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# Twitter and School Leaders: Examining Practices in a Twitter Chat

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# SCHOOL LEADERS AND TWITTER: EXAMINING PRACTICES IN A TWITTER CHAT

by

LESLEY PENDLETON

Under the Direction of Dr. Nicholas J. Sauers

## ABSTRACT

*Background:* Despite its potential, little is known about how school leaders use social media or the benefits of doing so. This includes the social media platform, Twitter, and the grass-roots phenomenon of using Twitter chats to connect, communicate, and learn from others.

*Purpose:* The purpose of this qualitative study was to explore whether school leaders who engage in Twitter chats show key characteristics of a community of practice.

*Literature Review:* The purpose of the literature review was to provide background knowledge on communities of practice, social media, and their combined potential for providing school leaders with viable ways to improve their leadership practices.

*Research Design:* A qualitative research design, based on a research approach of qualitative content analysis, directed this study. The theoretical framework was based upon two theories of social learning: communities of practice and connectivism.

*Data Collection and Analysis:* Based on the data collected from an analysis of school leaders' tweets during an educational Twitter chat, a content analysis revealed two key themes with implications for school leaders.

*Results:* Following the analysis of 1, 741 leader tweets, two primary themes were uncovered in this research, both of which provided an answer to the central research question of the study. First, the structure and content of #satchat shows the presence of the main elements of a community of practice. Second, activities indicative of a community of practice, such as problem solving, seeking experience and mapping knowledge were also evident.

*Conclusion:* Twitter provides an opportunity for school leaders to join a community of practice that enables them to learn from each other and exchange ideas that support their professional growth. As participants share their expertise, they are able to drive strategy, solve problems, and transfer best practices. These findings might be of particular interest to busy school leaders with limited time and resources to invest in their own professional learning.

**SCHOOL LEADERS AND TWITTER: EXAMINING PRACTICES IN A TWITTER CHAT**

by

LESLEY PENDLETON

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**CHAPTER 1**

**TWITTER AND SCHOOL LEADERS: PLEASANT DIVERSION OR**

**PROFESSIONAL DEVELOPMENT?**

Social media is a tool that can strengthen school leaders' ability to connect, communicate, and collaborate with others. Studies show that school leadership can be isolating and overwhelming, particularly for those new to the field (Cook, Johnson, & Stager, 2016; Jefferis, 2016; Howard & Mallory, 2008). Yet, effective school leadership is critical for the success of our students (Marzano & Waters, 2009). However, even school leaders in geographically isolated areas can access high-quality professional learning and mentoring by leveraging technology and social media (Blakeslee, 2012; Dixon, 2012; Cox & McLeod, 2014; Goldstein, 2011; Nauman, 2014).

Communities of practice are an age-old way of learning from others who share a concern or passion (Wenger, 1998). While often informal, this process of collective learning is being used by a growing number of people and organizations to improve performance (Wenger-Trayner & Wenger-Trayner, 2015). Notably, communities of practice are not limited to the medium through which members connect (Wenger-Trayner & Wenger-Trayner, 2011). Support for this is found in studies that have shown evidence of focused and collective learning between school leaders in the Twitter environment (Sauers & Richardson, 2015; Cox, 2012).

Previous studies have also examined how leaders use technology to access professional development opportunities, share resources, and grow their network of colleagues (Cho, 2013; Cox, 2012; Megele, 2014; Sauers & Richardson, 2015). In particular, they demonstrate how social media tools help school leaders quickly and easily cultivate a virtual community of

practice that connects them to current research, other educators, and experts in the field (Cox, 2012; Nauman, 2014).

Twitter chats (moderated online discussions) offer one way for educators to access their own community of practice that is focused on issues important to them (Anderson, 2012; Cook & Mishra, 2013). Interaction with other members of the community encourages participants to explore new ideas and implement what they learn from others in their daily work (Anderson, 2012; Cook, Johnson, & Stager, 2016; Flanigan, 2011).

While on the surface, Twitter chats appear to demonstrate essential elements of a community of practice, this research more closely examined the specific tweets of school leaders to determine if Twitter chats actually support the school leader's professional development, or if they devolve into an online version of the office water cooler. Researchers have described school leaders' use of Twitter to learn and exchange ideas that support their professional growth (Cho, 2013; Ross, Maninger, LaPrairie, & Sullivan, 2015; Sauers & Richardson, 2015). They have also noted that Twitter may include some components of a community of practice (Megele, 2014; Sauers & Richardson, 2015). The purpose of this study is to add to this body of research by asking which behaviors, indicative of a community of practice, may be found in the Twitter chat environment. The overarching research question of this study addressed that issue:

*"To what extent are the behaviors of school leaders, in the context of Twitter chats, characteristic of a community of practice?"*

**Theoretical framework.**

This study was situated at the intersection of two social theories of learning: communities of practice (Wenger, 1998) and connectivism (Siemens, 2005). In *Communities of Practice: Learning, Meaning, and Identity,* Wenger (1998) describes learning as a byproduct of

interactions between people who share a common learning need and then interact regularly to learn from each other. Siemens (2005) asserts that learning happens when networks of individuals share information via connections made possible by Internet technologies. In both theories, learners cultivate connections in order to expand their own learning; this is also characteristic of online spaces such as Twitter chats.

The basis for Wenger's (1998) communities of practice theory is Lave and Wenger's (1991) earlier work on situated learning theory. Situated learning theory holds that learning is often unintentional and situated within an authentic experience (Gregory, 2016; Lave & Wenger, 1991). This process initially places the learner in what Lave and Wenger (1991) call legitimate peripheral participation; the learner is a newcomer but not yet a full member of the group. Through social interaction and collaboration, however, individuals move from the periphery to the center. As they become more involved, they become part of a community of practice that deepens their knowledge and expertise (Gregory, 2016; Lave & Wenger, 1991; Wenger, McDermot & Synder, 2002).

As learners interact regularly, they cultivate their community of practice, by engaging in an age-old phenomenon where people join in collective learning in a shared domain. This may look like teenagers practicing music in their garage-band, engineers working on similar problems, or new teachers pulling together to cope with the stresses of their chosen profession (Wenger, 2015). Wenger goes on to say that communities of practice exist when individuals learn from each other in specific ways. They often form organically to learn from each other through regular interaction and focus on a shared concern or passion (Lave & Wenger, 1991; Wenger & Snyder, 2000). They are often so informal and pervasive that they are never explicitly named and membership is both voluntary and loose (Wenger, 1998).

Connectivism has been described as the learning theory of the digital age (Akella, 2014, p. 64; Siemens, 2005). It asserts that learning happens through socially-constructed networks, made available by Internet technologies that serve as information sources. Creating and nurturing connections are critical for learning in a constantly-shifting landscape such as education. The currency most valued in a connectivist paradigm is up-to-date information, gathered by a process of decision-making that is informed by a diversity of views and the ability to see connections between fields, ideas and concepts (Siemens, 2005).

Siemens (2005) asserts that technology has changed the very nature of learning and knowledge-making. As individuals, we cannot experience everything, but we can leverage our connections and store that information digitally. In this way, our knowledge base expands beyond what any one person could learn on his own. Connectivism as a learning theory addresses not only how we learn but how we acquire information. We do this by navigating environments that are often chaotic and complex, tapping into our networks to synthesize what we find through those connections. These connections, even if characterized as weak ties, make the world smaller and shorten the distance between learner and information.

The concepts of situated learning, communities of practice, and connectivism form the theoretical basis for this research which examines how school leaders interact in the Twitter chat environment. It is based on theories of learning that presume we are social beings who learn from each other, in connected networks of individuals who share a common learning need, passion, or concern (Lave & Wenger, 1991; Siemens, 2005; Wenger, 1998; Wenger-Trayner & Wenger-Trayner, 2015). In the digital age, this learning is made possible by connections and information sources accessed through Internet technologies such as online discussion forums and social networks (Siemens, 2005).

**Review**

  With the rise in popularity of social media, the world is more connected than ever (Riese, 2016). Unlike any medium of human interaction that came before it, social media can connect billions of people instantly (Boyd, 2007; Bullas, 2011). In the United States, 78% of people have a social media profile of some kind, and over 300 million people are active users of Twitter worldwide (Greenwood, Perrin, & Duggan, 2016). Social media use has been steadily rising in the past ten years, particularly among women, older Americans, and those living in rural areas. (Perrin, 2015). The proliferation of new social media tools continues, creating many opportunities for school leaders to connect with others and build their professional capacity. This trend in more tools being used by more and more people is rapid and unlikely to reverse (Perrin, 2015).

  This literature review explores how social media has evolved and how it can be used to facilitate connections, improve communication, and foster collaboration. More specifically, it describes the social media tool, Twitter, and its relevance to busy school leaders who may work in isolation and have limited resources to grow their own professional capacity. It begins with a brief history of social media and its common uses by a variety of organizations, including schools. Subsequent sections detail how Twitter, one of the most popular social networking sites (Moreau, 2016) can be used as both a professional development and a communication tool. Finally, it details the concepts of communities of practice and educational Twitter chats, and shows how the intersection of the two leads to a community of practice where school leaders share ideas, ask questions, and grapple with common educational issues (Burk, 2000; Carpenter & Krutka, 2013; Goldstein, 2011; Wenger-Trayner & Wenger-Trayner, 2015**.**

**A brief history of social media.**

The seeds of what we now regard as electronic social media go back to the 1850's when the telegraph became widely used to connect people in faraway locations ("Morse Code," 2009). This early method of exchanging ideas electronically, through what would become an intercontinental network, was eagerly adopted and paved the way for later iterations that used the telephone, fax, and Internet ("Morse Code," 2009).

In 1991, the Internet became publicly available, and early social networking sites, blogging sites, and peer to peer sharing sites became more widespread (Edosomwan et al., 2011). Social networking sites have their own cultures and help both strangers and friends connect and share ideas (Boyd, 2007). The 1990's saw the first iterations of chat rooms as well. Internet service providers such as CompuServe, and later AOL, created virtual spaces for individuals, from teenagers avoiding homework, to stay-at-home moms looking for adult interaction, to technophiles, to type private messages to each other (Dewey, 2014). At the peak of this phenomenon, AOL alone provided more than 19,000 chatrooms with millions of users (Dewey, 2014). As Internet services became free of charge and new paradigms for social networking were invented, the concept of chat rooms faded away (Dewey, 2014).

In the early 2000's, innovators picked up the pace as they launched many new sites, including Friendster, Ryze and MySpace, to help people leverage both their business and personal networks (Boyd, 2007). While these sites are now defunct or marginalized, they paved the way for three enduring and still growing social media sites: Facebook, YouTube and Twitter (Moreau, 2016).

Facebook has over 1.4 billion monthly active users, making it the most popular social network in the world (Bullas, 2011; "Facebook Statistics," 2016). If Facebook was a country, it

would be the most populous one on the planet, surpassing even China (Stenovec, 2015). On Facebook, users connect through "friends"; they are the people with which one shares content and updates (Gunelius, 2011). Facebook users share a continually appended feed of status updates, links to content, and comments on each other's "wall" (Gunelius, 2011). Since its launch in 2007, Facebook has continued to grow; five new profiles are created every second ("Facebook Statistics," 2016). On the surface, Facebook functions as a way for friends and family to stay in touch but, with billions of pieces of content shared daily, it provides a unique opportunity to share and market ideas and resources ("Facebook Statistics," 2016).

YouTube began in 2005 as a video-sharing site that has since evolved as a way to share user-created original content ("History of YouTube," 2016). The first video on YouTube was only 19 seconds long and featured one of the site's creators posting a video he took of himself at a zoo ("History of YouTube," 2016). Just a few months later, a single video clip of a Nike shoe advertisement reached a record 1 million views (Dickey, 2013). Following these early and sometimes amateurish postings, YouTube became more mainstream, and organizations as diverse as the U.S. Congress and The Vatican launched their own YouTube channels (Dickey, 2013). A Google search returned more than 64 million results for the search term "YouTube for teacher professional development". These video topics range from purely humorous to the latest innovations in education.

As the 1990's came to a close, a new company that would prove to have an enormous impact on how we use the Internet, was launched ("Google," 2014). Quickly establishing itself as a top search engine, Google expanded its reach into social networking by acquiring YouTube in 2006 and launching its own social networking site, Google+, five years later ("Google," 2014).

**Twitter basics.**

Twitter is an online social network and microblogging site that enables users to send and read short 140-character text messages, called tweets ("Twitter," 2014). The social structure of Twitter includes more than 250 million monthly active users ("Twitter Statistics," 2016) and revolves around those who tweet and those who follow them; the underlying premise is that the more followers one has, the greater one's influence (Axon, 2011; Glaser, 2016; Hughes, 2014). According to "Twitter" (2014) Twitter users "follow" other users to view and exchange messages, known as "tweets." The word "tweet" works as a verb, as well; one tweets a message. Each tweet must be 140 characters or less or it will not be published (Glaser, 2016). Twitter is one big network for delivering tweets to people, and by default, tweets are public and searchable (Glaser, 2016).

Appending hashtags (e.g. #edchat) to a tweet, or searching for hashtags, helps users find content that is important to them. Hashtags are best used for adding to a larger conversation and they are clickable, so that users can search for and find all tweets related to that topic. (Glaser, 2016). Twitter is all about sharing things that one's followers might find useful, interesting, or entertaining (Axon, 2011; Glaser, 2016). The "retweet" is a manifestation of this (Axon, 2011; Glaser, 2016). A user shares another's tweet by either clicking the "retweet" button or by retweeting manually by typing "RT @username", before typing out or pasting the tweet's contents, where "username" is the original author's Twitter username (Axon, 2011; Glaser, 2016). This allows the retweeting user to provide his or her own comment as well (Glaser, 2016).

To direct public messages to other Twitter users, one begins a tweet by inserting somebody's @username in the tweet (Axon, 2011; Glaser, 2016). This is a public way to draw someone's attention to a tweet or include them in a conversation (Glaser, 2016). Alternatively,

users can send a direct message, or DM, to further a conversation completely in private (Glaser, 2016). Unlike the public mentions, DMs are private and do not appear to anyone besides their specified recipients, however, one can only send a DM to someone who is following him or her (Axon, 2011).

A critical feature of Twitter that is often used by school leaders is the ability to share content by linking to other websites (Cho, 2013). Twitter allows users to drive traffic to other sites by posting the details of the website address (Glaser, 2016). This feature can be used to advertise one's own blog, website, or business or share a favorite resource (Greider, 2014). The 140-character limit can be mitigated using a tool called a url shortener. In this way, one can still tweet (comment) while directing other users to another website (Glaser, 2016).

**Twitter as a communication tool.**

Exemplary leaders "make strong connections with other people, valuing and caring for others as individuals and as members of the educational community" (The Council of Chief State School Officers [CCSSO], 2006, p. 1). Educators also know that strong and meaningful parent involvement is essential for a child's success in school and that the foundation for the home-school relationship is effective communication (Comer & Haynes, 2014; Epstein & Jansorn, 2004; Graham-Clay, 2005). The Center for the Study of Educational Policy (CSEP) notes that parental involvement impacts critical indicators of school success including grades, test scores, enrollment in higher level programs, and attendance (2004). "Students who succeed in school are almost always supported by their families, while other students struggle without support from home" (Epstein & Jansorn, 2004, p. 19). Parents want to be involved in their children's education, and the literature reveals that connected parents are supportive parents (Center for the Study of Educational Policy, 2004; Comer & Haynes, 2014; Epstein & Jansorn, 2004).

Effective communication loops can even level the playing field for disadvantaged children (Center for the Study of Educational Policy [CSEP], 2004; McCoach et al., 2010). In all segments of society, parental involvement is positively associated with student success (CSEP, 2004), but it is even more critical in poorer schools. McCoach et al., found that in poor schools, parental involvement is a key variable that explains why some schools succeed and others fail (2010, p. 453).

Unfortunately, when communication between home and school is lacking, it breeds an overall lack of trust. Research shows that many parents approach school with a negative predisposition because of their own experiences as students (Comer & Haynes, 2014; Graham-Clay, 2005). When parents only receive a call from school when a child misbehaves, that negative attitude is reinforced (Comer & Haynes, 2014). In this context, as well as the current political environment, another benefit of social media is the opportunity to increase transparency. As noted, many parents approach the school from a position of distrust, particularly if there is a history of school failure; increased transparency goes a long way toward building the necessary confidence of the public (Carr, 2014). One school district has become so transparent that the Boston Globe has a direct feed to the blogs and Twitter accounts of its school leaders (Larkin, 2013). Social media is an important tool for creating greater transparency, which then generates trust, loyalty, and the kinds of relationships that are critical in the digital age (Carr, 2014; Pattison, 2008).

Accessibility to the school message is important, too. Parents want to be involved with their children's education and when communication is frequent, convenient, and relevant they are more likely to be engaged and supportive. Traditional tools, such as paper newsletters that go home in student book bags, are becoming increasingly ineffective ("School Newsletters," 2012).

In a country where a majority of adults living in poverty have a wireless phone but no landline (Pai, 2014; Kaplan, 2014), schools must find new ways to reach their audiences (George Lucas Educational Foundation, 2011; Sheninger, 2014). Social media tools, such as Twitter and blogs, are exactly the kinds of tools that school leaders can leverage to reach and interact with their stakeholders (Blankenship, 2013; Larkin, 2013; Sheninger & Larkin, 2012).

When used strategically, social media can be a powerful way to engage and communicate with teachers, parents, and students. Cox (2010) found that a major advantage of using tools like Twitter is the ability to include voices in a conversation that would not otherwise happen. For instance, school leaders use Twitter to include parents, who cannot physically attend, in school events such as Open House or PTA meetings. Increased access to school leaders allows for an exchange of ideas and the ability to ask questions that might otherwise go unanswered (Cox, 2012; Dembo, 2015). This may prevent small issues from blossoming into big problems. Parents also noted an increased connection with teachers who interact with them via blogs or Twitter; the online atmosphere encourages more frequent and genuine interactions that might not happen in the course of a normal school day (Cox, 2012). Dembo (2015) describes a positive side effect of regular connection between individuals through social media as *ambient intimacy*. Even if the two people have never met, they enjoy a relationship that is both personal and powerful (Dembo, 2015).

Blogging is another way for school leaders to communicate with their stakeholders and learn other's viewpoints (Nauman, 2014). Blogging not only provides a window for others to observe how they think as leaders, it gives leaders a reflective tool they can use to explore their own leadership practices, (Carr, 2007; Sheninger, 2014). Additionally, blogs are a common entry

point for those new to social media, providing a platform to develop and share the vision for the leader's school or district (Carr, 2007, Sheninger 2014).

Effective communication loops are critical for staying connected to stakeholders and provide more equitable access to the school and school leaders (McCoach et al., 2010). Twitter, Facebook, and blogs all help increase access to the school message and can even let parents participated virtually, when they cannot be physically present (Carr, 2007; Cox, 2012). Social media tools provide school leaders with additional ways to reach their audiences in a way that is both familiar and expected in our digital age (Cox, 2012; Sheninger, 2014).

**Twitter as a professional development tool.**

Twitter provides professional development that is timely, engaging, and convenient (Carpenter & Krutka, 2013; Cho, 2016; Greider, 2016; Ross, Maninger, LaPrairie, & Sullivan, 2015; "Social Media," 2011). It is both flexible and free, sometimes even meeting educators' needs better than more traditional models (Carpenter & Krutka, 2013; Ross et al., 2015). Educators also value the positive and collaborative community that Twitter facilitates (Carpenter & Krutka, 2013). This is good news, since the school principal is seen as "lead learner" and is accountable for ensuring that school staff are provided with ample opportunities to collaborate, learn, and challenge each other to stay abreast of current trends in curriculum, instruction, and assessment (CCSSO, 2006; Marzano, Waters, & McNulty, 2005).

In addition to building the capacity of others, school leaders are also expected to tend to their own professional growth (Sheninger, 2014; Sheninger & Larkin, 2012). Twitter is a viable way to help leaders stay up-to-date on educational issues and learn from others (Jefferis, 2016; Nauman, 2014; Zalaznick, 2014). While school leaders on Twitter tend to be focused on

technology and other educational issues, they also engage in supportive and personal talk that helps mitigate feelings of isolation (Cho, 2016; Jefferis, 2016; Sauers & Richardson, 2015).

Leaders new to Twitter can learn by "listening in" to Twitter conversations without the pressure of adding their own content (Greider, 2016). This "lurk and learn" strategy is an entry approach for beginners that can quickly evolve into to a rich collaboration between experts and fellow practitioners who provide each other with fresh ideas, inspiration, and feedback (Cox & McLeod, 2014; DeWitt, 2011).

One of the most compelling benefits of Twitter as a professional development tool is its sheer accessibility (Cho, 2016; Greider, 2016; Ross et al., 2015). This dynamic, asynchronous tool offers access to professional development that is available day or night (Burt, 2014; Larkin, 2011). When school leaders want to collaborate, or need answers to tough questions, their virtual support system is available across time zones, state lines, and even oceans, ready with instant feedback (Flanigan, 2011; Gerstein, 2011; Larkin, 2013; Nauman, 2014; Perez, 2012; Ross et al., 2015). Although face-to-face interactions with colleagues in one's district remain valuable, Twitter offers access to a nearly unlimited supply of experts, leaders in the field, or peers who do the same work and face the same challenges (Dobler, 2012; Foote, 2014; Miller, 2014; Ross et al., 2015). In other words, "Social media makes the world a much smaller place" (Sheninger, 2014, p. 49).

Twitter can be infinitely personalized (Carpenter & Krutka, 2013). The on-demand and global nature of Twitter gives educators unmatched opportunities to craft a learning experience tailored to their own needs and preferences (DeWitt, 2011; Flanigan, 2011; Perez, 2012; Robinson, 2011; Zalaznick, 2014). Leadership can be isolating and school cultures that encourage information silos are common (Cook et al., 2016). The ready availability of a virtual

community builds connections and capacity, and gives leaders a fresh perspective (Sheninger, 2014). Since self-directed learning is the standard on Twitter, users can engage as little or as much as they like to learn according to their own needs (Ferguson, 2010; Greene, 2014; Sheninger, 2014). The benefit of this flexibility is clear since "the best PD tool is the one you will use" (Miller, 2014, p. 24).

Twitter connects educators with experts and colleagues at little or no cost (Cook et al., 2016). It expands the possibilities for access to professional contacts that otherwise not be possible or practical (Carpenter & Krutka, 2013). Budgets are tight and one-size-fits-all professional development is no longer acceptable, making the appeal of Twitter evident (Flanigan, 2011; Greene, 2014; Miller, 2014). Equally appealing is the quality of the connections, which are often beyond those that a typical educator would be able to access (Cox, 2012). Cox and McLeod (2014) interviewed principals who interacted with experts on Twitter, such as Robert Marzano and Diane Ravitch, without traveling or paying high conference fees.

The ability to share and access content, known as reciprocal linking ("Twitter," 2014) is a powerful aspect of the Twitter experience (Cho, 2013; Gerstein, 2011; (Holton, Baek, Coddington, & Yaschur, 2014). Hyperlinks serve a central social role for Twitter users who seek the resource exchange made possible by this feature (Holton et al., 2014). In Gerstein's (2011) study of how educators use Twitter for professional development, accessing resources and links was the most cited reason for using Twitter. Davis (2015) also found that the primary value of Twitter for educators is sharing knowledge and resources. As administrators connect with each other, they can amass a storehouse of bookmarks and links to help them do their own work and share resources with their teachers (Robinson, 2011). Sharing with others is the key to effectively using Twitter for professional development (Davis, 2015; Goldstein, 2011).

Twitter offers a convenient, flexible and engaging way for school leaders to access the latest in professional development opportunities (Cox, 2012). It stands in contrast to traditional professional development in that it lacks the restrictions of time, money, and geography (Burt, 2014; Larkin, 2011). Twitter gives leaders autonomy in their learning and provides almost unlimited opportunities for focused interactions with others who share their passion for leading learners (Cox, 2012). Those new to Twitter may utilize a "lurk and learn" strategy to gather resources and new ideas, while more experienced users may build large networks to build their leadership capacity (Cox & McLeod, 2014).

**Twitter chats.**

In her article, "13 Great Twitter Chats Every Educator Should Check Out", Bearden (2013) describes a 21st Century tool for professional learning called the Twitter chat, or its specialized outgrowth, the #edchat. These "robust, professional learning networks" have been created by educators to meet their specific needs (Zalaznick, 2014, p. 20). Participants in the chat log on at a designated time and then engage in a discussion that is driven by questions posed by the moderator (Carpenter & Krutka, 2014; Foote, 2014). Twitter chats are essentially online conversations, designated with a hashtag label, so users can follow the chat (Foote, 2014). The first #edchat was organized in 2009 by three educators living in Germany, New York, and North Carolina (Herbert, 2012). Although the original #edchat is still going strong, many other iterations have organized to meet the needs of different groups (Herbert, 2012; Miller, 2014).

Twitter chats are communities within the larger Twitter ecology. They evolve in different ways for different reasons. Sometimes they emerge organically, with a loose structure, when users begin to network around a given hashtag. Both the membership and the purpose of the network can evolve as needed (Ford, Veletsianos, & Resta, 2014). More traditionally, educators

join the chat on the same day and time each week to respond to questions posted by a moderator (Greene, 2014). Another application is for a school or district to create its own Twitter chat to tailor it to specific needs, such as gathering input about professional development needs (Foote, 2014).

The benefits of Twitter chats are similar to those of Twitter in general, writ large. In their study of why educators use Twitter, Carpenter and Krutka (2013) found that synchronous chats were frequently cites as sources of content sharing and connecting. One teacher noted that chats "combine the elements of resource sharing, networking, and emotional support." (Carpenter & Krutka, 2013, p. 424). Educators cited a feeling of community that breaks down barriers and reduces a feeling of isolation that both teachers and administrators sometimes feel (Carpenter & Krutka, 2013; Cho, 2016; Dobler, 2012; Jefferis, 2016). Other benefits include access to others who share a passion for education, global access, and just-in-time feedback from other practitioners (DeWitt, 2011; DeWitt, 2014; Flanigan, 2011; Foote, 2014). According to Carpenter and Krutka (2014), Twitter chats "often encourage a more substantive and dynamic exchange of ideas than traditional, single-tweet activity" (p. 12). Sending out an individual tweet may give the user little sense of the audience for that tweet and may not lead to any new connections, while taking part in a chat leads to immediate interaction and discussion (Carpenter & Krutka, 2014).

Twitter chats facilitate interactions between people who would not normally have an opportunity for a focused conversation, such as a principal, teacher, and educational researcher discussing the latest developments in educational technology (Cox, 2012). The Twitter chat environment avails participants to a base of knowledge that might otherwise be untapped and unexplored (Cook et al., 2013). Traditional models of professional development, typically one-

shot, short-term sessions, are not very effective (Dana, Dawson, Wolkenhauer, & Krell, 2013). This lack of meaningful and convenient professional development likely contributed to the grass-roots educational Twitter chat movement that created spaces for educators to connect and grow (Dana et al., 2013; Cook, et al., 2013).

School leaders can likely profit from what is already known about how other educators benefit from the power of online spaces. Twitter chats are characterized by a rapid flow of information, in response to a problem or topic provided by the moderator (Britt & Paulus, 2016). This includes almost-instant access to resources, whether in the form of advice, links to information, or teaching and learning tools (Britt & Paulus, 2016; DeWitt, 2014; Greene, 2014). Despite the fluid nature of Twitter chats, educators participating in #edchat report benefiting from a feeling of collaboration and sustained mutual relationships with chat participants (Britt & Paulus, 2016). Twitter chats contribute to relationship-building, professional growth, and a feeling of connectedness, all of which can benefit the busy school leader.

**Communities of practice.**

The term 'community of practice' was created by Jean Lave and Etienne Wenger (1991) to explore the idea of situated learning within a particular domain of social practice. Their early work is akin to a metaphor, where they describe an ideal learning environment in which new members are inducted into the community (Benzie et al., 2005). The concept evolved in Wenger's later work (1998), becoming more concrete and descriptive of the ways in which people interact within their workplaces. Wenger and co-author, Beverly Wenger-Trayner, continued this work to expand a social learning framework for a variety of organizations world-wide (Wenger-Trayner & Wenger-Trayner, 2015).

Communities of practice are also described by Hildreth and Kimble (2001) as a solution for the increasingly complex business of knowledge management. They assert that "knowledge resides in people: not in machines or documents" (Hildreth & Kimble, 2002, p. 1). Communities of practice provide an environment where knowledge is created, nurtured, and sustained (Hildreth & Kimble, 2001). Brown and Duguid (2000) acknowledge the difficulty in transferring best practices within a workplace. They explain that what is communicated in an employee handbook or instructional manual lacks the nuance of information handed down within a community of practice. Members learn much from each other through informal exchanges of information involving improvisation, storytelling, and job-embedded demonstrations (Brown & Duguid, 2000).

**How communities of practice form.**

Communities of practice emerge in response to a common interest, helping members orient to the world around them (Eckert, 2006). Communities of practice may be conceptualized as an expansion of one-to-one knowledge sharing that addresses common or recurring problems, shares information of mutual interest, and communicates the state of affairs (Burk, 2000). Wenger (1999) identifies a community of practice as "…groups of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly" (p.1). Communities of practice emerge in environments in which "soft" knowledge is developed; this knowledge is not easily quantified, captured, and stored through traditional means (Hildreth & Kimble, 2002).

The literature on communities of practice illustrates a long tradition of growing the professional capacity of both novice and experienced individuals who share a common interest, passion, or career (Wenger, 1998; Wenger & Snyder, 2000; Wenger, McDermott, & Snyder,

2002). Members of a community of practice engage in mutual sense-making as they share their experiences over time (Eckert, 2006).

Communities of practice are not confined to face-to-face interactions between colleagues (Wenger-Trayner & Wenger-Trayner, 2015). Online environments can also lead to the sustained and focused interactions characteristic of communities of practice. Previous researchers have found evidence of communities of practice in studies of Twitter and Twitter chats (Britt & Paulus, 2016; Carpenter & Krutka, 2013; Cho, 2013; Cook, Kenthapadi & Mishra, 2013; McArthur & White, 2016; Sauers & Richardson, 2015).

**Defining characteristics.**

For the purpose of this research study, the working definition of a community of practice is a group of people who are informally bound together, yet share a passion and expertise, and whose primary output is knowledge (Wenger, 1998; Wenger & Snyder, 2000; Wenger-Trayner & Wenger-Trayner, 2015). In this case, the group of people are school leaders and other educators who come together in the Twitter chat environment to generate and learn from the collective wisdom of the group.

While communities of practice have existed for as long as humans have been learning from one another, not all communities are a community of *practice* (Hoadley, 2012). Groups that come together for ambiguous purposes, or for purely social reasons, are not communities of practice. For the purposes of this study, the essential characteristics of a community of practice are drawn from the early works of Wenger (1998) as well as the extension and refinement of that work, which is ongoing, by Wenger-Trayner & Wenger-Trayner (2015). According to this work, a community of practice is identified by three crucial characteristics: the domain, the community and the practice, as detailed below:

The *domain-* members are brought together by a learning need they share

(whether this shared learning need is explicit or not and whether learning is the

motivation for their coming together or a by-product of it).

The *community-* their collective learning becomes a bond among them over time

(experienced in various ways and thus not a source of homogeneity).

The *practice-* their interactions produce resources that affect their practice

(whether they engage in actual practice together or separately).

The *domain* must be distinguished from a mere network of friends or colleagues.

Members of a true community of practice share a commitment to the domain and value their

collective competence, even if no one outside the group acknowledges their expertise. As a

*community*, members interact and strengthen their bonds as they learn together. For instance, a

website or a group of students who do not interact in a recognizable way would not be

considered a community by Wenger. A community of practice must have interaction between the

members, which leads to relationships, in which they learn from each other. Finally, the

members of a community of *practice* are actual practitioners who develop a shared repertoire of

resources and support that develops over time. They meet regularly and build a knowledge base

upon which they rely to improve their individual work colleagues. When these elements are

combined and developed in parallel, they comprise a true community of practice that may

elevate the members' capacity and performance.

Other indicators of a community of practice include sustained mutual relationships,

shared ways of engaging, a rapid flow of information, a very quick setup of a problem to be

discussed, and the tendency to share stories, inside jokes, and knowing laughter. These groups

develop a shared jargon, tend to skip lengthy introductory preambles, and have mutually defining

identities (Wenger, 1998). To an outsider, the exchange of information that happens in a

community of practice may even look like idle chit-chat. Brown and Duguid (2000), describe

how a quick breakfast between Xerox account representatives can be worth hours of training.

While eating, they posed questions, raised problems, offered solutions, discussed changes in their

work, and laughed at their mistakes.

        **Activities of a community of practice.**

        Communities develop their practice through a variety of activities. Wenger-Trayner &

Wenger-Trayner (2015) describe eleven activities that are typical of how a community of

practice interacts to support its members (see Appendix A). These activities are often focused on

solving problems, exchanging resources, and mentoring less experienced members of the group.

For instance, in *Communities of Practice: Learning*, Meaning, and Identity, Wenger (1998)

provides a case study of a group of insurance claims processors. While they would not self-

identify themselves as a community of practice, evidence of the community is found in their

lunchtime conversations and informal reflections on breaks, as well as in more formal discussion

of processes and rules.

        The actions of a community of practice can be critical to an organization's success. They

help drive strategy, open new lines of business, solve problems quickly, transfer best practices,

develop professional skills, and help the company recruit and retain talent (Wenger & Snyder,

2000). Members of a community of practice might share strategy in regularly-scheduled

meetings, provide progress updates on a project, or encourage a new employee who needs a little

additional support (Wenger & Snyder, 2000; Wenger-Trayner & Wenger-Trayner, 2015). They

also occur organically, whenever and wherever members gather; often, these exchanges are not

formal or scheduled but happen in a more casual and extemporaneous manner, such as in story telling over lunch (Brown & Duguid, 2000).

Communities of practice are often formed to share specific knowledge, ensuring consistency in what is known and how it is applied (Wenger, McDermott, & Snyder, 2002). They help communicate the kinds of organizational knowledge that defy codification, through dialogue and interactions between members (Hildreth & Kimble, 2002). In this way, members of the community function as stewards of core competencies for future members. The focus of the activities that communities of practice engage in vary widely. They range from learning mindfulness, to improving teaching strategies, to designing information systems (McAlister, 2016; Strean, 2016; Wenger et al., 2002).

Successful communities of practice engage in focused action that often involves opportunities for talking, listening, and an exchange of resources to solve a mutual problem or to create a repository of knowledge (Wenger et al., 2002). When the appropriate actions are present, the potential for the entire group to benefit increases and helps ensure the continued existence of the community (Baker & Beames, 2016; Wenger et al., 2002).

**Twitter chats as a community of practice.**

While limited, previous studies have shown Twitter chats to have key elements of a community of practice. In their 2016 study, McArthur and White examine how people collectively identify with others and collaborate in digital gathering sites. They determined that Twitter chats serve as virtual places for users to talk, exchange information, and contribute to a community that forms around a common interest. They compared the phenomenon of Twitter chats to what is known as a *third space*. McArthur and White (2016) describe a third space is a

public gathering place, outside of home or work, where people look forward to interacting with others.

Likewise, Wesley (2013) found evidence of a community of practice of world languages educators who participate in weekly chats and follow the #langchat and/or #edchat hashtags. She noted that #langchat afforded teachers with a new and progressive form of professional development. Importantly, the three elements of a community of practice were evident in this study of educational Twitter chats, and Wesley (2013) found that the participants engaged in focused conversations in which they shared resources and engaged in mutual learning.

In Britt and Paulus' (2016) study of the educational Twitter chat, #edchat, they found the hallmarks of mutual engagement, sustained relationships, and exchanges of resources that typify a community of practice. They described the chat as a river of information, with participants jumping in and out, but with key members who anchored the group and sustained the learning.

Evidence of communities of practice can also be found on Twitter within the higher education community (Lewis & Rush, 2013). Academics who used Twitter noted its usefulness for enhancing professional development, immediate sharing of information, and making contacts. While face-to-face meetings such as conferences are the typical method for learning from other academics, the wide-spread use of social media allows more frequent exchanges of information and ideas (Lewis & Rush, 2013).

Similarly, Cox (2012) found ample evidence of public school principals and superintendents, who use Twitter chats and other social media tools, to build their professional learning networks and connect with the school community. They use Twitter chats to connect with researchers, policy experts, and even their own students. One rural principal noted that he

and his staff regularly chat with hundreds of others in their professional learning network, an opportunity that would not otherwise be feasible, given their geographical location.

The research on Twitter chats, while limited, finds key indicators of communities of practice in a digital third space. By removing the barriers of time and resources, Twitter chats allow participants access to rich conversations with others who share their motivation to connect and learn with others. This has special appeal to educators who may be geographically isolated or have limited professional development budgets.

**Conclusion**

Despite compelling evidence that its use can benefit the school leader's efforts, many were slow to embrace social media, primarily due to lack of resources and fear (Blakeslee, 2012; Carr, 2011; Schachter, 2011). For an organization-wide social media campaign, significant resources are required to have a successful online presence (Briones et al., 2011; Common Knowledge, 2012). Even in the business world, lack of resources is noted as one of the biggest barriers to using social media (Briones et al., 2011). Schools certainly do not have access to the kinds of resources available in the private sector, and many school leaders are reluctant to carve time out of their own schedules to keep a Facebook page or Twitter account current (Larkin, 2011). For some leaders, it is simply a matter of not knowing enough about how social media works coupled with a reluctance to find the time to learn. Despite this, the school leader has some obligation to lead the way in mastering new technology (Larkin, 2011).

Often, school leaders are fearful of repercussions and reluctant to give up the control that a one-way communication strategy affords. When asked, several superintendents described their reticence by saying that they "don't want to give parents and community members any more access to school business than they already have" (Schachter, 2011, p. 32). It is also common,

perhaps understandably, for principals to worry about the negative posts and comments that might appear on their blog, Facebook page, or Twitter feed (Carr, 2007; Carr, 2011; Ferriter, Ramsden, & Sheninger, 2012). Effective policies and guidance from school districts to help educators safely utilize social media is also lacking (Decker, 2014). Along with frightening media accounts of educators losing their jobs (Simpson, 2010), these factors can be a serious deterrent to social media use.

Luckily, one need not launch a large-scale, school-wide, social media campaign in order to benefit from using social media. Many principals begin by simply blogging or building a network of professionals that they follow on Twitter (Carpenter, 2014; (Ferriter, 2010/2011; Jefferis, 2016). For school leaders just beginning to use social media, a smart strategy is to start small by building a professional learning network, following a few hashtags, or trying out a Twitter chat (Brichacek, 2015; DeWitt, 2014; Zalaznick, 2014). Some elect to keep their social media messages one-way in the beginning, in order to keep control of their message and simply share news with the community (Butler, 2010).

The social networking site, Twitter, began as a simple broadcast from one of its founders: "Just setting up my twttr." (Buchanan, 2012). Since that day in 2006, hundreds of millions of people have set up Twitter accounts; what started as a semi-private messaging board has evolved to be a social networking tool for the masses ("Twitter Statistics," 2016). Users have found unique and compelling ways to use Twitter, from starting political movements, to marketing businesses, to following sports teams (Carpenter & Krutka, 2013; "Twitter," 2014). School leaders have also learned that Twitter is a powerful, flexible, and free tool that they can use to leverage limited resources to build their own capacity and connect with stakeholders (Acosta,

2014; Butler, 2010; Carpenter, 2014; Cox & McLeod, 2014; DeWitt, 2011; Gordon, 2012; Larkin, 2013; Herbert, 2012; Nauman, 2014; Sheninger, 2014).

Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (Wenger et al., 2002, p. 4). Members do not necessarily work together every day, but when they spend time together, they typically share information, insights, and advice to help solve problems. They discuss their own situations as well as their aspirations and their needs. They serve as sounding boards for each other, exploring ideas and solutions to common problems. The shared interests of communities of practice vary widely. Even within the field of education, researchers describe unique domains of interest such as technology, educational leadership, teaching strategies, and mindfulness practice (Britt & Paulus, 2016; Cho, 2016; Cox, 2012; Sauers & Richardson, 2015; Wesley, 2013).

In a knowledge-based society, it is critical for organizations to develop an explicit, consolidated knowledge strategy but many do not have such a plan (Wenger et al., 2002). Communities of practice fill this gap by forming around critical knowledge domains and communicating processes and key activities within the group (Wenger et al., 2002). Some communities of practice exist for centuries, while others are short-lived (Wenger, 1998). Communities of practice are differentiated from other work groups, such as project teams or formal work groups, in that members self-select in order to develop their own capabilities (Wenger & Snyder, 2000). Rather than disbanding at the end of a project, or as the result of a company reorganization, a community of practice exists as long as there is continued interest in learning from each other (Wenger & Snyder, 2000).

Twitter chats often form organically in response to a need for professional learning that is personalized and readily available (Britt & Paulus, 2016). Limited research has found that these online interactions show evidence of communities of practice, including the key elements of the domain, the community, and the practice (Wesley, 2013). The implications of these findings are significant in several ways. Twitter chats offer new ways for educators to access high-quality professional learning of their own choosing, without regard to budgets or time constraints; with hundreds of chats to choose from, there is a chat for everyone (Bearden, 2013; Brichacek, 2015; Blumengarten, 2015).

School leaders are successfully using social media to access the latest professional development, better communicate with stakeholders, increase transparency, connect with other leaders, and seek advice from experts (Carr, 2014; Cox, 2012; Pattison, 2008). Internet technologies also remove barriers for parents who cannot attend school functions or students who do not have regular access to their building administrator (Cox, 2012; Dembo, 2015). There is some evidence that Twitter chats are functioning as communities of practice, providing the opportunity for focused conversations around teaching, leading, and learning (Britt & Paulus, 2016; Cox, 2012, Sauers & Richardson, 2015; Wesley, 2013). The frequent and personalized communication made possible by Internet technologies such as blogs, Facebook and Twitter, further humanizes our school leaders and affords them unprecedented opportunities to connect with and learn from others (Carr, 2014; Cook et al., 2016; Nauman, 2014; Siemens, 2005).

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**CHAPTER 2**

**TWITTER CHATS THROUGHT THE LENS**

**OF A COMMUNITY OF PRACTICE**

A review of the literature revealed some evidence that social media use can facilitate the formation of communities of practice (Britt & Paulus, 2016; Carpenter & Krutka, 2013; Cho, 2013; Cook, Kenthapadi & Mishra, 2013; McArthur & White, 2016; Sauers & Richardson, 2015). The purpose of this study was to extend the understanding of how communities of practice might exist within Twitter chats and how that might impact the day-to-day work of school leaders. This understanding has implications for school leaders who wish to further their own leadership practices without the restraints of budgets, geography, or timeframes. The main research question driving this project follows:

> *To what extent are the behaviors of school leaders, in the context of Twitter chats,*
>
> *characteristic of a community of practice?*

The nature of the research question drove the process of selecting the research methodology, as well as specific research methods for participant selection, data collection, and data analysis. The goal of this research was to describe how school leaders interacted within the Twitter chat environment, with an understanding that each participant experienced the chat in a different way, and learned different things during the process. Previous studies indicate that teachers benefit from social media use and participation in Twitter chats (Britt & Paulus, 2016; Wesley, 2016). Likewise, school leaders report greater access to other leaders, policy experts, and even their own school community (Cox, 2012). They engage in focused discussions concerning educational topics and concerns and enjoy learning about how technology supports teaching, leading, and learning (Cho, 2016; Cox, 2012; Sauers & Richardson, 2015).

The following sections describe the research study, inclusive of the research design and its rationale, as well as methods used to select participants, collect, and analyze data. The paper concludes with the study findings and a discussion of the results and implications of the research. The data collection and analysis procedures were based on Qualitative Content Analysis (QCA), a process that helps researchers sort and decode the meanings and relationships of words and concepts (Busch, 1994).

The study also incorporated aspects of a hermeneutic design, in that it endeavored to "understand what the author was attempting to communicate within the time period and culture in which the documents were written" (Mertens, 2015, p. 16). The hermeneutic circle describes how the researcher returns to the text in an iterative fashion to gain an understanding of the text's originator, and the meaning of the message, when considered within the context of the communication (Bloomberg & Volpe, 2012). Likewise, QCA calls upon the researcher to examine the data in an iterative fashion, after determining what concepts to code for, how to distinguish among them and, finally, to analyze the coded text (Busch et al., 1994; Kuckartz, 2014; Neuendorf, 2017).

This qualitative research approach, incorporating qualitative content analysis, was selected not only to answer the research question but also informed the entire study. According to Gabriel (2011), the researcher's approach must include a critical attitude that is carried throughout the research to guide the study.

**Methodology**

According to Zhang and Wildemuth (2009), qualitative content analysis borrows from the fields of anthropology and psychology and was developed to explore the meanings underlying physical messages. Whereas quantitative methods are deductive, intending to test hypotheses, the qualitative approach to content analysis infers meaning through examination of topics and themes within a text (Zhang & Wildemuth, 2009). Zhang & Wildemuth (2009) also point to differences in data sampling techniques; the qualitative approach to sampling is often purposive in order the answer the research questions.

Hsieh & Shannon (2005) delineate three distinct approaches to qualitative content analysis: conventional, directed, or summative. A conventional analysis attempts to describe a phenomenon (as do all three approaches); however, researchers avoid using preconceived categories and allow the categories flow from the data. A directed approach is used when prior research exists, but is incomplete, and would benefit from further description. A summative approach starts with identifying and quantifying certain words, with the purpose of understanding their contextual use. It is not an attempt to infer meaning but a way to explore usage.

For the purposes of this study, a directed approach was selected. A directed approach is indicated when the researcher hopes to "validate or extend conceptually a theoretical framework or theory" (Hsieh & Shannon, 2005, p. 1281; Zhang & Wildemuth, 2009). In this study, the theoretical framework was based on the social learning theories of communities of practice (Wenger, 1998) and connectivism (Siemens, 2005). Communities of practice are one of the most important concepts in situated learning theory and has been used as an explanatory framework

for learning (Hoadley, 2000). This extension of the framework conceptualizes how communities of practice exist in the context of an online community.

Conducting a qualitative content analysis requires the researcher to follow certain steps to gather, analyze, and write up the findings of the research. Kuckartz's (2014, p. 47) model of content analysis was used in this study and it consists of five phases:

1. Planning phase-formulation of research question and selection of methods; includes a sample of analytical units.

2. Development phase-development of a category system and defining categories; rules for coding are formulated.

3. Test phase-coders are trained and work with sample data to achieve inter-coder reliability.

4. Coding phase-data set code data in its entirety.

5. Analysis phase-the resultant data matrix is analyzed.

Qualitative content analysis is a research approach used to analyze texts such as newspaper articles or other media; it uncovers a richer story than the more traditional quantitative approach (Hsieh & Shannon, 2005; Kuckartz, 2014; Saldana, 2013). Based on these traditions, qualitative content analysis was used to analyze the tweets of the sample group, in order to assess whether the tweets of school leaders, within the context of a Twitter chat, demonstrated key markers of a community of practice.

Before describing the specific steps taken to identify the study participants, collect the data, and analyze it, a broad overview of the steps taken by the researcher to collect and analyze data is provided below:

1. The educational Twitter chat, #satchat, was selected as the subject of this research.

2. Three of the chat sessions were selected for the study sample.

3. School leaders' tweets were identified and further analyzed.

4. The researcher and a second coder identified three primary codes of praxis, social, and opinion.

5. Tweets identified as praxis were further coded using the eleven activities of a community of practice as a priori codes (secondary codes).

6. All coded data were examined using a category-based analysis to identify themes.

**Study Sample**

The central question of the research study asked how school leaders behave within the context of a Twitter chat. That question drove the decisions regarding which data to include in the study. From a population of many hundreds of education Twitter chats (Blumengarten, 2015), the first decision entailed which Twitter chat to include in the study. The selection of the Twitter chat, to analyze in the study, was purposive in nature in order to inform the research question being investigated. This type of sampling involves the researcher making a decision as to what cases he or she finds appropriate to include, based on the goals of the study (Neuendorf, 2017). In purposive sampling, the goal is to focus on particular characteristics of a population that are of interest, which will best enable the researcher to answer the research question ("Purposive sampling," 2012). Expert sampling, a type of purposive sampling, is used when the research calls for gleaning information from a group of people who have particular expertise ("Purposive sampling," 2012). In this study, it was necessary to select a Twitter chat with participants who held positions of school leadership. This also drove the decision to only analyze

the tweets of school leaders. The remaining participants in the chats were primarily teachers, aspiring administrators, and others with an interest in the #satchat topics.

After considering several others, the researcher selected the Twitter chat "#satchat" for analysis. #satchat is a weekly Twitter chat for new and aspiring school leaders. It is a well-established chat with a focus on leadership topics and a participant group that includes a variety of school leaders. In the literature, #satchat is mentioned as a chat worthy of one's time and as a powerful resource for connecting with other educators on Twitter (Brichacek, 2015; DeWitt, 2014; Greene, 2014). In researching potential educational chats from which to sample, #satchat appeared consistently as a recommended resource for educators, and for school leaders in particular (Blumengarten, 2015; Brichacek, 2015; Terrell, 2015).

It was outside the scope of this study to analyze the transcripts of all 67 chats held from 2014 to 2015, so purposive random sampling was used to select three chats for analysis. Purposive random sampling is a strategy that lends credibility to a sample when the size of the potential purposive sample is impractical for the researcher to include in the study (Cohen & Crabtree, 2006; Nastasi, 1998). It also reduces judgment within a purposeful category, and allows the researcher to develop a systematic way of selecting cases that is not based on advanced knowledge of how the outcomes would appear (Cohen & Crabtree, 2006; Nastasi, 1998). Therefore, the dates from which to retrieve the transcripts were selected using a random number generator. Three chats were selected from the 67 chats that were held in 2014 and 2015. The chats selected occurred on May 10, 2014 (Topic-New Administrator Issues), January 17, 2015 (Topic-Collaboration), and May 9, 2015 (Topic-Stress).

The sample chats, labeled *Collaboration, Stress, and New Administrator Issues,* included a total of 7,713 tweets. In each chat, school leaders made a significant contribution to the

conversation, particularly during the New Administrator Issues chat (40% of tweets). School leaders contributed more than a third of the tweets overall, as detailed in Table 1.

Table 1

*Tweets by Chat Topic*

| Chat Topic | Date | Number Of Tweets | Number of Tweets By Leaders | Percentage of Tweets By Leaders |
|---|---|---|---|---|
| **New Administrator Issues** | May 5, 2014 | 1679 | 682 | 40 |
| **Collaboration** | January 17, 2015 | 1732 | 519 | 30 |
| **Stress** | May 9, 2015 | 1850 | 540 | 29 |
| **Total** | | **5261** | **1741** | **33** |

The New Administrator Issues chat had the most participation by school leaders, as evidenced by the highest number of tweets (n=682) and the percentage of tweets contributed by school leaders (40%). The questions posed in the chat explored what it is like to become an administrator, how to effectively engage with students and parents, as well as specific advice for new administrators (see Appendix 1 for a listing of chat questions).

The leaders in the Collaboration chat contributed 30% of the tweets in the conversation. The focus of the Collaboration chat questions was on describing collaboration and discussing ways to foster its use in schools. Participants were encouraged to share what collaboration looks like in their work setting, barriers to its success, and strategies for modeling collaboration as a leader.

The Stress chat asked participants to describe leading stressors in their jobs, share ways to mitigate it, and reflect on what they might share with both students and staff about the role of stress in our lives. Leaders contributed 29% of the tweets in this chat.

The participants in this study were 237 school leaders who participated in #satchat on the dates previously noted. While there were 973 participants in the chats, only the tweets of school leaders were analyzed, in order to answer the specific research question related to school leadership. School leaders comprised 24% of the total participants and they posted 33% of tweets in the chats. In order to identify as many school leaders as possible, a school leader was identified as any participant with the title (a) *Principal,* (b) *Assistant Principal,* (c) *Leader,* (d) *Lead Learner,* (e) *Superintendent*, (f) *School Administrator,* (g) *Director,* or (h) *Assistant Director*. The majority of the remaining participants identified themselves as holding other positions in education such as teacher, coach, technology integrationist, professional development specialist, librarian, dean, coordinator, or department chair. Several self-identified as aspiring administrators. The Twitter biography of every participant in each chat was examined to make this determination.

Due to the nature of the research question, participant selection was very intentional. In order to capture the tweets of school leaders within the Twitter chat, any participant with a school leadership title in their Twitter biography was included. This allowed for the tweets of more than 200 school leaders to be identified for inclusion in the study.

**Data collection.**

The method of data collection used in this study was document review (Bloomberg & Volpe, 2012). Using this method, records, documents and artifacts are used to provide context and to discover cultural nuances. At the conclusion of #satchat each Saturday morning, a complete transcript of the chat is produced, and archived, by the hosts of the chat (Currie, 2012). These documents were shared with the researcher by the chat moderators and downloaded using Microsoft Excel, which was used to archive, sort, and organize the transcripts.

Tweets were tagged and sorted as specified below:

1. All tweets from the three selected days of #satchat were collected (n=7,713).

2. Re-tweets were identified and excluded from further analysis (n=2,452).

3. A corpus of 5,261orginal tweets remained.

4. Tweets from non-school leaders were identified and excluded from further analysis (n=3,520).

5. From the corpus of original tweets, 1,741 leader tweets were identified.

All tweets were preserved so that they could be read sequentially and completely (Kuckartz, 2014). However, two types of tweets were not included in the content analysis. Re-tweets were not coded because doing so would have resulted in content being coded more than once, thus skewing the data. The research question specifies an inquiry into leader tweets; therefore, tweets from chat participants who were not school leaders were also excluded from content analysis.

Data were collected for this study in a systematic way that allowed the researcher to gather and organize the relevant tweets needed in order to determine how school leaders behave in a Twitter chat. Data was collected from the transcripts of three Twitter chats and a sorting process was implemented to identify which tweets originated from school leaders and, therefore, would be further analyzed in the data analysis process. From this data collection, 1,741 leader tweets were identified for analysis.

**Data analysis.**

This section begins with a brief overview of the data analysis steps, followed by a more in-depth description of each data analysis component. Once the units for analysis were collected

and sorted, as described in the data collection section above, the following steps were taken to analyze the tweets:

1. Chat transcripts were read and re-read to ensure familiarity with the text content, structure and language, and then coding began using a process of *consensual coding*.

2. Three broad and mutually exclusive categories were agreed upon by the coders: *praxis, social, or opinion*. These categories were referred to as *primary codes*.

3. Additional, a priori, codes were identified, based on Wenger-Trayner & Wenger-Trayner's (2015) eleven activities indicative of a community of practice. These categories were referred to as *secondary codes*. Leader tweets were coded, using primary and secondary codes, in an iterative process that ensured inter-coder reliability.

4. Coding results were used to determine overarching themes in the data and to evaluate whether school leaders in a Twitter chat evidence elements and activities in alignment with a community of practice.

The primary researcher, a doctoral candidate in educational leadership, as well as a second coder, completed all coding. The second coder has university-level teaching experience, as well as extensive analytics and research experience in the field of public policy. Both coders were conversant in current educational leadership theory and standards. As noted previously, a test phase was implemented to establish coding guidelines and to ensure inter-rater reliability.

The rules for data analysis were captured in a codebook, in which category names, definitions, rules for assigning codes, and examples were specified (Neuendorf, 2017; Weber, 1990). This codebook was used by both coders to ensure consistency of coding. An additional process, called consensual coding, was used throughout the coding process in order to reach

inter-coder agreement (Kuckartz, 2014). This procedure, used in qualitative text analysis, aims to "minimize coding differences by discussion and resolving any questionable or conflicting codes" (Kuckartz, 2014, p. 46). The codebook can be found in Appendix C.

According to Kuckartz (2014) the first step in analyzing qualitative data, referred to as *initial work with the text*, involves reading and re-reading the text carefully in an attempt to understand it. Using this process, each chat was read sequentially and completely, and the text was examined in light of the research question. In this phase, the language and structures that are unique to Twitter and Twitter chats were noted. This included the format for posting tweets, in which the moderator posted questions (labeled Q1, Q2, Q3…) and participants posted their answers (labeled their answers A1, A2, A3…). While this is a typical format for Twitter chats, it was not strictly followed, and the researchers sometimes had to infer to which question an answer was posted.

The next step in the process of qualitative content analysis is identifying categories in which to sort the data (Kuckartz, 2014; Zhang & Wildemuth, 2009). In this stage of analysis, data is coded along major categories that are relatively small and manageable (Kuckartz, 2014). This approach allows the researcher to distinguish between random topics and topics that could be significant for the given analysis (Kuckartz, 2014). Using this method, while reviewing a sample of 500 tweets, three mutually exclusive categories to describe the function of the tweets were identified: *social, opinion and praxis*. These *primary* codes were similar to the three major categories described by Sauers & Richardson (2015) which they called educational, personal, or unknown.

Tweets coded as social were defined as social or promotional communications such as greetings, introductions, sidebar social interactions, and references to a website or business for

purely advertising purposes. Participants typically introduced themselves at the beginning of each chat and shared their job titles. These tweets, as well as acknowledgements that others had joined the chat, were all coded as social. For instance, "Good morning from Kansas, #SatChat! Lisa, tech integrationist for K-12 district checking in and looking forward to discussing collaboration!"

Opinion tweets were described as affirmations, general praise, or compliments, or other comments that were empty of content that could be coded further. Opinion tweets such as quotes or aphorisms, lacked a specific and actionable component. These tweets were often noted at the end of chats, as participants praised the quality of the chat and/or the day's moderator. An example of an opinion tweet follows: "@ak2mn Work smarter, not harder. The smartest person in the room is the room! #satchat".

For the purpose of this research, the word praxis was adopted to describe the tweets that conveyed an application of knowledge or skills that is actionable and/or specific ("Praxis," n.d.). As noted earlier, the value of a community of practice is revealed through the knowledge that it generates (Wenger, 1998). Praxis can be described as acts which change and shape the world; in this way it is distinguished from theory ("Praxis," n.d.). Praxis was found in conversations about the actual work of leadership, whether strategies, resources or procedures, rather than vague theories or trite comments. For example, "Dealing w/ discipline issues was a huge shift for me, not discipline for my class any longer but for the entire school. #satchat". In the initial work with the text, it was noted that many of the exchanges in the Twitter chats were empty of content that would answer the research question beyond a superficial level. The category of praxis was used to focus analysis on tweets that were more content-rich and relevant to the research question.

To add richness to the description of exchanges within the chat, additional coding categories were developed, based on eleven activities that Wenger-Trayner & Wenger-Trayner (2015) use to describe how members of a community of practice interact with each other. Examples of these activities are problem solving, planning visits, and building an argument. See Appendix A for a complete list. The social and opinion tweets were judged to carry no information that could be coded beyond their initial category, so only praxis tweets were coded using the a priori, or *secondary*, codes.

As praxis tweets were identified, the steps of content analysis and coding continued and secondary codes were applied, as applicable (Kuckartz, 2014). Qualitative content analysis allows for a unit of text to be assigned to more than one category simultaneously (Zhang & Wildemut, 2009). Therefore, praxis tweets were assigned as many secondary codes as the coder deemed applicable.

Once primary and secondary codes were applied to all tweets, the results were organized and evaluated in light of the research question. In this final step of the content analysis, themes to describe patterns in the data were identified using both qualitative and descriptive data (Kuckartz, 2014). This process involved re-reading the transcripts carefully, using each chat topic and chat question to provide context. Chat participants were not consistent in labeling their answers using the "A1, A2, A3" format; therefore, some tweets required following the thread back to the original question or comment that sparked the response.

In the case of this research, the three elements of a community of practice, the domain, the community, and the practice, were the basis for this evaluation. Using this approach, the content analysis offered supporting and non-supporting evidence of characteristics of a

community of practice, through the presentation of exemplars and descriptive evidence (Hsieh &

Shannon, 2005).

In addition to the text in tweets, many tweets included hyperlinks to websites and other

resources. While the links to the resource itself were not coded, they were viewed to help the

coders determine the nature of the tweet and described further in the findings section.

The data analysis in this study yielded information about the number, nature, and content

of more than 1,700 leader tweets. The process of qualitative content analysis sorted tweets into

three major categories: social, opinion, and praxis. Praxis tweets were then further analyzed to

determine if key activities of a community of practice, such as problem solving, were present.

This analysis allowed the researcher to identify major themes in the data that helped answer the

research question.

**Findings**

This research was designed to explore how school leaders behave in a Twitter chat and to

determine if those behaviors align with what Lave and Wenger (1991) term a community of

practice. The researcher analyzed leader tweets to determine if evidence of the main elements of

a community of practice were present. As detailed in Chapter 1, the elements of a community of

practice are the domain, the community, and the practice (Wenger, 1998). The interactions

between #satchat participants were also categorized to determine if they engaged in community

of practice activities. Purposeful interactions, such as problem-solving and requests for

information, have been described by Wenger-Trayner and Wenger-Trayner (2015) as typical in a

community of practice (see Appendix A). In looking across all three chats, leader tweets were

consistently focused on educational matters. This was noted in both the nature of the questions

posed by the moderator as well as in the content of the chat tweets. Leaders were active

participants in the chats, contributing between 30-40% of the content and representing almost a quarter of the participants.

Two primary themes were uncovered in this research, both of which provided an answer to the central research question of the study. First, the structure and content of #satchat shows the presence of the main elements of a community of practice. Second, activities indicative of a community of practice, such as problem solving, seeking experience, and mapping knowledge were also evident.

**Elements of a community of practice.**

The three elements of a community of practice, as described by Wenger-Trayner & Wenger-Trayner (2015), are presented below:

1 The domain- members are brought together by a learning need they share (whether this shared learning need is explicit or not and whether learning is the motivation for their coming together or a by-product of it).

2 The community- their collective learning becomes a bond among them over time (experienced in various ways and thus not a source of homogeneity).

3 The practice- their interactions produce resources that affect their practice (whether they engage in actual practice together or separately).

For the purposes of this study, the *domain* (or learning need) that is shared by school leaders is characterized by a desire to become stronger leaders, through a process of sharing resources and best practices, which may elevate their performance on the job. Wenger (1998) further insists that the participants of a true community of practice transcend a mere network of friends or colleagues, showing a commitment to their domain and valuing their collective competence.

As a *community*, members interact and strengthen their bonds as they learn together. This does not imply rigid membership but, rather, denotes a cohesiveness that forms a scaffold for members, even as they come and go. It is not the specific website or group that makes the community. Instead, it is the interaction between the members, leading to relationships in which they learn from each other, which is required.

Finally, to be a community of *practice*, these interactions must lead to resources that affect the practice, or the work, of the community's members. Wenger (1998) states that learning in practice includes evolving forms of mutual engagement, aligning engagement with what the enterprise is about, and developing their own repertoire, styles, and discourses. It involves interactions in which members tell stories, invent new terms, and recall events.

An analysis of the overall chat, as well as individual messages within the chat, affirm that the central elements of a community of practice—a shared *domain* of interest, evidence that members comprise a *community* as delineated from a loosely coupled group of people, and a shared *practice* that leads to members learning from each other, are present. This was seen in the significant number of school leaders and other educators who took part in the analyzed chat sessions, the topics they tweeted about, and the manner in which they interacted with each other. Participants shared differing perspectives and ways to approach common issues that school leaders face such as work-life balance, how to build trust, and how to integrate technology solutions.

The remainder of this section will describe how the data were analyzed to determine if school leaders, who participated in #satchat, behaved in concert with the elements and activities of a community of practice. It will detail the content of leader tweets, including how the three

elements of a community of practice were apparent, and which community of practice activities were found.

As described in the data analysis section, tweets were first coded into three large categories of praxis, social and opinion. A large proportion of tweets were coded as praxis, which closely aligns with the elements of a community of practice; these tweets often demonstrated the knowledge and resource sharing that is indicative of a community of practice. Although fewer of the tweets fell into the opinion and social categories, they, too, contributed to the evidence that leaders in the chat were functioning as a community of practice. As Wenger (1998) notes, members interact and strengthen their bonds as they learn together. This can be seen in the social and opinion interactions between participants. Table 2 below summarizes the tweets in each chat, showing the proportion of tweets contributed by school leaders and whether they were categorized as praxis, social or opinion.

Table 2

*Proportion and Content of Leader Tweets*

| Content of Leaders' Tweets | | | |
|---|---|---|---|
| Chat Topic | % Social | % Opinion | % Praxis |
| New Administrator Issues | 19 | 7 | 74 |
| Collaboration | 29 | 7 | 64 |
| Stress | 24 | 12 | 64 |
| **Total** | **24** | **9** | **67** |

**Evidence of the *domain*.**

The shared *domain* of interest, which may be thought of as a shared learning need, evident in #satchat was a passion for education and educational leadership. By showing up for the chat on a Saturday morning, members solidified their commitment to the domain. Members of a community of practice do not have to interact intensely with everyone else or even know each other well, but they do need mutually defining identities (Wenger, 1998). The aspiring and

current leaders who participated in #satchat tweeted about their desire to learn more from each other about how to be an effective school leader. This is evidenced by the content of the questions and answers as well as the topics they conversed about: improving collaboration within the school setting, supporting new teachers, and dealing with the stress of being a practicing school leader. A shared domain of interest (how to support teachers and other colleagues) is shown in the tweets in Table 3.

Table 3

*Tweets Showing Evidence of Shared Domain of Interest*

| Tweet |
| --- |
| Q2 How is collaboration supported in our schools? #satchat |
| A2: In order 4 collaboration 2b supported in schools leaders must be transformational and not transactional with all stakeholders #satchat |
| It is difficult to do w/o common planning time. We made it a priority, every grade level T has common planning time daily. #satchat |
| A2 #satchat collaboration requires vulnerability to be a part of your experience. "I don't have all the answers and could use your help." |
| A1: Biggest shift was the isolation. I had to learn how to collaborate differently. #satchat<br>A1: Realizing that most T's don't get the "big picture." And that u must quickly learn 2 not take things personally. #satchat |
| A1: continuing to build &amp; foster relationships w/ students. Vital part of effective leadership. #satchat |
| Q2 What affect does your stress have on your colleagues? #satchat |
| A2) Stress affects colleagues, and me, by causing more distractions, making us less present &amp; in the moment, and worried. #satchat |
| A2: as a district leader, I try not to let others see me sweat. Find a colleague outside the district to vent - not in district! #satchat |
| @ziegeran I set timers. Drives my husband crazy, but helps me find balance. E-mail response won't be quality if I am feeling salty #satchat |

Similar evidence of the domain element of a community of practice was evident in all three chats, as was a commitment to the shared learning needs of school leaders. This commitment was a foundational element seen in the questions, answers, and even the sidebar conversations between leaders. For example:

A1: I was the admin for an enrichment program for 2 years. Strange not to be the one teaching. Got a totally different perspective #satchat

@mssackstein Agree mostly. I wonder if the gap sometimes, though, is that T's rarely observe other T and Admins observe many. #satchat

The content of these tweets, and many others like them, support the conclusion that leaders in #satchat share a commitment to their shared domain of educational leadership. Examples of tweets showing a shared domain of interest are found in Table 3.

**Evidence of the *community.***

To be what Wenger (1998) calls a true *community*, there must be evidence of interaction between the members that leads to relationships in which they learn from each other. This was also evident in tweets throughout the chats. The data showed that members were indeed learning from each other by communicating how they think about and approach problems that are commonly seen in the school setting. Table 4 gives examples of tweets that illustrate evidence of community in #satchat. Tweets coded as social, which comprised 24% of leader tweets, also helped build the feeling of community as members introduced themselves, chatted with other members, and exchanged details about their lives. Members appeared excited to join the group and disappointed when they had to miss a day. Examples of social tweets are included in Table 5.

Table 4

*Tweets Showing Evidence of Community*

| Tweet |
|---|
| @4BetterEducatio This is truly a great place/chat to that! I have been missing it so much &amp; finally have an AM I can take part! #satchat |
| @iplante @EHSSouthport Glad you made it this morning Sharon, always love learning w/ you. #satchat |
| @Bec_Chirps Great to have you join, I know I have learned lots from you and your teachers. #satchat |
| Are @Tim_Dawks @JoyWright91 or @donald_gately at #satchat too? Almost the entire #MiddleLeaders. Need @TedHiff too! |
| @cvarsalona Interesting how in the 21st century, the feeling of togetherness can occur even if folks are not in the same room. #satchat |

Table 5

*Examples of Tweets Coded as Social*

| Tweet |
|---|
| Good morning, #satchat. Jay checking in from WI and ready to learn with you all. |
| @PrincipalMN @MR_ABUD @smartins3313 thanks for sharing! Will check it out #satchat |
| Morning #satchat! Natalie from NJ graduating next Sunday w/ my Masters in #edadmin! |
| @kacanderson11 The fact that you recognize that says a lot about your character! Moving forward :-) #satchat |
| @Principal_EL Always great to have you on #satchat |
| That's awesome! RT @LauraGilchrist4: I documented #satchat as part of my PD hours this year. My administration gets it. @BengalPrinc |
| Missing #satchat for first time in months...son has big theater rehearsal today. Will catch up later. Happy Saturday. |

Opinion tweets contributed to the feeling of community as well. Participants solidified their shared bond by encouraging and praising each other as well as acknowledging each other's contributions. They also showed approval by frequently re-tweeting content of others. More than 2,400 of the tweets in the chats (32%) were re-tweets. Examples of opinion tweets are found in Table 6.

Both social and opinion tweets serve as an important part of the community of practice, for it is through these interactions that the "social forum that supports the living nature of the knowledge" is created (Wenger et al., 2002, p. 12).

Table 6

*Examples of Tweets Coded as Opinion*

| Tweet |
| --- |
| @cybraryman1 Thanks for sharing Jerry. Great resources. Edchat #satchat #sunchat #edchatri #txed #cpchat #iledchat #aledchat #edchatman |
| @barbarawmadden @ashleyhhurley Absolutely! In fact, I'm virtually high-fiving the tar out of both of you right now! #satchat |
| @Fearless_Teach I'm sure you will be amazing :-) #satchat #dauntlessone |
| Amazing conversation here on #satchat this morning on being a new admin. Thanks to @bradmcurrie @ScottRRocco and @wkrakower for having me. |
| Wish all the mums a happy Mother's Day here in Australia tomorrow. Night all. Thanks for the chat tonight. #satchat |
| #Satchat conversations get better every single week! An amazing hour of learning. Thanks @ScottRRocco @JohnFritzky @bradmcurrie @wkrakower. |

Like the impressionists who met in cafes to discuss the techniques they were using to create a new style of painting together (Wenger-Trayner & Wenger-Trayner, 2015), leaders benefit from the free exchange of ideas in a Twitter chat. The structure of #satchat, ensures the kinds of interactions in which members develop learning relationships that are essential to the element of community. The interplay of tweets that engage and energize members supports the conclusion that #satchat evidences the second element of community of practice—the community.

**Evidence of *practice*.**

The majority of tweets, 67%, belonged in the category of praxis. Praxis tweets most closely mirrored what Wenger (1998) refers to as the *practice* element of a community of

practice. This element requires the production of resources that affect the practice of the

members. Praxis tweets were focused on the work of school leadership and included interactions

that had potential to impact the leaders' practice. Examples of praxis tweets are found in Table 7:

Table 7

*Examples of Tweets Coded as Praxis*

| Tweet |
| --- |
| A6: just stopping in as much as possible. I try to get at least two tweets a day out. Forces me to get into the classroom #satchat |
| These are great. Had to repost. #satchat "@hdiblasi: 10 Education Images To Inspire You This Week http://t.co/en0NGDGgfu" |
| Hey PLN we created... let's use &amp; share the Blooms Taxonomy Apps #Google spreadsheet: https://t.co/VBo7i09pIl #satchat |
| Great website on PLC's by DuFour and Solution Tree: http://t.co/25ppHKyDd9 #satchat |
| A5) Working on a common doc in Google Docs / Back Channeling with Todays Meet / sharing with an AppleTV tech makes it easier #satchat |
| My post on my PLN and Collaboration http://t.co/62eLw90Kaa #satchat |

Importantly, the practice of school leadership was seen in the frequent exchanges of

resources between members. In addition to leader experiences, they shared specific

recommendations including technology tools, books, videos, blog posts, articles and websites.

Participants joined in frequent exchanges of resources, advice and tips that ranged from

philosophical to specific and actionable. Indeed, there was a general theme running throughout

the chat of members' appreciation of having found a treasure trove of resources and mutual

support. Examples are included in Table 8. The third essential element of a community of

practice—the practice—was clearly evident in the #satchat environment.

Table 8

*Tweets Showing Evidence of Practice (resource sharing)*

| Tweet |
| --- |
| Q6 Please share best practice resources that help support and keep a strong focus on collaboration. #satchat |
| A6: Collab. Resource The Key to Empowering Educators? True Collaboration MindShift http://t.co/epXldX94aT via @MindShiftKQED #satchat |
| A6: Twitter, GHO, Anymeeting, Youtube, F2F convo, - Attending Ed camps and conferences #satchat |
| A6: Plenty of tools - foundation must be #trust to foster #collaboration at the building/district/community level #relationships #satchat |
| Q5 How does technology foster collaboration? Examples. #satchat |
| 4 Ways to Leverage Tablets Outside the Classroom – http://t.co/8OnOwOz4hr #satchat |
| A5: Technology allows collaboration to happen 24/7. Using #GAFE makes it much easier for all to work together #satchat |

In concert with Wenger's (1998) definition of members of a practice, the members of #satchat are actual practitioners who develop a shared repertoire of resources and support that develops over time. They meet regularly and build a knowledge base upon which they rely to improve their individual work.

**Activities indicative of a community of practice.**

In addition to coding for social, opinion and praxis, a second level of coding was conducted on only the praxis tweets. These secondary codes were used to identify if specific activities that are indicative of a community of practice were present. These codes were based on eleven activities that Wenger-Trayner and Wenger-Trayner (2015) describe as typical in purpose for members of a community of practice (see Appendix C). Data analysis revealed that all but one of these activities were seen at least once, with two of them, problem solving (90%) and seeking experience (37%), appearing most often. The results of that analysis are summarized in Table 9.

Table 9

*Purpose and Function of Tweets Within #satchat*

| Leader Tweets | N | n |
|---|---|---|
| Social | 465 (27%) | |
| Opinion | 152 (9%) | |
| Praxis | 1178 (68%) | |
| 1.  Problem solving | | 1062 (90%) |
| 2.  Seeking experience | | 437 (37%) |
| 3.  Reusing assets | | 108 (9%) |
| 4.  Mapping knowledge and identifying gaps | | 98 (2%) |
| 5.  Coordination and strategy | | 23 (2%) |
| 6.  Building an argument | | 21 (2%) |
| 7.  Requests for information | | 10 (< 1%) |
| 8.  Growing confidence | | 4 (< 1%) |
| 9.  Discussing developments | | 1 (< 1%) |
| 10. Visits | | 1 (< 1%) |
| 11. Documenting projects | | 0 (< 1%) |
| Indeterminate | 71 (6%) | |

Due to the structure of #satchat, with a series of specific questions targeting an issue in education, the majority of leader praxis tweets (n=1062) focused on problem solving. This is one of eleven activities indicative of a community of practice (Wenger-Trayner & Wenger-Trayner, 2015). The collective learning, and passing of wisdom from one member to another, is a hallmark of a community of practice (Hildreth & Kimble, 2002; Wenger, 1998). The primary output of a community of practice is knowledge; Wenger & Snyder (2000) cite problem solving

as an inevitable byproduct of a community of practice in which members share their experiences

and knowledge in free-flowing, creative ways that foster new approaches to problems. It is the

nature of members of a community of practice to join if and when they have something to learn

or something to contribute. They do not join just in order to passively learn but to apply their

learning to solve problems that they face (Brown & Duguid, 2000; Wenger & Snyder, 2000).

Table 10 illustrates examples of problem solving within the #satchat environment.

Table 10

*Examples of Tweets Coded as Problem Solving*

| Tweet |
|---|
| Q3: Parents are such an important part of schools. As a new admin, how do u develop relationships with parents? #satchat |
| A3: *Parents are easy to find. Just be out there and they will find you. Talk to them in the morning, afternoon, evening. Visibility* #satchat |
| Q5 How do you help support others during stressful times? #satchat |
| A5 *Give assurance. Be calm. Deeds, not just words. Show your support by following through.* #satchat |
| Q6 What advice could you give other leaders about feeling stressed? #satchat |
| A6: *I'm no expert, but think a big part of stress mgmt=not being afraid of failure, even expecting it as part of process.* #satchat #mindset |
| Q6: I don't love my office, I love classrooms. What steps can you take to ensure you spend as much time as possible in classrooms. #satchat |
| A6: *I try to leave as much paperwork as I can for before/after school. Allows me time to get into the classroom.* #satchat |
| Q6.5 How can we teach students about stress? #satchat |
| A6.5 *As problems, difficulties come up: deal with them. Much easier to get through when they're small. Model mistakes, seeking help.* #satchat |

The next most common community of practice activity was seeking experience (n=437).

For the purposes of this research, seeking experience was defined as interactions in which

leaders shared their experience of school leadership as well as requests for advice or resources.

The sharing of experiences is evidence of a thriving community of practice. Knowledge "resides in the skills, understandings, and relationships of its members"; therefore, sharing each other's experiences is as important as traditional tools, documents and procedures (Wenger, 1998, p. 11). Leaders, aspiring leaders, and other participants in the chats sought to learn from each other by asking about and sharing how they had experienced and dealt with a variety of work-related issues. Table 11 contains examples of tweets that illustrated members seeking each other's experience with challenges on the job:

Table 11

*Examples of Tweets Coded as Seeking Experience*

| Tweet |
| --- |
| Q2What is something you refused to change as you moved from Teacher to Administrator? #satchat |
| A2 *I still love the art of learning and highly effective teaching. I am still a proud teacher and wear it like a badge of honor.* #satchat |
| Q7: One piece of advice to a new admin. What would it be? #satchat |
| Q3 What proactive steps do you take to avoid (most) stress? #satchat |
| A3- *I avoid stress by spending time with my family &amp; visiting kindergarten classes- my happy places!* :) #satchat |
| Q2 What affect does your stress have on your colleagues? #satchat |
| A2: *Stress forces us to survive rather than thrive. New ambitions go on the back burner while we simply maintain* #satchat |
| Q2How is collaboration supported in our schools? #satchat |
| Great idea @Bec_Chirps @mbbvt @Lynchteaches have the rounds been effective thus far? Is there a structure/expectation to visits? #satchat |

The third-largest category of tweets was reusing assets (9%). Wenger & Snyder (2000) describe the process of reusing assets as critical to how members of a community of practice learn in informal settings. Rather than a formal process in which problems and solutions are exchanged, one can imagine members mentioning a relevant article or sharing a spreadsheet,

almost in passing. In #satchat, this played out as tweets that typically linked to a specific resource or tool that leaders were using or had created themselves. Examples may be found in the Table 12.

Table 12

*Examples of Tweets Coded as Reusing Assets*

| Tweet |
| --- |
| My post on my PLN and Collaboration http://t.co/62eLw90Kaa #satchat |
| One of my former colleagues spent large amount of time with building student teams. www. http://t.co/AGVnBMwi8o.#satchat |
| A6: Best practice = #Google Keep. Here's vid I made for staff on it. Awesome collaborative tool. https://t.co/rZAKbtuwZL #satchat |
| A6: We use teacher based teams through the Ohio Improvement Process as a framework: http://t.co/PboQf2aJf1 #satchat |
| SPECIAL ANNOUNCEMENT: On July 13th in conjunction w/ @MCDPEL Hampton Bays MS will be hosting #EDCAMPLDR http://t.co/JSEEbHFmeY #satchat |
| Webb's Depth of Knowledge and Web 2.0 via http://t.co/gzagMwZv0l #satchat #sblchat #edchat http://t.co/sv3IlkChCo |

Tweets coded as mapping knowledge and identifying gaps comprised 8% of praxis tweets. Wenger-Trayner & Wenger-Trayner (2015) describe this activity as one in which members are assessing who knows what and determining what information may be needed. It considers who else might be contacted in order to add to the collective knowledge of the group. The content of these kinds of tweets was typically in response to questions about how leaders experienced change as they assumed leadership roles. Table 13 shows some examples of how mapping knowledge and identifying gaps looked in #satchat.

Table 13

*Examples of Tweets Coded as Mapping Knowledge and Identifying Gaps*

| Tweet |
| --- |
| Q1: What is the biggest shift you had to make when you moved from Teacher to Administrator? #satchat |
| A1: The biggest shift of being a new admin is that you have absolutely no control of what happens during your day. #satchat |
| A1: Realizing that most T's don't get the "big picture." And that u must quickly learn 2 not take things personally. #satchat |
| A1: Another big shift = you are now a student learning to be an admin. Take time to learn job &amp; ask for advice / help.#satchat |
| A1- the biggest shift was trying to figure out the best way to help adult learners. #satchat |

Tweets were found to have indeterminate purpose 6% of the time. Tweets coded as coordination and strategy, building an argument, visits, discussing developments, or growing confidence comprised only two percent or less of the total tweets analyzed. The number of praxis tweets coded as a community of practice activity is illustrated in Figure 1 below.

These data show that leader tweets were consistently focused on activities that are consistent with a community of practice. As noted previously, tweets coded as praxis mirror the element of *practice,* and 67% of leader tweets fell into this category. The most common community of practice activities were problem solving (90% of praxis tweets) and seeking experience (37% of praxis tweets). Most other community of practice activities, including reusing assets and mapping knowledge, were also seen, albeit in lower proportion.

Reflecting on the research question, we can affirm that school leaders are behaving in ways that are consistent with a community of practice. Analysis of leader tweets shows evidence of all three elements of a community of practice—the domain (shared learning goal), the community (collective learning), and the practice (interactions that produce resources). Evidence of typical community of practice activities are also clear: 90% of tweets were focused on a key

activity of problem solving and 37 % on seeking experience. Figure 1, below, illustrates the number of the community of practice activities found most often in #satchat. These findings support the conclusion that members of #satchat exhibit behaviors indicative of a community of practice.
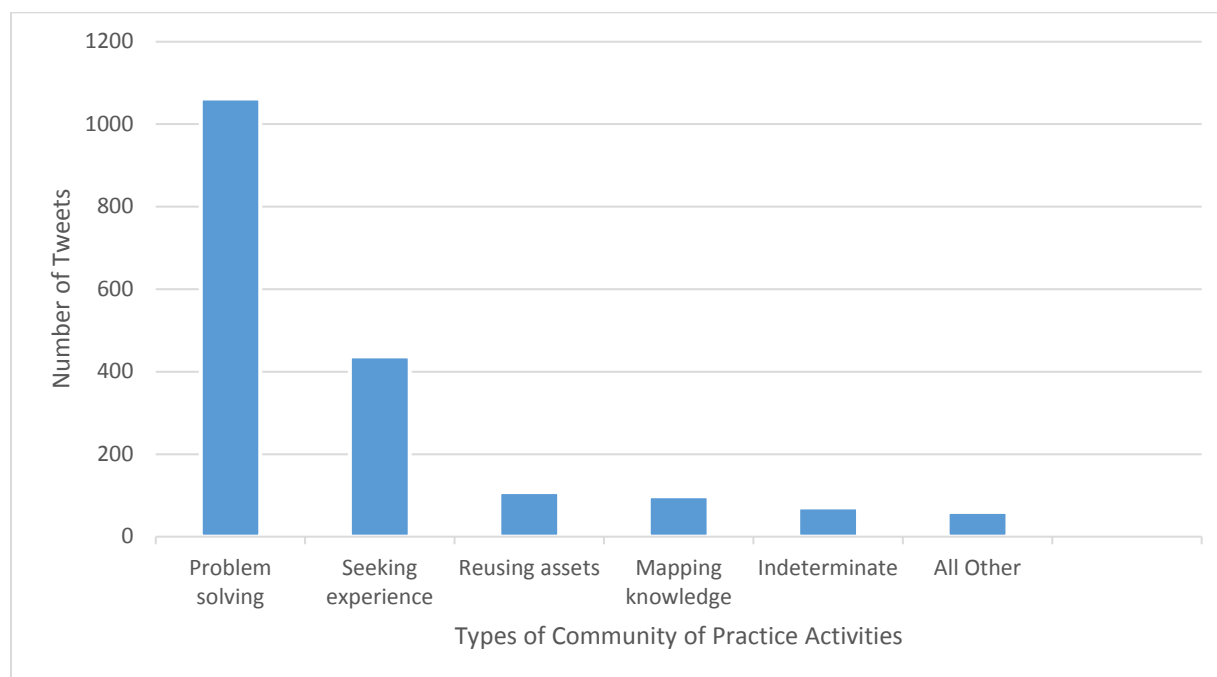


*Figure 1* Number of Community of Practice Activities (Wenger-Trayner &Wenger-Trayner, 2015).

**Discussion.**

The participants in this study used an educational Twitter chat to interact with other professionals using a social media platform that has evolved into a convenient, flexible, and free professional development tool. An examination of their exchanges informed the answer to the research question:

*To what extent are the behaviors of school leaders, in the context of Twitter chats,*

*characteristic of a community of practice?*

In examining the #satchat environment, the three *elements of a community of practice*, the domain, the community, and the practice (Wenger, 1998) were evident. Wenger-Trayner & Wenger-Trayner (2015) also describe several *activities* indicative of a community of practice. In the sample of #satchat transcripts, problem solving and seeking experience were the activities found most often; leaders wrestled with important topics such as how to increase collaboration between staff members, what to do when faced with on-the-job stressors, and how to survive as a new administrator. This finding affirms previous studies that demonstrated that Twitter chats align with some characteristics of a community of practice (Cho, 2013; Megele, 2014; Sauers & Richardson, 2015). It also aligns with descriptions of communities of practice found in the literature that describe how members work in self-directed ways to learn from each other and to solve shared work-related problems (Brown & Duguid, 2000).

One of the strongest findings of this study was confirmation that the #satchat environment is a space where school leaders are focused on topics of school leadership, and this is evidence of what Wenger (1998) refers to as a shared domain of interest. They share their experiences, feelings, and opinions about pertinent educational topics in a structured and focused way. Leader tweets coded as praxis comprised 68% of the tweets analyzed, which indicated conversations centered on the actual work of school leadership, not just theories or opinions. The conversations in these chats were not idle chit-chat. While a portion of the tweets were social in nature, those exchanges were also focused on building collegiality and making professional connections.

Real work was happening each Saturday morning as leaders participated in #satchat. This is supported by the high percentage of tweets coded as problem solving, a key community of practice activity, as well as the frequent exchange of resources seen throughout the chat. Leaders

discussed issues as varied as how they achieve work-life balance, how to cope with the stress of

stepping into a leadership position, and how to motivate teachers in the building to work

collaboratively. They also spent time talking about each other's experiences (37% of praxis

tweets). This often involved descriptions of how things were done in their own job setting, how

they experienced similar challenges, or what they had done to address a shared issue. This

provided a window into the world of many other leaders and showed how they all (from veteran

superintendents to first year assistant principals) experienced challenges, celebrated successes,

and strove to become better leaders.

Social networking sites have their own cultures that help both strangers and friends

connect and share ideas (Boyd, 2007). Consistent with this, the #satchat environment allows for

far greater access to other leaders than one could achieve using more traditional networking

strategies. Not only were participants joining from all over the United States (and elsewhere in

the world), they held many different positions of school leadership. Participants included

superintendents, principals, and assistant principals, ranging from veterans to first-year leaders.

More than 200 leaders participated in the three days of #satchat in an intense hour of interaction

about school leadership. While not a focus of this study, it is likely that many hundreds of

aspiring leaders also participated in the chats, gaining valuable access to mentors and models.

Carpenter and Krutka (2013) note that chat participants find a combination of resource sharing,

networking, and emotional support within the Twitter chat environment (Carpenter & Krutka,

2013).

The literature tells us that Twitter provides professional development that is timely,

engaging, and convenient (Carpenter & Krutka, 2013; Cho, 2016; Greider, 2016; Ross,

Maninger, LaPrairie, & Sullivan, 2015). These characteristics were evident in the #satchat setting

as well. The predictable and frequent schedule for this Saturday morning chat allowed busy leaders to access professional development on a regular basis from the convenience of their own home, or wherever they and their computer happened to be. New topics were developed each week, ensuring conversations that were relevant to current topics in education. As Miller (2014) noted, "the best PD tool is the one you'll use" (p. 24), and this study reinforced that the accessibility of Twitter makes it an easy and convenient choice.

Studies show that interactions between educators on Twitter can provide a feeling of community that breaks down barriers and reduces the feeling of isolation that both teachers and administrators sometimes feel (Carpenter & Krutka, 2013; Cho, 2016; Dobler, 2012; Jefferis, 2016). This study's findings are consistent with this statement as evidenced by the hundreds of tweets categorized as social and opinion. Leaders encouraged each other, provided advice, and shared both their achievements and their shortcomings. We know that school leadership can be isolating and overwhelming, particularly for those new to the field (Cook, Johnson, & Stager, 2016; Howard & Mallory, 2008; Jefferis, 2016). The #satchat setting provides a free and flexible way to reach out and learn from others who have shared concerns and challenges.

More than 2,000 re-tweets were identified in the study sample, which is consistent with the notion that Twitter is all about sharing things that one's followers might find useful, interesting, or entertaining (Axon, 2011; Glaser, 2016). In addition to re-tweets, chat participants frequently shared resources, which aligns with what Wenger (1998) considers a key indicator of the element of practice. Participants shared original content that they posted on their own blogs and websites, recommended books and videos, and talked about specific tools they used to conduct their work. For instance, several Google tools such as Google Hangouts, Google Docs,

and Google+ were mentioned throughout the chats. Favorite books and authors were also

mentioned, as was information about other #edchats in which participants might be interested.

This study revealed several themes that were underscored throughout the literature

review. Twitter chats are a viable way for leaders to combat feelings of isolation by connecting

school leaders to other practitioners and experts in their field. Interacting with others online, or

even just following a few hashtags, helps to build a virtual Professional Learning Network (PLN)

of others who have a shared passion. This includes Twitter users from all over the world as well

as those in one's back yard. Twitter is a publically available, free, tool that provides equal access

to anyone with access to the Internet. This levels the playing field for school leaders who may

have limited staff development resources or who live in geographically remote areas. It also

makes leaders more accessible to students, parents and other stakeholders.

 In response to questions regarding the legitimacy of an online-only community of

practice, Wenger-Trayner & Wenger-Trayner (2011) state:

> A community of practice is not defined by the medium through which members connect.
>
> Mutually relevant challenges of practice are much more important than modes of
>
> interaction. The key to a community of practice is the ability of participants to recognize
>
> the practitioner in each other and that basis, to act as learning partners. If online
>
> interactions alone allow people to do this in meaningful ways (and by now there is
>
> enough evidence that it is possible), then the result is an "online" community of practice.

This study examined the tweets of school leaders as they interacted in an educational

Twitter chat, #satchat. It found evidence that these exchanges are consistent with the three

elements of a community of practice. This community of leaders comes together around a shared

passion for educational leadership to learn from each other and share resources. They engage in

activities that Wenger-Trayner & Wenger-Trayner indicate are typical of thriving communities of practice, such as problem solving and seeking the experiences of others. It also showed how Twitter has evolved from a simple communication tool to a conduit for professional development that is cost-effective and that may be tailored to a wide variety of interests.

**Summary.**

This study affirms the position that online environments like #satchat can be a conduit to the rich exchange of learning between practitioners that is the hallmark of a community of practice. The study found evidence of participants who acknowledge each other as learning partners who are committed to the work of school leadership. A common thread found throughout the chat was a shared desire to elevate the practice of all who engage in the #satchat conversations. The question and answer format, as well as the selection of leadership-related chat topics, likely laid the groundwork for #satchat to function as a community of practice. However, the participants' willingness to share their knowledge and experiences, indeed, their willingness to devote an hour of their Saturday morning to collective learning, is what makes this community of practice thrive.

The theoretical framework underlying this study was based on two social theories of learning, connectivism (Siemens, 2005) and communities of practice (Wenger, 1998). Both theories assume that knowledge is passed from person to person and is ever-changing, as the needs of the leaner evolve.

Connectivism (Siemens, 2005) describes learning as an exchange of information that is facilitated by Internet technologies that are responsive to the nature of learning in the digital age. This study's findings illustrate how the Internet can be used to facilitate learning. The interactions between school leaders that were evident in #satchat would not have been possible in

a traditional professional development setting.  Hundreds of individuals with a passion for educational leadership exchanged thousands of ideas, solutions, and personal experiences in the space of an hour. Due to the nature of the Twitter stream and the speed with which tweets can be shared, a multi-layered and rapid-fire conversation about a myriad of important topics happened in each of the #satchat sessions.

Connectivism recognizes that learners will likely change jobs many times during their careers, often into unrelated fields. The #satchat community is comprised of both current and aspiring school leaders, including individuals who may not work in a traditional teaching position, such as media specialist or curriculum director. One topic of conversation during #satchat was how administrators handled the transition from classroom to the administrator's office.  By sharing their experiences, leaders provided a window into their world that could inform others who may be considering making the move into administration themselves. It also prepared potential leaders for the challenges they may face and provided advice for how to make the transition.

Learning no longer lasts a lifetime, but is a continual process in which the lines between work-related activities and learning activities are blurred. Connectivism places a premium on knowing where to find information and concludes that technology is rewiring our brains; in essence, the tools we use shape our thinking. Access to a community of learners, such as #satchat, acknowledges these facts and provides a way for school leaders to benefit from just-in-time training, through a quick exchange of advice, resources, and viewpoints. As this study affirms, this kind of flexible, free, and personalized learning is made possible due to Internet-facilitated tools such as Twitter.

Communities of practice are grounded in the idea that knowledge resides in people, not in machines or documents (Hildreth & Kimble, 2001). Learning is embedded in daily work and opportunities to learn from others are both flexible and tailored to the needs at hand. Wenger (1998) noted that communities of practice form when people, who share a concern or passion, come together in order to elevate their practice. Members of a community of practice must have interactions between them that lead to relationships in which they learn from each other.

The three elements of a community of practice, the domain, the community, and the practice, were found throughout this study. #satchat is a forum for those with a passion for school leadership. The tweets analyzed were consistently focused on the work of school leadership, and members learned from each other by sharing their knowledge with others. Because #satchat was created in order to facilitate a conversation between leaders and aspiring leaders, each week's topics and questions reinforced its shared learning domain and provided a setting in which to focus on school leadership.

Wenger (1998) notes that communities of practice form or dissolve, based on whether a learning need continues to exist. #satchat is a thriving community of learners whose membership is flexible and fluid, depending on the needs of the learners. Each week, returning members greeted new participants or welcomed back those who might have not participated for some time. Anyone who is interested can join #satchat, and a wide variety of individuals interested in school leadership participated, from all over the United States, and beyond.

An exchange of tangible resources is a key component of a community of practice as well (Wenger-Trayner & Wenger-Trayner, 2015). Many different kinds of resources, from Google documents, to blog posts, to books, were tweeted by #satchat participants. Conversations were

often focused on problem solving, and actionable solutions were discussed and debated. Members often linked to websites and re-tweeted information that they found valuable.

The findings of this study support the social learning theories of connectivism (Siemens, 2005) and communities of practice (Wenger, 1998). As noted above, the analysis of #satchat demonstrated how an online community of practice is made possible by Internet technologies, specifically through a Twitter chat. This study found that #satchat is a community of practice in which members interact with each other to exchange ideas and resources, related to a shared passion. This mirrors exactly the key elements of a community of practice as defined by Lave and Wenger (1991). This rich, online community would not be possible without an Internet-facilitated technology, such as Twitter. As Siemens (2005) notes, we can no longer personally experience all the learning we need to act; forming connections through digital spaces is critical in the chaotic environment that characterizes the knowledge worker's reality.

The sample of school leaders who participated in #satchat show evidence of the critical imperative of a community of practice:   members must have interactions, which lead to relationships, in which they learn from each other.  Twitter paves the way for these interactions by increasing access and removing barriers.  For school leaders who are limited by geography or budget, Twitter can facilitate high-quality, free, professional learning that is accessible around the clock. It provides leaders who may work in isolation with the opportunity to collaborate with others who share their concerns and passions. For every educator, regardless of their niche, there is a Twitter chat tailored to their needs. In this sense, Twitter and Twitter chats are a great equalizer.  They level the playing field so that all school leaders have the opportunity to learn and grow with others, regardless of their location, budget, or interests.

**Implications.**

However one starts, there are benefits to using social media for communication as well as professional development (Butler, 2010; Cho, 2013; DeWitt, 2011; 2016; Foote, 2014). Digital technologies are especially well-suited for supporting the leadership work in schools: building relationships, building the school brand, and building the capacity of the school staff (Comer & Haynes, 2014; Cox & McLeod, 2014; DeWitt, 2011; Ferriter, 2009; Sheninger, 2014). Twitter and Twitter chats also provide an opportunity for leaders to enhance their own professional development and let key stakeholders see them as leaders of learning Herbert, 2012; Joachin, n.d.; Sheninger, 2014; Sheninger & Larkin, 2012; Trust, 2012). This study confirms these claims and shows how one educational Twitter chat provided access to a rich community of practice for aspiring and current school leaders.

The structure of #satchat presented as being very good at some things, such as bouncing ideas off one another, exploring solutions, or discussing shared dilemmas. This was evidenced by the large number of tweets coded as problem solving and seeking experience. The leaders in this chat shared many ideas regarding how they experience leadership, what they do to be more successful, and what they believe as leaders. For instance, one provocative question asked leaders to reflect on one thing they committed to not change as they transitioned from the classroom to the administrator's office. Many answers reflected the common values of maintaining a focus on students, holding high expectations for themselves and others, and a commitment to remember what it was like to be a teacher. One new administrator noted that she still values fun and a family atmosphere, her classroom just got bigger.

In another thread, leaders were asked to share how they manage stress. Exercise and other self-care were frequently cited as go-to solutions. Work-life balance was also mentioned.

Although not the focus of this study, many #satchat participants are not yet working as school leaders. Hearing veterans describe what it is really like to sit in the leader's chair, late nights, crammed calendars, the struggle to maintain students as the priority, holds incredible value for aspiring leaders and also validates how current leaders may be feeling. In this thread, it was clearly communicated that if leaders do not take care of themselves, they cannot do their jobs effectively.

Not insignificantly, #satchat is a great place to pick up specific resources and tools. Participants often shared their favorite resources and frequently posted links to other websites. Not surprisingly, recommendations for technology and social media solutions were popular. Several members shared how to use tools like Google Keep, posted dates and times for other #edchats or maker events, and discussed their experience with Google Classroom. One member posted about using Twitter and Zoom to connect with colleagues and students around the world.

The implication of connecting with an online community of practice, through a Twitter chat such as #satchat, are numerous. Access is free, flexible, and full of opportunities to connect with experts, mentors, and leaders in the field in a way that is infinitely customizable. For those new to education, this means the ability to connect with mentors or other educators who share their learning needs. School leaders who have limited budgets, or are geographically isolated, can grow a professional learning network for exchanging ideas and resources, or problem-solving sticky situations.

Twitter chats explore a wide variety of issues, even within the realm of education. For instance, recent topics discussed by #edchat participants included free speech rights for teachers, defining authentic learning, and whether teachers should connect with students on social media ("#edchat," n.d.). Edchats may be regional (e.g. #wischat, #txeduchat, #dubchat), topic-specific

(e.g. #sschat, #engchat, #4thchat), or both (#kyadmin, #MEMSPAchat, #masspchat). Often, they target a specific audience such as school leaders (#mnlead), librarians (#vaslchat) or specific pairs of people (#ptchat). More than 300 education-related Twitter chats are maintained on a publically-available website (Blumengarten, 2015). They meet on every day of the week in a plethora of locations and time zones. There truly is an educational Twitter chat for everyone!

The implications of this study include several compelling reasons for school leaders to use social media, including Twitter and Twitter chats. Social media, and Twitter, are very good at opening channels of communication, which allows for increased brand awareness, greater transparency between home and school, and more opportunities to build relationships. Twitter chats provide school leaders with opportunities to build their professional networks, increase their own professional knowledge, and even mentor others. Twitter chats also connect educational leaders to each other, their stakeholders, and the community at large, which helps them build their own capacity and reach a greater audience.

**Future research.**

This study and prior research suggests that online environments, such as Twitter chats, evidence some elements of a community of practice, such as a focus on school leadership topics (Cho, 2013; Megele, 2014; Sauers & Richardson, 2015). Characteristics such as focus on a shared concern, varied levels of expertise among the members of the community, and participation that is both voluntary and fluid have also been noted (Cox, 2012; Gaillard, 2014; Megele, 2014). While the research establishes that Twitter, and other social media and online networking tools, are popular and effective gateways to professional development (Cho, 2016; Rockinson-Szapkiw, Huevelman-Hutchinson, & Spaulding, 2014; Sauers & Richardson, 2015), additional research showing how Twitter fits into a professional development plan could help illuminate a path

forward for those who are either professionally isolated or who have not yet discovered the value of social media. Studies examining the intersection of school leadership, professional learning, and the Twitter chat environment, are still very limited and remain an area in need of additional research. Only 24% of online adults use Twitter (Greenwood, Perrin, & Duggan, 2016), so it follows that a limited number of educators, and even fewer school leaders, use Twitter or participate in Twitter chats. Future studies might focus on what motivates, or deters, school leaders from using social media, despite the expectation that they do so (Cox, 2012; Sheninger, 2014).

**Limitations.**

This study was limited to an examination of one Twitter chat, #satchat, to determine if such an environment functions as a community of practice for school leaders. While the research found evidence that school leaders interact in ways that are consistent with a community of practice, additional research methods to supplement the content analysis of the chat transcripts, such as those typical of a case study, might give a more complete answer to the question. The size of the sample was affected by the limitations of research personnel and time; a larger sample might also lend rigor to the study. Finally, this study was based on qualitative methods, including purposive sampling techniques, which do not allow of results to the generalized in the same way that a quantitative approach would (Bloomberg & Volpi, 2012).

**Conclusion**

Twitter provides an opportunity for school leaders to join a community of practice that enables them to learn from each other and exchange ideas that support their professional growth (Cho, 2013; Cox, 2012; Ross, Maninger, LaPrairie, & Sullivan, 2015; Megele, 2014; Sauers & Richardson, 2015). In educational Twitter chats, members communicate about their shared

concern of teaching, learning, and leadership (Acosta, 2014; Brown, 2015). The chat moderator posts questions that relate to a particular topic or theme; this allows for real-time collaboration on issues of interest to the members (Gaillard, 2014; Zalaznick, 2014). As participants share their expertise, they are able to drive strategy, solve problems, and transfer best practices (Bearden, 2013; DeWitt, 2014). All of these elements were seen throughout the #satchat discussions.

Educational leadership can be lonely and isolating work that may ultimately have a negative impact on leader effectiveness (Howard & Mallory, 2008). There may be no viable way to collaborate with other leaders on a regular basis; for those working in small or rural districts, the issue is compounded. Budgets are often tight, and leaders may prioritize the larger school staff's professional development needs above their own. Twitter has been described as an antidote to feelings of isolation, and it removes barriers to high quality collaboration and professional development (Cox, 2012).

This study suggests that the #satchat environment can mitigate the professional isolation that school leaders often feel. It exposes them to a diverse community of educators who may have differing viewpoints, fresh ideas, or new resources to share. Their interactions are supportive and suggest a sense of the group wisdom being greater than the sum of its parts.

An examination of how school leaders interact during their #satchat conversations shows evidence of the two social theories of learning that form the theoretical framework of this study: Wenger's (1998) theory of learning and Siemens' (2005) connectivism theory. #satchat participants have built connections with each other through Twitter, an Internet technology that also functions as a professional development tool. These digital relationships mirror the main elements and key activities that Wenger-Trayner & Wenger-Trayner (2015) identify as indicative of a community of practice. Social media provides almost-unlimited access to other professionals

and makes information more readily available; the #satchat environment provides a familiar structure for leaders to regularly interact and learn from their online colleagues. In combination, these theories explain how #satchat, with its technology-enhanced connections, collaboration, and community, provides an environment for leaders to learn from each other.

These findings might be of particular interest to busy school leaders with limited time and resources to invest in their own professional learning. Like other studies that validate the use of social media for professional learning (Cox, 2012; Cho, 2013; Sauers & Richardson, 2015), this study illuminates a way for school leaders to access quality professional development that is highly personalized, free, and even fun. As one #satchat participant stated: "#satchat collaboration requires vulnerability to be a part of your experience. I don't have all the answers and could use your help."

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**APPENDICES**

**Appendix A**

**Activities of a Community of Practice** (Wenger-Trayner & Wenger-Trayner, 2015)

1. Problem solving

"Can we work on this design and brainstorm some ideas; I'm stuck."

2. Requests for information

"Where can I find the code to connect to the server?"

3. Seeking experience

"Has anyone dealt with a customer in this situation?"

4. Reusing assets

"I have a proposal for a local area network I wrote for a client last year. I can send it to you and you can easily tweak it for this new client."

5. Coordination and strategy

"Can we combine our purchases of solvent to achieve bulk discounts?"

6. Building an argument

"How do people in other countries do this? Armed with this information it will be easier to convince my Ministry to make some changes."

7. Growing confidence

"Before I do it, I'll run it through my community first to see what they think."

8. Discussing developments

"What do you think of the new CAD system? Does it really help?"

9. Documenting projects

"We have faced this problem five times now. Let us write it down once and for all."

10. Visits

"Can we come and see your after-school program? We need to establish one in our city."

11. Mapping knowledge and identifying gaps

"Who knows what, and what are we missing? What other groups should we connect with?"

**Appendix B**

**#satchat Questions**

Collaboration Chat

Q1 What is collaboration?

Q2 How is collaboration supported in our schools?

Q3 What does collaboration look like in the classroom setting?

Q4 How can teachers and administrators model collaboration?

Q5 How does technology foster collaboration? Examples.

Stress Chat

Q1 What are the leading stressors in your role or organization?

Q2 What affect does your stress have on your colleagues?

Q3 What proactive steps do you take to avoid (most) stress?

Q4 How do you manage stressful situations?

Q5 How do you help support others during stressful times?

Q6 What advice could you give other leaders about feeling stressed?

New Administrator Issues Chat

Q1 What is the biggest shift you had to make when you moved from Teacher to Administrator?

Q2 What is something you refused to change as you moved from Teacher to Administrator?

Q3 Parents are such an important part of schools. As a new admin, how do u develop relationships with parents?

Q4 Trust is perhaps the most important &amp; most difficult thing to build with staff members. What can a new admin do to build trust?

Q5 Often times Ss only get to speak w/ Admin when in trouble. How do you find time to speak with students in a meaningful way?

Q6 I don't love my office, I love classrooms. What steps can you take to ensure you spend as much time as possible in classrooms?

Q7 One piece of advice to a new admin. What would it be?

Appendix C

**Study Codebook**

| Code | Definition | Notes | Examples |
|------|-----------|-------|----------|
| Praxis | Refers to an application of knowledge or skills; actionable and specific. | | Collaboration involves interacting w/ peers to solve a problem/create something/improve or design a more efficient _____ #satchat<br><br>Moving to the dark side is lonely at first. You are seen as one of them. #Satchat<br><br>A3: We've put a focus on community this year and more Ts are eating lunch together. Great time to destress. #satchat |
| Social | Exchanges of a social or promotional nature. Includes greetings, introductions, and social interactions, references to a website or business for purely advertising purposes. | Includes references to prior tweets that just reinforce a previous point. | @smgaillard yes, it is great to connect! Looking forward to learning from you! #satchat<br><br>Morning @deem_ellen hope your week was an outstanding one! #satchat<br><br>@MurphysMusings5 @EPSDEyer Good for you! #satchat |
| Opinion | Simple opinions, points of view, affirmations, quotes, aphorisms, empty comments without an | Refined to include statements which had the intent to build camaraderie. | Great #satchat this afternoon - collaborative discussion all about collaboration! |

| | actionable component. Theory as distinguished from practice | | @Gregbagby Wow! I'm impressed! #satchat<br><br>@7wgreen7 — yes we learn so much from our failures #satchat #failureisokay |
|---|---|---|---|
| Problem solving | "Can we work on this design and brainstorm some ideas; I'm stuck." | | Active, robust learning/discussions, respectful communication/feedback on ideas, clear, purposeful goals=Collaborative classroom #satchat<br><br>Our district is beginning to discuss using G+ for curation #satchat |
| Requests for information | "Where can I find the code to connect to the server?" | | Great idea @Bec_Chirps @mbbvt @Lynchteaches have the rounds been effective thus far? Is there a structure/expectation to visits? #satchat |
| Seeking experience | "Has anyone dealt with a customer in this situation?" | Include responses to questions about one's experience | @drneilgupta Great point. When we do not see a direct benefit for our students, it is hard to buy in completely #satchat |
| Reusing assets | "I have a proposal for a local area network I wrote for a client last year. I can send it to you and you can easily tweak it for this new client." | Include links to other websites | Principal's Role in Supporting Educator Collaboration | Literacy in Learning Exchange via @GMontgomery10 http://t.co/XSJdkniWU5 #satchat |

| Coordination and strategy | "Can we combine our purchases of solvent to achieve bulk discounts?" | | A2: School leaders need to provide opportunities for staff to come together, via PD, release time, site visits &amp; staff exchanges. #satchat |
|---|---|---|---|
| Building an argument | "How do people in other countries do this? Armed with this information it will be easier to convince my Ministry to make some changes." | | @iplante Interesting point…how authentic is the collaboration if it is forced into a box of space and time? #satchat |
| Growing confidence | "Before I do it, I'll run it through my community first to see what they think." | | |
| Discussing developments | "What do you think of the new CAD system? Does it really help?" | | |
| Documenting projects | "We have faced this problem five times now. Let us write it down once and for all." | | |
| Visits | "Can we come and see your after-school program? We need to establish one in our city." | | |
| Mapping knowledge and identifying gaps | "Who knows what, and what are we missing? What other groups should we connect with?" | | @mrkempnz Relationships are so important, and something I have to work harder to develop as a new admin. #satchat |
| 12. Indeterminate | Can be praxis but you can't follow the thread. Several of the @exchanges could fall into this category | | |