

nonetheless and social studies teachers and other education professionals report that it does significantly support their professional learning needs.

Given the marginalized state of social studies professional learning (Thacker, 2017), the #SSChat exists as a resource for social studies teachers to explore and to support their needs as social studies education professionals. Thus, investigations from this study support the #SSChat as an adequate form of informal professional learning that should be considered for PD credit. In fact, 29% (n =47) of participants in this study report that their school and/or school district accept their participation in the #SSChat community for PD credit. Given the possible benefits associated with #SSChat community participation mentioned above, perhaps more school administrators might consider job-embedding (Staudt Willet, 2019) #SSChat community participation and potentially accepting it for PD credit in more school districts. Broader recognition and acceptance of participation in the #SSChat community as professional development might inspire more social studies teachers and enthusiasts to join the on-going conversation. Thus, their added participation and diverse perspectives may contribute to a richer dialogue to hash out concerns within the dynamic, yet marginalized field of social studies education.

### **Sense of Community & Sustainability Implications Beyond Twitter**

As mentioned above, this study pinpoints ‘sense of community’ as construct that supports the #SSChat community’s sustainability, which again, is key to an effective and professional learning experience according to specifications identified by Darling-Hammond’ (2017) and Lave & Wenger’s (1991). This study’s findings highlight the dynamic and foundational undergirding of the #SSChat community and support recommendations to strengthen it as an

informal professional learning resource for social studies education enthusiasts. Perhaps, these findings also have implications for other social studies professional learning communities and learning environments beyond Twitter.

Preparing and developing social studies teachers to navigate a field that is constantly in flux and has an abundance of variables requires a great deal of flexibility, adaptability, and introspection to effectively and appropriately equip them with the necessary competencies to be successful (Adler, 2008; Desimone, 2009; Gay, 2018; Laughter, 2011; Ladson-Billings, 2011). However, after formal educator training, professional learning opportunities, particularly in the area of social studies education, have been criticized by teachers for being inadequate and lacking (Borko, 2004; Desimone, 2009; Grant, 2014). Darling Hammond et al. (2017) and Lave & Wenger (1991) concur with Thacker (2017), suggesting that effective and sustainable professional learning experiences are grounded in learning communities that emphasize content, collaboration, coaching, coherence, and sustained duration. Relatedly, research suggests that social studies teachers expressively value informal learning as it allows a balance of self-guided learning and collective learning opportunities, such as spontaneous collaborative meetings with colleagues of the same content area (Desimone, 2009; Thacker, 2017). As outlined earlier in chapter two of this dissertation, one area where informal learning emerges is in social studies teacher professional learning communities (PLCs) (Desimone, 2009; Thacker, 2014, 2017). Thus, to better understand and explain the complexity of social studies teaching and learning, which fundamentally emphasizes ‘community’ in its curriculum, and underscores the community model to support the professional learning of teachers, it seems appropriate to analyze and study the field and teacher professional learning and development using theoretical frameworks that

draw heavily on the conceptualization of relational community, such as McMillan & Chavis' (1986) Sense of Community Theory.

A strengthened 'sense of community' is not only an indicator of sustainability but is also aids social studies learning communities in their efforts to take on the burdens of an ever-changing content area. Thus, as social studies education continues to evolve and change as a dynamic landscape, understanding the 'sense of community' of social studies teacher professional learning communities, like the #SSChat is relevant and pertinent as they continue to serve as supports and affinity spaces for teachers to digest all that is being thrown at them in a field that is constantly in flux and changing.

Recognizing the four core elements of SOC, McMillan and Chavis (1986) defined SOC theory 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" (McMillan & Chavis, 1986, p. 9). By applying the SOC tenets to social studies professional learning communities as refinement and reinforcement areas may provide a better understanding of the innerworkings and interactions of the individuals within the community, as well direction and guidance to support meaningful and effective teaching and learning of social studies education. Sense of community as a construct has shown itself to be strong indicator of whether members actually feel a sense of belonging whether the individual members matter and can impact the community, whether members are having their needs met, and finally, whether the community possesses a shared emotional connection that contributes to their overall cohesiveness and potentially their sustainability (Jones & Davenport, 2018; Mamonov et al., 2016; McMillan & Chavis, 1986). In doing so, various tenets of SOC may be

refined or reinforced, as was done in this study, to make the social studies community more robust to support social studies teacher development by effectively taking on the next change or movement in the ever-changing field. Teacher development in this way is crucial; moreover, having a way to support teacher learning and professional development in the field is even more important.

Specifically, the field of social studies has experienced a turbulent evolution including curriculum reform, attempts at national and state-level standardization, and attempts at complete marginalization and omission of the content area (Saxe, 1992, 2004). If the field of social studies is to continue seeing more movements and reforms in the future, certainly an empirically validated and conceptually sound understanding of social studies professional learning communities could aid in discerning the strength and sustainability of these communities (McMillan & Chavis, 1986; Jones & Davenport, 2018). The SOC framework can serve as a lens through which to analyze areas of reinforcement and refinement, as well as the sustainability of the professional learning communities of social studies teachers in the field. Then PLCs may be able to work towards becoming more cohesive units that navigate and persevere through a field that is constantly in flux.

Measuring the 'sense of community' and highlighting the four SOC tenets as refinement and reinforcement areas may provide direction and guidance for social studies teachers to continue supporting meaningful collaborations and effective teaching and learning of social studies education. This is necessary as the field of social studies is sure to face more movements and changes, as educational leaders and policymakers continue to try and standardize a field that was fundamentally created and designed to be experimental and adaptable (Saxe, 1994, 2004).

### **Limitations**

There were some limitations associated with this study that should be highlighted. The first limitation of this study was dissemination of the SCI-II survey instrument. In addition to identified community members being sent a direct message via Twitter, the survey was disseminated on Twitter via a tweet that tagged community members that met the criteria from TAGS and included the link to the survey the hashtag #SSChat. Even though specific individuals were tagged, because the link was posted openly on Twitter, there was potential for chain referral sampling, which may have resulted in other individual users not identified by TAGS to complete the survey. The second limitation of this study was the data collection period. The survey was distributed on Twitter and available for #SSChat community members to complete from September 2020 to October 2020. While TAGS had been used to monitor the behaviors and interaction of the #SSChat community for a year (August 2019 – August 2020), the actual study was cross-sectional. This potentially limited the generalizability of the results because it is possible that I missed important data from #SSChat community members who may have been tracked using TAGS but were not able to complete the survey during the data collection period.

### **Recommendations for Future Research**

Recommendations for future research include investigating whether a statistically significant difference between grade level taught (e.g. elementary school, middle school, high school, and higher education) and ‘sense of community’ among the different grade levels. This line of research is crucial in understanding the professional learning habits of teachers. Similar to students, teachers are unique individuals who learn in different ways and diverse modes. Virtual professional development and learning communities might be beneficial for certain teachers, but

not for others. That is important information to consider as professional development, especially in the field of social studies, is created, researched, and implemented. Relatedly, further investigations should be made to identify ways to hold teachers accountable for their participation in informal professional learning community's like the #SSChat on social media. This is necessary given the ability to passively and actively participate within the community. Accountability efforts by school districts and administrators would only aid in further legitimizing the community as a resource for social studies professional learning credit.

Another recommendation would be to determine if time involved with the community (e.g. numbers of years teaching/participating in the #SSChat positively or negatively correlate to 'sense of community' and sustainability) #SSChat has any potential impact on sustainability. These questions might contribute to a more in-depth of understanding of which categories of #SSChat community members are specifically contributing to the community's overall 'sense of community' and sustainability. Lastly, another recommendation would be to investigate the dynamic underpinnings of the membership SOC tenet and its role in social media-based professional learning communities, like the #SSChat. Membership was the only SOC subscale that did not correlate with Sustainability 1 (information contribution and consumption), Sustainability 2 (self-disclosure), or Sustainability 3 (intent to leave). However, a multiple regression showed that membership did have a significant inverse relationship to Sustainability 1. Future research to unpack the ambiguous understanding of what constitutes membership in informal virtual professional learning communities might help bring more clarity to its impact and effect within communities and how it may differ from in-person communities.



## Conclusion

This quantitative dissertation research study was organized into five chapters. Chapter one included a brief introduction to the topic, statement of the problem, purpose of the study, research questions, brief overview of the theoretical framework employed, significance of the study, delimitations of the study, and the researcher's positionality statement. Chapter two included a review of the appropriate and relevant literature related to the study, as well as an explanation and justification for the theoretical framework. Chapter three included a discussion regarding the methods, procedures, and the overall quantitative research design employed. Chapter four presented the research findings. Lastly, Chapter five included a discussion regarding the study implications, limitations, and future research recommendations.

Despite decades of changes that have slowly marginalized the field (Saxe, 1992), social studies has uniquely "survived" in P-12 schools (Saxe, 2004). Certainly, this is due in part to its original fundamental design as an experimental discipline with potential to be molded into whatever a school might envision it to look like (Saxe, 1992, 2004). However, with each movement and reform to "improve" social studies teaching and learning, teachers, scholars, and policymakers have struggled with coherently communicating a collective aim for the discipline (Saxe, 1992, 2004). Saxe (1992) posits that the reason for this is that the social studies discipline has lost its fundamental identity along its evolutionary journey in the field of education. Furthermore, as the educational landscape continues to change and evolve with each curriculum movement (Saxe, 2004), so do the instructional needs of students entering into the P-12 classroom setting (Banks, 2019; Gay, 2018). Thus, the constant various curriculum movements in social studies education ultimately impacts the development, training, and preparation of

pre/in-service social studies teachers (Jacobs, 2013; Desimone, 2009). As mentioned above, preparing, supporting, and developing social studies teachers to navigate the field requires a great deal of flexibility, adaptability, and introspection to effectively and appropriately equip them with the necessary competencies to be successful (Adler, 2008; Desimone, 2009; Gay, 2018; Laughter, 2011; Ladson-Billings, 2011). The #SSChat community is formed by practicing social studies educators, teacher educators, and other enthusiasts who are simultaneously experiencing the turbulent reality of the field from their own diverse and unique perspectives.

The purpose of this study is not to propose that the #SSChat community on Twitter is the “end all, be all” solution to social studies teacher preparation and professional development and learning. However, the #SSChat does exist and serve as an available open forum on Twitter that welcomes all interested individuals to join an ongoing conversation to support and further the field of social studies education. I opened this dissertation with a quote by Eric Qualman that stated: “Social media is not a fad; it is a fundamental shift in the way we communicate (Qualman, 2012).” The #SSChat community on Twitter certainly emulates this adage. Social studies education teachers, pre-service teachers, teacher educators, scholars, and other enthusiasts far and wide have leveraged Twitter to band together and communicate with each other by responding to the simple prompt, “What’s happening?”. Analyzing and studying the field of social studies and teacher development through the lens of ‘sense of community’, provides a fresh and relevant understanding of the complexities of social studies teacher learning and development. More importantly, it allows us to conceptualize the dynamic undergirding of virtual learning communities, like the #SSChat on Twitter to better understand the fundamental shift in communication and opportunity that social media affords. #SSChat

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**Appendices**

## Appendix A

## Part 1: Sense of Community Index Version 2

How well do each of the following statements represent how you *feel* about this community?  
(Responses: Not at all = 0; Somewhat = 1; Mostly = 2 ; Completely = 3)

1. I get important needs of mine met because I am part of this community.
2. Community members and I value the same things.
3. This community has been successful in getting the needs of its members met.
4. Being a member of this community makes me feel good.
5. When I have a problem, I can talk about it with members of this community.
6. People in this community have similar needs, priorities, and goals.
7. I can trust people in this community.
8. I can recognize most of the members of this community.
9. Most community members know me.
10. This community has symbols and expressions of membership such as clothes, signs, art, architecture, logos, landmarks, and flags that people can recognize.
11. I put a lot of time and effort into being part of this community.
12. Being a member of this community is part of my identity.
13. Fitting into this community is important to me.
14. This community can influence other communities.
15. I care about what other community members think of me.
16. I have influence over what this community is like.
17. If there is a problem in this community, members can get it solved.
18. This community has good leaders.

19. It is very important to me to be a part of this community.
20. I am with other community members a lot and enjoy being with them.
21. I expect to be a part of this community for a long time.
22. Members of this community have shared important events together, such as holidays, celebrations, or disasters.
23. I feel hopeful about the future of this community.
24. Members of this community care about each other.

**Subscales:**

Reinforcement of Needs =  $Q1 + Q2 + Q3 + Q4 + Q5 + Q6$

Membership =  $Q7 + Q8 + Q9 + Q10 + Q11 + Q12$

Influence =  $Q13 + Q14 + Q15 + Q16 + Q17 + Q18$

Shared Emotional Connection =  $Q19 + Q20 + Q21 + Q22 + Q23 + Q24$

## Appendix B

### Part 2: Sustainability Survey Items

#### Information Consumption:

1. InfoCons1 How often do you read comments on other #SSChat users' posts?
2. InfoCons2 How often do you review "likes" posted by other #SSChat users?
3. InfoCons3 How often do you view pictures posted by other #SSChat users on Twitter?
4. InfoCons4 How often do you read #SSChat status updates on Twitter?
5. InfoCons5 How often do you watch videos posted by other #SSChat users on Twitter?

1—never, 2—less than once a month, 3—once a month, 4—two to three times a month, 5—once a week, 6—two to three times a week, 7—daily.

#### Information Contribution:

1. InfoCont1 How often do you comment on other #SSChat users' posts?
2. InfoCont2 How often do you "like" posts made by other #SSChat users?
3. InfoCont3 How often do you post pictures on Twitter using the #SSChat hashtag?
4. InfoCont4 How often do you post status updates using the #SSChat hashtag on Twitter?

1—never, 2—less than once a month, 3—once a month, 4—two to three times a month, 5—once a week, 6—two to three times a week, 7—daily.

#### Self-Disclosure:

1. Self-Disc1 I often talk about myself when engaging with the #SSChat community on Twitter.
2. Self-Disc2 I usually talk about myself for fairly long periods at a time when engaging with the #SSChat community on Twitter.
3. Self-Disc3 I often discuss my feelings about myself when engaging with the #SSChat on Twitter.
4. Self-Disc4 I intimately disclose who I really am, openly and fully in my conversations when engaging with the #SSChat on Twitter
5. Self-Disc5 I often disclose intimate, personal things about myself without hesitation when engaging with the #SSChat on Twitter.

1—strongly disagree, 2—somewhat disagree, 3—disagree, 4—Neutral, 5—somewhat agree, 6—agree 7—strongly agree

#### Intention to Exit:

1. Exit1 I have frequent thoughts of leaving the #SSChat community on Twitter?

2. Exit2 I frequently think of deleting my profile from Twitter.

1—strongly disagree, 2—somewhat disagree, 3—disagree, 4—Neutral, 5—somewhat agree, 6—agree 7— strongly agree



## Appendix C

## Part 3: Demographic Items

1. I identify as a member of the #SSChat community on Twitter?
  - a. Yes
  - b. No
  - c. Prefer not to answer
  
2. Which of the following best describes your age?
  - a. 18-24
  - b. 25-34
  - c. 35- 44
  - d. 45- 54
  - e. Over 54
  
3. Which of the following best describes your ethnicity?
  - a. African American/Black
  - b. Asian
  - c. Hispanic
  - d. White
  - e. Other
  - f. Prefer not to answer
  
4. Which of the following best describes your gender?
  - a. Male
  - b. Female
  - c. Transgender
  - d. Other
  - e. Prefer not to answer
  
5. How are you affiliated with social studies education (teacher, teacher leader, university/college faculty, teacher educator, affiliated representative)?
  - a. Open Response
  
6. If you are a teacher, how many years have you been teaching?
  - a. Open Response

7. How many years have you participated in the #SSChat?
  - a. Open Response (enter #)
8. What is your highest educational attainment?
  - a. Associate's
  - b. Bachelor's
  - c. Master's
  - d. Education Specialist
  - e. Doctorate
9. What type of school do you teach in?
  - a. Public
  - b. Public Magnet
  - c. Private
  - d. Charter
10. What type of school district do you teach in?
  - a. Rural
  - b. Urban
  - c. Suburban
  - d. Other
11. My school/school district allows me to use social media participation towards professional development requirements.
  - a. Yes
  - b. No
12. What is your Twitter handle/username?
  - a. Open Response

## Appendix D

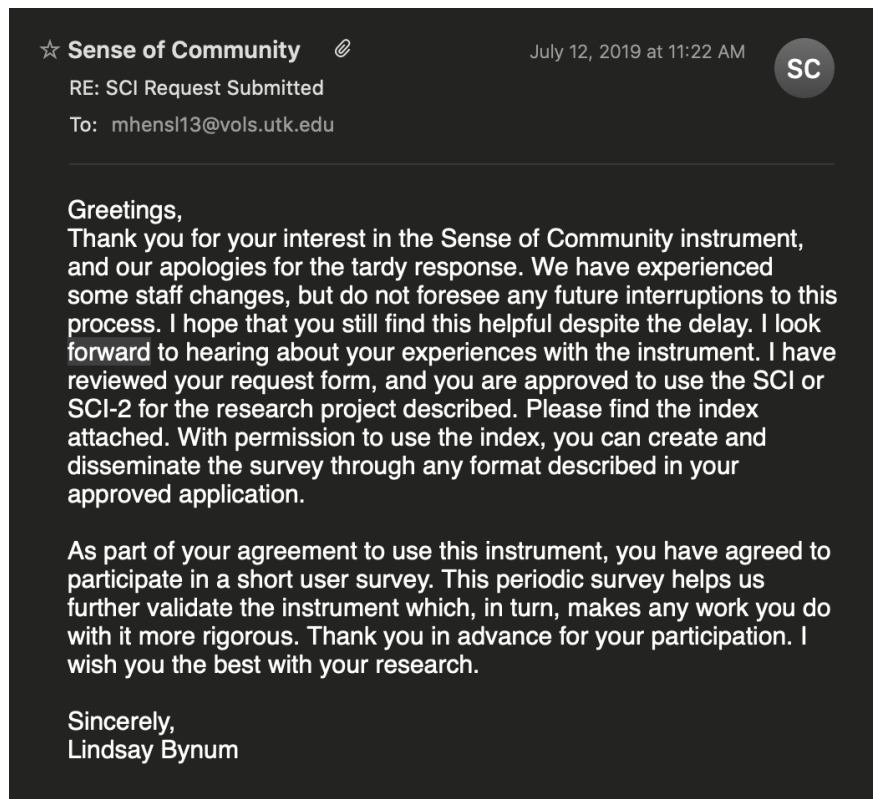




Figure 7. Permission to use Sense of Community Survey Instrument

## Appendix E

☆ **Matt Hensley**  June 19, 2020 at 4:01 PM  [Details](#)

Request to use survey instrument

To: [mamonovs@montclair.edu](mailto:mamonovs@montclair.edu) & 2 more

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Hello All,

My name is Matt Hensley and I am a Ph.D. candidate at the University of Tennessee, Knoxville in the Theory and Practice in Teacher Education department of the College of Education. I am working on my dissertation prospectus, which focuses on sense of community and sustainability of online virtual communities on Twitter.

I am writing you all to ask for permission to use your survey instrument from your paper, "The Role of Sense of Community in the Sustainability of Social Networking Sites (2016)" in my dissertation. Specifically, I would like to use the questions to measure information contribution, information consumption, and intent to leave the community. My plan would be to adapt the questions to make them more directed towards Twitter.

I have already been granted permission from the Community Research Team to use the Sense of Community Index-2. I was hoping I might have permission from you all to use the the three additional sections from your survey.

I really enjoyed reading your work.



Thank you for your time and I look forward to hearing from you soon.

My best,

- Matt

Matthew "Matt" Hensley, M.S.  
 Ph.D. Candidate | The University of Tennessee, Knoxville  
 Research Assistant | Theory & Practice in Teacher Education  
 Tennessee Council for the Social Studies Board Member  
 Social Media Coordinator | The International Society for the Social Studies & The Journal of Social Studies Research  
 Tennessee Destination Imagination Board Member  
 E: [mhensl13@vols.utk.edu](mailto:mhensl13@vols.utk.edu)  
 P: 423-972-7858  
 Twitter: [@Mr\\_Matt\\_Hensley](https://twitter.com/Mr_Matt_Hensley)

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**Stanislav Mamonov**  June 20, 2020 at 5:32 AM  [Details](#)

Re: Request to use survey instrument

To: [Hensley, Matt](#) & 2 more

[External Email]

Hello,

Please feel free to use the scales. Good luck with your dissertation!

Best,

**Stanislav Mamonov, PhD**  
 Associate Professor  
 Department of Information Management and Business Analytics  
 Feliciano School of Business  
 Phone: (973) 655 3512


  
1 NORMAL AVE | MONTCLAIR, NEW JERSEY 07043

Figure 8. Permission to use Sustainability Survey Instrument

## Appendix F

Table 17

*Correlations between SOC Subscales*

	<b>Reinforcement</b>		<b>Membership</b>		<b>Influence</b>		<b>Shared Emotional Connection</b>	
	<b>r</b>	<b>p-value</b>	<b>r</b>	<b>p-value</b>	<b>r</b>	<b>p-value</b>	<b>r</b>	<b>p-value</b>
<b>Reinforcement</b>		>.001	.487	>.001	.481	>.001	.460	>.001
<b>Membership</b>	.487	>.001		>.001	.589	>.001	.564	>.001
<b>Influence</b>	.481	>.001	.589	>.001		>.001	.587	>.001
<b>Shared Emotional Connection</b>	.460	>.001	.564	>.001	.587	>.001		>.001

### **Vita**

Originally from Northeast Tennessee, Matt Hensley grew up in the small rural community of Greeneville, TN. After high school, he attended the University of Tennessee, Knoxville and received a Bachelor of Arts degree in Political Science. Before graduating with his undergraduate degree, he knew he wanted to pursue his Ph.D. and work in the field of education. After earning his Master of Science degree in Social Science Education, and teaching high school and middle school social studies, he was recruited to begin his doctoral journey at UTK in the Department of Theory and Practice in Teacher Education. While working on his Ph.D. in Social Science Teacher Education, Matt continued teaching as a K-12 Museum Educator for the McClung Museum of Natural History and Culture. Moreover, he has taught introduction to teaching and social studies education methods courses to undergraduate students, while also supervising the clinical experiences of graduate students for TPTE.

Dr. Hensley's ultimate aim as a social studies teacher and teacher educator is to champion kindness through his teaching so that his students, in all their future endeavors, are willing to be disturbed and prepared to engage in civil discourse with others. This philosophy empowers him to cultivate pre-service teachers' understanding of social studies education by helping them visualize social studies as an ever-fluctuating study of diverse human life, decisions, events, and experiences that shape the world into what it is today.

Dr. Hensley's research interests include exploring educational technology to enrich learning for teachers and students, critical social media literacy, alternative best practices in teaching and learning social studies, experiential learning, youth civic and political engagement,

and impacts of 'sense of community' on teacher professional development and student learning in social studies education. After graduation, he plans to continue working in the field as a teacher education professor and researcher. He is incredibly grateful for everyone that has supported him along this journey.