SUPERINTENDENT USE OF TWITTER:
LEARNING, LEADING AND LEVERAGING THROUGH SOCIAL MEDIA

Michael Q. Roth
A DISSERTATION
in
Educational and Organizational Leadership

Presented to the Faculties of the University of Pennsylvania
in
Partial Fulfillment of the Requirements for the
Degree of Doctor of Education

2016

Supervisor of Dissertation:

Jonathan A. Supovitz, Professor of Education

Dean, Graduate School of Education:

Pamela L. Grossman, Dean and Professor

Dissertation Committee:

Jonathan A Supovitz, Professor of Education
Amy Stornaiuolo, Assistant Professor of Education
Randy M. Ziegenfuss, Superintendent of Salisbury Township School District
SUPERINTENDENT USE OF TWITTER: LEARNING, LEADING AND LEVERAGING THROUGH SOCIAL MEDIA

COPYRIGHT

2016

Michael Q. Roth
DEDICATION

This dissertation is dedicated to my exceptionally understanding family, who sacrificed their own needs to provide the time, encouragement and love I required to complete this journey. To Donald and Eileen, who are more than in-laws to me, but role models as to what family and sacrifice really means. To my parents Gerald and Gert, who for the past twenty-two years provided a steady and consistent foundation for our family as it has grown, always believing in my big ideas and decisions. To my wife Jennifer, who is the most amazing friend and life-partner for whom a person could ask. Your love and unquestionable support, through thick and thin, means more to me than you shall ever realize. To Jacob and Mitchell, the two best sons of whom a father could not be prouder. Every day I learn deeply about scholarship, musicianship, sportsmanship, tenacity and what it means to be a decent and caring human being by watching each of you take-on activities and your studies. Thanks for making me proud and for inspiring me to focus on making the world a better place for students to learn. And finally in memory of my nephew, Matthew and my Mother, Catharine: both left this world too soon, but to whom I am forever grateful for the time we had together and for your advocacy from that other world that even the most ardent and astute researcher cannot know until he or she arrives.

To all of you, this work is dedicated.
ACKNOWLEDGEMENTS

I would like to thank my incredibly talented, wise and inspiring chair, Dr. Jonathan Supovitz, who encouraged me every step of the way through the dissertation process. From tweeting out during my proposal defense, recording my commitment to be a “John Henry” when it came to coding tweets, to simply giving me insightful feedback and plenty of space to wrestle through the process amidst my many challenges as a leader, I sincerely thank you. If I can contribute to the field of education and leadership at a fraction of what you have, I will consider myself a success.

I extend deep appreciation to Dr. Amy Stornaiuolo, who provided such wonderful context for me to situate my study and whose questions pushed me to think deeply about how this work might inform those who come after me in terms of leadership. Your understanding, patience and flexibility are beyond compare. To Dr. Randy Ziegenfuss, who is a valued colleague and mentor around leadership in a school setting, and whose scholarly and practitioner approach to inquiry provide me both inspiration and hope for public education in the future. Both of you are the epitome of what a dissertation committee could and should be, in terms of unwavering support, complete commitment, and scholarly insight and advice.

I thank Dr. Michael Johanek, Mid-Career Program Director, and Jessica Lundeen and Martha Williams. You were instrumental in providing strong guidance to all of us in Cohort 12. Mike, thanks for meeting with an undeterred applicant who wanted to be a part of the Mid-Career program so much that he took each rejection to prepare as a better draft choice. Martha and Jessica, my gratitude for answering every question and being
two of the most sincere and level-headed individuals I know, able to navigate many larger-than-life egos with panache.

I wish to sincerely thank the seven superintendents whom I interviewed for this study. Although anonymity as participants in the research was guaranteed, I yearn to highlight each of you as exemplary educational leaders in the United States. At the heart of your practice is the success of students, teachers and communities, and the ways in which you have used social media enhances your core leadership practices as superintendents. Thank you for participating in this study and for continuing to engage with all stakeholders on social media to meet the challenging demands of education.

To all the inspiring members of Cohort 12: you taught me deeply about scholarship, leadership, friendship, family, tenacity and perseverance. Sundai, Michelle, and Michele: I am humbled by your quiet yet strong passion for students and the challenges you take-on within your settings. Theo and Jose: You inspire me through your stalwart approaches to supporting successful systems that serve all children. Mark and Colleen: Thanks for keeping me grounded and for being two of the most sincere and genuine people I know. Stephen: your thoughtful, gracious and intellectual approaches are matched only by your style. Rich: your willingness to lend an ear and to help out a fellow superintendent, along with being a rock in so many ways, makes me grateful. Stacey: your passion for doing right by students while providing them the experiences they need with technology keeps me thinking. Eddie, Pam and Victor: thanks for taking in the “old guy” on team projects and providing a reflection of my younger, eager self. My appreciation to Kimberly, whose commitment to service and the growth of others is beyond compare. My sincere gratitude to Rebecca, whose intellectualism and consistent
approach as the paramount teacher helped me navigate turbulent intellectual waters. To Taryn, for inspiring me at ever turn by the way you support students in becoming everything they are capable of becoming and more. To my “roomie” David, whose passion for life, learning, education and the underdog hits me like a train everyday, and without whose insight I cannot imagine going forward in the hard work that needs to be done. Finally, my Bucketeers: Tony, who inspired me to understand what it means to be an ally, educator and dedicated father. Derrick, who helped me recognize the best me that I want to be through recursive discourse and continued exploration of social identity. And Terri, whose intellectual pursuits through the lens of family, faith and friendship will always remind me of what it means to be a powerful yet humble leader. To the four of you, I offer my sincerest gratitude for walking beside me on this journey and allowing me to grow with you and because of you. I raise a glass to you and your incredible talents. Cheers!
ABSTRACT

SUPERINTENDENT USE OF TWITTER: LEARNING, LEADING AND LEVERAGING THROUGH SOCIAL MEDIA

Michael Q. Roth
Jonathan A. Supovitz

Technological advancements in society demand that students learn in contexts that take advantage of the vast availability of information, tools, and connectivity. Although research has focused on the development of Personal Learning Networks (PLNs) to inform and support teachers and principals within these evolving environments (Barkley, 2012; Carpenter & Krutka, 2014; Sinanis, 2015; Visser, Evering & Barrett, 2004), there is a lack of formal learning opportunities for leadership to support this transformation. Further, limited empirical research exists to substantiate claims that school district leaders who use social media for PLN purposes learn about, share, and enact leadership to support organizational transformation.

To help fill this gap in the knowledge base, this study employed a four-stage mixed-method research study to investigate United States public school superintendents use of Twitter for learning, leading, and leveraging improvement. Stage one established the population of United States superintendents with Twitter accounts. Stage two drew a random sample from the population to analyze representative Twitter patterns. Stage three focused on coding randomly sampled tweets of 100 superintendents for content aligned to the conceptual framework of learning, leading and leveraging through Twitter. Coding results framed stage four, which presented case studies of a purposeful sample of
superintendents to identify motivations, purposes and influence on leadership enactment through Twitter use.

The study results showed that approximately 17% of U.S. superintendents have Twitter accounts. The Twitter-using superintendents reflect the gender breakdown of American superintendents, but Midwestern superintendents are overrepresented. Superintendents use Twitter predominantly for professional reasons with tweet content demonstrating a higher inclination toward leveraging influence than learning or leading. Superintendents purposefully use Twitter in ways they believe enhances their leadership by providing transparency to their work and district accomplishments. Through connections with others, superintendents use Twitter to inspire and communicate a vision for purposeful change; advocate for funding and policy; and model effective technology use through PLNs to enhance learning and collegial relationships. Additionally, Twitter enhanced off-line interactions and provided connection with students, offering professional wisdom about their experiences within school systems. The study provides insights of how social media contributes to digital leadership within school districts.
# TABLE OF CONTENTS

DEDICATION ............................................................................................................................................

ACKNOWLEDGEMENTS .........................................................................................................................i

ABSTRACT ..............................................................................................................................................iv

LIST OF TABLES ......................................................................................................................................x

LIST OF ILLUSTRATIONS ......................................................................................................................xi

PROLOGUE ...............................................................................................................................................1

CHAPTER 1 INTRODUCTION, RATIONALE, AND SIGNIFICANCE .........................................................3

   Problem Statement ..............................................................................................................................3

   Research Questions ............................................................................................................................4

   Background and Context .....................................................................................................................6

   Rationale and Significance ................................................................................................................11

   Organization of the Study ................................................................................................................14

CHAPTER 2 LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK .............................................17

   Setting the Foundation for the Research ..........................................................................................17

   Models and Definitions of Digitally Transformed and Innovative School Systems ...................18

      What is Innovation? .........................................................................................................................20

      The Four “Cs” of 21st Century Education ......................................................................................21

   Leadership for Digitally Transformed School Systems ................................................................22

      Twitter and Professional Learning Networks (PLNs) ........................................................................26

      Twitter and Influence ....................................................................................................................28

   Learning, Leading, Leveraging: Practices to Transform Schools ....................................................31

      Learning .........................................................................................................................................33
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading</td>
<td>34</td>
</tr>
<tr>
<td>Leveraging</td>
<td>35</td>
</tr>
<tr>
<td>The Interconnectedness of Learning, Leading and Leveraging</td>
<td>36</td>
</tr>
<tr>
<td>Motivation and the Use of Twitter</td>
<td>37</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>38</td>
</tr>
<tr>
<td>CHAPTER 3 METHODOLOGY</td>
<td>40</td>
</tr>
<tr>
<td>Research Design</td>
<td>40</td>
</tr>
<tr>
<td>Stage One: Establishing a Population of Superintendents Who Use Twitter</td>
<td>44</td>
</tr>
<tr>
<td>Stage Two: Exploring Twitter Patterns and Demographics of Superintendents</td>
<td>48</td>
</tr>
<tr>
<td>Stage Three: Identifying Superintendents Who Tweet to Learn, Lead and</td>
<td></td>
</tr>
<tr>
<td>Leverage</td>
<td>50</td>
</tr>
<tr>
<td>Stage Four: Investigating Superintendents’ Motivations, Purposes, and</td>
<td></td>
</tr>
<tr>
<td>Leadership through Twitter Use</td>
<td>56</td>
</tr>
<tr>
<td>Category and Coding Descriptions</td>
<td>61</td>
</tr>
<tr>
<td>Case Study Development and Analysis</td>
<td>66</td>
</tr>
<tr>
<td>Researcher Roles/Issues of Validity</td>
<td>67</td>
</tr>
<tr>
<td>Ethical Considerations</td>
<td>71</td>
</tr>
<tr>
<td>Limitations</td>
<td>72</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>73</td>
</tr>
<tr>
<td>CHAPTER 4 FINDINGS</td>
<td>75</td>
</tr>
<tr>
<td>Stage One: Superintendent Twitter Accounts</td>
<td>76</td>
</tr>
<tr>
<td>Stage Two: Demographics and Twitter Patterns of Superintendents</td>
<td>77</td>
</tr>
</tbody>
</table>
Suggestions for Further Research ................................................................. 156

APPENDICES ........................................................................................................ 157

Appendix A: Conceptual Framework Alignment to ISTE Standards .................. 157
Appendix B: Conceptual Framework Alignment to ISSLC Standards ............... 159
Appendix C: Demographic Information and Coding Results of Superintendent Sample ........................................................................................................ 161
Appendix D: Interview Protocol ........................................................................ 164
Appendix E: Comparison of Coded Tweets to Superintendent’s Description .... 166

REFERENCES ........................................................................................................ 167
LIST OF TABLES

Table 1 Stages of the Research Process .................................................................43
Table 2 Twitter Account Data Collected .................................................................46
Table 3 Geographic Regions ....................................................................................49
Table 4 A Priori Codes for Tweet General Purpose ................................................53
Table 5 A Priori Codes for Tweet Content ................................................................54
Table 6 Tweet Content Examples ...........................................................................55
Table 7 Purposeful Sample of Superintendents for Interviews ...............................58
Table 8 Learn, Lead, Leverage Framework .............................................................61
Table 9 Coding Scheme for Motivation ..................................................................62
Table 10 Coding Scheme for Purpose .....................................................................63
Table 11 Coding Scheme for Leadership .................................................................65
Table 12 Demographics of Sampled Superintendents ..............................................78
Table 13 General Account Information of Sampled Superintendents .....................78
Table 14 General Patterns of Tweet Structure .......................................................81
Table 15 First Level Coding Summaries of All Tweets (n=2,500) ..............................81
Table 16 Second Level Coding Summaries of Professional Tweets (n=2,165) ..........83
Table 17 Coded Occurrences of Purpose of Twitter Use .........................................91
Table 18 Coded Occurrences of Leadership Effects through Twitter Use ...............93
Table 19 Coded Occurrences of Motivation to Use Twitter .....................................96
LIST OF ILLUSTRATIONS

Figure 1 Conceptual Framework of Learning, Leading and Leveraging ..................32
Figure 2 Number of Tweets Posted by Sampled Superintendents ..........................79
Figure 3 Number of Followers of Sampled Superintendents ..................................79
Figure 4 Number of Friends of Sampled Superintendents ....................................80
Figure 5 Sample Tweet for Larger Context/Interests .............................................82
Figure 6 Sample Tweet for Larger Context/Interests .............................................82
Figure 7 Sample Tweet for Leveraging .................................................................84
Figure 8 Sample Tweet for Leveraging .................................................................84
Figure 9 Sample Tweet for Learning .....................................................................85
Figure 10 Sample Tweet for Learning ....................................................................86
Figure 11 Sample Tweet for Leading ......................................................................87
Figure 12 Sample Tweet for Leading ......................................................................87
Figure 13 Superintendent A Sample Tweet #1 .......................................................100
Figure 14 Superintendent B Sample Tweet #1 .......................................................105
Figure 15 Superintendent B Sample Tweet #2 .......................................................105
Figure 16 Superintendent C Sample Tweet #1 .......................................................111
Figure 17 Superintendent C Sample Tweet #2 .......................................................111
Figure 18 Superintendent D Sample Tweet #1 .......................................................117
Figure 19 Superintendent D Sample Tweet #2 .......................................................118
Figure 20 Superintendent E Sample Tweet #1 .......................................................123
Figure 21 Superintendent E Sample Tweet #2 .......................................................123
Figure 22 Superintendent F Sample Tweet #1 .......................................................128
Figure 23 Superintendent F Sample Tweet #2 ................................................................. 129
Figure 24 Superintendent G Sample Tweet #1.............................................................. 134
Figure 25 Superintendent G Sample Tweet #2.............................................................. 134
PROLOGUE

Entering into a research study requires careful reflection upon the topic to be pursued and the intentions and aspirations to be achieved. Maxwell (2013) posits that personal, practical and intellectual goals must be clearly defined so as to frame motivation, justification and the design of the research. Scholarly pursuits and the research process culminating in a dissertation demand rigorous practices that continually surface and question how the researcher’s position, interactions and decisions affect not only ends, but the justified means as well. Espousal of said aspects often delineates between a well designed and executed research study and one that loses itself while looking for answers that may not exist.

I started this research of school district superintendents’ use of Twitter with the understanding that my positionality and approaches that I took as a school superintendent who used the Web 2.0 social media tool would influence the study. I was fully prepared and understood that the qualitative methods I choose to employ would require design decisions that would probe who I was as a school leader who embraced technology and social media. I had learned that strongly designed research captures a questioning of oneself, practices and research decisions.

What I did not realize was the skepticism that I held about school leaders use of Twitter and the effect it had on how they led schools or school systems. Although I personally and professionally embraced the use of technology, I often lamented that many of my superintendent colleagues seemingly disregarded the use of technology as a lever for leadership. Despite this lament, I found myself doubting that social media tools like Twitter would have a strong or deep affect on school leaders in a broad sense. Blog
posts, tweets, and stories touted the ways in which school leaders—mostly principals—discovered new perspectives on learning and leading in digital ways through associations on social media, specifically Twitter. To a certain extent, I believed this to be the case—but only with those who were explicitly expressing it in either formal or informal ways. I would attend conferences in which the topic of being a connected leader or educator would be presented by inspiring individuals. Their stories would provoke many affirmations or a flurry of on-line exchanges during keynote sessions by participants, but not much commitment in terms of follow-up actions visible in the social media venues being touted. I wondered if technology use and social media Web 2.0 tools by superintendents could really make a difference in terms of leadership. Would those differences appear among various examples and contexts of school leaders, or exist only in pockets of networked individuals who I perceived to develop close, but at times self-affirming, relationships?

I began this study with a healthy dose of skepticism and an aspiration to study how the use of social media influences the exercise of leadership among school superintendents. I am pleased that both combined with my inquisitiveness to answer questions for myself and for the field of educational leadership.
CHAPTER 1 INTRODUCTION, RATIONALE, AND SIGNIFICANCE

Problem Statement

Recent publications in the field of education call for school leaders to develop Personal Learning Networks (PLNs), systems of online and offline connections cultivated with others to share resources and ideas, to transform their practices through the integration of technology and social media (Nussbaum-Beach & Hall, 2012; Cook, 2014; Whitby & Anderson, 2014). Success stories of school leaders becoming “connected educators” through the use and support of social media within their contexts support a compelling observation that

[...educators need to overcome their resistance to learning about technology and enter into the culture of connected learning in order to be relevant in our technology-driven society—the very world where we are preparing our kids to live. If we expect to better educate our kids for that world, then it is imperative that we first educate their educators (Whitby & Anderson, 2014).]

One example includes former New Milford High School (NJ) Principal Eric Shenninger, who used Twitter to build relationships with principals and educators across the country. The connections facilitated resource sharing, school visitations, and learning experiences that Shenninger used to develop nationally recognized social media policies and a student Bring Your Own Device (BYOD) initiative for his high school (Sapers, 2012).

Albermarle County (VA) Superintendent Pam Moran is highly regarded as an effective connected educator, leading her district to develop a K-12 presence that includes multiple social media connections. Fostered by Moran’s vision and her own personal modeling of the use of social media to inform her own learning and leadership, Albermarle County is regarded as an innovative pacesetter in the digital transformation of school districts (Connected Educators, 2013).
The call to transform education through technology integration arises from observations of the contexts in which students currently learn and predictions about the careers they will enter at the conclusion of their formal education. Research has found that 90% of teenagers in the range of 13- to 17- years old have used social media, 22% have a current Twitter account, and 51% visit a social media site on a daily basis (Rideout, 2012). The types of careers, jobs and opportunities available for students by 2020 will require some familiar skills and competencies, and others yet to be developed and explored in classrooms (Newman, 2012; Shein, 2013). The continued development of technologies and associated cultural shifts have made traditional literacies and competencies associated with sense-making of words and images on the printed page insufficient to be successful in a media-rich society (Lankshear & Knobel, 2011; Nussbaum-Beach & Hall, 2012). To prepare for a future dependent upon the use of technology and shaped by the interconnectedness created by social media, how should public schools transform themselves to meet this demand?

**Research Questions**

A key component of this transformation lies in the development and enactment of skills and capacities of school leaders. Analysis of literature on school leadership has found that successful school leadership ranks second behind classroom teaching as influential on student learning, and that the way that leaders apply leadership practices in response to their context influences vision, direction, people development, organization redesign, and program management (Leithwood, Harris & Hopkins, 2008). As the world becomes more connected and networked through technology-rich environments, effective leaders who develop new leadership dispositions will need to initiate and support changes
required to create meaningful learning experiences for students (Ziegenfuss, 2010). Beyond understanding students’ use of social media, the exploration of school systems leaders’ use of social media is pertinent to discovering dispositions needed to lead technology-driven transformation of schools. This is especially important since formal learning opportunities for technology leadership in school systems is lacking in conferences, research articles and leadership programs (Schrum, Galizio & Ledesma, 2011; McLeod & Richardson, 2011). Instead, a growing association of teachers and leaders referred to as connected educators is pursuing learning through social media (Whitby & Anderson, 2014), specifically connections and activities focused for and on educators through Twitter (Barkley, 2012; Carpenter & Krutka, 2014; Sinanis, 2015). What does the concept of a connected educator signify for school district superintendents, charged with leading organizations and people through a technology-based and innovative transformation of schools?

Within the broad framework of the integration of technology in education and school leaders’ use of social media to generate personal learning networks, the following research questions were proposed:

• *What does the content of tweets created by school district superintendents reveal about their use of Twitter?*

• *What do school district superintendents identify as motivating factors and purposes for using Twitter within their role as a leader?*

• *How do school district superintendents describe the relationship between their use of Twitter and the enactment of leadership within their school systems?*
Background and Context

This study assumes that leaders within a school district model and/or mirror what is being asked of teachers and students in order to provoke and support change. Senge (1990) posits that learning organizations, associated with people expanding capabilities to shape their future, are constructed when leaders are responsible for learning. Successful organizations focus both “on generative learning, which is about creating, as well as adaptive learning, which is about coping” (Senge, 1990, p. 1), and shed the expectation that leaders think, learn and figure things out at the top and in isolation. Within school district settings, Senge’s proposition is supported by Bjork and Kowalski (2005) when they offer that “[t]he roles and responsibilities of the superintendent have expanded, and the need to look beyond the schoolhouse door for answers to lingering educational dilemmas is imperative for real, sustainable educational improvement to occur” (p. 201).

The past ten years have seen the use of web 2.0 tools and social media affect the ways in which people connect and interact on a local, national and global scale. Despite these changes, school districts’ policies and practices have embraced social media in varied ways or not at all, leading to a “relationship between the field [of education] and these new tools [that] is often muddled and contradictory” (Carpenter & Krutka, 2014, p. 414). This observation leads to the consideration of how technology integration within school districts may be classified as first- or second-order change, “one that occurs within a given system which itself remains unchanged, and one whose occurrence changes the system itself” (Watzlawick, Weakland & Fisch, 2011, p. 12).

Transformational leadership has been identified as a key component to changing organizations and systems by providing vision, an environment for change, and positive
influence (Bass & Avolio, 1993; Tucker & Russell, 2004). This is predicated upon the observation that transformational leaders value people and focus on employees’ needs for appreciation, inspiration, meaningful work, and personal growth. People find these leaders compelling because “they are passionate about what they do, and they share [emphasis added] their passion with everyone.” (McKee, p. 49). The development of Personal Learning Networks (PLNs) among connected educators, the use of social media in support of this development along with its generative and adaptive learning associations, and my former role as a superintendent who participated in Twitter created the context for studying the motivation, purposes and enactment of leadership through the use of Twitter by school district superintendents.

Social networks have long existed among individuals, influenced not only by close family, friends and colleagues, but also the individuals to whom their close connections recognize influence. Complex social networks have emergent properties that arise from the interaction and interconnection of the parts (Christakis & Fowler, 2009), seen in the development of Personal Learning Networks (PLNs) among educators to expand upon one’s own knowledge through influence and connection. Richardson & Mancabelli (2011) define learning networks as “the rich set of connections each of us can make to people in our online and offline worlds who can help us with our learning pursuits” (p. 21). Beyond networks among friends and family supported by Internet connections and social media Web 2.0 tools, PLNs support connections with persons we do not yet know and are “helpful strangers who share our passion for a particular topic” (Richardson & Mancabelli, 2011, p. 21) and “involve sharing work-related ideas with a network of colleagues via various digital communications (and even face-to-face) for the
betterment of one’s professional practice” (Perez, 2012, p. 20). The improvement of practice is a similarity between PLNs and Professional Learning Communities (PLCs). However, PLCs—employed to expand and sustain educator learning over time—are generally more formalized within the context of accountability for improved student performance outcomes which shape PLCs characteristics (Stoll, Bolam, McMahon, Wallace & Thomas, 2006).

The introduction of Web 2.0 tools has contributed to the redefinition of PLNs, as content has been freed from “the printed page, giving voice to the ideas of people we have never had access to before and enabling us to reshape our information experiences to suit our learning needs” (Warlick, 2009, p. 13). Second-order change appears to be occurring, as the nature of PLNs transforms beyond the system itself through the introduction and use of new technologies. This change gives rise to the concept of a connected educator who is transparent, shares openly with others, and pursues mentorships and collaboration to support just-in-time learning (Nussbaum-Beach & Hall, 2012; Sinanis, 2015). Warlick (2009) argues that the use of these new technologies for growing a PLN “is an imperative for educators who want to stay connected to the changing world we are charged with introducing to our students” (p. 13). The approach and contexts of PLNs as described point toward Senge’s (1990) contention that generative and adaptive learning are necessary for successful change leadership required within all levels of successful organizations. Whereas PLCs often rely upon formalized structures within systems and consist of similar individuals with a common purpose, PLNs often grow based upon a person’s self-identified learning needs and connect diverse individuals.
One technology service widely promoted among educators as a Web 2.0 tool effective in changing and redefining PLNs is Twitter. Twitter is an on-line social network created in 2006 as a micro-blogging service and originally designed for users to answer the question “What are you doing?” in a 140 characters or less posting known as a “tweet.” The network has grown to 320 million monthly active users who send 500 million tweets per day in support of the company’s mission “To give everyone the power to create and share ideas and information instantly, without barriers” (Twitter, Inc., 2016). In support of this mission, users are provided all components of Twitter for free with the ability to create either private or public accounts that allow them to follow or be followed by other members of the service. Members are able to monitor a real-time feed of tweets originating from those whom they follow, with the option to send an original tweet, retweet the posting of a followed member, or favorite the tweets of others. Built-in features of the system include the ability to privately message someone to whom you are connected and create private or shared lists of members based upon criteria determined by the member creating the list. Besides a posting of 140 characters, members may tweet links to other websites, videos, pictures, weblogs, news or any on-line content.

Twitter has been studied for the way that it influences politics (Conover, et. al, 2011), affects communication between users (Krishnamurthy, Gill & Arlitt, 2008), and serves as a powerful marketing tool (Berinato, 2010). Investigations into Twitter’s effect on the learning of college students (Junco, Heibeger & Loken, 2011) and teacher professional development (Visser, Evering & Barrett, 2014) have yielded empirical evidence on this Web 2.0 tool’s use for educational purposes associated with PLNs. The attributes of Twitter, such as the ability to follow users, message directly, “like” tweets,
or “re-tweet” tweets, create opportunities for collaboration, connection and communication within the social media platform. In addition, practices developed by users, such as the addition of a hashtag (#) to defined topics make searching Twitter more dynamic and create the context for weekly synchronous, hour-long “Twitter chats” among users with similar interests or roles around relevant topic for on-line discussion and sharing. The use of Twitter among K-16 educators has focused on communication, class activities and professional development (Cox, 2012; Carpenter and Krutka, 2014; Sinanis, 2015), but has arisen mostly through self-motivation and individual perceived need (Visser, Evering & Barrett, 2014). Research on Twitter, both broadly and within educational settings, provides multiple contexts to explore its use among school district superintendents.

A final context of the study is my former role as a superintendent and my use of Twitter. School district superintendents serve in a unique role. They are charged with providing instructional and operational leadership of school systems along with community and institutional influence that falls within public and political domains. They may be expected to reinforce or upset the status quo; implement or reject policy developed at state or federal levels; and/or embrace or reject innovation in education as associated with societal and economic transformations. I led a school district that embraced social media as a way to communicate its success and brand its continual transformation of teaching and learning through the integration of technology. Policies, procedures and practices in place supported the use of social media among all its stakeholders (TL2020.org). Although not specifically required to participate in Twitter, I found that while practicing leadership within the district, my comfort level and use of
Twitter increased. As I learned more about the concept of being a connected educator, building a PLN, and the ways in which I could use Twitter, I became interested in exploring the ways that other school district superintendents have used the tool and to what ends. If I wished to learn more about effective leadership to support the digital transformation of school districts and the efforts of superintendents as public leaders, I needed to learn more deeply about the connectedness of leaders within a social media tool like Twitter and how it motivates individuals and influences leadership.

**Rationale and Significance**

Schools are being called upon to transform approaches to instruction and learning given the demands of educating students in the 21st century and the ubiquity of technology in the lives of students. The mere introduction of technology supported by policy has not been enough to transform how teaching and learning occurs within schools (Culp, Honey & Mandinach, 2005). Instead, technology integration sustained by collaboration among teachers and leaders has been advanced to shift control of learning to the learner, highlight her/his agency, and support required pedagogical changes (Halverson & Smith, 2009; Collins & Halverson, 2010). This pedagogy focuses on the enactment of the four Cs of the Partnership for 21st Century Skills (2001)—Critical Thinking, Communication, Collaboration, and Creativity—along with ontologically new literacies embedded in contemporary changes affecting everyday life in modern society (Lankshear & Knobel, 2011). Successful transformation of schools within this context depends upon systemic and systematic approaches of leaders (Levin, 2012; Stack Feinberg, 2012), especially since leadership has been found to have a stronger effect on technology outcomes within schools than infrastructure and expenditures (Anderson &
Dexter, 2005). Even though superintendent attitudes about student use of devices is a strong factor in garnering support and acceptance of large-scale technology initiatives, such as 1:1 student to device projects, the influence of their own personal technology use on said initiatives is inconclusive (Cohen, 2014).

The confounding challenge concerning the technological transformation of schools is the lack of formal preparation within school leadership programs and state licensure requirements concerning technology leadership (Schrum, Galizio & Ledesma, 2011) along with sparse coverage of technology leadership within academic journals or conferences (McLeod & Richardson, 2011). Instead, the use of Personal Learning Networks (PLNs) and social media Web 2.0 tools (i.e., Twitter, Facebook, Pinterest, Google+) among school leaders has been advocated to transform their practices, and therefore, public education through the use of technology within schools (Warlick, 2009; Richardson & Mancabelli, 2011; Cook, 2014). Works concerning the development of PLNs and the attainment of the skills and characteristics of a connected educator have found strong support with social learning theory and along similar approaches of professional learning communities and communities of practice (Barkley, 2012; Nussbaum-Beach & Hall, 2012; Sinanis, 2015). Despite some studies that have highlighted superintendents’ positions on and use of technology (Cohen, 2014) and social media strategies for communication (Cox, 2012), the field is lacking in empirical investigation of how and why school district superintendents continue to learn to support transformation through development of their own PLN or how they use social media within their leadership practices.
Researchers have started exploring how the use of Twitter affects learning within higher education settings (Dunlap & Lowenthal, 2009; Rinaldo, Tapp & Laverie, 2011; Lowe & Laffey, 2011; Junco, Heiberger & Loken, 2011), the context of motivation and leadership among public relations practitioners (Sweetser & Kelleher, 2011), and the communication and social networks of individuals (Krishnamurthy, Gill, & Arlitt, 2008; Honey & Herring, 2009; Wu, Hoffman, Mason & Watts, 2011). This study has the potential to determine how superintendents’ development of PLNs through the use of Twitter fills the learning gap created between the demand for innovative technology leadership at the school system level and the lack of formal learning opportunities offered through conferences, research articles and formal leadership preparation programs. In addition, the study offers the opportunity to reveal the ways in which current research about the effectiveness of Twitter as a vehicle for learning and development of social networks applies to how superintendents use this web 2.0 tool within their roles as school district leaders.

As a former superintendent that worked in a system that closely mirrors the technology exemplars used by Levin (2012) for her study of technology rich schools, I joined Twitter, a collaborative web 2.0 tool that has been exemplified by many as a model for developing a professional learning network, to enhance my learning around technology leadership. My research of how other superintendents learn, lead, and leverage their position through the use of Twitter is intended to inform the practices of school leaders. I also have an intellectual curiosity in problematizing the practices associated with the use of Twitter so as to better understand its connection to the larger question of how to enact leadership that supports the digital transformation of schools.
Both purposes are relevant given the divide between the type of leadership described as necessary to digitally transform schools, the formal administrator training available to emerging and current school leaders and the lack of study specific to superintendent use of web 2.0 tools within their practices.

**Organization of the Study**

This study is presented in five chapters. Chapter One provides the statement of the problem, the context and background that led to the generation of the research questions. The rationale and significance of the study are offered, providing the guiding principles and motivations of the research.

Chapter Two offers a review of the literature that begins with the models and definitions of digitally transformed and innovative school systems, necessary to provide the why behind the required skills and approaches situated within the practices of school district leaders. A discussion of the leadership required for transforming schools to meet digital demands along with the learning and leveraging school district leaders must employ to achieve newly defined educational outcomes completes a review of current literature and research. These factors coalesce in the construction of the conceptual framework of learning, leading and leveraging that guided the overall research and espouse the connection between what has been learned about the use of Twitter both in educational and non-educational settings.

Chapter Three outlines the methodology of the research study, describing the research design, sampling frame, participant selection and criteria, sequencing of methods, and types of data collected within the context of a four-stage data collection and analysis process. Stage one of the methodology establishes an accessible population of
United States superintendents who use Twitter through collection and analysis of general demographic and profile data available from Twitter. Stage two employs random sampling to select a sample of superintendents to analyze Twitter patterns generalizable to the population. Stage three includes a random sampling of a set of tweets from each of the sampled superintendents. The coding of the content of the tweets aligned to the conceptual framework of learning, leading and leveraging through Twitter creates the parameters for establishing a purposeful sample of superintendents. These superintendent’s semi-structured interviews are analyzed in stage four to identify self-perceived motivation, purpose and influence on leadership enactment through the use of Twitter. Within the description of each stage the types of data analyzed, including audio-visual materials, individual interviews, and researcher memos, are explained. The data analysis is described, including a discussion of validity, the role of the researcher within the study and ethical considerations in employing Internet research.

Chapter Four includes the findings developed at each of the four stages of the research process. Stage one establishes the population of Twitter accounts associated with superintendents in the United States and provides insight into a broad perspective of its use among school district leaders. Stage two provides results of the analysis of randomly sampled superintendent Twitter accounts and what those generalizable results indicate about use and demographics. Stage three illuminates the results of the application of the conceptual framework of learning, leading and leveraging through the use of Twitter to the content of superintendents’ tweets. Stage four lays out the case studies developed to describe how the interviewed superintendents described their districts, leadership duties, district approaches to social media, and their own practices
associated with Twitter. A cross case analysis is employed to compare the cases to the conceptual framework of learning, leading and leveraging and to reveal the motivating factors, purposes, and perceptions of leadership enactment that superintendents described. The chapter ends with a description of the limitations or the research.

The study closes with Chapter Five and the conclusions, implications and researcher recommendations for further research. By reviewing the connection between the research questions developed and the methodology employed, a description of how the key findings and implications of the study provide a springboard for further research on the topic of school district leaders’ use of social media is offered.
CHAPTER 2 LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK
Setting the Foundation for the Research

The context of this study falls broadly within the common qualities of a digitally transformed school system (Lankshear & Knobel, 2011; Partnership for 21st Century Learning, 2011; Halverson & Smith, 2009; Silva, 2009; Puenteudura, 2010). The research explores the practices that arise in the overlap between transformative leadership required to support change (Levin, 2012; Anderson & Dexter, 2005; Culp, Honey & Mandinach, 2005; Collins & Halverson, 2010; Leithwood, Harris & Hopkins, 2008; Leithwood & Riehl, 2003; Bass and Avolio, 1993; Bass and Riggio, 2005; McKee, 2014), the opportunities available to learn about the practices of technology leadership (Warlick, 2009; Richardson & Mancabelli, 2011; Perez, 2012; Nussbaum-Beach & Hall, 2012; Schrum, Galizio & Ledesma, 2011; McLeod & Richardson, 2011), and the leverage that leaders exercise within their organizations to support innovation and change (Frank, Zhou and Borman, 2004; Senge, 1990; Rogers, 2003; Bass, 2002; Tucker and Russell, 2004). Situated within these concepts is the superintendent’s use of Twitter as a participant, initiator, and influencer as described and researched to support learning and leading among school leaders (Cook, 2014; Whitby & Anderson, 2014; Visser, Evering, & Barret, 2014; Carpenter & Krutka, 2014; Cox, 2012; Sinanis, 2015;) and its affects in creating and influencing networks (Hofer & Aubert, 2013; Krishnamurthy, Gill & Arlitt, 2008; Wu, Hoffman, Mason & Watts, 2011; Dunlap & Lowenthal, 2009; Cha, Haddadi, Benevenuto, & Gummadi, 2010).

Given this set of perspectives, the review of literature examines models and definitions of digitally transformed school systems, leadership required for digitally
transformed school systems, and the use of Twitter as a vehicle for learning and leveraging 21st century educational outcomes. This examination of the literature culminates in an explanation of the study’s conceptual framework of superintendent practices of leading, learning and leveraging through Twitter. The conceptual framework is established through alignment of general school leader standards (CCSSO, 2008), technology-focused leadership standards (ISTE, 2009), and leadership practices, attributes, and motivations (Spillane, 2006; Selznick, 1957; Papa, 2011; Richardson, 2014; Clegg, Kornberger and Pitsis, 2009; Cox, 2012; Ryan and Deci, 2000). The conceptual framework provides the structure through which the research questions are developed, methodology is founded, and data is collected and analyzed.

**Models and Definitions of Digitally Transformed and Innovative School Systems**

The transformation of K-12 public education to support what is called 21st century learning relies upon specific outcomes and demonstrations of skills supported by the integration of technology in classrooms. Embedded within these called-for changes through the integration of technology is a redefined approach to instruction in which students direct their own learning (Halverson and Smith, 2009). A review of educational policy from 1985-2005 indicated the strong belief that technology could positively change teaching and learning methods, although long-term goal setting for the integration of educational technology presented a challenge: schools could not often keep up with rapid changes in technology and evolving public perception of appropriate technology use in education (Culp, Honey and Mandinach, 2005). Educational scholars have developed specific definitions of new literacies directly tied to the adoption of innovative uses of technology by students (Lankshear and Knobel, 2011) and adults in creating their
own personal learning networks using technology (Warlick, 2009; Richardson and Mancabelli, 2011; Sinanis, 2015; Barkley, 2012). Although research has focused on the specific actions of school leaders in supporting digitally transformed schools (Levin, 2009; Stack Feinberg, 2012), empirical investigation of the specific actions of school district level leadership in terms of their own use of technology and application of these new literacies within a definition of digital leadership has yet to fully develop.

Innovation driven by the integration of technology finds common connection in the four “Cs” of 21st century student outcomes—Critical Thinking, Communication, Collaboration, Creativity—defined within the Framework for 21st Century Learning (Partnership for 21st Century Skills, 2011). Although the four “Cs” may on the surface appear to be achievable with minimal use of technology, the Partnership for 21st Century Skills calls for effective citizens and workers to exhibit these skills within a technology and media-suffused environment, marked by various characteristics, including: 1) access to an abundance of information, 2) rapid changes in technology tools, and 3) the ability to collaborate and make individual contributions on an unprecedented scale.

Although traditional educational outcomes of schooling have often included reference to critical thinking and communication through reading, writing, speaking and listening, the addition of collaboration and creativity align with Silva’s (2009) call to emphasize “what students can do with knowledge, rather than what units of knowledge they have” (p. 630).

The association between the four “Cs” and technology integration within classroom practices are highlighted by the Substitution, Augmentation, Modification, and Redefinition (SAMR) Model by Puentedura (2010). Pumentedura’s SAMR model provides a framework through which educators may gauge how adoption of technology
progresses along a continuum that includes substitution (technology used to perform a
task existing before technology), augmentation (technology used to perform a common
task more effectively), modification (substantial functional change to classroom tasks)
and redefinition (technology used to create tasks previously inconceivable). In this sense,
technology integration at the redefinition level of the SAMR model attaches to the
definition of innovation and digitally transformed schools that support the four “Cs” of
21st century learner outcomes.

What is Innovation?

Rogers (2003) defines innovation as “an idea, practice, or object that is perceived
as new by an individual or other unit of adoption. An innovation presents an individual
or an organization with a new alternative or alternatives, as well as new means of solving
problems” (p. 12). Building on Gabriel Tarde’s law of imitation diffusion (Kinnunen,
1996), Rogers provides compelling evidence through examples as to how these new ideas
spread, even when viewed as ambiguous in their results. In these cases, Rogers argues
that uncertainty is overcome when individuals seek out and associate with acquaintances
who have already adopted the innovation, and hence diffused it, at varying rates.
Embracing this definition of innovation is important to understanding the context of this
study. The term is frequently used within the literature when referring to technology or
different approaches to processes or procedures, such as Jaskyte’s (2004) reference to
organizational innovativeness as the “implementation of an idea, service, process,
procedure, system, structure or product new to prevailing organizational practices” (p.
158).
The Four “Cs” of 21st Century Education

In connection with the definition of innovation and its relationship to technology integration, the Partnership for 21st Century Skills (2011), as part of its Framework for 21st Century Learning, identified Critical Thinking, Communication, Collaboration, and Creativity as necessary learning and innovation skills for students. Richardson and Mancabelli (2011) have argued that schools need to “seriously [rethink] the way they work to meet the needs of the current learning realities our students face” (p. 20) while Stack Feinberg (2012) found that the use of the Framework for 21st Century Skills among school superintendents helped develop, nurture and sustain a culture necessary to support 21st century learning. Connected to the communication and collaboration innovation skills, Warlick (2009) offers that networked learners are not merely a destination for information… [but] become amplifiers as they engage in reflective and knowledge-building activities, connect and reconnect what they learn, add value to existing knowledge and idea, and then re-issue them back into the network (p. 16).

This observation creates an interesting example of the application of innovation and diffusion, and how those two concepts are rooted in the development of PLNs.

Puente'dura (2010) developed and vetted the SAMR model, which guides and gives direction to technology integration in instruction through the levels of substitution, augmentation, modification and redefinition of tasks developed by teachers and completed by students. Understanding the SAMR model’s affect on instruction, and its connection to the four “Cs,” provides insight into how learning can be transformed by technology integration. This knowledge and experience is important for leaders to grasp, as Collins and Halverson (2010) pointed out that “[t]o be effective in changing the
education environment requires that the builders of the new education system understand
the imperatives of the technologies driving the changes in education” (p. 26). Lankshear
and Knobel (2011) confirm this stance when they argue “contemporary change have
impacted on social practices in all the main areas of everyday life within modern
societies: in work, at leisure, in the home, in education, in the community, and in the
public” (p. 28). They describe ontologically new literacies as:

- using and constructing hyperlinks between documents and/or images, sounds, movies, etc.; text messaging on a mobile phone;
- using digital semiotic languages such as those used by the characters in the online episodic game *Banja*, or emoticons used in email, online chat space or in instant messaging;
- manipulating a mouse to move around within text;
- reading file extensions and identifying what software will ‘read’ each file;
- navigating three-dimensional worlds online;
- uploading images from a camera or digital image or animation, attaching sound to an image;
- building multimedia role-play universes online;
- choosing, building or customizing a blog template (pp. 28-29)

This definition of new literacies creates the motivation for those in education to
investigate and adopt practices aligned to the four “C’s” and SAMR model in order to
meet innovative demands in connection with Roger’s (2003) definition of diffusion “as
the process by which 1) an innovation 2) is communicated through certain channels 3)
over time 4) among the members of a social system” (“Four Main Elements in the
Diffusion of Innovations,” para. 1).

**Leadership for Digitally Transformed School Systems**

The complexity of the changes required to accomplish this transformation calls
not only for a redefinition of pedagogical approaches, but strong and grounded leadership
in order to move schools toward successful leveraging of technology within all aspects of
the system. Levin (2012) suggests that the introduction of technology and a distributive
leadership approach is not enough to ensure successful improvement of public schools or districts. She suggests several factors to be considered when leading a technology-focused school including a clear vision and mission, on-going and individualized professional development, revised curriculum and instruction around 21st century competencies, and collaborative partnerships with internal and external stakeholders.

The challenge is not just how to enact and support these factors, but how to do so as a technology-savvy leader in a school system. Although states have embraced standards for technology leadership, such as the International Society for Technology Education (ISTE) National Education Standards for Administrators (Anderson & Baxter, 2005), requirements in administrative licensure requirements do not reflect the standards, nor have administrative preparation programs in higher education embraced technology integration learning beyond data analysis (Schrum, Galizio, & Ledesma, 2011).

In response to defining appropriate technology leadership, Anderson and Baxter (2005) found that technology leadership has a stronger effect on technology outcomes than infrastructure or expenditures on hardware and software. They suggest that “a school’s technology efforts are seriously threatened unless key administrators become active technology leaders in a school” (Anderson and Baxter, 2005, p. 74). Shrum, Galizio, and Ledsema (2011) posit that school-based administrators identified as technology-savvy reported learning technology integration on their own or while in the classroom, or through professional development opportunities in their districts. Their everyday professional technology practices included “communication, data analysis, professional uses (reports, spreadsheets, etc.), student management—and in their
professional development for teachers” (p. 249), along with shared leadership with technology coordinators around a common vision for technology use in schools.

Leithwood, Harris and Hopkins’ (2008) review of literature on school leadership highlights that school leadership ranks second behind classroom teaching as influential on student learning. Their findings that the way that leaders apply leadership practices in response to their context influences vision, direction, people development, organization redesign, and program management aligns to Levin’s (2012) considerations in digitally transforming schools. Bass and Riggio’s (2005) four “I’s” of transformational leadership—inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration—provides a theoretical framework through which the practices of school superintendents may be studied when considering the actions and learning around digital transformations and innovation. Three of these “I’s” in particular are relevant to this study. Idealized influence relates to a leader who serves as a role model for followers and is admired for his or her actions within this context. Inspirational motivation refers to a leader’s ability to inspire and motivate followers, and when combined with idealized influence, constitute a leader’s charisma. Intellectual stimulation references the leader’s ability to challenge followers toward innovation and creativity. In the models of digitally transformed schools, leadership plays an important role in understanding the operationalization of innovation and adoption of change within contexts of the organizations. Individuals who demonstrate transformational leadership within their organizations were more likely to be visionary, provide the environment for change, and influence people to see opportunities (Bass and Avolio, 1993; Tucker and Russell, 2004). These leadership characteristics are key to studying individualized
consideration at the individual, team and organizational culture levels, especially when considering Jaskyte’s (2004) argument that organizational culture dictates and influences organizational innovativeness.

Despite these constructs, the relationship between transformational leadership and supporting innovation within organizations is not as clearly supported by research. Jung, Chow & Wu, (2003) found a positive relationship between transformational leadership and organizational innovation within private sector project teams. They propose transformational leadership can enhance organizational innovation “by creating an organizational culture in which employees are encouraged to tryout innovative ideas and approaches” (Jung, Chow & Wu, 2003; p. 339) through inspirational motivation or intellectual motivation. However, other research suggests that the same may not be true for some non-profit organizations. Jaskyte (2004) found that leadership characteristics similar to Bass and Riggio’s (2005) four “I’s” of transformational leadership were significantly and positively related to cultural consensus. Cultural consensus, including stability and team orientation, demonstrated a negative relationship to organizational innovativeness. Instead, leadership actions such as seeking challenges, experimenting, taking risks, and focusing on learning were not included in cultural consensus and therefore more closely tied to supporting innovation (Jaskyte, 2004). These varying approaches to the study of transformational leadership within different types of organizations and its connection to innovative practices provide space for further research.
Twitter and Professional Learning Networks (PLNs)

The call to transform public education into an institution provisioned to educate students in the knowledge, skills, and competencies required for successful learning in the 21st century requires new leadership practices that are not being specifically taught (Schrum, Galizio & Ledesma, 2011; McLeod & Richardson, 2011). The integration of technology is required to not merely enhance but also redefine the ways in which educators teach, students demonstrate and participate in their learning, and school’s practices realign in support of both. Where and how the learning required to enact these practices occurs is important, especially given that researchers have uncovered how adults in educational settings rely upon social pressure and access to expertise (Frank, Zhao and Borman, 2004) to enact educational innovations.

Warlick (2009) puts forth three ways for using technologies to grow one’s personal learning network (PLN), including personally maintained synchronous connections, personally and socially maintained semi-synchronous connections, and dynamically maintained asynchronous connections. He maintains that “[t]echnology has inspired a shift from a hunting and gathering information economy to the domestication of the information landscape” (p. 13). Richardson & Mancabelli (2011) suggest that participation in PLNs create spaces in which there is “an ongoing flow of learning.... As we participate in these spaces, we become one node, one participant in of many in a network that in aggregate is constantly learning” (p. 23). Nussbaum-Beach & Hall (2012) propose that the concept of the “connected educator,” supported by PLNs grounded in social learning theories, is evidenced in professional learning communities and communities of practice. They suggest “21st century technologies make possible
relationships that once were unimaginable [and] create a new potential for collaboration that can lead to powerful collective problem solving” (Nussbaum-Beach & Hall, 2012, “The New Collaboration,” para. 7). PLNs are often developed by individuals seeking connections to expand self-identified learning needs, whereas PLCs are more formalized in school settings through arrangement and leveraging of organizational structures. This formalization is rooted in accountability for student outcomes shaped by teacher practice within overlapping components of shared values and vision; collective responsibility; reflective professional inquiry; collaboration; and promotion of group and individual learning (Stoll, Bolam, McMahon, Wallace & Thomas, 2006). Given collaboration and communication enhanced within available technology, PLNs extend beyond the walls and structures of schools, providing the opportunity for enhanced and potentially accelerated diffusion of innovation.

Within the context of PLNs and the 21st century technologies is the use of Twitter as a powerful and relevant Web 2.0 tool for collaboration and cooperation. Cook (2014) and Whitby & Anderson (2014) laud the efficient and widely acclaimed uses of Twitter, including connecting with individuals and organizations to share information and learn, in establishing a strong PLN. This connection has been investigated among principals in elementary settings (Barkley, 2012; Gustafson, 2014) and across various leadership roles in public education (Elias, 2012). Barkley (2012) found that a group of principals who started as bloggers within an on-line community of practice developed a strong affinity space as a result of participation in Twitter. In addition, her study highlights that social capital defined by a network of relationships between entities, reciprocity, trust, social norms, and personal and collective efficacy arose out of their participation in an on-line
social network community. Gustafson’s (2014) study among eight elementary principals found that a common leadership characteristic shared by the participants was connectedness that manifested itself in the use of Twitter as “a catalyst for transforming professional development while ushering in innovative ideas to personalize staff learning” (p.78). Elias (2012) found that among five educational leaders, one of whom was a superintendent, the use of social media reinforced an extension of the theory of communities of practice to online interactions. In addition, he uncovered that participants identified a perceived benefit using online connections within their communities of practice to provide support and to enhance their professional development.

In a study of Twitter among classroom teachers, Visser, Evering & Barret (2014) found that teachers predominantly use Twitter for professional development and improving classroom practice. Participants identified with the “Twitter-based community of teachers [that] is welcoming and fosters collaboration and participation” and “the ability to participate in and contribute to the collective intelligence of the education-based Twitter community” (Visser, Evering & Barret, 2014, p. 409). Carpenter & Krutka’s (2014) survey of educators, including teachers and administrators, reinforced Visser, Evering & Barret’s (2014) findings and added that Twitter provided professional development opportunities that were superior to traditional professional development, a way to combat isolation from other educators, and medium more likely to be used to communicate with peers than with parents or students.

Twitter and Influence

As Twitter expanded as a social media platform for a broader spectrum of users, empirical studies of the Web 2.0 tool dove into more granular aspects across varying
fields of study. In studying the emerging conversational aspect of the microblogging occurring in Twitter, Honeycutt & Herring (2009) found members of Twitter beginning to use the service for informal collaborative purposes, evidenced through conversations using features of Twitter. They also predicted that the trend of the conversations would soon spill over into formal contexts, which was realized when Dunlap & Lowenthal (2009) found that Twitter assisted in the development of social presence within on-line courses through their research of practice within a college setting. When used beyond the features of Learning Management Systems (LMS) designed to deliver content and involve students, students who used Twitter were more likely to engage in cognitive and teaching presence associated with the Community of Inquiry framework and “constructed meaning through sustained communication” (Dunlap & Lowenthal, 2009, p. 133). The effects of Twitter in creating and influencing networks beyond the scope of education has relevance in determining its significance as a Web 2.0 social media tool in the world for which we are preparing students. An early study of the general use of Twitter by Krishnamurthy, Gill & Arlitt (2008) identified an initial typology of users within the social network created: Broadcasters, Acquaintances, Miscreants and Evangelists. Broadcasters--those with large numbers of followers as compared to those being followed--were mostly radio stations and media outlets. Acquaintances exhibited typical on-line social network reciprocity while Evangelists contacted anyone and everyone in order to generate more followers. Miscreants demonstrated spammer qualities. Their study found that highly popular users with many followers updated their status more often than those who follow more users than are following them. Additionally, this early work indicated that human users of Twitter, as compared to those associated with media
outlets or computer generated tweets, engage more deeply in interactions and have more reciprocal relationships within the service.

How individuals influence others or broadly through the use of Twitter appears in studies by Cha, Haddadi, Benevenuto & Gummadi (2010) and Wu, Hoffman, Mason & Watts (2011). In the former study, individual influence on others was studied based upon in-degree (number of followers), retweets, and mentions. Cha, Haddadi, Benevenuto & Gummadi, (2010) found that the most influential users defined by high measures of the three categories held significant influence over a variety of topics, but that influence is gained through concerted efforts such as limiting tweets to a single topic. In a similar vein, Wu, Hoffman, Mason & Watts (2011) studied the production, flow and consumption of information within Twitter based upon three categories: “elite users” (mostly celebrities), bloggers and representatives of media outlets. They found that homophily usually occurs within the identified categories in terms of who listens to whom; however, bloggers were found to rebroadcast more information.

A final study that holds potential significance to the proposed research of the use of Twitter among superintendents was conducted by Hofer & Aubert (2013), who investigated the social implication of Twitter on the development of social capital within on-line community with little to no offline connections. Specifically, Hofer and Aubert (2013) focused on perceived on-line bridging and on-line bonding defined as:

the former facilitates the dissemination of information within rather weak ties and is likely to lead to social and political participation, the latter is found within homogenous networks of like-minded people and is likely to result in emotional support for the individual (p. 2134).
According to their hypothesis, bonding social capital is associated with the number of followers and bridging social capital is associated with the number of people being followed. The study is framed within the dystopian view of media effects in terms of its perception in disconnecting individuals and the utopian counterpoint of the internet as creating space for interaction between like-minded individuals. Their results, proclaimed to be highly speculative, yielded that participants reported a perception that Twitter use influenced bridging social capital only and “the presence of too many followers seems to increase the psychological distance between a user and his or her followers” (Hofer & Aubert, 2013, p. 2140). This finding has potential for analyzing the ways in which superintendents may perceive their use of Twitter beyond building and maintaining a PLN.

**Learning, Leading, Leveraging: Practices to Transform Schools**

The required learning opportunities for students within the context of new demands and opportunities created by technology and the connection to the type of leadership required within school systems to support this learning create space for analyzing school superintendents’ approach to leadership practices and their connection to social media. This study is based upon a conceptual framework of how Twitter may be studied as a way that social media use influences practices and the enactment of educational leadership. Spillane (2006) defines leadership as the activities tied to the core work of the organization that are designed by organizational members to influence the motivation, knowledge, affect, or practices of other organizational members or that are understood by organizational members as intended to influence their motivation, knowledge, affect, or practices (pp. 11-12).
Within this definition of leadership, the conceptual framework of learning, leading and leveraging through the use of Twitter was developed (Figure 1). The framework is based in work defining leadership tasks associated to administration (Selznick, 1957), research on how superintendents use social media to communicate (Cox, 2012), and technology proponents’ identification of modern educational leader attributes (Richardson, 2014). In addition, the theory of self-determination motivation (Ryan and Deci, 2000) and its connection to leadership (Clegg, Kornberger and Pitsis, 2009; Sweetser & Kelleher, 2011) informed the development of the conceptual framework. Definitions of the learning, leading and leveraging components were clarified and formalized through functions and components described within technology specific school leadership standards of the International Society of Technology Education (Appendix A), general school leadership standard of the Interstate School Leaders Licensure Consortium (Appendix B), and research that highlights the importance of both (Papa, 2011).

Figure 1

*Conceptual Framework of Learning, Leading and Leveraging*
Learning

According to the research, learning occurs through Twitter with the establishment and access of a PLN in which school leaders are participants. A superintendent who uses Twitter may develop and contribute to PLNs, therefore enhancing one’s role as a learner and participant. Practices include asking and answering questions, or sharing resources, about educational or leadership philosophy. Richardson (2014) suggests that “networks and communities in which we participate on the Web are powerful places to learn, and they represent in some form the future of learning for our students” (p. 3). Beyond sharing what is garnered from conferences or workshops, modern educational leaders need to act “as learners first and foremost …constantly articulating and sharing personal questions that [they are] interested in answering, and then sharing [the] process for answering those questions transparently as well” (Richardson, 2014, p. 6). The Interstate School Leaders Licensure Consortium (ISLLC) suggests that school leaders “assess, analyze, and anticipate emerging trends and initiatives in order to adapt leadership strategies” (CCSSO, 2008), while ISTE (2009) calls for leaders to meet this standard through modeling, promoting, facilitating and participating in learning communities that stimulate creativity and innovation through the use of technology. Within the conceptual framework, the exercise of learning, or being a participant on Twitter, is supported by actions that model and promote the use of Twitter to ask questions, share answers, and/or provide resources regularly and transparently about leadership and educational practices to a broad audience.
Leading

The concept of leadership is complex, from how it is enacted by those in leadership positions, perceived by those who are being led, to the actions and/or results produced from an individual and organizational perspective. In his study of leadership within organizations and its relationship to administration, Selznick (1957) identifies four tasks leaders perform: defining institutional mission and role, embodying institutional purpose, defending institutional integrity, and ordering internal conflict. The practices employed through the use of Twitter by a superintendent to lead must consider the complexity of organizational leadership, yet might find substantiation in the simplification of leadership tasks. Leading through the use of Twitter is associated with initiation, embedded in practices that ask or answers question, or share information about, specific educational practices occurring within the context of a school or district. These practices include defining, describing and/or contextualizing purposes of district or school programs. From the standpoint of Selznick (1957), actions on Twitter that define institutional mission, role and purpose support tasks associated with leadership. Leadership standards from ISTE (2009) and CCSSO (2008) highlight modeling and promoting effective use of technology, and include inspiring and facilitating a vision of both instructional practice and effective use of technology among internal and external stakeholders of educational systems. Papa (2011) offers that the connection between leadership standards and practices may be found in “[m]odeling behaviors expected (displaying personal use of technology), providing professional development opportunities (encouraging staff to attend technology workshops), and ensuring access for students” (p. 35). Actions that initiate, inspire and support the use of technology
within schools and districts through modeling and best practice associated with transformational leadership align with the model of leading through the use of Twitter.

**Leveraging**

Leadership is strongly associated with the ability to influence, as pointed out by Spillane (2006) in his definition. The idea of leveraging within the conceptual framework appears on the surface to be nearly interchangeable with the identified practices affiliated with leading. Nevertheless, superintendent use of Twitter within the concept of leveraging connects with influence arising from sharing of general information about school and district events and activities, or opinion and information about a broad educational topic or policy. The intended action is to call attention to the story of what is occurring within schools or districts, or highlighting policy or other actions impacting education, with external stakeholders. Selznick (1957) highlights that the defense of institutional integrity, a “matter of maintaining values and distinctive identity… [is] one of the most important and least understood functions of leadership” (p. 63). Leadership standards highlight the role of the superintendent in promoting, sustaining, and advocating for students and education, with actions meant to influence and build relationships and understandings (CCSSO, 2008). Similarly, ISTE (2009) proposes that school leaders exercise advocacy and the leveraging of strategic partnerships to support systems and improvements along with modeling and facilitating shared understandings within a larger context. These types of actions coalesce in the idea of sharing information to support schools and districts, locally and beyond, to reinforce the institution of education.
The Interconnectedness of Learning, Leading and Leveraging

One could argue that despite differences in the definitions, examples and aligned standards to each of the components of the conceptual framework, a level of interconnectedness exists between the three areas of learning, leading and leveraging. It could be simply positioned that one is leading while learning, learning while leading, or leveraging while practicing both. Although learning is clearer in its definition, the researcher recognizes the nuanced differences between leading and leveraging. For purposes of the study, the distinction between leading and leveraging was based upon perceived audience and intent when considering the use of Twitter. Those activities or tweets aligned with leadership tasks, defined by Selznick (1957) to include supporting institutional mission, role and purpose, were considered in alignment with leading. In conjunction were the leader’s ability to inspire, motivate and challenge followers to pursue or demonstrate innovation and creativity. Actions by the leader include providing the environment for change and influencing those internal stakeholders to see opportunities. Leading associated with external stakeholders was based upon those leadership tasks associated with interaction, such as answering questions, providing requested resources, or delivering information. Activities associated with leveraging considered as its primary audience external stakeholders to the system, but whose support are required for the success of the district. Selznick (1957) highlights the defense of institutional integrity as key leadership practice. This practice associates to leveraging, as the intention extends beyond informing someone to inspiring or provoking a thought or reaction. For example, if a superintendent tweets the time and date of an upcoming band concert, this may be considered leading. It fulfills a task of providing information key to
an activity within the district. However, if the superintendent tweets from the band concert, includes a photo, and adds commentary about how proud she is to work in a district that supports the arts, the action is now associated with leveraging.

**Motivation and the Use of Twitter**

Cox (2012) found that superintendent use of social media is no longer just a novelty, but an expectation. His emergent themes highlight the interactions, transparency and connections that social media accelerates when considered within the context of communications. The use of social media as an expectation among superintendents connects to the core work of leadership as defined by Spillane (2006) and its association to motivation. Clegg, Kornberger and Pitsis (2009) contend that the ability to motivate and inspire individuals is a fundamental quality of leaders across all theories of leadership and “is necessary whether you are to lead yourself, to lead others, or to be led by others” (p. 153). Ryan and Deci (2000) advance that “[p]erhaps no single phenomenon reflects the positive potential of human nature as much as intrinsic motivation, the inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn” (p.70). This definition of intrinsic motivation aligns to the conceptual framework, considering how the innovative nature of Twitter connects to both novelty and challenge, and the practices of learning, leading and leveraging associate with extending and exercising capacities.

Social Determination Theory (SDT), developed by Ryan and Deci (2000), addresses “the investigation of people’s inherent growth tendencies and innate psychological needs that are the basis for their self-motivation and personality integration, as well as for the conditions that foster those positive processes” (p. 68).
These needs include competence, relatedness and autonomy, found by Ryan and Deci (2000) to produce greater internalization and integration of motivation when supported by positive social contexts. This finding “is of great significance for individuals who wish to motivate others in a way that engenders commitment, effort, and high-quality performance” (Ryan & Deci, 2000, p. 76). Sweetser and Kelleher (2011) applied self-determination theory to study the use of Twitter among public relations practitioners and its connection to leadership on a continuum of motivation and leadership indicators developed by the on-line tool Twitalyzer (http://twitalyzer.com). Their quantitative analysis found a positive correlation between Twitter leadership indicators and internal motivation and a negative correlation with amotivation. Additionally, those users inclined to tell another practitioner or a subordinate about Twitter had lower amotivation scores as well. Motivation and social media use among leaders provides strong connections between the concepts of learning, leading and leveraging through the use of Twitter.

**Chapter Summary**

This chapter highlights and supports the supposition that a new type of school system in which digital transformation should be envisioned, developed and sustained. Considering an operational definition of innovation that highlights application and fulfillment of the Four “Cs” of 21st Century Education, the types of leadership practices necessary within this context must be continually explored and developed. Research and frameworks around how students can and will learn within technology rich environments beg the question as to how school systems should be led in order to bring about necessary changes in support of new learning and teaching opportunities. Important to this
observation is the finding that formal learning and certification opportunities about these contexts are lacking for those in school and school district leadership positions. Twitter, a popular and prominent social media tool across the field of education, has demonstrated a growing influence on the way that principals learn and stakeholders connect.

The opportunity to research how school district superintendents learn about and employ new types of leadership practices appears within the space created between the actions and dispositions needed to enact changes to digitally transform schools and the lack of formal learning opportunities among leaders. The research on social media and Twitter use supports its positive influence on leadership practice and learning opportunities against the backdrop of the 4 “Cs” of 21st Century Education. From this context, a conceptual framework emerges that provides the opportunity to explore how school district superintendents who have Twitter accounts use the on-line social media service for learning, leading and leveraging and the ways in which they perceive its use as motivating and influencing their overall leadership.
CHAPTER 3 METHODOLOGY

Research Design

The research design was approached as a way to investigate school district superintendents’ use of Twitter, a digital web 2.0 tool, and its self-perceived affect on leadership. I employed a mixed-methods approach to best understand and investigate the problem framed by the research questions:

- What does the content of tweets created by school district superintendents reveal about their use of Twitter?
- What do school district superintendents identify as motivating factors and purposes for using Twitter within their role as a leader?
- How do school district superintendents describe the relationship between their use of Twitter and the enactment of leadership within their school systems?

The research questions focused on identifying why school superintendents use Twitter, examining the motivating factors and purposes they describe, and exploring the ways in which Twitter influences their enactment of leadership practices within their school systems. From my own use of Twitter, I found the platform provides opportunities to engage with others, share ideas, and communicate information in multiple contexts. Despite studies focusing on the ways in which Twitter is used by individuals and its effect in contexts outside K-12 education settings, limited empirical research exists on the use of Twitter among school leaders, specifically school superintendents. In conjunction, current research on the practice of Twitter in settings other than schools crossed multiple methods and settings, providing the opportunity for developing a unique research methodology.
This study was designed around a four-stage process that employed a mixed-method approach. Descriptive quantitative methods were used to inform the field broadly around the demographics, general information, and patterns of Twitter use among superintendents. Qualitative case studies provided a framework by which superintendent Twitter could be studied in more detail through a variety of data collection procedures (Stake, 2003; Yin, 2014). To investigate and explain how and why superintendents used Twitter within their contexts, a case-orientated approach provided the opportunity to explore “configurations, associations, causes and effects within the case” (Miles, Huberman & Saldaña, 2014, p. 102) and assisted to answer the “how” and “why” questions about the social phenomena (Yin, 2014). Within the description of each of the four stages of the research design, the types of data collected from July 2015 through February 2016 and their analysis are explained in the context of the methodology.

Maxwell (2008) contends that the use of prior research and theory can assist in organizing data and illuminating what one sees in his or her research; however, it must be cautiously approached as to not “fit your insights into this established framework [which] can deform your argument… making it harder for you to see what this new way of framing the phenomenon might contribute” (p. 227). In this particular study, the conceptual framework of leading, learning and leveraging was drawn from theory and prior research, and was used as a way to drive data collection and analysis. The sequence of research methods was strategically planned within each stage to analyze the units of study, inform the next stage of the research design, and reconsider or modify the study around developments or required changes in direction (Maxwell, 2013).
Stage one of the methodology established an accessible population of United States superintendents who use Twitter. General profile and Twitter activity data were collected and analyzed to produce an overview of superintendent Twitter use and a purposeful sample of active users. During stage two a random sample of 100 superintendents from the Twitter population of superintendents was selected to develop and analyze Twitter use patterns and demographic information generalizable to the population of superintendents. Stage three included a simple random sampling of a set of tweets from each of the sampled superintendents sampled in stage two. These tweets, therefore, are also generalizable to the population of education superintendents. The coding of the content of the tweets aligned to the conceptual framework of learning, leading and leveraging. The results of the coding created parameters for establishing a purposeful sample of superintendents who were interviewed using a semi-structured protocol. In stage four, the interviews were analyzed through inductive coding and the generation of case studies to identify motivation, purpose and leadership enactment through the use of Twitter. The four stages of the research process are summarized in Table 1.
Table 1

Stages of the Research Process

<table>
<thead>
<tr>
<th>Stage 1: Establishing a Population of Superintendents Who Use Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Search and collect Twitter profile information including “supt” or “superintendent”</td>
</tr>
<tr>
<td>b) Verify Twitter accounts associated with school superintendents in the United States to create accessible population</td>
</tr>
<tr>
<td>c) Confirm active use through analysis of Twitter accounts for date created, number of tweets, and date of last tweet posted</td>
</tr>
<tr>
<td>d) Gain insight into general information concerning Twitter accounts associated to school superintendents in the United States (N=2,359) and establish a purposeful sample of superintendents (n=1,582) actively using Twitter between July 1, 2014 and June 30, 2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 2: Exploring Patterns and Demographics of Superintendents Who Use Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Randomly sample 100 superintendents from the purposeful sample of 1,582 superintendents actively using Twitter between July 1, 2014 and June 30, 2015</td>
</tr>
<tr>
<td>b) Identify gender, region and tweeting patterns of random sample (n=100) through study of Twitter accounts</td>
</tr>
<tr>
<td>c) Analyze demographic information and Twitter use to determine patterns and themes among the random sample (n=100)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 3: Identifying Superintendents Who Use Twitter to Learn, Lead, Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Collect all tweets posted by random sample of superintendents (n=100) between July 1, 2014 and June 30, 2015</td>
</tr>
<tr>
<td>b) Use randomly sampled 25 tweets from each of the 100 superintendents (n=2,500 tweets)</td>
</tr>
<tr>
<td>c) Code tweets’ contents to identify personal or professional purpose</td>
</tr>
<tr>
<td>d) Code tweets identified for professional purpose for content aligned with learn, lead or leverage</td>
</tr>
<tr>
<td>e) Identify patterns of use of Twitter for personal and professional reasons, and how professional use aligns to the purposes of learn, lead and leverage</td>
</tr>
</tbody>
</table>
Stage 4: Investigating Superintendents’ Motivations, Purposes and Leadership through Twitter Use

a) Identify purposeful sample of superintendents (n=21) based upon their emphasis on learn, lead, leverage. Solicit interviews with the 21.
b) Interview seven of the 21 who agreed to be interviewed using a semi-structured interview protocol and transcribe recordings
c) Inductively code transcripts to identify categories and codes that align to the conceptual framework and research questions
d) Use conceptual framework of learn, lead and leverage to establish patterns within emergent themes and categories
e) Develop case studies based upon interviewed superintendents and employ cross-case analysis to answer research questions
f) Identify patterns and themes of superintendent use of twitter through application of framework of learn, lead, leverage; the identification of motivation and purposes; and the description of leadership enacted

In the sections that follow, the four stages of the research design are detailed. Each stage’s description includes the associated methodology, research steps, data collection processes, data analysis procedures, and data collected. A discussion of validity, the role of the researcher within the study, and ethical considerations in employing Internet research conclude the chapter.

Stage One: Establishing a Population of Superintendents Who Use Twitter

Stage one of the methodology was designed and employed to identify a population of superintendents within the United States who use Twitter. Since social media tools such as Twitter change daily based upon accounts created, abandoned, and/or deleted, it became important to consider how a population would be defined, identified and used within the research. The study assumed a theoretical population of superintendents in the United States who use Twitter as part of their role and duties as public school leaders. A theoretical population was considered since unrestricted access
to all superintendents who use Twitter was limited by multiple factors. These factors included, but were not limited to, the exclusion of identifiable information within a Twitter bio to indicate a user is a public school district superintendent; accounts that are identified with the school district but used solely or primarily by superintendents; or inactive accounts that have either not been accessed or used by a superintendent or assigned to another district employee or replacement upon the superintendent’s departure. The researcher recognized there are superintendents in the United States who have Twitter accounts, but whose use and identification within the service varies; therefore, access to the entire population is limited.

In order to determine an accessible population of superintendents, the methodological design considered the characteristics of and information available in Twitter to employ a rigorous sampling procedure (Cresswell, 2014). The Twitter platform was employed as the sampling frame, based upon access to readily available types of data. The web-based service Followerwonk (https://moz.com/followerwonk/) was used to collect account information from Twitter profiles that included the words “superintendent” or “supt” and were established on or before July 19, 2015. The data collected and described in Table 2 were downloaded into an electronic spreadsheet. The process of using Followerwonk to draw the population through the sampling frame of Twitter accounts that included “supt” or “superintendent” in the profile led to over 8,000 results. This initial collection of data revealed interesting information about these Twitter accounts. As expected at the onset of the study, the inclusion of “supt” or “superintendent” was found among accounts not related to school district superintendents. Other careers and job titles included golf course, police, construction,
Table 2

Twitter Account Data Collected

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen Name</td>
<td>Twitter handle selected by user; preceded by “@”</td>
</tr>
<tr>
<td>Full Name</td>
<td>User selected and identified name</td>
</tr>
<tr>
<td>Location</td>
<td>Geographic location identified by user</td>
</tr>
<tr>
<td>Followers</td>
<td>Number of people following the user as of the date of the data pull</td>
</tr>
<tr>
<td>Friends</td>
<td>Number of people the user is following as of the date of the data pull</td>
</tr>
<tr>
<td>Created</td>
<td>Day, month, year and time-stamp of creation of account</td>
</tr>
<tr>
<td>Tweets</td>
<td>Number of tweets issued between created date and date of the data pull</td>
</tr>
<tr>
<td>Last Tweet</td>
<td>Day, month, year and time-stamp of last issued tweet prior to data pull</td>
</tr>
<tr>
<td>Bio</td>
<td>User created profile description publicly accessible</td>
</tr>
<tr>
<td>URL</td>
<td>Website entered into profile by user</td>
</tr>
<tr>
<td>Social Authority Score</td>
<td>Score on a scale from 1 to 100, statistically calculated by Follerwonk</td>
</tr>
</tbody>
</table>

municipal, and building superintendents. Besides state, retired, assistant, or acting superintendent designations, there were those that identified themselves as aspiring superintendents as well as those seeking election as superintendent in states (Alabama, Mississippi and Florida) where this is a practice. Several “imposter” accounts were found that assumed the likeness of a superintendent, and some that sought the removal of a superintendent from his or her position.
Through a process using the sort and filter features of the electronic spreadsheet, I eliminated those accounts that were not located within the United States; associated with non-school related professions (i.e., building superintendents, golf course superintendents, police superintendents, public works superintendents); attached to assistant, retired, state-wide, aspiring or incoming superintendents; or contained fictitious or campaign-related references to superintendents. Once profiles with these factors were eliminated, individual profile descriptions were checked and suspect Twitter accounts were accessed to confirm they fell within the confines of the desired population of the study. Once this entire process was completed, I determined that 2,359 Twitter accounts existed that contained “superintendent” or “supt” within the profile description and were associated with a public school district within the United States.

The goal of the study was to research superintendents who use Twitter within their practice; therefore, it was necessary to define active Twitter use among superintendents for the context of the study and select a purposeful sample (Maxwell, 2013) to draw data to answer the research questions. Therefore, the initially identified accessible population (N=2,637) was analyzed to meet the parameters of this framework. A time-bound scope of superintendent practice was identified as one school year, running from July 1, 2014 through June 30, 2015. Employing the filter function of the electronic spreadsheet, superintendent Twitter accounts that met the criteria of posting a tweet after July 1, 2014 were identified. These results were filtered again to identify accounts that had posted at least 25 tweets. The challenge was that the 25 tweets reported were posted during the entire life of the account and not limited to the identified parameter of July 1, 2014 through June 30, 2015. A continued process of filtering by creation date of the
Twitter account and number of tweets posted ensured that a superintendent tweeted at least 25 times within the date parameters established. These three steps in analysis yielded a purposeful sample (n=1,582) used for the remainder of the study’s stages.

Stage one of the methodology established a population for the purpose of the study. Using Twitter as a sampling frame, an initial accessible population of 2,359 Twitter accounts was identified as being associated with a school superintendent in the United States. Additional analysis of the accessible population was conducted to draw a purposeful sample of 1,582 superintendents that tweeted a minimum of 25 times from July 1, 2014 through June 30, 2015. This purposeful sample became the basis for additional sampling in stage two that dove deeper into the demographics and tweeting patterns of superintendents.

Stage Two: Exploring Twitter Patterns and Demographics of Superintendents

Stage two of the research design provided the opportunity to explore patterns and demographics of a sample of superintendents drawn from the accessible population (N=2,359) established in stage one. From the purposeful sample (n=1,582), a sample of superintendents (n=100) was drawn using the random assignment function of the electronic spreadsheet housing the Twitter account data pulled, analyzed and reduced during stage one. Randomization provided the opportunity to generalize results to the population (Cresswell, 2014). In order to ensure anonymity of participants, a numeric identifier was assigned to each of the superintendents and used in stage two of the research design.

The Twitter account of each of the superintendents in the random sample (n=100) was reviewed and analyzed. This included confirming profile information, visiting
websites linked from the Twitter account profile page, and exploring the website of the
school district with which the superintendent was associated. Using the information
gathered from this investigation, the gender of the superintendent and the state in which
the superintendent served was identified. In order to further protect anonymity of the
superintendents and to generalize to the population, the location of the superintendents
was assigned to one of four geographic regions aligned to clustering of states (Table 3).
The listing of the superintendent by their numeric identifier, gender and geographic
region is found in Appendix C.

Table 3

Geographic Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Aligned States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northeast</td>
<td>CT, ME, MA, NH, RI, VT, NJ, NY, PA</td>
</tr>
<tr>
<td>Midwest</td>
<td>IL, IN, MI, OH, WI, IA, KS, MN, MO, NB, ND, SD</td>
</tr>
<tr>
<td>South</td>
<td>DE, FL, GA, MD, NC, SC, VA, DC, WV, AL, KY, MS, TN, AR, LA, OK, TX</td>
</tr>
<tr>
<td>West</td>
<td>AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA</td>
</tr>
</tbody>
</table>

One challenge that arose during stage two was the ability of a Twitter account
holder to make a Twitter account publicly available or require his or her approval in order
for followers to view tweets. For purposes of the study, it was necessary for an account
to allow public access to all tweets without approval of a follower by the Twitter account
holder. Given the time constraints of the study, a review of all Twitter accounts within
the purposeful sample (n=1,582) to ensure publicly available tweets prior to the
generation of the random sample was prohibitive. During the process of reviewing
randomly selected superintendent Twitter accounts, accounts set for follower approval by
the superintendent were removed from the sample. A superintendent who appeared next on the randomly generated list was added to the sample. In addition, Superintendent #62 appeared as outlier in terms of his number of Followers and Friends (those whom he follows) within both the random sample (n=100) and the population (N=2,359). Superintendent #62 had 953,742 Followers and 13,785 Friends. The superintendent in the sample with the next highest counts had 10,812 Followers and 3,262 Friends. As this anomaly in number of Followers and Friends was not uncovered until after tweets had been collected and coded in stage three, Superintendent #62 was kept as a part of the study. His total number of Followers and Friends was removed when determining mean in these two categories and noted for the sake of transparency. The number of tweets issued by Superintendent #62 was not an outlier, and therefore remained as part of the study’s analysis.

Stage two provided the opportunity to refine data collection by randomly selecting 100 superintendent Twitter accounts from the purposeful sample (n=1,582). The randomly selected accounts provided the opportunity to identify superintendent gender and location by region based upon information provided in their Twitter profiles and associated school district websites. The random sample of 100 superintendent Twitter accounts created the context for stage three of the research methodology, focused on collecting and analyzing tweets from each of the randomly sampled superintendent Twitter accounts.

**Stage Three: Identifying Superintendents Who Tweet to Learn, Lead and Leverage**

Stage three of the research design was planned and executed to investigate the pattern of tweets posted by the sample of superintendents during the course of one school
year. Accessing the accounts of the superintendents in the sample, all tweets posted during the identified time frame were collected and randomly sampled. The random sample of tweets were deductively coded using a two-phase a priori coding scheme that differentiated personal and professional tweets and aligned to the conceptual framework of learn (superintendent as participant), lead (superintendent as initiator), and leverage (superintendent as influencer). The following section describes the processes followed to study the content of superintendent tweets, the first unit analysis of the study.

The initial phase of the data collection in stage three included the collection of all tweets posted by the sampled superintendents for a period of July 1, 2014 through June 30, 2015. Tweets—the 140 character microblog posts—included text, links, and/or photographs posted by the superintendent along with the number of times the tweet was “retweeted” or “liked” by a follower on Twitter. The date range was strategically selected to cover all cycles of events occurring within a full school year. Because tweets are publicly available within accounts not requiring approval of the account holder for followers, the ability to collect this audio-visual form of data was not problematic. The data included original tweets, re-tweets, and replies to tweets. The Tweets (N=39,217) were collected using the web-based service All My Tweets (www.allmytweets.net), aligned to each of the superintendents who posted them, and placed into electronic spreadsheets.

A sample of 25 tweets from each superintendent was randomly selected using the random assignment function of the electronic spreadsheet in which they were stored. The randomly sampled tweets were analyzed using a two-phase coding cycle. During phase one, each tweet was coded for purpose based upon its general content aligned to one of
four categories: 1) personal; 2) professional/educational district related; 3) professional/educational non-district related; 4) larger contexts or interests (Table 4). Within phase two, tweets coded as professional/educational district related or professional/educational non-district related were coded for content that aligned to learning, leading or leveraging (Table 5). The total number of tweets coded for content was 2,500.

The advantage to this type of data, serving as the first unit of analysis for the study, was the unobtrusive nature of its collection and my ability to capture participants’ real-time practices without researcher influence on the participants. The limitation of the data set appeared in the occasional difficulty of interpreting meaning from the tweets based upon the construction of the tweet (text, characters, hashtags, “@” references, pictures, links) and/or the temporal context in which they were posted. This limitation was addressed by collaborating with critical friends to review several tweets for clarification. A selection of tweets was reviewed during a formal inquiry process conducted with peers in the Mid-Career Doctoral program at the University of Pennsylvania. Several tweets were included in the interview protocol piloted with a superintendent, not included in the sample, to compare his description of purpose with that of the researcher’s interpretation. Reflective memos completed after each of these processes supported the codes developed and their application to the content of tweets.

Data analysis as part of stage three included the reading and analysis of the 2,500 randomly sampled tweets. A first round of deductive coding determined the content of tweets that were personal; professional/education related to district or non-district activities; or larger contexts or interests (Table 5). Those tweets determined to fall within the general content of Professional Educational (District) or Professional Educational
(Non-District) were deductively coded using codes aligned with the conceptual framework of learning, leading and leveraging (Table 5). Tweets characteristic of the

Table 4

*A Priori Codes for Tweet General Purpose*

<table>
<thead>
<tr>
<th>Code</th>
<th>General Content</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PER</td>
<td>Personal</td>
<td>Tweet contains information or references to a personal or social interaction not related to school, district or professional responsibilities. May include personal or family related material or mentions, social activities/arrangements, etc.</td>
</tr>
<tr>
<td>PED</td>
<td>Professional Educational (District)</td>
<td>Tweet contains information or reference to information or an interaction that is related to school, district, or professional responsibilities. May include links or attachments that align with education, district or school activities, or associated mentions.</td>
</tr>
<tr>
<td>PEND</td>
<td>Professional Educational (Non-District)</td>
<td>Tweet contains information or reference to information or an interaction that is related to professional responsibilities in a larger educational context. May include links or attachments that align with education, policy, and practices, or associated mentions.</td>
</tr>
</tbody>
</table>
| LCI  | Larger Context or Interests | Tweet contains information about, reference to, or an interaction that is related to news, government, sports, entertainment, media, etc. May include links or attachments that align with non-education related codes associated with learning, leading and leveraging are provided in Table 6. Using electronic spreadsheets, total numbers of coded tweets for each category were tallied and percentages of results were calculated. The relationships between the variables in the sample of superintendent tweets were determined from an analysis of the data collected through the creation of data tables and displays. Researcher memos, journaling and a
formal inquiry session collaboration with peers assisted in establishing categories and themes drawn from an analysis of the data collected.

Stage three of the research design provided the opportunity to collect and analyze the tweets of superintendents and apply the a priori codes aligned to the conceptual framework of learn, lead and leverage. The result of the coding and the identification of Table 5

A Priori Codes for Tweet Content

<table>
<thead>
<tr>
<th>Code</th>
<th>General Content</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEARN</td>
<td>Learning</td>
<td>Asks or answers a question, or shares information about, educational practices/philosophy/leadership</td>
</tr>
<tr>
<td>LEAD</td>
<td>Leading</td>
<td>Asks or answers a question, or shares information about, a specific educational practice or event occurring within the school or district; defines, describes and/or contextualizes purposes of district programs</td>
</tr>
<tr>
<td>LEV</td>
<td>Leveraging</td>
<td>Shares general information about school or district events or activities with commentary; shares opinion or information about a broad educational topic or policy</td>
</tr>
</tbody>
</table>

the demographic information of the superintendents (Appendix C) initiated descriptive analysis to identify patterns generalizable to the accessible population. Analysis of the percentages of tweets coded as lead, learn and leverage provided the parameters to determine the purposeful sample of superintendents invited to participate in interviews as part of stage four of the methodology.
### Learning

1. For those districts that have or are going 1 to 1, how are you measuring the impact of your digital conversion?

2. Teachers reveal their favorite mobile apps ([link to on-line article included](#))

3. Leadership is not about the next election; it's about the next generation. - Simon Sinek

4. Thanks for asking. I appreciate your support. I shared the document w/you, Linda & Jen after seeing your tweet. U receive it?

### Leading

1. Course selection time soon; short read: The Top 4 Tips for Picking Perfect Classes ([link to on-line article included](#))

2. Friendly, interscholastic competition between schools at the HS level makes high school sports the finest! Congrats, teams and athletes.

3. Readers are leaders, & that is certainly true at #BBEreads this morning thank you for invite! ([picture of superintendent reading with students attached](#))

4. Come check out the AHS Wind Ensemble and Symphonic Band holiday concert tomorrow evening at 7:00 PM in the AHS Auditorium!

### Leveraging

1. I am at the Chicago Heights Citywide Cleanup. Thanks to the students and staff for volunteering their time. ([picture of students and staff at event](#))

2. WI funding cuts have drained the accounts of rural districts. We are running a barebones operation. @Districtadministration

3. Letter to the Editor: Grading schools not a productive measure ([link to newspaper opinion column included](#))

4. Students hard on work on Chromebooks at Cedar Heights. Great learning occurring! @CF_schools ([picture of students working on chromebooks attached](#))
Stage Four: Investigating Superintendents’ Motivations, Purposes, and Leadership through Twitter Use

Stage four of the research was designed to investigate the second unit of study: superintendents who use Twitter. Individual case studies of superintendents who use Twitter were developed from a smaller, purposeful sample (Miles, Huberman & Saldaña, 2014) based upon coded tallies of the content of tweets within the categories of learn, lead, leverage or a balance of all three determined in stage three. This sample (n=21) of superintendents was invited to participate in interviews about their role as superintendent, approaches to leadership, perspectives on district and personal social media use, and use of Twitter. The interviews were recorded, transcribed, and inductively coded to uncover purposes, motivations and leadership practices that arose individually within each context. The analysis of the interviews resulted in the development of case studies, compared in order to identify patterns and themes that surfaced around the ways superintendents described their use Twitter and investigate connections to the learn, lead, leverage framework.

Analysis of the tweets issued by superintendents between July 1, 2014 and June 30, 2015 provided the framework to determine interview participants. Superintendents who were active users on Twitter, demonstrated the potential to provide data to develop answers to the research questions, and tweeted content that aligned to the conceptual framework of learn, lead and leverage were invited to participate in interviews. Referred to by Maxwell (2013) as a purposeful sampling process, superintendents (n=21) were selected upon results of the deductive coding of the content of tweets posted and assigned an alphabetic identifier to ensure anonymity. Purposeful selection of superintendents to
participate in the interviews was based upon results of the coding of their tweets’ content aligned to learn, lead or leverage classifications. Those superintendents who had highest percentage results of tweets coded as “learning” were identified first. Next, superintendents with highest percentages of tweets within the category of “leading” were selected, followed by superintendents’ tweets ranked as the highest percentages within “leveraging.” Finally, those superintendents whose tweets demonstrated a similar pattern of results to the overall results of the sample tweets (n=2,500) for each category (learn = 22%, lead = 16%, leverage= 62%) were classified as “balance.”

The rationale for selection criteria met the goal of the researcher to have maximum participant engagement in the study while providing representation of superintendents who use Twitter across the categories of learning, leading and leveraging. Superintendents were emailed invitations to participate in the study beginning in January of 2016 with follow-up communication through multiple methods. The goal was to interview a total of 12 superintendents, three within each of categories of learn, lead, leverage and a balance of all three. Seven of the 21 superintendents accepted the invitation to participate and were interviewed. Two of the superintendents were classified as learn, two as lead, one as leverage, and two as a balance of all three (Table 7). These seven superintendents participated in individual interviews with the researcher.
### Table 7

**Purposeful Sample of Superintendents Interviewed (n=7)**

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Gender</th>
<th>Region</th>
<th>Classification of Superintendent Use</th>
<th>Tweets Coded As</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>M</td>
<td>Northeast</td>
<td>Learn</td>
<td>83%</td>
<td>0%</td>
</tr>
<tr>
<td>B</td>
<td>M</td>
<td>Midwest</td>
<td>Learn</td>
<td>88%</td>
<td>0%</td>
</tr>
<tr>
<td>C</td>
<td>M</td>
<td>Northeast</td>
<td>Lead</td>
<td>0%</td>
<td>56%</td>
</tr>
<tr>
<td>D</td>
<td>M</td>
<td>Northeast</td>
<td>Lead</td>
<td>14%</td>
<td>41%</td>
</tr>
<tr>
<td>E</td>
<td>M</td>
<td>Midwest</td>
<td>Leverage</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>Midwest</td>
<td>Balance</td>
<td>36%</td>
<td>20%</td>
</tr>
<tr>
<td>G</td>
<td>F</td>
<td>South</td>
<td>Balance</td>
<td>33%</td>
<td>21%</td>
</tr>
</tbody>
</table>

**Note:** Superintendent D was identified as “lead” as his ranking in this category placed him in the top 5 among superintendents. Although his percentage of tweets for “leverage” was higher, the percentage was lower among the top ranked superintendents within this category.

Individual interviews are “important in gaining a perspective on how others understand and interpret their reality” (Anderson, Herr & Nihlen, 2007, “Data Gathering Methods,” para. 2). The process provided insight into participants’ thoughts concerning their use of Twitter and its association to practices employed as a superintendent. A semi-structured interview protocol (Appendix D) was designed to ask the same questions of all participants and to provide insight into their thinking about the research questions and the ways in which they use Twitter. During the process of creating the interview protocol, interview questions were shared with a superintendent for review and feedback. The initial interview protocol was piloted with a superintendent. Both superintendents use Twitter but were not members of the random sample determined in stage two of the research design. Their feedback and suggestions led to adjustments in questions and sequencing within the interview protocol.
An individual interview lasting from one to one and a half hours was conducted via Google Hangout, FaceTime or phone with each of the seven participants. The superintendent interviews were recorded using an audio recording application on the researcher’s laptop computer and transcribed using the web-based application service Rev (www.rev.com). Transcripts completed by the service were reviewed in comparison to the audio recordings to ensure accuracy and to provide the opportunity for reflection and memoing. The goal of the semi-structured interviews was to ascertain the individual experiences of the participants and create individual cases for inquiry and analysis as part of the study, fulfilling the study’s second unit of analysis. The process provided an opportunity to gather data about the ways that superintendents described motivations and purposes for their use of Twitter and perceptions as to how it influences their enactment of leadership. Responses also surfaced connections between the content of the superintendent’s tweets and his or her description of Twitter use. The classification of the superintendent based upon the coding of tweet content within the framework of learn, lead and leverage established the context for case study analysis and insight into reactions of the participants to the research questions and contributions to a case-oriented inquiry. During the interview process, six sample tweets posted by each of the participants were reviewed and probed to determine if the coding of the content of the tweets aligned with the perception of the superintendent.

Following the recording and transcribing of the interviews, analysis of the interview transcripts included first cycle coding methods identifying “codes [that] emerge progressively during data collection—that is, Inductive coding” (Miles, Huberman & Saldaña, 2014, p. 81). The first stage of inductive coding generated superintendent
reported descriptions of their actions around Twitter use, captured and aligned with the learn, lead and leverage framework found in Table 8. The initial coding produced multiple codes that covered a broad range of categories and themes; rich in description and granular in nature, they assisted in making the familiar strange and the strange familiar as Erickson (1973) recommends for qualitative researchers. However, their broad and extensive nature became unwieldy within the context of the study. Through analytic memoing and journaling centered on reflection and upon the research questions and the literature review, the first round of inductive codes were organized and compressed through pattern coding (Miles, Huberman & Saldana, 2014) into 16 combined casual/explanation codes associated to three categories aligned broadly with the research questions. These codes were applied to the transcripts of the individual interviews of the seven superintendents in a second round of coding. This process led to the identification of instances of observations, comments, or descriptions of superintendents’ experiences with Twitter that specifically aligned with motivation, purpose and leadership. The coding provided the platform for determining and refining themes through an iterative process of data displays linked back to the research questions and the conceptual framework of leading, learning and leveraging. The following section provides descriptions, sample comments, and rationales for each of the three categories—Motivation, Purpose and Leadership—and the codes aligned within each of the categories.
Table 8

Learn, Lead, Leverage Framework

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning</td>
<td>Superintendent acts as a participant on Twitter by asking or answering questions, seeking information, or sharing educational practices/philosophy/leadership to a broad audience</td>
</tr>
<tr>
<td>Leading</td>
<td>Superintendent acts as an initiator on Twitter by asking or answering questions, or sharing information about specific educational practices occurring within the school or district. The action intends to define, describe and/or contextualize purposes of district programs</td>
</tr>
<tr>
<td>Leveraging</td>
<td>Superintendent acts as influencer on Twitter by sharing general information about school or district events or activities that highlights the work of the district from a positive public relations stance. The action shares opinion or information about a broad educational topic or policy.</td>
</tr>
</tbody>
</table>

Category and Coding Descriptions

The category of Motivation related how superintendents in the study described situations or perspectives concerning Twitter, surfacing underlying reasons they used the service (Table 9). The codes for Motivation were drawn directly from the work of Ryan and Deci (2000) as first-cycle coding confirmed the potential for the descriptors of Competency, Relatedness and Authority to offer insight into re-analyzing superintendent responses in a second-cycle of coding. Competency connected to the ways in which participants described how Twitter contributed to a sense of self-efficacy and capability as a superintendent. These included describing specific actions or opinions that ranged from being informed broadly or locally about issues to engaging with stakeholders and receiving positive feedback. Relatedness linked to the ways in which superintendents expressed a sense of belonging and connection, including expressions of personal and professional relationships that developed, grew and prospered as a result of using Twitter.
Autonomy dealt with how superintendents articulated ways in which their participation in Twitter manifested a sense of self-determination and independence in the use of Twitter, including descriptions of varying uses of Twitter to uncover their own leadership.

Table 9

Coding Scheme for Motivation

<table>
<thead>
<tr>
<th>Category</th>
<th>Code Title</th>
<th>Coding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competency</td>
<td>COM</td>
<td></td>
<td>Participant described self-efficacy through use of Twitter</td>
</tr>
<tr>
<td>Motivation</td>
<td>Relatedness</td>
<td>REL</td>
<td>Participant described sense of belonging through use of Twitter</td>
</tr>
<tr>
<td>Autonomy</td>
<td>AUT</td>
<td></td>
<td>Participant described self-determination and independence in use of Twitter</td>
</tr>
</tbody>
</table>

The general category of Purpose associated with the ways in which superintendents described the reasons they use Twitter as a school leader (Table 10).

Communicating linked to the sharing of pertinent information about the superintendent’s district. Examples included information about events within the district; accolades or awards garnered by students, staff or groups within the district; or other types of happenings that would fall within the categories of notification and/or public relations.

Influencing took the concept of communicating one degree further by surfacing an indication that Twitter was used to sway district or other stakeholders’ perspectives around an educational issue. Motivating specifically attached to encouraging district stakeholders, including students, teachers, staff members, parents or community members, toward innovation or educational improvement. Examples included providing specific examples of how an innovative practice would look in a class or school to the
reasons why such practices were necessary. *Learning* connected to examples of Twitter being used by the superintendent for seeking and/or sharing new information or experiences. These sought-out experiences were specifically connected to leadership actions or district initiatives, ranging from tweeting out articles or links to asking specific questions of practice. *Connecting* highlighted the ways in which superintendents used Twitter for collaborating with district stakeholders or others in education. Although somewhat similar to the categories of *Communicating and Influencing*, *Connecting* offered examples shared by superintendents where purposeful continuation of relationships were underscored and recounted.

Table 10

*Coding Scheme for Purpose*

<table>
<thead>
<tr>
<th>Category</th>
<th>Code Title</th>
<th>Coding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating</td>
<td>COMM</td>
<td></td>
<td>Indication that Twitter is used to share pertinent information about the district</td>
</tr>
<tr>
<td>Influencing</td>
<td>INFL</td>
<td></td>
<td>Indication that Twitter is used to influence district stakeholders or others around issues in education</td>
</tr>
<tr>
<td>Purpose</td>
<td>Motivating</td>
<td>MOTI</td>
<td>Indication that Twitter is used to encourage district stakeholders toward innovation or improvement</td>
</tr>
<tr>
<td>Learning</td>
<td>LEAR</td>
<td></td>
<td>Indication that Twitter is used for seeking and sharing new information or experiences in support of leadership or district initiatives</td>
</tr>
<tr>
<td>Connecting</td>
<td>CONN</td>
<td></td>
<td>Indication that Twitter is used for connecting to or collaborating with district stakeholders or others involved with education</td>
</tr>
</tbody>
</table>
The final category of Leadership generated findings aligned with the ways superintendents described Twitter use affecting their practices within school districts (Table 11). The first four codes dealt with actions and how the superintendents perceived Twitter influenced their enactment of leadership. Amplification indicated that superintendents believed Twitter enhanced their overall leadership actions. Examples included enriching communication, displaying work and results of leadership, and projecting exchanges between stakeholders in a public space. Modeling dealt with how Twitter provided a platform for superintendents to model leadership and expectations around technology within the school district. Modeling surfaced occasions where superintendents specifically called out their own practices as intended to show others how to appropriately use social media and/or instances where exchanges with stakeholders, students in particular, provided insight into acceptable uses of social media platforms. Engagement related to ways in which Twitter use was described as providing an opportunity for exchanges with stakeholders. Similarly framed to Connecting as a category under Purpose, Engagement attached to exchanges on Twitter described by superintendents as positively influencing their leadership abilities and skills. Examples included the opportunity to interact with colleagues and peers from a learning and sharing stance, to the power of exchanges with students that provided insight into what was happening from their perspective. Transparency included observations by superintendents that Twitter provided the opportunity for followers to gain clarity and insight into leadership actions on their behalf, based upon perceptions about why people follow the superintendent to the way that followers have engaged and responded to the superintendent.
<table>
<thead>
<tr>
<th>Category</th>
<th>Code Title</th>
<th>Coding</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplification</td>
<td>AMP</td>
<td></td>
<td>Indication that use of Twitter enhances leadership actions</td>
</tr>
<tr>
<td>Modeling</td>
<td>MOD</td>
<td></td>
<td>Indication that use of Twitter provides platform to model leadership and expectations</td>
</tr>
<tr>
<td>Engagement</td>
<td>ENG</td>
<td></td>
<td>Indication that use of Twitter provides opportunity for engagement with stakeholders</td>
</tr>
<tr>
<td>Transparency</td>
<td>TRA</td>
<td></td>
<td>Indication that use of Twitter provides clarity and insight into leadership actions</td>
</tr>
<tr>
<td>Leadership</td>
<td></td>
<td></td>
<td>Description of use of Twitter as a leader at the Substitution Level (no functional change of role or task)</td>
</tr>
<tr>
<td>Substitution</td>
<td>SAMR-S</td>
<td></td>
<td>Description of use of Twitter as a leader at the Substitution Level (no functional change of role or task)</td>
</tr>
<tr>
<td>Augmentation</td>
<td>SAMR-A</td>
<td></td>
<td>Description of use of Twitter as a leader at the Augmentation Level (some functional change of role or tasks)</td>
</tr>
<tr>
<td>Modification</td>
<td>SAMR-M</td>
<td></td>
<td>Description of use of Twitter as a leader at the Modification Level (significant functional change of role or tasks)</td>
</tr>
<tr>
<td>Redefinition</td>
<td>SAMR-R</td>
<td></td>
<td>Description of use of Twitter as a leader at the Redefinition Level (new functional role or tasks previously inconceivable)</td>
</tr>
</tbody>
</table>

The second grouping of categories under the category of Leadership was based upon the SAMR model of technology integration within instruction (Puentedura, 2010). Each of the categories were developed to reflect the broad definitions within Puentedura’s (2010) model and relied heavily on the descriptors he offers. Substitution
was used to identify those areas of leadership or associated actions where Twitter was used but no functional change of role or task occurred. An example included Twitter used to communicate information that could have been similarly shared using other methods. *Augmentation* described instances where the superintendent, through his or her use of Twitter, assumed some functional change in role or task that extended beyond a typical action. *Modification* provided insight to the use of Twitter by the superintendent that demonstrated a degree of significant functional change in the role or tasks associated with the job. In such cases, the use of Twitter may be used to address an issue that arose as a result of social media or seek a relationship that would be best facilitated through a connection on Twitter. *Redefinition* referred to a new functional role or tasks previously believed inconceivable before the use of Twitter. These tasks or experiences are beyond what could be achieved without the use of Twitter or social media, and include substantive changes to the way superintendents act or react to situations, demands or needs within a school district.

**Case Study Development and Analysis**

The categories and codes developed inductively through analysis resulted in the development of individual case studies for each of the interviewed superintendents. The three-part pattern of the interview protocol—questions about the role of the superintendent, district and superintendent perspectives on social media, and ways in which the superintendent uses Twitter—formed the structure to develop each case study. Superintendents were referred to by their assigned alphabetic identifier and the pattern of tweet content—learn, lead, leverage or a balance of all three—determined in stage three. The cases represented the ways in which superintendents described their district,
identified the important duties and roles of a superintendent, demonstrated leadership, and sought support to be successful. The district’s practices and approaches to social media were identified and compared to the superintendent’s perspectives about its use. Finally, the superintendent’s use of Twitter was discussed and outlined, including an overview of several of the sample tweets pulled during stage three of the analysis. Within each case study, relevant transcript quotes were included to substantiate descriptions and claims made. At the conclusion of each case study, an overview of findings was compared to the results of the coded tweets from stage three and formed the basis for the cross-case analysis.

The cross-case analysis included comparisons of superintendents’ reported actions around the use of Twitter within the framework of learn, lead and leverage and their description of the content and purposes of tweets discussed during the interview process. Data displays, charts, and visualizations assisted in the analytic process. Responses within the categories of Motivation, Purpose and Leadership were analyzed and compared within each of cases studies as they applied to the learn, lead, leverage and balance categories of the framework. The themes and patterns identified were compared across the six case studies to generate findings associated with the study’s research questions.

**Researcher Roles/Issues of Validity**

My role and positionality within this study was important to detail as the study extended both personally and professionally into my life. Although the study held the potential for informing practice and providing intellectual growth through empirical research, I needed to be cognizant of the potential bias I brought to the research based
upon my perspectives on the use of Twitter among school superintendents. Because I established a PLN and use Twitter to participate with others in learning about and discussing relevant educational and technology topics, I needed to exercise caution as to not impose my opinions upon the data collected or the ways in which it was studied through the conceptual framework. Considering my positionality on a personal level, I looked to Maxwell’s (2013) observation:

If your research questions, selection of settings and participants, data collection and analysis are driven by your personal desires without a careful assessment of the potential impact of the latter on your conclusions, you are in danger of creating a flawed or biased study (“Personal, Practical and Intellectual Goals,” para. 7).

I hold a deep commitment and affinity to the adoption and integration of technology in schools, one that I have had since I was a teacher in the classroom. Being aware of this, I followed Anderson, Herr and Nihlen’s (2007) recommendation to “commit to continued interrogation of ourselves regarding what makes for ethical research in the sites in which we carry it out” (“Ethical Considerations,” para. 2). Journaling and reflective memos, along with conversation with critical friends, assisted with this self-interrogation and potential impact on decisions. Topics included how I use Twitter, my thoughts about purposes, and what motivated me to join and continue using the platform.

From a professional perspective, I served as the superintendent of a school district that was in the process of a digital transformation that embraced and supported the use of Twitter to establish and develop PLNs. As a result, I needed to be aware of how my role as the researcher would be perceived in this study and designed and executed the methods so as to carefully analyze data to surface any conflicts that arose. Maxwell (2013) argues that qualitative researchers need not control for bias (selection of data that fits the
researcher’s existing theory) or reactivity (the researcher’s influence on the individuals and setting), but must understand “how you are influencing what the informant says, and how this affects the validity of the inference you can draw” (“Reactivity,” para. 2). I considered this in terms of a quote that arose in my pilot study conducted for a qualitative research methods class. A teacher interviewed was direct in referencing my leadership approach to technology use, providing motivation for the establishment of my conceptual framework and the categories of learning, leading and leveraging:

[you are] unique because we haven’t had a superintendent that’s been connected to social media that has reached out in that way. It was putting their toes in the water but they weren’t willing to really jump in. I think that if it’s modeled from … You know, I grew up professionally in the first 20 years in the restaurant business and the mantra in the restaurant business is the leader sets the pace. It’s true, if the leader isn’t setting the pace then nobody else feels obliged to get on board. They can just sit back and be very passive and say, “Well, they’re not doing it. What difference is it make if I’m doing it?” I think when we see our leaders setting the pace that that encourages us to do the same (Teacher Interview, March 10, 2014, lines 174-184).

Within the context of my positionality and the goals of the research study, data analysis and theme and categories deductively applied and inductively established were reviewed with critical friends and inquiry groups through my association with the Mid Career Program at the University of Pennsylvania. These were captured in memos and journal entries to maintain clear focus on the research questions and the study. A recurring theme was the reminder that the study was about superintendents’ perceptions of how Twitter influenced their practice as leaders, and my interpretation of that perception.

Validity measures part of this research study included the specific and strategic sequencing of the methods with built-in processes for reflection. Analytic and reflective memos were produced at each of the four stages of the research design process. Memos
serve as “reflections of analytic thought…. [and] provide a storehouse of analytic ideas that can be sorted, ordered and reordered, and retrieved according to the evolving analytic scheme” (Corbin & Strauss, 2008, p. 120). Following this line of thought, research memos were produced to reflect upon the process unfolding, the themes emerging and additional questions needing investigation throughout the course of the study. Research memos were used during the data analysis process to provide documentation of the process and serve as guideposts for practitioner review and reflection. An informal journal was also kept to record observations, thoughts, feedback from critical friends, and track steps taken in the research process. The quantitative and qualitative methods employed as part of the mixed methods approach provided me the opportunity to “gain information about different aspects of the phenomena [studied]… rather than simply to strengthen particular conclusions” (Maxwell, 2013, “Using Multiple Collection Methods,” para. 4). The strength of case study research rests in multiple data sources used during the analysis process to reach a holistic understanding of the phenomena being studied….Each data source is one piece of the ‘puzzle,’ with each piece contributing to the researcher’s understanding of the whole phenomenon. This convergence adds strength to the findings as the various strands of data are braided together to promote a greater understanding of the case (Baxter & Jack, 2008, p. 534).

The sequencing of the stages and the exercising of multiple data collection methods created a situation conducive to the triangulation of data and findings, as each stage informed the next stage. In addition, critical friends and an inquiry group process were used to discuss findings that surfaced through data analysis.
Ethical Considerations

Throughout the development of the methodology and its application within the research, attention was given to decision-making that would impact the study and the participants. In addition to review by the Internal Review Board of the University of Pennsylvania, I considered the key ethical principles and guidelines of the Association of Internet Researchers (AOIR) throughout the research process. Buchanan (2012) posits that the Internet is considered “a social phenomenon, a tool and also a (field) site for research” (p. 3), and suggests that “ethical practice in Internet research [consider]: human subjects, private public, and data/persons” (p. 6). Because of the tensions that continually arise within the ever-changing landscape of Internet research, I was careful to consider how the design, data collection, storage of information and use of both audio-visual data and quotes within the study would potentially be received and perceived. One such tension is the idea of tweets as publicly offered data; readily available to anyone through Twitter, especially when said tweets have been issued by a public figure such as a superintendent. A researcher who is not a part of the community in which the superintendent serves, must consider the content of the superintendent’s tweet through this outsider frame and recognize how that frame may not align with the “why” it was posted nor “how” it was viewed by others. Additionally, positionality of the researcher along with the interplay of the two units of study, the content of tweets and superintendents who have posted them, posed a challenge that needed consideration. To meet these challenges, steps were taken to maintain the anonymity of the participants in the study and to remove all references to location and personally/professionally
identifiable information within quotes or tweets used to support findings without changing the nature or content of the tweet for evidentiary purposes.

**Limitations**

This study has the following limitations:

1. The number of Twitter users, the ways in which Twitter tools are used, and the patterns of usage dynamically change on a daily basis. Although theoretical and accessible populations were used and a mixed-methods design was employed to create generalizable results to those populations, these dynamic changes were not considered within the context of the study.

2. During the course of stage two, I discovered the need to move to the next randomly sampled account when an account required approval of the superintendent to follow his or her account and therefore access their tweets. This created another layer to the study not addressed or planned for in the design. The issue of publicly available versus closed Twitter accounts of superintendents and their potential effect on the results adds a layer to consider in generalization of results.

3. Although clear definition of the theoretical population (superintendents who use Twitter), the accessible population (total number of Twitter accounts associated with “supt” or “superintendent”) and the subsequent random sample (n=100 superintendent Twitter accounts) supports generalizability of the findings from a design stance, the purposeful sample size (n=7) of participants interviewed impacts broader generalization of results associated with research questions two and three.

4. Consequently, the limited number of superintendents who accepted an invitation to participate in interviews as part of the purposeful sample (n=7) affected my ability
to triangulate data within each of the categories associated with the conceptual framework. The original goal was to arrive at a purposeful sample of n=12 in order to secure three participants in each of the categories—learn, lead and leverage—along with a balance of all three as determined by the descriptive qualitative analysis of deductively coded tweets.

5. Time constraints of the study negated the use of inter-rater reliability during coding of tweets and interview transcripts, along with the ability to pursue additional interview participants.

**Chapter Summary**

This research study used descriptive statistics to develop an understanding of what the content of school district superintendents’ tweets demonstrate about their use of Twitter. In conjunction, qualitative methods were employed to investigate the motivating factors and perception of leadership enactment that superintendents identify around their use of the Twitter as educational leaders. Analytic memos, along with a reflective journal and access to inquiry groups and critical friends, assisted in the research process and exploring the role and positionality of the researcher. Through a four-stage research design process designed to meet study requirements and reflect ethical standards of online internet research, data collection sources were selected and analyzed to create a snapshot of superintendents who use Twitter and identify their motivations and purposes for using the service.

Stage one was designed to establish a population of superintendents who use Twitter. Data collection and analysis, I identified an accessible population (N=2,359) of Twitter accounts that associated with public school superintendents in the United States.
This accessible population was further refined to identify a purposeful sample (n=1,582) of superintendents who actively used Twitter between July 1, 2014 and June 30, 2015. Stage two of the methodology explored patterns and demographics of superintendents who use Twitter. Random sampling procedures were conducted to identify a sample of superintendents (n=100). This sample provided the opportunity to efficiently identify the gender and regional location of the superintendents based upon study of their accounts and associated school district websites. Stage three was designed to identify superintendents who use Twitter for the purposes of learning, leading or leveraging base upon the content of their tweets. All of the tweets posted by the randomly sampled (n=100) superintendents from July 1, 2014 and June 30, 2015 were collected. From each of the 100 superintendents, a random sample of 25 tweets was collected and analyzed using the deductive coding scheme of learn, lead and leverage. Stage four provided a framework for investigating superintendents’ motivations, purposes and leadership through the use of Twitter. A purposeful sample of superintendents (n=21) determined by the results of coding the content of tweets in stage three was invited to participate in semi-structured interviews. Seven superintendents participated. Inductive coding of the transcribed interviews provided evidence for the development of cases studies, used to compare and validate data and draw conclusions from within and across the cases.
CHAPTER 4 FINDINGS

The purpose of this study was to identify how public school superintendents in the United States use Twitter and the motivations and purposes they express for its use. More importantly, I sought an understanding of how superintendents perceive that their Twitter practice influences their leadership. This goal was key to surfacing potential approaches to leadership practice necessary to supporting digital transformations of school districts. Following an analysis of the data collected, findings emerged that describe patterns and general information about superintendent use of Twitter and the specific motivations, purposes, and leadership influences identified by the participants. This chapter presents findings in relation to the research questions:

• What does the content of tweets created by school district superintendents reveal about their use of Twitter?

• What do school district superintendents identify as motivating factors and purposes for using Twitter within their role as a leader?

• How do school district superintendents describe the relationship between their use of Twitter and the enactment of leadership within their school systems?

The results in this chapter are presented in the four stages described in the methodology section. Stage one provides insight into Twitter accounts identified as school district superintendents in the United States. Stage two explains the demographics and patterns concerning superintendents who use Twitter and their generalizability to the population of superintendents who have Twitter accounts. Stage three demonstrates how the content of tweets within the context of the conceptual framework of learn, lead and leverage inform us about the ways in which superintendents use Twitter. Stage four
includes analyses of the interviews leading to the development of case studies aligned to the framework of learn, lead and leverage and the explanation of the motivation, purposes and enactment of leadership superintendents identified as they use Twitter.

A summary of the findings highlight that school superintendents who have Twitter accounts predominantly tweet for professional reasons, and the content of those tweets demonstrate a strong inclination toward leveraging influence through social media. School superintendents who use Twitter are predominantly male; and 50% are located in the Midwest of the United States. Superintendents indicated planned and purposeful reasons for their use of Twitter along with a direct connection to their enactment of leadership. Of particular interest was the unintended way in which Twitter enhanced superintendent’s off-line interactions with colleagues and provided professional insights about the experiences of students within their school systems.

Stage One: Superintendent Twitter Accounts

There were 2,359 Twitter accounts identified as being associated with school superintendents in the United States as of July 19, 2015. These accounts included the word “supt” or “superintendent” within the Twitter profile along with references to education and/or public schools. A variation appeared in that some accounts were attached to individuals while others were specifically aligned to a school district. An account username may include @SUPT or @SUPERINTENDENT with inclusion of a person’s first or last name, district name or district mascot. Usernames sometimes included personal references, nicknames, dates, numbers, etc. and no reference to being a superintendent except for inclusion of “supt” or “superintendent” in the profile. Of the 2,359 accounts in the population, 76 accounts had posted no tweets, 15 accounts had zero
followers, and 16 accounts had zero friends (people followed by the account owner). These examples highlight variations in how superintendents establish and use Twitter accounts and offer additional context to explore why they create accounts in the first place. Assuming that each of the 2,359 Twitter accounts belonged to an actively serving superintendent, one could imply that approximately 17% of the 13,787 school districts in the United States in 2014-2015 (www.proximityone.com) had a leader who had created a Twitter account in which they identified themselves as a superintendent.

**Stage Two: Demographics and Twitter Patterns of Superintendents**

For the stage two analyses, a random sample of 100 superintendents from the population of 1,582 who tweeted more than 25 times was drawn. Analysis of the tweets collected from the 100 superintendents provided insight into demographics and general use patterns of superintendents who have Twitter accounts. The sampled superintendents (n=100) were 22% female and 78% male (Table 12). Based upon this data, an initial assumption was that male superintendents were more likely than female superintendents to have a Twitter account; however, the American Association of School Administrators’ (AASA) determined 27% of school superintendents are female based upon participation results of a 2015 survey. The comparison between the percentage of female superintendents determined by AASA (2015) and within the sample of superintendents who tweet led the researcher to conclude that the gender distribution of Twitter users was similar to the gender distribution of superintendents as a whole. In terms of regions, 50% of superintendent Twitter accounts were located in the Midwest while 37% of school districts are located there. This indicates over representation of Twitter use in the middle of the country.
Table 1

Demographics of Sampled Superintendents (n=100)

<table>
<thead>
<tr>
<th>Region</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>8</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>Northeast</td>
<td>9</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>South</td>
<td>3</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>West</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>22</td>
<td>78</td>
<td>100</td>
</tr>
</tbody>
</table>

Besides demographics, descriptive data provided additional information about the Twitter accounts and practices of the sample superintendents (Table 13). Superintendents with Twitter accounts had on average more followers than friends. Superintendents tweeted approximately 38 times per month given an average account age of two years and four months at the beginning of the defined tweet collection period of July 1, 2014. Standard deviations for number of Followers, number of Friends, and Number of Tweets indicate the extensive range within each of those descriptors. This demonstrates a wide scope of use (Figure 2) and potential for interaction (Figures 3 and 4) within the sample population (n=100).

Table 13

General Account Information of Sampled Superintendents (n=100)

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Followers</td>
<td>827*</td>
<td>1356</td>
</tr>
<tr>
<td>Number of Friends (accounts followed)</td>
<td>309*</td>
<td>402</td>
</tr>
<tr>
<td>Number of Tweets</td>
<td>1086</td>
<td>2349</td>
</tr>
</tbody>
</table>

Note: One Superintendent (#62) was removed as an outlier for this analysis alone (determining mean Followers and Friends) because of the number of Followers (953,742) as compared to other superintendents in the sample and population.
Figure 2

*Number of Tweets Posted by Sampled Superintendents.*

![Bar chart showing the number of tweets posted by sampled superintendents from July 1, 2014 to June 30, 2015.](chart1)

Figure 3

*Number of Followers of Sampled Superintendents*

![Bar chart showing the number of followers of sampled superintendents as of July 2015.](chart2)
General patterns of tweet structure are shown in Table 14, demonstrating how many of the 39,217 tweets posted by the sample superintendents over the course of one year used syntax that illuminates potential intention of a tweet. “RT” indicates that a tweet was “retweeted” by a superintendent while the “@” associated with a Twitter account indicates that a tweet was posted in reference to or directed toward a specific account holder. Tweets that contain a “#” (hashtag) generally indicate that the tweet was posted with a specific purpose in mind that was intended to be searchable and/or connected to other events happening in the world, within a context, or a around specific topic being addressed on Twitter by multiple people. Since 65% of the tweets collected contained “@,” an inference can be made that superintendents use Twitter to interact with or highlight others on Twitter. Because 46% of the collected tweets were a retweet, a conclusion can be drawn that superintendents use Twitter to find information that they
pass along, or that they rebroadcast information that was been shared about their district or interests they may have.

Table 14

*General Patterns of Tweet Structure*

<table>
<thead>
<tr>
<th>Description</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tweets Containing “#” (includes hashtag referencing a topic)</td>
<td>16,469</td>
<td>42%</td>
</tr>
<tr>
<td>Tweets Containing “RT” (retweeted)</td>
<td>17,967</td>
<td>46%</td>
</tr>
<tr>
<td>Tweets Containing “@” (reference to other Twitter account)</td>
<td>25,298</td>
<td>65%</td>
</tr>
<tr>
<td>Total Tweets Posted July 1, 2014 – June 30, 2015</td>
<td>39,217</td>
<td></td>
</tr>
</tbody>
</table>

**Stage Three: The Professional Use of Twitter to Learn, Lead and Leverage**

Stage three revealed how the content of tweets within the context of the conceptual framework of learn, lead and leverage provides insight into the ways in which superintendents use Twitter. The results of the first level of coding revealed that 87% of the 2,500 tweets analyzed were issued for professional reasons as defined within the deductive coding structure (Table 15). The content of the tweets were predominantly school, district or educationally related. Personal content was the lowest. Two of the 100

Table 15

*First Level Coding Summaries of All Tweets (n=2,500)*

<table>
<thead>
<tr>
<th>Coding Description</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal</td>
<td>115</td>
<td>5%</td>
</tr>
<tr>
<td>Larger Context/Interests</td>
<td>220</td>
<td>8%</td>
</tr>
<tr>
<td>Professional/ Educational (Non-District)</td>
<td>850</td>
<td>34%</td>
</tr>
<tr>
<td>Professional/ Educational (District)</td>
<td>1315</td>
<td>53%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2,500</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
superintendents had no tweets associated with professional activities within the random sample. One of these superintendents posted tweets associated with larger contexts or issues, mostly associated with college sports and including hashtags identifying his alma mater (see figure 5). The second superintendent also posted tweets that predominantly referenced sports, including some with pictures of what appears to be family members at a sporting event (see Figure 6). Despite these two exceptions, a conclusion drawn is that when a superintendent identifies him or herself on a publicly accessible Twitter account, he or she is more likely to post professional versus personal content.

Superintendent interviews confirmed this observation: three identified having more than one account from which they tweeted. The reason identified for the use of multiple accounts was to purposefully tweet content intended for specific audiences.

Figure 5

*Sample Tweet for Larger Context/Interests*

![Sample Tweet for Larger Context/Interests](image)

Figure 6

*Sample Tweet for Personal Context*

![Sample Tweet for Personal Context](image)
The second level of coding (Table 16) revealed that of the professional tweets posted, the majority (63%) included content that aligned with the leveraging category of the conceptual framework. Beyond sharing general information about school or district events, tweets classified as leveraging included an opinion or information about a broad educational topic or district related events or initiatives. Many posts aligned to leveraging were motivational or inspirational as well as sharing the superintendent’s perspective on an educational topic. Figure 7 provides an example of a superintendent’s tweet that expresses his opinion on the inclusion of students with special needs. The tweet includes a link to a YouTube video sharing a story concerning Autism. The superintendent appears to be using Twitter to make a public statement about his beliefs and leverages the medium of Twitter by combing a video with his philosophy statements of thinking outside the box and the including of all individuals. Figure 8 shows how one superintendent used social media to highlight both students and the district’s relationship with an elected official. In this case, pictures of “students of the month” from an elementary school having lunch with a senator were posted to Twitter with thanks offered to the senator. In this example, the act of highlighting students and relationships with stakeholders is demonstrated.

Table 16

<table>
<thead>
<tr>
<th>Second Level Coding Description</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leading</td>
<td>351</td>
<td>16%</td>
</tr>
<tr>
<td>Learning</td>
<td>470</td>
<td>22%</td>
</tr>
<tr>
<td>Leveraging</td>
<td>1344</td>
<td>62%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>2165</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Figure 7

**Sample Tweet for Leveraging**

![Image of a tweet](image1)

Figure 8

**Sample Tweet for Leveraging**

![Image of a tweet](image2)
Twenty-two percent of the tweets that the sample superintendents posted for professional reasons were classified as learning within the framework. These tweets included the superintendent asking or answering a question, or sharing information about, educational practices or leadership. Figure 9 includes a sample tweet posted by a superintendent that provides information about using one of the features of Google to manage accounts. Important to note is that the superintendent included a comment with the link, signifying he has read and potentially tried the practices mentioned in the link. In addition, the superintendent included hashtag references to associate the content with a specific audience, group or chat on Twitter. Some superintendents included information specifically about their own learning, sometimes in a transparent or motivating way. Figure 10 highlights a retweeted post by a superintendent that implies he is learning about how relationships assist in learning. Like many of the leveraging tweets, learning tweets at times take an inspirational or motivational approach by including quotes and images.

Figure 9

*Sample Tweet for Learning*
The least amount of tweets coded for content fell into the category of leading. Sixteen percent of the tweets demonstrated content that a superintendent was asking or answering questions about specific educational practices occurring in the district or providing insight or context of district programs. Although this category was found to have the least amount of tweets, it did provide interesting examples of how Twitter may be used in this context. One tweet within the random sample captured a twitter exchange between the superintendent and a parent around the issue of school photographs. In the exchange shown in Figure 11, the superintendent addresses the concern of the parent by inviting him to call. The exchange was initiated by the parent, and the superintendent took action to respond by providing his phone number and not ignoring the question.

Figure 12 shows how one superintendent used #ASuperDay to demonstrate his leadership within the district. A superintendent in New Jersey, inviting superintendents to tweet their activities using the hashtag on February 18, 2015, created #ASuperDay. The purpose was to highlight the work of school district superintendents, and it continues to
be used by superintendents on Twitter beyond the originally established date. In this particular example, the superintendent highlights he is working with principals around PARCC (Partnership for Assessment of Readiness for College and Careers) administration. By sharing this information and adding the #ASuperDay, he is providing information to his followers about what he does as a leader and a current topic being addressed as a school and district. The inclusion of #ASuperDay reinforces his purpose for demonstrating leadership.

Figure 11

*Sample Tweet for Leading*

![Sample Tweet for Leading](image)

Figure 12

*Sample Tweet for Leading*

![Sample Tweet for Leading](image)
The analysis of the content of tweets using the framework of learning, leading and leveraging provided insight into how superintendents use Twitter. The evidence suggests that Twitter is a social media tool that superintendents use specifically within their professional lives to leverage information about school and district events and activities. Twitter serves as platform for superintendents to express opinions and viewpoints on educational topics beyond the reach of their district. Additionally, superintendents are inclined to use Twitter for learning, seeking the opportunity to ask questions or share information or resources about educational and leadership practices. Although not as strongly represented, Twitter does serve as a vehicle for exercising leadership within a school district by providing the opportunity to share information and contextualize the purpose of programs and actions.

**Stage Four: Motivation, Purposes and Enactment of Leadership through Twitter**

Stage four explores how superintendents described the purposes and practices behind their use of Twitter. These descriptions confirmed the content analysis of the superintendents’ tweets for learning, leading and leveraging and generated understanding behind the motivation, purposes and enactment of leadership superintendents identified as a result of their Twitter use. The section begins with an overview of how the analysis and coding of the practices reported by superintendents provided insight into the framework of learn, lead, leverage and connected to categories of motivation, purpose and leadership. The case studies assist in putting the pieces of the puzzle together to tell the whole story of the research (Baxter & Jack, 2008), confirming the superintendents’ selection based upon the categorization of the content of their tweets and revealing nuances in practices among the sampled superintendents. Despite the nuances, the
analysis of the case studies revealed patterns and themes that resulted in seven findings that surfaced across the cases.

**Content to Practice: Learning, Leading and Leveraging**

The identification of the seven superintendents interviewed was based upon the classification of their tweets’ content to the framework of learning, leading and leveraging. Superintendents A and B posted tweets predominantly coded as demonstrating learning. The tweets of superintendents C and D were classified as exhibiting leadership in comparison to the results of other superintendents within the category. Superintendent D had a higher percentage of tweets coded as leveraging as compared to his results for leading, but his results for leveraging were lower than others. The tweets of Superintendent E were categorized as leveraging. Superintendents F and G posted tweets that were representative of all three categories of learn, lead and leverage when compared to overall coding results of the sample. The classification of the content of the tweets with the framework served two purposes. First, the classification ensured that superintendents invited to participate in interviews demonstrated Twitter use for educational purposes tied to their role as a superintendent. Second, the framework provided insight into how the superintendents’ practices on Twitter either confirmed or reputed the purposes behind the content of tweets. Comparison of insights gained from the interviews with the results of the coding confirmed connections and highlighted differences between the content of tweets and the practices employed by superintendents on Twitter.

During the interview process, superintendents were shown six sample tweets that they posted. Superintendents’ descriptions of the six sampled tweets, as compared to the
initial coding applied within the conceptual framework (Appendix F), revealed a coding accuracy rate of approximately 70% by the researcher. The majority of the tweets coded accurately captured both the content of the tweet and the purpose as identified by the superintendent. The relatively small sample of tweets reviewed during the interview process (n=42) in relation to the entire sample pulled in stage three (n=2,500) provides a limiting factor to the application to the entire body of the tweets. However, it suggests that the framework of learning, leading and leverage is applicable to both content and practice.

When superintendents leverage through their practices on Twitter, they act as influencers by sharing general information about school or district events or activities from a positive public relations stance. The majority of superintendents described their main purpose for using Twitter as communicating information to a broad audience (Table 17). The consensus of the superintendents around communication practices through Twitter was summed-up well by Superintendent E:

I think telling our story, in a way that's positive, because there's plenty of negative out there about schools, about public education ... I think any time that we can keep pushing that message of “Look at all these great things our kids are doing, look at all these great things our teachers are doing, let's celebrate” (Interview February 26, 2016, Lines 725-728).

This type of story telling included examples such as sending out information about a hall of fame awards ceremony or using the Periscope video service through Twitter to broadcast an elementary school concert. The selection of the events, inclusion of commentary or descriptions, and consideration of intended audience demonstrate how superintendents use Twitter to provide insight into what is important in particular to the school and broadly to education. Superintendent A highlighted this sense of leveraging
by observing “we are advocates. I think my role on social media…is not only role modeling how it should be, but it is also advocacy for education” (Interview, February 4, 2016, Lines 266-269). Communicating broadly about a hall of fame award ceremony.

Table 17

Coded Occurrences of Purpose of Twitter Use

<table>
<thead>
<tr>
<th>Purpose</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicating</td>
<td>6</td>
<td>10</td>
<td>14</td>
<td>17</td>
<td>15</td>
<td>4</td>
<td>5</td>
<td>71</td>
</tr>
<tr>
<td>Learning</td>
<td>9</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>10</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>Motivating</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>39</td>
</tr>
<tr>
<td>Connecting</td>
<td>9</td>
<td>8</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>37</td>
</tr>
<tr>
<td>Influencing</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>39</td>
<td>25</td>
<td>44</td>
<td>23</td>
<td>24</td>
<td>32</td>
<td>222</td>
</tr>
</tbody>
</table>

indicates appreciation of excellence and success, while using Periscope to broadcast an elementary concert demonstrates how the district embraces and leverages technology to engage stakeholders in district events. Announcing a snow day on Twitter may seem a simple task, but assumes greater magnitude around effect and purpose when it engages students. Four out of the seven superintendents described interactions with students on Twitter concerning snow days, and how those initial interactions led to greater connection. Superintendent E observed, “[The students] were engaged because they wanted a snow day. When you have them engaged, the power of the message that you can deliver [increases]” (Interview February 26, 2016, Lines 493-494). The descriptions offered by superintendents support the idea of leveraging through social media. The case
studies confirmed that identifying a high percentage of their tweets’ content as leveraging was on par with described Twitter practices.

Superintendents lead through their use of Twitter when they act as an initiator, sharing information about specific educational practices occurring within the school or district. They may ask or answer questions about those specific practices. When superintendents report using Twitter to lead, their practices define, describe and/or contextualize purposes of district programs. An example of a superintendent demonstrating the factors of initiation, specific practices in the district, and the contextualized purpose of the program came from Superintendent B as he discussed what he finds important to tweet about:

How do you innovate? My school has five 3D printers. We're teaching them how to use the printers so that they can go to the CNC machines. That's down our D-wing, our industrial career technical education wing. I'm active right now in makerspace that I'm giving some room for in my stuff. When I see makerspace stuff, I'll remind the community that this is education for careers” (Interview February 5, 2016, Lines 607-611).

The differentiating factors between leading and leveraging are the contextualization of specific practices versus sharing general information. Superintendent B did not just tweet that the school had five 3D printers; he described making space within his Twitter feed to highlight their importance within the makerspace movement and the community. The majority of superintendents described enactment of leadership being influenced by the sense of engagement and amplification found through the use of Twitter (Table 18). Engagement captured instances where a superintendent reported Twitter providing an opportunity for exchange, either in-person or on-line, with a follower or friend. These exchanges provided the opportunity for superintendents to gain or offer insight into what
Table 18

*Coded Occurrences of Leadership Effects through Twitter Use*

<table>
<thead>
<tr>
<th>Leadership</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>13</td>
<td>10</td>
<td>6</td>
<td>9</td>
<td>56</td>
</tr>
<tr>
<td>Amplification</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>14</td>
<td>10</td>
<td>0</td>
<td>7</td>
<td>45</td>
</tr>
<tr>
<td>Modeling</td>
<td>4</td>
<td>10</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>37</td>
</tr>
<tr>
<td>Transparency</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>32</td>
</tr>
<tr>
<td>Augmentation</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>32</td>
</tr>
<tr>
<td>Redefinition</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Modification</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>19</td>
</tr>
<tr>
<td>Substitution</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>19</td>
<td>35</td>
<td>45</td>
<td>55</td>
<td>36</td>
<td>16</td>
<td>40</td>
<td>246</td>
</tr>
</tbody>
</table>

was happening within the district, from posting examples of technology seen in use
during classroom walkthroughs to responding to questions asked on Twitter by
stakeholders. The most powerful were exchanges with students, whose impact is felt
strongly by Superintendent E:

> I guess I didn't realize the impact [Twitter] would have with students, as
compared to others. Like I said, I really see where the students engage, probably
more than any other group. I mean, amongst the superintendents, they'll do
superintendent chats, or we'll celebrate something that somebody else did great.
But realistically, the demographic that seems to be, and I would say this rings true
with other superintendents that I've talked to, is really our students. ... If you get
them engaged with you on Twitter, it's pretty powerful (Interview February 26,
2016, Lines 759-765).
Amplification associated with superintendents’ observations that Twitter enhanced their overall leadership by enriching communication, displaying the work of leadership, and projecting their exchanges with stakeholders. Superintendent D described the weight associated with being a superintendent and what following someone means given their position:

I think when I follow somebody else and they’re putting good stuff, it’s kind of a recognition to that person, ‘Hey they’re putting good stuff out. Superintendent’s following me.’ I think I’m kind of paying forward like the importance of what we put out there as superintendents if I follow someone” (Interview, January 21, 2016, Lines 354-359).

The sense of engagement and amplification was often perceived, as superintendents believed what they post on Twitter would be seen and enacted upon by followers.

Superintendent G captured this well, in responding to why she believes people follow her:

I think that most of the people who follow me want to know what I’m thinking because I'm in a leadership role. I've got about 4,300 followers or something…. Most of mine I would say are teachers or parents who are trying to get inside my head. Figure out, ‘What is she thinking about? Where are we headed?’” (Interview February 2, 2016, Lines 699-709).

Although superintendents reported many instances of Twitter influencing and enhancing their leadership, the content analysis of the tweets indicated leading as the lowest identified category. The discrepancy between leadership content and leadership practice within Twitter may rest in the fact that superintendents do not differentiate between the conceptual framework’s differentiation in the practices of leveraging and leading from their overall leadership practices.

The area with the greatest discrepancy between the coding of tweet content and the reporting of practice was learning. Within learning from a practice perspective,
superintendents act as participants on Twitter by seeking information on educational practices, philosophy, and or leadership to a broad audience. They ask questions and share resources that they find useful. Learning was the second most identified purpose for using Twitter among the interviewed superintendents (Table 17). Although the content of tweets coded as learning were slightly greater than 1/3 the number of tweet content coded for leveraging, all superintendents interviewed explicitly highlighted how they use Twitter to learn. Superintendent G captured it best:

My primary purpose for using Twitter is to learn new things and then share them with people in my school district. That's why I do it. I like to read it and read articles and read things other people are doing and then share those ideas with our teachers and principals, mainly” (Interview February 2, 2016, Lines 557-559).

The reason superintendents reporting of the use of Twitter to learn was greater than the results of the learning content framework was because their practices around learning associated with consumption and not creation on Twitter. Twitter led to the discovery of resources, connections with practitioners in the field of education, and/or facilitated face-to-face meetings with those practitioners. Superintendents did not necessarily produce as a part of their learning, but instead found that they learned in the way they connected and engaged with others on Twitter.

In concert with connecting and engaging with others, superintendents identified relatedness as the most motivating factor for using Twitter when describing its use within their role (Table 19). Although the areas of autonomy and competency were reported almost as often, relatedness surfaced as the linchpin for the other two areas of motivation. The results suggest that superintendents are motivated to use Twitter because of the sense of belonging that exists among connections made. This sense of belonging and the
connections in turn create a sense of autonomy and competency experienced by superintendents as they use Twitter. Superintendent A highlighted that his purpose for using Twitter was to “connect, collaborate, and learn. My learning has expanded and I have more of a global view of education … as a result of the people that I follow and the information I read” (Interview, February 4, 2016, Lines 340-343). By connecting and participating with others on Twitter, superintendents confirmed the creation of a Personal Learning Network (PLN) to facilitate their learning and improve their leadership practices.

The following case studies summarize how superintendents described their leadership, school district’s use of social media, and individual use of Twitter. Each case highlights how results were determined for the superintendents studied; connects to their classification within the framework of learn, lead and leverage based upon analysis of their coded tweets; and describes the way Twitter is used within their practices.

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Superintendent</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relatedness</td>
<td>A 11 B 6 C 2 D 6 E 7 F 8 G 5</td>
<td>45</td>
</tr>
<tr>
<td>Autonomy</td>
<td>A 12 B 7 C 3 D 9 E 2 F 4 G 5</td>
<td>42</td>
</tr>
<tr>
<td>Competency</td>
<td>A 6 B 6 C 5 D 10 E 3 F 4 G 7</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>38 19 10 25 12 16 17</td>
<td>128</td>
</tr>
</tbody>
</table>
Superintendent A Case Study: Learning and Connecting through Twitter

Superintendent A has led a small school district in a blue-collar community in the Northeast for three years. The district is comprised of two elementary schools, one middle school, and one high school serving 1770 students. This is his first official superintendency, having served as an interim superintendent in a former district. Superintendent A identified budget, school safety, student achievement, academic programming and creative instructional design/professional development as the five most important aspects of his job as a superintendent. He indicated that the order of these responsibilities “sounds strange” with student achievement third on the list. The context of the budgeting challenges of his state, the limited ability of the community to expand its tax base, and the calls for increase security for students and staff create the priority for financial stability and school safety “to fall into line before the third one can come into play” (Interview, February 2, 2016, lines 37-38). Superintendent A described his successful demonstration of leadership in terms of delivering balanced budgets for three years while maintaining and improving programs; participating in the school safety committee through the design and delivery of drills; and contributing to the planning and delivery of professional development academy for teachers. The story of his leadership is told through the success of his team:

I am not a go out and rah-rah, here’s what I did type of thing. I do operate under a team concept… so giving accolades to people, sending out notice through either press releases, social media feeds [is] about great things that are happening in our school district everyday…. It’s never one of those “hey, look what I did” type of things. It is “what did we do” (Interview, February 2, 2016, lines 79-86).

He relies upon his team to support his success as a leader, along with running district committees, meeting monthly with other superintendents from his county, actively
participating in his state association of school administrators, and teaching at the collegiate level and in federally sponsored principal certification programs.

In terms of social media use, Superintendent A’s district uses both Facebook and Twitter, along with an instant alert system and a “very active web page,” to distribute information about the district. He wants the same information to be sent out regardless of the method so that stakeholders “know that both feeds have value [and] they are going to use the one that they like the most” assuming that “Facebook is for what I would call an older crowd [and] Twitter is more for a younger crowd, 20s and teens all the way down to middle school” (Interview, February 2, 2016, lines 149-158). Posting of information beyond sport scores to activities and successes of students with “video and pictures of kids in classrooms... giving them a flavor of what is happening the classroom” (Interview, February 2, 2016, lines 166-168) has been met with positive community response. This positive reaction also surfaced during a construction referendum in the district, in which daily information posted on social media feeds elicited a positive Facebook follower response: “If you don’t know by now, you are under a rock,” ensuring Superintendent A that “we have hit our target audience” (Interview, February 2, 2016, lines 172-173).

Superintendent A has taken a proactive approach to using Twitter as a superintendent. He had a personal account before coming to the district, and addressed the need to create a district Twitter account with the school board during his interview for the position. He currently runs the school district Twitter account as well, and uses it primarily for sharing information and insights about what is happening in the district “to tell our story as a school district, and to let people know great things are happening every
day” (Interview, February 2, 2016, lines 355-366). His personal account is professional in nature, used to build a Professional Learning Network (PLN) in which he is actively involved and connects to his primary purpose of using Twitter to “Connect, collaborate, and learn” (Interview, February 2, 2016, line 349). He first created a Twitter account when the superintendent in his former district told administrators to develop a social media presence. At first, Superintendent A did not find much value in using Twitter; however, as he started following educators, he realized the high quality of the content and links that they were providing and the sense that “everyone was working together, and again, that goes back to my whole concept, team concept, when I work with my team in my school district” (Interview, February 2, 2016, Lines 335-337). He described the close, personal and professional ties that he has with followers and friends on Twitter, relating that his most memorable experiences on Twitter occur

when I go to PD sessions or conferences, and I meet someone for the first time face-to-face that I have connected with, maybe shared information with, or they have shared with me. And it not an awkward, its not an awkward moment. Its kind of like, “hey, this is an old friend” (Interview, February 2, 2016, lines 395-397).

Superintendent A identified that he follows those on Twitter who create transparency around their identity, from the inclusion of a picture and information about themselves, to quality tweets that will contribute to his PLN. He believes that individuals follow him on Twitter because of the positive tone that he offers about education in his tweets.

Superintendent A was clear that he uses Twitter for his own learning and to share that learning with others. He spoke often of modeling appropriate use of Twitter for teachers and students, but found a direct connection to learning and leading when he observed:
I think because in this situation when you are seated as superintendent, it can be very easy to get distracted and continue your own learning. So if we are preaching about the value of being life-long learners, if we are expecting our teachers to continue their learning and provide and participate in professional development, you have to do it also. I found that this social media, Twitter, is actually a great avenue for me to continue my learning. It has expanded my understanding of what I have to do in my job. And it has given me connections that are beyond what I normally had if I simply went to a local round table meeting or state meeting (Interview, February 2, 2016, Lines 567-576).

When reviewing sample tweets, Superintendent A was quick to describe how the tweets demonstrated his own learning or his desire to share his learning with others.

Superintendent A’s tweets, including retweeted articles concerning social media use in the classroom, tips for student feedback from teachers, and brief research articles that described the benefits of standing desks for students, showed a pattern of sharing resources with his own comments or observations added. When describing the tweet shown in Figure 13, Superintendent A observed:

This was an answer to a chat and it is 7:41 on June 27. I would probably bet the house that is a Saturday morning. It is probably Satchat but I didn’t put the hashtag in. We were talking about connectedness, so this was my response to the question. So when I am involved in either Satchat or any other state conversation or educational conversation, I really like to participate in them. If I have free time, I will join into the chat (Interview February 2, 2016, Lines 525-529).

Figure 13

Superintendent A Sample Tweet #1
Superintendent A demonstrated a deep knowledge around how to use Twitter, his purposes for doing so, and the ways in which Twitter impacts his learning. 83% of his sample tweets were coded as containing content aligned with learning. Out of the six tweets coded for learning and reviewed during his interview, he described one as being associated with leveraging rather than learning. Superintendent A is highly motivated to use Twitter as it provides him a high sense of belonging, self-efficacy and independence as a leader, from the ability to connect with other leaders to being a practice he indicated he would bring to the district as a superintendent. He uses Twitter to learn and connect with others, maintaining his team approach to leadership and creating opportunities for him to engage with others around issues of education and leadership. He specifically described purposes for his use of Twitter aligned with the two accounts used his role, confirming his approach to using Twitter to learn along with his understanding as to how it can be used within the aspects of leading and leveraging.

**Superintendent B Case Study: Learning through Twitter to Support the Community**

Superintendent B has spent nine years as the leader of a geographically large, rural district in the Midwest. The district has two elementary schools, one middle school and one high school serving approximately 2000 students. The community has been struggling to thrive, as Superintendent B observed that the major town within the district “won the industrial revolution and we’ve never changed our minds… We had a shoe making plant. We had a lot of industry. It all kind of moved away” (Interview, February 5, 2016, lines 270-273). Sixty percent of the students qualify for free or reduced lunch, but all students receive free lunch through a community eligibility option. Implicitly,
Superintendent B described his role as being an advocate for transforming the community, through the school and its programs, from winning the industrial revolution to thriving in a technological revolution. Explicitly, he described his major role as a superintendent in terms of leading personnel efforts and providing professional development around leadership for his senior staff and principals. Superintendent B identified his successful demonstration of leadership in these areas as connecting with former community members who have become successful business leaders on a broader scale and reading and translating business related books into practical application with his principals and members of his team. The story of successful leadership for Superintendent B translates into communication of the vision and purpose of what he is trying to achieve with both his leadership team and the community, which is a new technology revolution which is “what I think our talent could be” (Interview, February 5, 2016, lines 207-208).

Superintendent B’s school district has firmly embraced social media in the form of Twitter and Facebook, which are linked to post to each platform simultaneously. From communicating school closures around inclement weather, tweeting changes in athletic practice schedules rather than texting, to advertising and informing followers of community-wide events, the district’s use of social media has been embraced and appreciated by parents, teachers and community members alike. Teachers are discouraged from becoming friends with students on Facebook, but are encouraged to use Twitter with students because of its transparent nature. Superintendent B takes a thoughtful approach to district use of social media, considering how the advertising of community events, often associated with wineries and microbrewery businesses that are
booming within the region, might be perceived as a district endorsement of alcohol consumption. In addition, he works to ensure that teachers and principals have the support they need and the modeling required to navigate social media, from ease of log-ins through school district platforms to addressing head-on with staff the personal use of social media during school hours.

When asked about how he first learned about Twitter, Superintendent B responded, “How does a baby breathe? I don’t know” (Interview February 5, 2016, lines 501-502) and continued to describe attending an administrator academy where connections between technology, leadership and Twitter were explained. He indicated how everything he does is part of a plan, and his use of Twitter is no exception. He described how he runs three separate Twitter accounts, each for specific purposes:

As @FIRSTNAMELASTNAME my primary purpose is to stay abreast of the new information, the new technologies, and to get information that helps me become a better leader. As @SCHOOLDISTRICTNAME, my primary purpose is to communicate to the community how wonderful we are and all the things that are going on and tell our story. As the @LASTNAME one, it's to keep me amused and flush with information about my comic books and my dorkness (Interview, February 5, 2016, lines 532-536).

The specific purposes identified for each account rested in not only his need, but also a perceived requirement from his followers. Superintendent B described how the three accounts were designed so that different audiences would find what they wanted within his postings, including leadership links intended for other superintendents and principals from his @FIRSTNAMELASTNAME account to school-related communications from his @SCHOOLDISTRICTNAME. Despite these three separate accounts, he indicated that he must be a role model through his use of all three by stating “I am a superintendent 24/7. I’m a member of the community and I’m an example 24/7” (Interview February 5,
Superintendent B described Twitter as a place, referring to the “Twitter-verse as a cocktail room. Make your account, follow people, look who they’re following, and follow more people. All you have to do is walk around and follow these people and listen. It’s like any other social engagement” (Interview February 5, 2016, lines 995-998). This idea of social engagement surfaced again when he described his most memorable experiences on Twitter, both associated with making a personal connection at regionally held events with someone he follows on Twitter. One person Superintendent B follows is prolific in his tweets about technology, education and innovation. Recognizing him from his picture on his Twitter account while at a regional maker-space event, Superintendent B “direct messaged him and now we’re having coffee next week to talk about the vision of maker spaces in [our region] because [my town] can’t act alone. We have to act regionally if we’re going to really do economic development” (Interview February 5, 2016, lines 509-601). Although he refrains from adding commentary around politically charged topics, he will share information on his @FIRSTNAMELASTNAME that would have what he perceives as either a positive or negative effect on the state of education in his state, region, and community.

Superintendent B’s @FIRSTNAMELASTNAME account was the one through which he was identified as a participant in the study. This is the account he identified as his first account created in an effort to learn and gain professional development in technology and leadership. He was specific about his Twitter use, describing extensively how he uses the hashtag and list creation features of the service to maximize his connections and results. Many of the sample tweets pulled for the interview associated with his own learning and sharing around technology integration, from makerspaces
design to attendance at regional professional development opportunities. Two tweets in particular demonstrated a combination of his approach. Figure 14 was a retweet posted by Superintendent B as he was offering professional development to fellow superintendents and encouraging them to establish their own Twitter accounts. Figure 15 was a tweet that Superintendent A described as an example of an early tweet from him, reminding to add one’s own personality as an opportunity to show who one is. After requiring all the administrators in his district to get a Twitter account, he was “really looking for stuff on how to use Twitter. I would tweet it out and then I would personally go and say, ‘Did you see that tweet?’ I would remind them” (Interview February 5, 2016, lines 772-774).

Figure 14

*Superintendent B Sample Tweet #1*

![Superintendent B Sample Tweet #1](image)

Figure 15

*Superintendent B Sample Tweet #2*

![Superintendent B Sample Tweet #2](image)
The pattern of seeking and sharing information through Twitter confirmed the coding of Superintendent B’s tweets, 88% of which were determined to have content aligned with learning. The review of six tweets revealed that two tweets the researcher coded as learning he described as leading and one coded as leveraging was identified as leading. This highlights that practice is sometimes difficult to determine in terms of produced content. Superintendent B described a certain level of independence in using Twitter which not only motivated him to use the service, but to create three different account. As all three of Superintendent B’s Twitter accounts were discussed during the interview, the purposes and practices around Twitter included communicating with educational stakeholders; connecting with other educators and leaders from whom he could learn; and using that learning to influence the community to support pursuing new technologies and approaches to learning within the school. Superintendent B was clear in that his efforts were meant to support the overall community in successfully overcoming its economic struggles. Superintendent B uses Twitter to learn, but his use of two other Twitter accounts helps to understand how he associates different purposes and leadership approaches based upon those accounts. Regardless of what account he is using, the idea of modeling is part of his consideration and used as filter for his use of social media in general.

Superintendent C Case Study: Leading through Twitter by Modeling and Engaging

Superintendent C is in his second year as the leader of a public school system of 5000 students in a region of the Northeast known for frequent and large accumulations of snow. The white-collar, religiously influenced community was described by Superintendent C as being school and community oriented, demonstrating strong pride in
its four neighborhood elementary schools, one middle school and one high school.

Superintendent C came from another school district where he served as an assistant superintendent, director of technology, professional development coordinator and social studies teacher. He identified the five most important aspects of a superintendent’s role as communication, leadership with vision and purpose, understanding how people learn, understanding institutional organization and systems, and knowing the financial and fiscal management of school districts. According to Superintendent C, demonstrating leadership in those areas requires modeling

the behavior and culture that we want. It’s key that we model problem solving, that we model student achievement as our number one goal. It’s important that we don’t live in a “gotcha” environment, a litigious environment. That is first and foremost, that culture of collaborating to solve problems (Interview, January 19, 2016, Lines 71-75).

Superintendent C finds support for his leadership by having a good network of peers, friends and mentors. He referenced seeking information and support through personal connections and using periodicals and databases to identify those who are “already doing something to solve a problem, so it’s just a matter of finding it” (Interview, January 19, 2016, lines 117-118) and then reaching out to them personally. For him, leadership is about modeling for principals that all actions focus on student achievement and best practice, and not on “the leadership bucket that tends to be more focused on the politics, somewhat narcissistic, somewhat winners-and-losers” (Interview, January 19, 2016, lines 96-97).

Superintendent C’s school district had no involvement with social media before his arrival. His first action in this area was to “challenge every principal to create a Twitter page or to create a Twitter account, and I created a Twitter account. Again, it's
important for me to model the expectations I have for them, and challenged them on, and all but one of them was able to do that and then to use it” (Interview, January 19, 2016, lines 143-145). Using a combination of Twitter and Facebook within the district has provided Superintendent C the opportunity to deliver what he termed a “one-two punch” in addressing issues through social media. A mouse discovered in a bathroom across from the student cafeteria became a “rat problem” for the school, which he addressed by communicating quickly on Twitter with “Rat problem was a mouse. Health inspection showed nothing. Then I can get on Facebook and I write out a much more longer rationale for what really took place… It’s a great way for me to fight the rumor mill” (Interview, January 19, 2016, lines 152-154). Superintendent C relies upon his technology background to generate a comfort level among the principals in their use of Twitter. He encourages school level leaders highlight the work that is happening in schools, reinforcing and substantiating yearly themes or focus areas such as developing a growth mind-set among students. He explained his philosophy of breaking down for principals Twitter use into mechanical comfort, the understanding of audience, and the ramifications of posting. Superintendent C offered a similar approach in supporting teachers’ use of Google Apps for education as the district moved toward increased technology instruction.

Like many initial users of Twitter, Superintendent C did not find value or an understanding of the tool during its introduction to him or his first foray into the structure. He described his development and growth in its use as leader as:

I have tried probably half a dozen times to use Twitter since its inception and never got the bug or never got the ... I just didn't get a sense of fulfillment that it was doing for me what it was obviously doing for others, but in this job, I
Superintendent C identified his primary purpose for now using Twitter as providing pictures or videos to demonstrate what is happening inside of schools and to connect with stakeholders in snow emergency situations, including one particular storm of six feet of snow that had him trapped in his office for four days. By modeling what he determines effective use of Twitter, including pictures of him visiting schools and highlighting students, Superintendent C expects that it will spur his principals to use Twitter as “bragging boards on the values that I find important as a leader… To me, that’s good data which tells me that they’re taking on the right work…. [because] not much happens behind the desk” (Interview, January 19, 2016, lines 508-516). However, the expectation is supported by his philosophy around leadership and technology:

I said [to the principals], "We're going to go through this journey together." I said, "I like to talk about the Sherpas a lot. No one has ever climbed Mount Everest by themselves. There always was a Sherpa involved." I said, "The same thing with technology. We're going to go up this mountain together." I said, "I'm going to take risks, you take risks. I'm going to model, you've got to model," I said, "Because you have to model for your staff, but it's okay to take risks, so I have to model for you, as a leader, it's okay to take risks." (Interview, January 19, 2016, Lines 526-533).

Those risks have resulted in his memorable experiences using Twitter, including an incident resulting in his account being hacked and another in which students looking to influence his decision to call a snow day generated a fake tweet. Despite these situations, he found value in connecting with stakeholders on Twitter, especially students.

Superintendent C added that one great thing about it is my connection with the kids. Actually, of the 2,000+ [followers] I have, I bet you easy, half of them are students. I'm all the time talking with the kids, and I really enjoy that. They'll share with me things about
anything from lunch to the basketball game Friday night, or some art contest they've got going on, or recommendations for college. I really, really have enjoyed that. Now, when I go into our high school, those schools are big, I know a lot of kids and they know me. That I would not have known them had it been for that Twitter (Interview, January 19, 2016, lines 236-242).

A review of sample tweets during the interview process revealed connections to his described philosophy around and approaches to using Twitter. One tweet linked to his descriptions around addressing rumors and another to connecting with students to model expectations. Figure 16 shows a tweet he issued that contained a graphic of attendance rates at each of the four elementary schools in the district. The purpose was to address “rumors about attendance being a big problem, and somehow something was different. What I did was I took a screenshot of a spreadsheet I had, saved it as a pic, and posted it around Twitter. Again, trying to meet the rumor mill at its source” (Interview, January 19, 2016, lines 462-465). Figure 17 shows a tweet posted by Superintendent C including a picture of him reading to students in an elementary classroom. In describing the tweet, Superintendent C pointed out its significance as “part of that cultural piece about modeling behavior. Modeling the expectations we have as leaders. The superintendent is reading to kids and he's not having lunch with the county executive. It's important to be about kids” (Interview, January 19, 2016, Lines 474-476).

The overall content of Superintendent C’s tweets were coded as 56% lead and 44% leverage, confirmed by his descriptions of his practices and approaches to using Twitter as a school district leader. Out of the six tweets coded for leading and reviewed during the interview, only one was identified differently by Superintendent C as being leveraging rather than leading. Given his technology background, Superintendent C described his motivations for using Twitter in terms of self-efficacy and the ability to
demonstrate leadership through technology use. His purpose for using Twitter is clearly to communicate with various stakeholders, and he describes its use as providing the opportunity to enhance his leadership through engaging with stakeholders, including students in the district. The engagement with students provides him the opportunity to
model for them appropriate use, as well as modeling its use for his principals. Overall, Superintendent C’s use of Twitter is intended to provide a certain level of transparency as to what the district is doing and the actions he is taking as a leader.

Superintendent D: Leading by Communicating, Motivating and Engaging through Twitter

Superintendent D has been in his position for four years at a suburban school district in the Northeast. The district serves a total of 2400 students in one Prekindergarten and kindergarten center, one elementary school, one middle school and one high school. Superintendent D identified safety and security, financial responsibility, instruction, and following the Whole Child approach to education as the four most important duties of his job. Demonstration of leadership in these areas arises within actions taken to successful support meeting demands, such as providing appropriate security features in buildings along with training; maintaining an annual budget process that balances wants of the community along with additional needs such as technology, new levels of sports, or professional development; and prioritizing Whole Child efforts to drive toward overarching goals of the district. The story of his leadership and the district is communicated through social media, which he identified as one of his important jobs as a superintendent:

What I’ve always said is that we have to tell our own story because no one else is looking to tell our story for us, right? They’ll tell the story when we have a couple of wrestlers come down with MRSA, or they’ll tell when we have a few students who want to opt out of testing, but they need us to help, the media I say, needs us to help them tell the story about the kids that get 850 on the new PARCC or that set records in cross country or that make the all county orchestra program. I really feel like that PR is a really important job of, I think it’s really for me ... I try to extrapolate. I think it’s important for all sometimes, but I certainly think it’s important for me (interview, January 21, 2016, lines 62-70)
Superintendent D finds support in the relationships he builds with school board members, parents, administrators, teachers and superintendents who serve in the same and neighboring counties. These connections are built upon listening and his philosophy that “I don’t corner the market on good ideas. Even if I think I have the right idea, saying that includes people and makes me remind myself to listen to other ideas as well” (interview, January 21, 2016, lines 79-81).

Superintendent D shared that the district uses Facebook and Twitter to assist with public relations since the district does not have the capacity to hire a full time person to do so. When he started in the district, Superintendent D recognized that some PTOs had Facebook pages and students had Twitter accounts, but the district did not have a social media presence. Although he did not have accounts himself, he “saw a real opportunity gap there and for me to step in. We quickly set up a Facebook page where I could push that information…[and] I also kind of quickly learned the benefits of using Twitter” (interview, January 21, 2016, lines 108-110). Part of this benefit came through the realization that “a lot of people outside of our necessarily small community also interact via Twitter, in addition to a social media tool for the district, that’s also been a good PD opportunity for me” (interview, January 21, 2016, lines 112-114). Superintendent D specifically identified Facebook as the vehicle to share information with people in the community, while Twitter is used to reach a broader audience including “grandparents in India or parents on a business trip to Dallas that can tweet and see a little bit of a concert” (interview, January 21, 2016, lines 140-141) that he send out through Periscope on Twitter. Recognizing that he cannot always control the conversation that develops in social media feeds, he has learned to not respond to negativity as he “found out I’m in a
really supportive community and there are enough positive followers who overwhelm the negativity” (interview, January 21, 2016, lines 154-156) with affirmative comments.

Superintendent D’s use of Twitter began when he became the leader of the district, and recognized the opportunity that existed because of the gap in district social media presence. He learned about Twitter from whom he described as early adopter superintendents in his network, and spent several months working with his instructional technology department to set up a Twitter account. Superintendent D’s account is associated directly with the district, but includes his name. His primary reason for using Twitter is to satisfy a demand for public relations by getting out the “good word” about what is happening in the district such as “great athletic achievements, great academic achievements in the arts, highlight what kids are doing, what teachers, award that teachers got, awards that school’s got” (interview, January 21, 2016, lines 206-208). Additional reasons to use Twitter included sharing district events and replacing quarterly newsletters with real-time information; however, Superintendent D shared that he does not post random thoughts nor does he engage in political exchanges so as to avoid being seen as pitching support for or against a particular politician or policy.

Despite his initial focus on Twitter to enhance public relations, Superintendent D discovered other benefits. The professional development opportunities he found through his Twitter use were unanticipated:

The PD opportunity is what I’ve learned, connecting with students that I had as a teacher 20 years were now teaching doing great things, or connecting with superintendents not just in our county but the whole world really. “Learn that, hey people, there’s Whole Child stuff in Alabama. Hey that’s what we’re doing. Let me share with you here” (interview, January 21, 2016, lines 210-214).
This influences his decision to follow someone on Twitter, looking to see the content of their previous tweets and for opportunities to connect and learn with similar-minded individuals like a teacher in Chicago working within a Whole Child initiative. In addition, the announcement on Twitter of school closures for inclement weather has generated connections and engagement with students that he approaches cautiously but enthusiastically. His most memorable moment from Twitter occurred several years ago as the district experienced multiple snowstorms causing school delays and closings that generated deeper connections with students. Superintendent D recalls:

I would get little notes from kids and this has been a really interesting part as well. “If you give us off I promise I’ll study hard for the next test.” High school kids maybe upper middle school kids, maybe 8th to high school. “Hey Superintendent E, what we going to do? My streets getting covered. Hey I heard we’re going to be out tomorrow.” It’s been kind of like a humanist ... A human kind of relationship with kids outside of seeing them in the classroom and them shaking my hand or them coming into a meeting and getting an award for accomplishing something. It’s kind of been more comfortable. Now, I am always careful not necessarily to follow those kids because I don’t want to be in charge of monitoring what they’re doing. That’s their parent’s role. It’s kind of very cautious but I’ve enjoyed that kind of banter back and forth around snow days, or around school, “Hey you coming to the big state basketball game tonight kind of thing. We’ll do a cheer for you from the student section. If you’re there we’ll do a cheer for you kind of thing.” It’s been kind of a good experience in terms of that. That’s been 1 of the most memorable I would say for me (interview, January 21, 2016, lines 295-309)

The consideration to follow someone is a responsibility that Superintendent D takes seriously, viewing it as recognition of doing good work. He believes students follow him for insight to weather closings or sports scores and parents follow him to get to know the leader the board has selected for the district. In his observation, teachers follow him to understand the direction of the district through tweets that reinforce what was reviewed during teacher convocation on the first day of school and provide the opportunity for him
to address those employees who follow him on a daily basis. Superintendent D believes other superintendents and educators follow him to exchange positive educational ideas. He thinks it is important that several school board members follow him for “a bit of a selfish reason as well. I want to not only tell the district story but I want to highlight all the hard work that I’m doing” (interview, January 21, 2016, lines 384-385).

A review of the sample tweets confirmed the public relations philosophy and approach that Superintendent D has taken in his use of Twitter, along with his own professional development and engagement with students. These sample tweets included a reminder to students to participate in a survey on the districts whole child initiative, scheduling information learned at a state-wide conference, and a celebratory thanks to administrative assistants. Two sample tweets provided insight to how Superintendent D uses Twitter for leadership. Figure 18 was a tweet he posted during the occurs of a walkthrough at the districts’ middle school, which had adopted a Bring Your Own Technology (BYOT) policy successfully implemented at the school, but not as prevalent at the high school. Superintendent D indicated multiple purposes for posting the tweet:

I want board and community to read it so that they know that this a new thing that I brought that I’m really familiar with. I want other teachers to read it because I want them to know that [Teacher 1] and [Teacher 2] are doing it. You could or at least should consider doing it too. Little peer pressure put on by me. I want students to read it especially at the high school at the time I remember thinking this. Because I want them to see my cousin or my sister at ... Middle school is bringing her own technology. Why is not the principal, why are my teachers not allowing me or why are they not encouraging me to do it here? There’s a little bit like kind of getting the good word out and kind of helping to promote my vision (interview, January 21, 2016, lines 531-539).

The tweet in Figure 19 was posted in response to concerns with student absenteeism rates within the district. According to Superintendent D, a large number of community
members take vacations or extended trips back to home countries during the course of the school year, negatively affecting monitored attendance rates in the district. The Attendance Works website was purchased by the district in order to address what was apparently a chronic absenteeism rate and created an opportunity for interaction between the school and parents to monitor and communicate about the importance of attending school. Improvements in attendance rates were recognized through the use of Attendance Works, and Superintendent D wanted to show how much we valued it. We put our money and our words into what we valued. We saw over the last 2 years, a significant drop in our chronic absentee rate. Now maybe some coincidental things, maybe we’re cleaning better and kids aren’t getting sick. Maybe there’s obviously, I don’t want to say it’s completely connected, but we’ve flown under the threshold now of not meeting our target for absenteeism. I credit that a lot to the awareness I brought to it and this is one of the ways we brought awareness to it (interview, January 21, 2016, lines 460-465).

A combination of public relations and demonstration of leadership were described as part of the purpose and rationale behind this tweet.

Figure 18

Superintendent D Sample Tweet #1
Superintendent D demonstrated clear connections between his actions and purposes associated with his use of Twitter. Although 45% of his tweets were coded for content that aligned to leveraging, this was a smaller percentage than other superintendents’ tweets coded within the same category. While his classification within the leading framework was 41% and placing him on par with other superintendents in this category, his interview confirmed his varied approaches between leading and leveraging, and surfaced the use of Twitter for learning. Analysis of Superintendent D’s patterns and descriptions of tweeting helped to illuminate the nuances that appear between leading and leveraging as two distinct categories within the conceptual framework. These nuances are based when a decision is made to post something and the intended audience. For example, Superintendent D posted information about his walkthrough in the middle school not so much to highlight for the community success around BYOT, but to encourage another school in the district to follow this particular school’s lead in the initiative. Superintendent D reported that his use of Twitter provides him a sense of efficacy and independence as a leader, and his purposes for using the service are to communicate what is happening in the district and motivate others around educational
issues. He finds that Twitter is a vehicle for him to amplify his leadership for the community and school board and engage with others with similar interests or approaches to improving education. He used Twitter to both lead within his district and leverage his influence as a superintendent, but finds that his connections on Twitter also provide the opportunity to learn.

**Superintendent E: Leveraging, Communicating and Engaging through Twitter**

Superintendent E has served a suburban school district of 6300 students in the Midwest for nine years. He describes the district as a bedroom community and although classified as suburban, its further outreaches are agricultural and rural. The six elementary schools, three middle schools and one high school are “the only show in town,” as there are no other forms of municipal government that serve the district. Given the fact that the school district is the largest employer and that most parents work in other neighboring counties, Superintendent E identified his most important duty as “community uniter, and trying to find that common thread that unites a lot of little towns along the corridor” (interview, February 26, 2016, lines 96-97) that comprise the geographically long and narrow district. Not being an affluent community, changes in the economy have hit the community hard and require Superintendent E to be a good steward of finances and managing resources. The third most important aspect of his job is creating within the parameters of limited resources “an environment where our kids have the tools to really be a 21st century learner, and be able to engage in education in a way that's going to prepare them, whether that's to go on to a post-secondary, or into a career-ready type field” (interview, February 26, 2016, lines 113-115). His successful demonstration of leadership in meeting these duties and responsibilities comes from his
participation in community-based organizations, serving as vice-president of the chamber of commerce, participating on the board of the regional hospital center, organizing district employee participation in Meals on Wheels, and helping establish a foundation that has raised significant funds to support community members. The story of his leadership and the support he seeks out to be successful arise from a combination of his participation in community-based activities along with serving in leadership roles in his state’s association of school administrators. It surfaces in the connections he makes with local community members or the approach he takes to publicize the district as “the best kept secret” in education.

In terms of the district’s use of social media, Superintendent E likens it to the sense of community he has worked to build around the district, including the painting of the district’s logos on local water towers and his availability to stakeholders within the community. He identifies Twitter, Facebook and the district website as the way in which social media is used to promote the district and communicate information. He points out that surveys of parents and tracking of data has indicated that they prefer to still visit the website to find information. Relying upon the desire to build community relations both personally and through social media, the district hired a person specifically to work in both of those areas and led to the establishment of a district Twitter account in addition to his own personal account. His personal account was the one identified for the purposes of this study. While content is updated on regular basis on the Facebook and district website pages, Superintendent E identifies that casual users are more driven to the website. Some parents and teachers, but mostly students, are the ones who follow him on Twitter.
Superintendent E identified that his purposes for using his own personal Twitter account may occasionally reference situation occurring with his own family, but that the majority of his tweets are intended to

Provide information to whoever's out there paying attention to it, about what's going on in the school district. About celebrations, great things our kids have done, information about upcoming games or band concerts or whatever. I will share information about college readiness, again knowing that many of my followers are students. I'll send out ACT information, about upcoming deadlines, or information from ACT. About score or hits or kicks or whatever. Things like that, again, that I think will hit the mark with those folks. I'll send out things if I happen to be at events that are extra-special or seem to really hit the mark. I'll send out pictures from things like that. But again, it's more information and celebration than anything else (interview, February 26, 2016, lines 465-472).

His most memorable experience on Twitter associates with the calling of a snow day when he tweeted out the announcement and it was “retweeted like 69 times or something crazy, in like 20 seconds. To me, that's probably a memorable experience, because it made me realize the power you can, you have, with something like that, if you get your audience engaged” (interview, February 26, 2016 lines 489-491). That experience led to positive outcomes in terms of engaging with students on Twitter, who look to him to send out his daily inspirational messages, act as a clearinghouse for information, or keep students posted about school team and organization participation in local, regional and state events. Superintendent E follows approximately 12 students because he is a friend of their parents, the students serve in leadership roles within the district, or he has interacted with them on Twitter concerning district events. His purpose is to maintain “an idea of what the pulse is of what's going on with kids” along with sustaining a personal side as a leader while reminding “our kids that our expectations are they act in certain ways” (interview, February 26, 2016, line 510 and line 549).
The connection between delivering on his duties of being fiscally responsible, a community organizer and telling the story of his district were verified as he described the sample tweets pulled for review during his interview. The tweets focused much on what Superintendent E deemed “bragging” about his district and its successes, from a perfect annual safety inspection of busses (used to counter bad press around bus accidents that had occurred early in his tenure) to a packed house at an annual band concert at the high school (tweeted because the director does not have a Twitter account). The tweet in Figure 20 was sent out as demonstrating the community organizing function of Superintendent E and the district through a tax levy campaign:

We were canvassing door-to-door. Each of those Saturday mornings, I did a series of these, because we canvased almost, I think it was, three or four weekends in a row. A lot of times I'd just do that to remind people what we having going on, remind people that may be following me that they can still get out and help, and remind them that we may be coming to their door (interview, February 26, 2016, lines 615-620).

This description aligns with Superintendent E’s identification of his role in terms of connecting and communicating to the community, and attempting to unite them behind common causes. The tweet in Figure 21 was an example of daily messages that Superintendent E posts for students, describing its intention as the idea was that we can't dwell on the past, and it's just a reminder for kids to always be focused on the future, and if you had a bad day yesterday, doesn't mean you got to have one today. I try and find, a lot of the little ones that I find, I try to find with a lion on them, just because we're the lions and kids get a kick out of that, or seem to engage in those a little bit more (interview, February 26, 2016, lines 602-606).

Embedded within Superintendent E’s description is his desire to connect and engage with students, to motivate them, while at the same time branding the district around its mascot.
Figure 20

Superintendent E Sample Tweet

Figure 21

Superintendent E Sample Tweet
The randomly sampled tweets coded for Superintendent E were entirely identified within the category of levering Twitter, and his interview and descriptions of his role confirmed accuracy in the ways in which his tweets were viewed. One tweet coded as leverage was described by Superintendent E as enacting leadership, and another was mistakenly identified as professional although it was personal. Superintendent E is motivated to use Twitter because of the sense of belonging it generates for him in being able to connect with stakeholders, especially students. His purpose for using Twitter is to communicate information and the story of his district, aligning to his overall philosophy of being the connective tissue to provide a sense of community within the district. Superintendent E indicated that Twitter has enhanced his approaches to leadership within his context, mostly through his ability to engage with other users and students. Twitter has provided him the opportunity to rethink and redefine his approaches as a superintendent, highlighting how his connection with students on Twitter provides him insight to what they are thinking and what is happening in their world. Superintendent E clearly uses Twitter as a way to enhance his leadership approach and duties within his district, and is motivated to continue to use it because of the relationships it has helped him to build with students and within the community.

**Superintendent F: Learning through Twitter to Build a Plan**

Superintendent F is a part-time superintendent in rural school district in the Midwest. The district serves 480 students in three pre-K to 5 schools, a middle school and a high school located in one town of the five municipalities that comprise the district. Most people who live in the town work in areas that require a commute, and the schools serve as the hub for the community. Sporting events bring out community members, and
are events that are looked forward to on a regular basis. Because of the size of the
district, Superintendent F works part-time. This creates challenges in that she commutes
from a neighboring district and does not have the close community connection she would
like to have. Historically, the district employed a series of shared or part-time
superintendents that resulted in loss of focus and attention not being paid to facilities,
finance or improvements to curriculum. When Superintendent F was hired four years
ago, she informed the board that she would be a change agent and that the district must
improve to serve students. During her tenure, capital improvement projects have initiated
facilities upgrades and curriculum, instruction and technology initiatives have brought
blended and personalized learning opportunities to students.

In relationship to those initiatives, Superintendent F identifies fiscal
responsibility, instructional leadership, and being a change agent for the district as her
major roles and functions. Her demonstration of leadership within these areas is
predicated upon collaborative leadership and involving stakeholders in decisions and
efforts to improve the schools in her district. Much of her effort has focused on building
the leadership team in the district, and she seeks encouragement to be successful by being
a part of regional and state-wide organizations designed to support schools and school
leaders. It is through these organizations that Superintendent F has built personal
relationships with other leaders and superintendents by learning from and contributing to
conversations about educational leadership.

The use of social media in the district is in developing stages. According to
Superintendent E, when she came to the district four years ago the website was terrible in
its design and what it communicated to the community. Through realignment of staff and
additional stipends, Superintendent F was able to hire someone to redo the website and begin building a social media presence for the district. The staff member and Superintendent E began the process of reaching out to the community to involve them in social media, with the first foray documenting progress the district was making on capital improvement projects. Since that time, many parents have expressed excitement about the developing social media presence of the district and board members support its use to tell the story of what is happening within the district. Superintendent F has a personal Twitter account, and at the encouragement of an outside consultant partnering with the district, the district has established a Twitter account that she and one other staff member runs. Superintendent F continually clarified that many of their efforts in this area were still a work in progress.

Superintendent F’s personal Twitter account was the one selected as part of the research process. She learned about Twitter early on during the expansion of social media tools, recalling that at a conference a presenter suggested “to get straight with what’s going to be your professional and what is going to be your personal [presence]. It was at that time that I [decided my] Twitter account is going to be my professional. Facebook is going to be my personal” (interview, January 22, 2016, lines 409-412). Having retired out of an educational role in another state, she maintains this distinction by staying in contact with friends through Facebook and establishing social media connections with professional colleagues, including board members, through Twitter. Superintendent F described her personal Twitter account as her professional learning network, fulfilling the need to communicate externally to stakeholders:
How the changes at the state and the federal levels impact us as a small district and what it looks like being [the district]. I think it’s important to bring that stuff home and make that connection to what it means for us and, therefore, the stakeholders in our district…. [A] former board member who was an attorney who was sitting in my office this week, he’s always pushing me, “We really need to know how bad it is, [Superintendent F]. Don’t you just tell them all the good stuff.” To me, that is something I need to be thinking about and be providing to the community (interview, January 22, 2016, lines 442-449).

In addition to the communicating externally, Superintendent F identified how other tweets are intentionally posted for teachers in the district:

The other things are along the instructional lines. Here’s stuff that we’re doing with personalized learning. What does that look like in our district and what is it? Those kinds of things, and tweeting out purposefully for my staff members who also hopefully would be following me so that if they have the time or the desire, they could be looking at things. Therefore, they understand my role I think better as an instructional leader in the district. They see that leadership because they see me bringing them resources and my own thinking on things because of the things I’m tweeting out.

Although she considers herself more of a consumer than a producer in terms of her Twitter use, she does have plans to continue to grow her PLN and use Twitter more as time permits. Being a part-time superintendent has been a limiting factor in successfully achieving this goal short-term, but long term she wants to continue its use. Much of this is based upon her memorable experiences on Twitter, mostly centered on instances where she has been in a learning situation such as a conference and has been connecting virtually with other attendees and sharing out what she is learning to followers.

A review of the sample tweets pulled for the interview confirmed the approaches taken by Superintendent F when describing her Twitter use. The tweet in Figure 22 was identified by Superintendent F as:

This was about the time that our district decided that they were going to be part of the [State] Rural Schools Alliance. I was starting to follow them more on what kind of offerings they had for the small schools and rural school districts. I think
[State] is not alone in just the funding. We are impacted greatly in our rural school districts and how that applies to us (interview, January 22, 2016, lines 537-541).

In this case she met the request of the school board member to share how decisions affect the district, and cuts in education in Superintendent F’s state were drastic and hit smaller, rural schools very hard. The tweet in Figure 23 served a dual purpose in highlighting what the teachers in the district were learning and how it connected to the overall initiatives of blended and personal learning. As part of Superintendent F’s intentions, it helped remind everyone that “we went to Google probably within six months of my time at [The District]. Then, it was just now getting best results in how you use Google Docs and Google Drive and what that looks like” (interview, January 22, 2016, lines 564-567).

Figure 22

Superintendent F Sample Tweet #1

![](image)
Superintendent F’s tweets were considered to be balanced within representation of the conceptual framework based upon how results of the coded content within each category aligned with results of the overall sample: 36% were coded as learn, 20% as lead and 44% as leverage. Of the six tweets reviewed with her during the interview, two the researcher identified as leverage where described by Superintendent F as learn and lead in terms of her purpose. She identified Twitter as the way in which she maintains professional connections with colleagues, highlighting that her motivation for its use is based upon the sense of belonging and relatedness that it brings. Superintendent F described her use of Twitter as providing opportunities to learn from others, especially through connections made. Subsequently, she described Twitter as enhances her ability to engage as a leader, especially considering her own learning within the role of superintendent. Superintendent F reported that her Twitter use is not to the extent she
previously exhibited nor hopes to demonstrate in the future; however, her participations and connections through Twitter provide her the venue and the support she needs to build a plan for her own use of Twitter and social media within her district.

**Superintendent G: Learning, Motivating and Engaging through Twitter**

Superintendent G is in her second year of leading a suburban district in the South with 20,000 students and 35 schools. Considered medium-sized by the standards of the state, the enrollment has been slightly declining over the past ten years with 65% of students qualifying for free and reduced lunch. Superintendent G served as a superintendent for eight years in another state before coming to her current district. As the superintendent, she identifies the most important aspects of her role to be hiring principals, coordinating partners, and advocating for public education by helping people understand its dimensions. When considering how she demonstrates leaderships in each of these areas, Superintendent G identified how they all intersect. In terms of hiring principals, she has worked with colleague superintendents to develop recruiting and sustainability plans to address both the lack of candidates and the inexperience of those being hired into principal positions. Part of that takes on an aspect of advocating for public education, as that is necessary to understand the need for resources in order to achieve the objective of hiring and supporting educational leaders. Coordinating partners means being a liaison between the stakeholders in public education, including the board of education, county commissioners and business leaders. Success within this area requires constant and consistent communication, which parleys into the work of advocacy for public education as well.
In terms of supporting her success, Superintendent G identified collaborating with superintendents on a regional level and belonging to three national superintendent networks that focus on technology integration leadership, education reform, and research around educational products. This collaboration also translates internally, as she facilitates a leadership team of approximately 50 students with whom she meets twice a month. This group works on plans for envisioning what the district will look like and how it will serve students, preparing presentations to the partners that Superintendent G coordinates. Superintendent G believes in strong communication that meets the needs of stakeholders, stressing that she gets the message out to the community through Twitter “because it is simple and fast and I get a lot of information in a quick period of time. Twitter is my personal favorite way to communicate an issue because I can do it from anywhere” (interview, February 2, 2016, lines 92-94). This translates into an active approach the district takes around social media and communication with stakeholders and parents that Superintendent G supports by stating

we either get in the conversation with them, or we let them have this conversation without us. I think it’s so much healthier to be in the conversation with them. I think that’s the role, is if it’s going to be used as social media, that we’re part of the media. We’re part of the message. Not in a way of trying to control the message, but in a way of trying to communicate (interview, February 2, 2016, lines 314-318).

This communication takes on the form of addressing rumors that surface in the community or on social media, highlighting what is happening with students in schools, or marketing particular schools for potential principal candidates.

Superintendent G’s appreciation for Twitter and its ease connect to the ways in which she uses it. Her identified primary purpose is to learn and read about things that
other people are doing and then share them with teachers and principals in her school district. She learned about Twitter from a colleague when working in another school district, and was actually encouraged by a school board member to use it. Despite initial fears about misspelling word, she soon discovered the power as an innovative way to communicate. Two particular cases of using Twitter stood out for her. One concerned a series of school closings that she had to call for inclement weather, and how that generated an opportunity for students to follow and engage with her. Students sent her pictures of snow piling up in front of the house or of her with a superimposed crown identifying her “queen for the day.” By promising to tweet a closure first to students in key leadership positions, she has opened up an avenue for conversation that she thinks “made me more real to some of our students and what that process looks like” (interview, February 2, 2016, lines 114-115). Another instance of engagement occurred when she received a weekend tweet from a parent that posed the question, “[Superintendent G], we would really follow your direction and be on board if we could just understand why. Why is school the way we had school not good enough, when it was good enough for us?” (interview, February 2, 2016, lines 347-348). After reflection, Superintendent G realized that the “why” to the changes instituted in the district were necessary, but that they had started focusing on and communicating the what around changes to schedules, integration of technology, and different instructional approaches. Superintendent G reflected:

I ended tweeting like four different messages out, following that. This question came up, and here’s why. Because jobs have changed. I went through those things about why we would think about this differently. That to me is a very great conversation, and very helpful and productive (interview, February 2, 2016, lines 358-361).
This type of engagement surfaced again using Twitter, which was associated with face-to-face interaction and her most memorable experience:

the first time we did a [Twitter] chat with our employees. Oh my gosh. That was a pretty memorable experience. I literally had 3 teachers that were really young, innovative teachers that were really on this. Like, "Let's do a chat." They're pushing for that. I have this director of innovations who's phenomenal. He's real young and he's always pushing me. I literally invited them to my house and we sat on my floor. We all had our phones and our computers. We had it up on Apple TV so we could watch it on my television, trying to orchestrate that chat and how complicated it was and how exciting it was. That's just a year ago. That was a pretty memorable experience. How much I enjoyed that. Now where we're at, we all know what a chat is about. We just do it from our own home. But it's funny when you think about it, that to be able to do something on social media, we felt like we all had to get together in one room (interview, February 2, 2016, lines 645-662).

Superintendent G follows those people or organizations on Twitter she feels would put out something she could use in her daily practice, but also enjoys the personal and social element that Twitter has to offer. She believes that most of her followers are teachers, parents or students who “want to know what I’m thinking because I am in a leadership role” (interview, February 2, 2016, lines 699-700).

The enactment of two specific roles identified as being important, coordination of community partners and advocating for public education, came through in Superintendent G’s sample tweets reviewed during the interview. From a random musing about leadership, celebration of teacher laptop deployment, to an announcement of thanks from a former student, Superintendent G’s tweet indicated a pattern of supportive and positive approaches to using the service. One sample tweet, shown in Figure 24, highlighted the “one district, one book” reading initiative and communicated that Superintendent G was participating in as well as inspiring others to join. The sample tweet in Figure 25
highlights the ways in which Superintendent G uses Twitter to not only communicate what is happening in the district, but to “get people in the community to sign up for our literacy summit. I was looking for community partners, people outside the school district” (interview, February 2, 2016, lines 784-785).

Figure 24

Superintendent G Sample Tweet #1

![Superintendent G Sample Tweet #1](image1)

Figure 25

Superintendent G Sample Tweet #2

![Superintendent G Sample Tweet #2](image2)
The coding of the content of Superintendent G’s tweets placed her in the category of a balance between the three aspects of the conceptual framework, with results being 33% for learning, 21% for leading, and 46% for leveraging. Three of the coded tweets reviewed during the interview were identified as different purposes than that of the researcher. Two tweets coded as leverage where identified as aligning with leading; one tweet coded as lead was described as being intended to leverage. The motivating factor for use of Twitter surfaced in the area of self-efficacy for Superintendent G, from her ability to communicate something quickly from any venue to the ability to address questions or concerns posed by the community. Her identified purpose for using Twitter was to learn, although she does use the service to motivate other stakeholders in the school district and her connections on Twitter. Twitter provides Superintendent G the opportunity to engage as a leader, and she has reflected upon and taken action in areas where Twitter has caused her to modify and redefine the way she operates as a superintendent. Much of this modification and redefinition rests in the ways in which school districts must engage in social media in order to influence and shape the message, not control it. Superintendent G’s philosophy and actions concerning leadership and her role as superintendent, coordinating community partners and advocating for public education, were confirmed by the ways in which she uses Twitter to motivate and engage others.

Patterns and Themes of Superintendent Use of Twitter

Comparison of the cases highlighted evidence aligned to the broad categories of how the superintendent defines his or her role, the district’s use of social media, and individual use of Twitter. The cross-case comparison provided the opportunity to identify
patterns and generate themes. The patterns associated with practices that superintendents identified in terms of being a school district leader and using Twitter within that context. Themes were generated around the ways in which superintendents identified Twitter as influencing their approaches to leadership. The combination of the patterns and themes provided insight into the overall use of Twitter by superintendents, from the content they produce in the service to the practices they employ while using it.

Patterns of practice common among the superintendents highlighted in the case studies included how superintendents learned about Twitter, use it to tell the story of their district, and view themselves as both producers and consumers. Superintendents learned about Twitter from an interaction with a colleague or by attending a session offered as part of a conference where Twitter was a topic. The introduction to Twitter was usually framed as “you should do this,” with superintendents experiencing a self-motivated moment of discovering the value of the service. This moment led to further exploration of what Twitter could offer as an educator and leader, and resulted in superintendents specifically identifying the purposes with which they were going to use Twitter. These purposes include connecting with other educators to learn and share resources and offering another method of communicating information. In most instances, a key use of Twitter as a school superintendent is to tell the story of the district and leverage the service to provide insight to stakeholders about what is occurring in schools. It is used to highlight district successes, recognize accomplishments of students and staff, and promote initiatives undertaken by the schools to support learning. The practices superintendents employ within these areas include both producing and consuming using Twitter. As producers, they create tweets that align with the purposes of communicating
information about their district, actions being taken, and leadership employed. As consumers, they look to Twitter to provide insight into what is happening broadly within education circles as well as within their own communities and schools.

Themes that developed included Twitter providing the opportunity for increased engagement, learning rooted in connections and engagement with others, and enacting leadership within their districts. Superintendents who use Twitter find that it provides opportunities for engaging with all stakeholders within the district, from community members to students. Participation in Twitter provides insight into what is happening within the community and schools, establishing a platform from which a superintendent can see what is happening and communicate into that space. Twitter provides the opportunity to engage with these stakeholders, perceived by superintendents to occur as they interact on Twitter or post tweets intended to highlight the work of the students, schools, and district. The connection with others on Twitter, including educators with similar interests and students alike, provides a strong opportunity to learn among superintendents. The learning is rooted in practices that hold the potential to help them to lead and transform their districts along with understanding experiences of stakeholders to inform their leadership. As Twitter provides them the opportunity to learn and inform their leadership, it also provides a vehicle to enact leadership. From making and communicating decisions to close school for weather related emergencies, encouraging others to use social media to enhance educational practices, to engaging with individuals around the “why” of certain decisions or directions, superintendent’s use of Twitter brings a level of transparency to leadership perceived by the participants in the study.
These patterns and themes resulted in findings from the cross-case analysis that provide answers to the study’s research questions and contribute to an evolving definition of digital leadership at the school district level. Superintendents in the case studies use Twitter in ways they believe enhance their leadership within school districts, connect them with constituents locally and broadly, and provide transparency to the their leadership and the work of the district. From the perspective of digital leadership, their descriptions of Twitter use contribute to the definition of what digital leadership assumes when taking action aligned to the components of the ISTE Standards for Administrators (2009) and the CCSSO Educational Leadership Policy Standards (2008). These components include common connections such as inspiring and communicating a vision for purposeful change; advocating at the local, state and national levels for funding and policy change; modeling and promoting the effective use of technology for learning along with self-awareness and transparency; promoting and participating in learning communities; and building positive relationships with partners. In the cases, digital leadership continues to develop as the superintendents employ skills and expectations around technology use emphasized within frameworks such as the Four “Cs” of 21st Century Education (Critical Thinking, Communication, Collaboration, and Creativity) or the SAMR (Substitution, Augmentation, Modification, Redefinition) Model.

When considering effective digital leadership in schools, Anderson and Baxter (2005) suggest that key administrators become active technology leaders while Levin (2012) offers that clear vision, individualized professional development, revised curriculum, and internal and external collaboration with stakeholders contribute to the improvement of school. Within these contexts, the seven superintendents studied through the case
studies provide connections between how their leadership practices where both changed and enhanced by using technology such as the Web 2.0 tool of Twitter. Identifying key duties or responsibilities as a district leader, the most common response across the superintendents interviewed was fiscal responsibility. Superintendent C, Superintendent E and Superintendent G acknowledged community-based leadership as an important responsibility. Superintendents identified ways that Twitter supported these responsibilities, from informing stakeholders about how resources were being used to highlighting how educational approaches undertaken by the school were intended to generate job opportunities within the community. Whether communicating actions of the districts, connecting with constituents, or reinforcing mission and vision of education, the superintendents determined Twitter an effective technology medium to demonstrate leadership and leverage their position as school system leaders and educational influencers.

The concept of collaborating with internal and external stakeholders was found in superintendents’ use of a network of local, regional and state connections, formal and informal, for collaboration and seeking support as school district leaders. These local and regional connections were enhanced by the use of Twitter, and usually provided the motivation for the superintendent to join Twitter. Connections to these groups through social media provide connections to these groups and the ability to find and share resources. These resources often focus on ways in which technology, innovation and its application within classrooms, schools and the district support student learning, teacher instruction, and professional development. The connections with stakeholders generated
through Twitter use also create avenues for superintendents to advocate for education on the local, state or national level.

Superintendents indicated they were, in varying degrees, responsible for either initiating or enhancing social media use in the district as a result of modeling its use. Social media tools like Facebook and Twitter are used for defined purposes and specific audiences by the district. The purposes include sharing of information, communicating with stakeholders, and enhancing public relations. Their knowledge and use of Twitter before entering their current districts facilitated this initiation of social media use within districts, including teachers or principals to use Twitter to connect with other educators or to highlight what is happening within schools. Superintendents found a purpose for using Twitter after learning more about its relevance and/or value through practice, and can articulate the reasons why they use Twitter today as a school district leader. The reasons are to learn about best practices, find resources, connect with stakeholders, and highlight the success of their students, schools and districts.

The superintendents’ descriptions of what they tweet and intended purposes connect to the practice of their overall philosophy of leadership. A common theme for using Twitter was to learn from others and model appropriate use of social media for staff and students. Modeling appropriate use of Twitter was a key component of superintendents’ reason for using it and the actions they take within the service. As a result, superintendents discovered an unintended consequence of Twitter in the ability to connect with students, usually initiated around the tweeting of school closings for weather related purposes. The connections continue to grow and build into the opportunities for the superintendent to understand the experiences of students within their
school districts. The idea of connecting on Twitter provided superintendents the opportunity to demonstrate a human side through their interactions, from seeing someone face-to-face a conference to exchanging tweets with students about happenings in the district.

Superintendent use of Twitter supports the opportunity to create and sustain a Personal Learning Network (PLN). Unlike PLCs with formalized structures defined by those with similar interests and roles in education, Superintendents’ PLNs included individuals or organizations with varying interests in the district and expanded into the community served by the superintendent. Superintendents indicate learning about technology-focused instructional and leadership practices from involvement in PLNs along with what is occurring within the schools and communities they serve. Although PLNs are often touted for their global reach and providing connection to innovative practices, superintendents described their positive affect in helping them connect and learn locally as well.

**Summary of Findings**

An analysis of the data throughout all stages of the research study design highlights that superintendents who publicly identified themselves on their Twitter account use the web 2.0 social media service for professional purposes. The content within their tweets aligns with leveraging their influence as superintendents within their own school districts and across the field of education. Gender patterns of Twitter accounts associated with superintendents are similar to an overall gender breakdown of superintendents across the United States. Superintendents report being intrinsically motivated to use Twitter to support their relatedness, autonomy, and competency, as
leaders, especially as their main purposes are for communicating and learning. These purposes are often pursued through multiple Twitter accounts maintained by a superintendent for specific reasons. Superintendents report that their participation on Twitter influences their enactment of leadership through engagement with others and the amplification of their practice. The development of a Personal Learning Network (PLN), a collection of connections made with a variety of individuals interested in education as a field or within the context of one’s own district, is key to understanding the purpose and motivation for using Twitter. Even though the content of tweets might not reveal learning as defined within the conceptual framework as the primary purpose of superintendent use of Twitter, superintendents reported that Twitter helps to build both on-line and off-line connections with others who become a part of a superintendent’s PLN. This PLN contributes to improvement of their leadership practices based upon what they have learned through participation in Twitter. What is compelling about this finding is that not only like-minded individuals such as other educational leader are part of a superintendent’s PLN, but so are students from whom they learn and gain insight. This finding potentially provides insight into how practices of school district superintendents, and its connection to digital leadership, may initiate and support new and innovative organizational structures to transform the way schools and classrooms are organized and supported.

Limitations of the Research

This study investigated how the content of tweets informs us about the ways in which superintendents use Twitter. It provided insight into the ways that superintendents identified their motivations and purposes for using Twitter and how they believe it
influenced their enactment of leadership within their context. While the four stages of the methodology were designed to provide strong data and research analysis rooted in best practice, I recognize the limitations of the study.

First, the study only considered the perception of the superintendent and his or her viewpoint as to how they use Twitter and its influence on leadership. No data was collected to uncover how the stakeholders in the district served by the superintendent experienced or viewed the superintendent’s use of Twitter. Although this approach was clearly stated within the research questions and throughout the course of the study, it is necessary to reiterate so as to not extend the findings beyond how superintendents who use Twitter view their own practices and enactment of leadership.

A second limitation concerned the dynamic nature of social media and how it can change on a daily basis. This includes the number of Twitter users, new tools or features that appear or employed by users, and the patterns of usage. These dynamic changes, or the possibility of their influence on the data or the outcomes, were not considered within the context of the study. For example, some superintendents who were a part of the purposeful sample (n=1,582) and the subsequent random sample (n=100) changed their accounts from publicly accessible to requiring approval to access tweets during the course of the study. Such choices and decisions create another layer of complexity around the decisions superintendents around their use. These decisions and choices were not investigated.

Another limitation to the study was found within two aspects of the purposeful sample (n=21) of superintendents invited to be a part of the interview process. The first aspect dealt with the low response rate for participation (n=7). Although methods were
employed to determine the random sample (n=100) of superintendents to ensure
generalizability to the population, the small number of superintendents interviewed
impacts broader generalization of the results to the population. Additionally, during the
interview process, it was discovered that several superintendents used multiple accounts
on Twitter. Although this practice was explored through the interviews, the other Twitter
accounts were not accessed or analyzed during the course of the study for comparison.

A final limitation to the study rests in the bias that I brought to the study based
upon my positionality as a former superintendent who used Twitter within my role as a
school system leader and the benefit that I perceived. Maxwell (2013) states that a
researcher cannot control for bias but must recognize his or her role within the research
process and how it influences the study. Although several points within the stages of the
research process included collaboration with peers and critical friends around the
research topics and findings, the time limitations of the study did not permit for
additional coding of the interview transcripts to develop crosschecks of my thinking.
Reflective memos and journaling provided the opportunity for me to explore and surface
my biases, and to make sure that the results and findings were not simply what I wanted
to see in the data. The development of the case studies and their analysis assisted in
overcoming this concern, especially when considering that I was reporting on what
superintendents described about their own practice, and not what others thought about
those practices. However, I still recognize that I may have unintentionally missed a small
or seemingly insignificant references or cue that may have lead to a deeper and richer
understanding of superintendents use of Twitter.
CHAPTER 5 CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This research study was grounded in the conceptual framework that superintendents’ use of Twitter provides a context within social media to learn, lead and leverage influence as school system leaders. This context is predicated upon the call for school districts to assume new and innovative approaches to education, support the integration of technology in teaching and learning, and meet the demands of new working environments in society. It also subsumes the public nature of the school superintendent’s role, and the varied and multiple constituents he or she serves.

Considering the need for change and the types of leadership required to support schools, I explored the ways superintendents use Twitter, what motivates them to use it, and how they believe it influences their leadership within their district. The study was designed to contribute to a expanding field of literature around the ways principals and teachers use social media tools within their contexts, especially since research has identified that content around technology leadership is not present in formal certification programs or conferences. Within the field, few studies have focused on school district superintendents’ use of social media and its influences upon their practices to initiate and support technology integration in schools and districts, let alone how it influences their leadership within their districts or on a broader scale.

**Summary of Research Questions**

Education situates in a world shaped by the ubiquity of electronic devices, constant change precipitated by technology innovation, and any-time connections created by social media. As schools and districts undertake efforts to transform to meet these contexts, I reflected upon my background as former school district leader and considered
exploring superintendents’ use of Twitter. Twitter appeared as a natural entry point because of research demonstrating how teacher and principal use of the service positively influences their learning and practice. Additionally, social media in general and Twitter in particular have become prominent in the public sphere through its growing proliferation amongst individuals, corporations, nonprofits, politicians, and governmental bodies and agencies. This led to the development of the three research questions that framed the study. What does the content of tweets created by school district superintendents reveal about their use of Twitter? What do school district superintendents identify as motivating factors and purposes for using Twitter within their role as a leader? How do school district superintendents describe the relationship between their use of Twitter and the enactment of leadership within their school systems?

These research questions provided the foundation to study how superintendents use Twitter to learn about the types of changes required within schools, initiate and support those changes within their districts, and leverage their influence to shape opinions and actions beyond the confines of their districts. This exploration was based upon research that shows the ways that Twitter influences individual’s practices, provides the opportunity to learn, and enhances the development of Personal Learning Networks (PLNs). These aspects were key to understanding how Twitter, as a social media tool, provisions superintendents to learn and demonstrate technology-enhanced leadership practices not taught in formal settings, yet assumed to initiate and support change in school districts.
Review of Methodology and Sequencing of Methods

This study employed quantitative and qualitative research methodology to investigate United States public school superintendents who use Twitter. Through a four-stage process, data was generated and analyzed to inform each subsequent stage and assist in answering the research questions. Within stage one, an accessible population of 2,359 Twitter accounts of United States was established. This accessible population was further refined to determine those superintendents who were active participants on Twitter, defined as posting 25 or more tweets between July 1, 2014 and June 30, 2015. This process resulted in the identification of a purposeful sample of 1,582 superintendents in the United States who use Twitter and the generation of descriptive statistical results of the accessible population. Stage two led to the identification of a random sample of 100 superintendents from the purposeful population. This random sample was analyzed to generate patterns and identify demographic information about superintendents who use Twitter that was generalizable to the population. Stage three resulted in the random sampling of 2,500 tweets from the 39,217 accessible tweets posted by the 100 sampled superintendents. The content of the tweets was deductively coded using the conceptual framework of learning, leading and leveraging to identify the professional reasons superintendents post on Twitter. The results of the coding in stage three created a frame for stage four. A purposeful sample of superintendents, based upon their alignment to learning, leading or leveraging, was identified. From this purposeful sample, seven superintendents were interviewed to qualitatively investigate the self-perceived motivation, purpose and influence on leadership that arises through the use of Twitter. Deductive and inductive coding of interview transcripts resulted in the
identification of connections between the content of superintendents’ tweets, their self-perceived motivations for using Twitter, and how Twitter influenced their practices of leadership. This was accomplished through the development of case studies that were analyzed individually and compared through cross-case analysis.

**Key Findings**

The methodology and sequencing of methods provided data through which I could explore superintendents’ use of Twitter from multiple perspectives. The analysis of the data through the lens of the conceptual framework, creation of the case studies, and my reflections as a researcher provided the opportunity to answer the research questions and develop findings linked to the literature review. The answers and findings inform the research field about how school system leaders use social media within their roles and offer context for further research. The following section highlights those answers and findings.

*The content of Tweets reveal that superintendents predominantly use Twitter for professional purposes and to leverage their influence.* Of the 2,500 tweets randomly sampled and analyzed, 87% were found to be associated with professional purposes that related specifically to their district or to education in general. Within those professional tweets, 63% contained content that aligned with leveraging influence through the sharing of information about school or district events, or an opinion or information about a broad educational topic. These tweets are often motivational or inspirational, including photographs, links or comments by the superintendent. Considering the public role of a school district superintendent, his or her use of a social media tool such as Twitter for predominantly professional purposes is reaffirming. Using Twitter to leverage influence
demonstrates an understanding by superintendents of the public nature of social media and the role it can play in branding or advocating for education at the local, state and national level.

School district superintendents are motivated to use Twitter for the relatedness to others it provides. They communicate the story of their district and leadership while learning from others with whom they have connected on Twitter. While superintendents reported that their motivations for using Twitter spanned the areas of relatedness, autonomy and competency, a stronger inclination toward relatedness was described because of the sense of connection it provided to other educators broadly and stakeholders within their districts. However, the sense of relatedness was not mutually exclusive of autonomy and competency. Instead, the sense of relatedness described by superintendents drove a sense of self-efficacy and self-determination as well to motivate them to use Twitter. When describing their purposes for using Twitter, superintendents described communicating and learning as the two key purposes. They share relevant information about what is happening in the district, especially from a positive public relations perspective. In addition, Twitter serves as a venue in which they seek and share information or experiences to learn and stay current as educational leaders. This finding reinforces the ways in which the two-way, interactive nature of Web 2.0 social media tools such as Twitter enhance superintendents’ experiences with frequent, relevant and timely exchanges with stakeholders.

School district superintendents perceive their use of Twitter as influencing their engagement with others and amplifying their leadership practices. Connected to the motivating factor of relatedness, superintendents reported with the highest occurrence in
the interviews that their use of Twitter influenced their engagement with others. This engagement not only occurred within the confines of Twitter itself, but also in face-to-face interactions in multiple venues. These interactions occurred with others who have similar interests in education, stakeholders with vested interests in the district, and students who provided insight to the superintendents about their experiences within the district. The next highest occurrence of superintendent description of Twitter influencing leadership was amplifying. In this case, overall leadership actions were described as being enriched and broadcast through the use of Twitter. This included communication, interactions with stakeholders, and highlighting the work of leadership and associated results within the district. The fact that superintendents in the study described Twitter as providing a level of transparency to their leadership—at time when school districts are being charged with increased accountability around decision-making and finance—is key to understanding how school superintendents may continue to leverage its use as leaders.

The establishment and maintenance of a Personal Learning Network (PLN) through the use of Twitter provides school district superintendents the opportunity to learn from other educators and the district stakeholders with whom they connect. Students are often included within this PLN. The establishment of PLNs through Twitter by superintendents provides the opportunity to continually learn within a venue itself that is constantly changing and growing. This learning is unique in that superintendents must consider how to best use Twitter as a school district leader and its effect on the organization while in the process of using it. Senge (1990) highlights that learning organizations need leaders who do not think, learn and solve problems from the top in insolation; instead, he suggests that successful organizations take generative (based upon creating) and adaptive
Superintendents who have used Twitter to establish and maintain a PLN identified the ways in which Twitter has created the impetus for generative and adaptive learning. This includes creating new dimensions of public relations, professional development, and interactions with stakeholders and adapting prior leadership actions such as addressing rumors, communicating information, and modeling expectations. As Bjork and Kowalski (2005) posit, superintendents need to expand their vantage points to achieve sustainable improvements in education. The connections that superintendents build through Twitter enhance their practice by informing them from a broad range of stakeholders. Its use also requires them to approach leadership differently as superintendent participation in social media has been found to be an expectation and not a novelty (Cox, 2012).

Use of Twitter by superintendents confirms findings that PLNs reshape information experiences (Warlick, 2013) and create transparent and connected educators who seek collaboration for just-in time learning (Nussbaum—Beach & Hall, 2012; Sinanis, 2015). The learning extends beyond posing questions about educational or leadership practices to gaining insight into the context and experience of stakeholders within the system. This learning informs the leader as he or she considers what actions should be initiated. Extending the work of Hofer & Aubert (2013) beyond how the number of followers and friends influences interactions on Twitter, I found that superintendents expressed both a combination of on- and offline bridging—relationships within weak ties among individuals being followed—associated with the dissemination of information through Twitter. In addition, superintendents expressed value in on- and offline bonding—relationships with those following them—that resulted in a sense of
support for the superintendent by providing the opportunity to see the humanistic and personal side of the superintendent. But unlike the finding of Hofer & Aubert (2013) that the connections represented like-minded individuals, the relationships superintendents created transcended homophily (Wu, Hoffman, Mason & Watts, 2011) to include students. These connections through Twitter, especially with students, enhanced superintendents’ experiences within PLNs and support Levin’s (2012) observation that leading technology-focused schools include collaborative partnerships with internal and external stakeholders.

Superintendents describe Twitter as both a tool that they use and a “place” that they can visit to lead and leverage their influence within their organizations. Nash and Cox (2013) observe that Twitter is becoming “more like a destination that people can visit than a tool they use” (p.177). Superintendents referenced Twitter as a place, some calling it the “Twittersphere” or likening it to a cocktail party for interaction to occur. They described enacting leadership practices within Twitter such as reflecting on educational practices, seeking information, sharing information, learning, and modeling. The purpose for using Twitter the most was communicating, tied to a key expectation of superintendents:

In the case of district superintendents, the role of effective communicator is framed by relatively new expectations that have become apparent since the early 1980s. Examples include engaging others in open political dialogue, facilitating the creations of shared visions, building a positive school district image, gaining community support for change, providing an essential framework for information management, marketing programs, and keeping the public informed about education (Kowalski, 2004, p. 50).

Through the reported experiences of superintendents, Twitter has become a “place” where all of these actions can be demonstrated and achieved. Superintendents described
their practices on Twitter as aligning to two parts of Bass and Riggio’s (2005) transformational leadership framework within this space: idealized influence and inspirational motivation. In conjunction with the experimenting and challenges that Jaskyte (2004) highlights as important to leadership within organizations to support innovation, superintendents reported use of Twitter demonstrated leadership practices with the context of social media that they perceived influencing organizational culture and innovation.

Implications

As the research suggests, new and innovative approaches to education are needed to ensure that students learn from experiences which will prepare them for a networked, connected, and ever-changing world. Within this context, the question of what schools and educational systems should look like and how they should be lead continues to be defined and answered as models of schools and leadership practices emerge. This study provides insight as to how school superintendents engage in and use Twitter within the context of the connected and networked world to learn, lead and leverage as educational leaders. As the world continues to be shaped by social media and the way it is employed in all aspects of daily life, an important consideration is the way in which public school superintendents advocate for or use social media. As leaders who are charged with supporting and molding educational systems, superintendents serve an important public role. This role transcends the walls of schools into the communities they serve and the profession of which they are a part. The findings of this study demonstrate that Twitter is a powerful social media tool that can influence, enhance, and shape the experiences of superintendents and the constituents they serve.
Results of this study have the potential to inform superintendents how their participation in Twitter and/or social media can create a Professional Learning Network (PLN) to expand their perspective of and advocacy for education both globally and within the context of their own district. Unlike PLCs that tend to have a narrower focus in both their scope and participation, PLNs are more aligned with emergent learning associated with social networks. The concept of emergent learning is important to understanding innovation and how it diffuses through networks. The superintendents in this study demonstrated how Twitter aided connections between themselves and others. These connections with individuals different from themselves—including students—expanded their understandings of education, technology and how to apply innovations within their systems. As school leaders consider how to lead digital transformations, the establishment of a PLN through social media venues should be included as part of their learning and leading strategies.

Twitter can be a tool to communicate and learn as well as a place where superintendents can engage with stakeholders and amplify their leadership. Its use can assist superintendents to embed social media as part of a larger communications and leadership strategy, as superintendent participation in social media is expected in order to provide transparency, access and the communication of information in multi-model ways (Cox & McCleod, 2014). This is key as results of a 2015 American Association of School Administrators survey indicated that school district superintendents identified social media, second only to school board politics, as impeding their success as a school district leader (Superville, 2015, December 11). Explicating the ways in which
superintendents have used Twitter to learn, lead and leverage within their positions offers examples of actions to potentially counter this perception held by school district leaders.

A broader implication of the study deals with its contribution to the definition of digital leadership in school settings. The concept of digital leadership continues to evolve as models of its application within school settings are put forth. The superintendents involved in this study highlight how the use of Twitter provides the opportunity to collaborate, create, connect and change practices. These superintendents indicate learning about and employing the digital literacy practices described by Lankshear & Knobel (2011) within their roles. Learning about, putting into practice, and reflecting upon how social media shapes practice are significant components of digital leadership. Participants in the study expressed that exploring with me the topic of Twitter use as it applies to their role as a superintendent afforded the opportunity to reflect upon their own practices of leading, learning and leveraging. The combination of collaborating and connecting through social media, employing digital literacies within this context, and reflecting upon how both influenced the superintendent’s leadership and the system served may inform future discussions about what digital leadership entails in practices or requires in dispositions.

These implications hold the potential to influence the types of opportunities offered in school superintendent preparation programs, professional organizations, or conferences to address the gap between understanding what a digital transformation of a school or district entails and how to continually learn to lead it. Although research demonstrates a lack of formal opportunities for school district leaders to learn about how to lead digital transformation (Schrum, Galizio & Ledesma, 2011; McLeod &
Richardson, 2011), the question remains if formal opportunities will truly meet the needs of leaders to understand a digital transformation and how to lead it. Does it become less about the demonstration of skills and practices, and more around dispositions and actions (Ziegenfuss, 2010) that are learned and experienced in context and through the support of Personal Learning Networks (PLNs) rather than formalized preparation programs? These are questions the results of the study poses for further inquiry.

**Suggestions for Further Research**

Like many of the research studies or practitioner stories that prompted me to pursue this work, I hope this study provides a lever and a platform for others to further investigate superintendents’ use of Twitter. There are several suggestions for further research. First, it would be fruitful for studies that compare a superintendent’s perception of how social media influences his or her leadership to how it is perceived and described by followers and/or stakeholders within his or her district. Second, it would be useful for studies that employ statistical analysis to uncover the relationships between Twitter patterns and reported uses of Twitter by superintendents. Third, it would be helpful if studies would expand the use of the conceptual framework of learn, lead and leverage to survey superintendents on a broader scale about their practices on Twitter.

As an individual who still uses Twitter and finds value and the opportunity to learn through the connections I make, I see myself continuing to contribute to the field of research of how school district leaders learn, lead and leverage the use social media and the ways it influences the design of organizations to support and transform education for children.
**APPENDICES**

**Appendix A: Conceptual Framework Alignment to ISTE Standards**

<table>
<thead>
<tr>
<th>ISTE Standards for Administrators (2009)</th>
<th>LEAD</th>
<th>LEARN</th>
<th>LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Visionary Leadership</strong> - Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>b. Engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>c. Advocate on local, state and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td><strong>2. Digital Age Learning Culture</strong> - Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Ensure instructional innovation focused on continuous improvement of digital-age learning</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>b. Model and promote the frequent and effective use of technology for learning</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>c. Provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Ensure effective practice in the study of technology and its infusion across the curriculum</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>e. Promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital age collaboration</td>
<td></td>
<td></td>
<td>X X</td>
</tr>
<tr>
<td><strong>3. Excellence in Professional Practice</strong> - Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>c. Promote and model effective communication and collaboration among stakeholders using digital age tools</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>d. Stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>ISTE Standards for Administrators (2009)</td>
<td>LEAD</td>
<td>LEARN</td>
<td>LEVERAGE</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>4. Systemic Improvement</strong>- Educational Administrators provide digital age leadership and management to continuously improve the organization through the effective use of information and technology resources.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>b. Collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Establish and leverage strategic partnerships to support systemic improvement</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>e. Establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5. Digital Citizenship</strong>- Educational Administrators model and facilitate understanding of social, ethical and legal issues and responsibilities related to an evolving digital culture.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Ensure equitable access to appropriate digital tools and resources to meet the needs of all learners</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Promote, model and establish policies for safe, legal, and ethical use of digital information and technology</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>c. Promote and model responsible social interactions related to the use of technology and information</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>d. Model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Appendix B: Conceptual Framework Alignment to ISSLC Standards

<table>
<thead>
<tr>
<th>CCSSO Educational Leadership Policy Standards: ISLLC 2008</th>
<th>LEAD</th>
<th>LEARN</th>
<th>LEVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard 1:</strong> An education leader promotes the success of every student by facilitating the development, articulation, implementation, and stewardship of a vision of learning that is shared and supported by all stakeholders.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Collaboratively develop and implement a shared vision and mission</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>b. Collect and use data to identify goals, assess organizational effectiveness, and promote organizational learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Create and implement plans to achieve goals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Promote continuous and sustainable improvement</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>e. Monitor and evaluate progress and revise plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard 2:</strong> An education leader promotes the success of every student by advocating, nurturing, and sustaining a school culture and instructional program conducive to student learning and staff professional growth.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Nurture and sustain a culture of collaboration, trust, learning and high expectations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Create a comprehensive, rigorous, and coherent curricular program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Create a personalized and motivating learning environment for students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Supervise instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Develop assessment and accountability systems to monitor student progress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. Develop the instructional and leadership capacity of staff</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>g. Maximize time spent on quality instruction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Promote the use of the most effective and appropriate technologies to support teaching and learning</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>i. Monitor and evaluate the impact of the instructional program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard 3:</strong> An education leader promotes the success of every student by ensuring management of the organization, operation, and resources for safe, efficient and effective learning environment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Monitor and evaluate the management and operational systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Obtain, allocate, align, and efficiently utilize human, fiscal, and technological resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Promote and protect the welfare and safety of students and staff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. Develop the capacity for distributed leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e. Ensure teacher and organizational time is focused to support quality instruction and student learning</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### CCSSO Educational Leadership Policy Standards: ISLLC 2008

<table>
<thead>
<tr>
<th>LEAD</th>
<th>LEARN</th>
<th>LEVERAGE</th>
</tr>
</thead>
</table>

#### Standard 4: An education leader promotes the success of every student by collaborating with faculty and community members, responding to diverse community interests and needs, and mobilizing community resources.

- a. Collect and analyze data and information pertinent to the educational environment
- b. Promote understanding, appreciation, and use of the community’s diverse cultural, social, and intellectual resources
- c. Build and sustain positive relationships with families and caregivers
- d. Build and sustain productive relationships with community partners

#### Standard 5: An education leader promotes the success of every student by acting with integrity, with fairness and in an ethical manner

- a. Ensure a system of accountability for every student’s academic and social success
- b. Model principles of self-awareness, reflective practice, transparency, and ethical behavior
- c. Safeguard the values of democracy, equity, and diversity
- d. Consider and evaluate the potential moral and legal consequences of decision making
- e. Promote social justice and ensure that individual student needs inform all aspects of schooling

#### Standard 6: An education leader promotes the success of every student by understanding, responding to, and influencing the political, social, economic, legal and cultural context.

- a. Advocate for children, families and caregivers
- b. Act to influence local, district, state and national decisions affecting student learning
- c. Assess, analyze, and anticipate emerging trends and initiatives in order to adapt leadership strategies
**Appendix C: Demographic Information and Coding Results of Superintendent Sample**  
*(n=100)*

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Gender</th>
<th>Region</th>
<th>Learn</th>
<th>Lead</th>
<th>Leverage</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M</td>
<td>Northeast</td>
<td>20</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>Midwest</td>
<td>22</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>M</td>
<td>Northeast</td>
<td>0</td>
<td>14</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>M</td>
<td>Northeast</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>F</td>
<td>Midwest</td>
<td>9</td>
<td>5</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>F</td>
<td>South</td>
<td>8</td>
<td>5</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>M</td>
<td>South</td>
<td>8</td>
<td>11</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>M</td>
<td>Midwest</td>
<td>3</td>
<td>10</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>M</td>
<td>Midwest</td>
<td>8</td>
<td>7</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>11</td>
<td>M</td>
<td>Midwest</td>
<td>12</td>
<td>5</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>12</td>
<td>M</td>
<td>Midwest</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>F</td>
<td>Northeast</td>
<td>0</td>
<td>2</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>M</td>
<td>Northeast</td>
<td>0</td>
<td>1</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>1</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>16</td>
<td>F</td>
<td>Midwest</td>
<td>18</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>M</td>
<td>West</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>20</td>
<td>M</td>
<td>Northeast</td>
<td>16</td>
<td>0</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>F</td>
<td>Northeast</td>
<td>18</td>
<td>0</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>22</td>
<td>M</td>
<td>South</td>
<td>4</td>
<td>13</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>23</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>12</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>10</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>M</td>
<td>Northeast</td>
<td>0</td>
<td>10</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>26</td>
<td>F</td>
<td>Northeast</td>
<td>1</td>
<td>9</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>M</td>
<td>Midwest</td>
<td>3</td>
<td>9</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>28</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>8</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>29</td>
<td>M</td>
<td>South</td>
<td>3</td>
<td>8</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td>M</td>
<td>Northeast</td>
<td>0</td>
<td>7</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>31</td>
<td>M</td>
<td>South</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>32</td>
<td>F</td>
<td>Northeast</td>
<td>3</td>
<td>6</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>33</td>
<td>M</td>
<td>South</td>
<td>2</td>
<td>6</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>34</td>
<td>M</td>
<td>Midwest</td>
<td>4</td>
<td>6</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>35</td>
<td>M</td>
<td>Northeast</td>
<td>13</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Identifier</td>
<td>Gender</td>
<td>Region</td>
<td>Learn</td>
<td>Lead</td>
<td>Leverage</td>
<td>Other</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>36</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>5</td>
<td>19</td>
<td>1</td>
</tr>
<tr>
<td>37</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>5</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>38</td>
<td>M</td>
<td>South</td>
<td>0</td>
<td>5</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>39</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>5</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>40</td>
<td>F</td>
<td>Midwest</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>41</td>
<td>M</td>
<td>Northeast</td>
<td>4</td>
<td>5</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>42</td>
<td>M</td>
<td>Northeast</td>
<td>4</td>
<td>5</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>43</td>
<td>F</td>
<td>Northeast</td>
<td>7</td>
<td>5</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>44</td>
<td>M</td>
<td>Midwest</td>
<td>12</td>
<td>5</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>45</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>4</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>46</td>
<td>F</td>
<td>Midwest</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>47</td>
<td>F</td>
<td>Midwest</td>
<td>1</td>
<td>4</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>48</td>
<td>M</td>
<td>Northeast</td>
<td>2</td>
<td>4</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>49</td>
<td>M</td>
<td>South</td>
<td>2</td>
<td>4</td>
<td>19</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>M</td>
<td>Midwest</td>
<td>2</td>
<td>4</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>51</td>
<td>M</td>
<td>West</td>
<td>5</td>
<td>4</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>52</td>
<td>M</td>
<td>Midwest</td>
<td>11</td>
<td>4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>53</td>
<td>M</td>
<td>Northeast</td>
<td>10</td>
<td>4</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>54</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>3</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>55</td>
<td>F</td>
<td>Midwest</td>
<td>1</td>
<td>3</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>56</td>
<td>M</td>
<td>South</td>
<td>1</td>
<td>3</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>57</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>3</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>58</td>
<td>M</td>
<td>Northeast</td>
<td>0</td>
<td>3</td>
<td>13</td>
<td>9</td>
</tr>
<tr>
<td>59</td>
<td>M</td>
<td>Midwest</td>
<td>3</td>
<td>3</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td>60</td>
<td>F</td>
<td>West</td>
<td>4</td>
<td>3</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>61</td>
<td>F</td>
<td>Midwest</td>
<td>6</td>
<td>3</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>62</td>
<td>M</td>
<td>South</td>
<td>7</td>
<td>3</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>63</td>
<td>F</td>
<td>Northeast</td>
<td>11</td>
<td>3</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>64</td>
<td>M</td>
<td>West</td>
<td>0</td>
<td>2</td>
<td>23</td>
<td>0</td>
</tr>
<tr>
<td>65</td>
<td>F</td>
<td>Northeast</td>
<td>0</td>
<td>2</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>66</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>2</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>67</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>2</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>68</td>
<td>F</td>
<td>South</td>
<td>1</td>
<td>2</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>69</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>2</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>70</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>2</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Identifier</td>
<td>Gender</td>
<td>Region</td>
<td>Learn</td>
<td>Lead</td>
<td>Leverage</td>
<td>Other</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>71</td>
<td>M</td>
<td>Midwest</td>
<td>1</td>
<td>2</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>72</td>
<td>M</td>
<td>Midwest</td>
<td>2</td>
<td>2</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>73</td>
<td>M</td>
<td>Midwest</td>
<td>3</td>
<td>2</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>74</td>
<td>F</td>
<td>Northeast</td>
<td>4</td>
<td>2</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>75</td>
<td>M</td>
<td>Midwest</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>76</td>
<td>M</td>
<td>Midwest</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>77</td>
<td>M</td>
<td>Midwest</td>
<td>9</td>
<td>2</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>78</td>
<td>M</td>
<td>West</td>
<td>11</td>
<td>2</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>79</td>
<td>M</td>
<td>West</td>
<td>12</td>
<td>2</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>80</td>
<td>M</td>
<td>West</td>
<td>12</td>
<td>2</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>81</td>
<td>F</td>
<td>Northeast</td>
<td>13</td>
<td>2</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>82</td>
<td>F</td>
<td>West</td>
<td>1</td>
<td>1</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>83</td>
<td>M</td>
<td>Midwest</td>
<td>2</td>
<td>1</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>84</td>
<td>M</td>
<td>South</td>
<td>3</td>
<td>1</td>
<td>20</td>
<td>1</td>
</tr>
<tr>
<td>85</td>
<td>M</td>
<td>South</td>
<td>2</td>
<td>1</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>86</td>
<td>M</td>
<td>Midwest</td>
<td>5</td>
<td>1</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>87</td>
<td>M</td>
<td>Midwest</td>
<td>10</td>
<td>1</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>88</td>
<td>M</td>
<td>Midwest</td>
<td>8</td>
<td>1</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>89</td>
<td>M</td>
<td>Northeast</td>
<td>11</td>
<td>1</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>90</td>
<td>M</td>
<td>South</td>
<td>13</td>
<td>1</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>91</td>
<td>M</td>
<td>South</td>
<td>14</td>
<td>1</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>92</td>
<td>F</td>
<td>South</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>93</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>21</td>
</tr>
<tr>
<td>94</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>95</td>
<td>M</td>
<td>South</td>
<td>1</td>
<td>0</td>
<td>21</td>
<td>3</td>
</tr>
<tr>
<td>96</td>
<td>M</td>
<td>Midwest</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>97</td>
<td>M</td>
<td>Northeast</td>
<td>5</td>
<td>0</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>98</td>
<td>F</td>
<td>Midwest</td>
<td>13</td>
<td>0</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>99</td>
<td>M</td>
<td>South</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>24</td>
</tr>
<tr>
<td>100</td>
<td>M</td>
<td>Midwest</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
</tr>
</tbody>
</table>

Note: For purposes of anonymity of participants, a numeric identifier was assigned to each of the superintendents. Geographic regions were determined based upon the state alignments found in Table 3.
Appendix D: Interview Protocol

Thank you for being a part of my study concerning school superintendent use of Twitter. I appreciate you taking the time today to be a part of the interview process. I have broken the interview into three parts: The first part concerns your general approach to being a school district superintendent. The second part is related to you and your school district’s approaches to social media in general. For the third and final part, we will be talking about your use of Twitter specifically. You may choose not to answer any of the questions, and at anytime during or after the interview you may choose to withdraw from the study. Your identity will be kept confidential and any references to your responses to these questions will use pseudonyms. Before we begin, do you have any questions about the interview or the consent form?

PART I: FRAMING STATEMENT: For the first part of the interview, I will be asking questions about how you think about and approach your role as a school district superintendent.

1) Tell me about your district.
2) How long have you been a superintendent? Have those years been in your current district, or in other districts as well?
3) What would you identify as the three to five most important aspects of your role as school district superintendent?
   a) Considering those identified aspects, what are some of the ways you demonstrate leadership?
   b) How do you communicate the story of your leadership inside and outside of the district?
   c) As a school district superintendent, how do you equip yourself to be successful? What supports do you activate or rely upon to meet your goals?

PART 2: FRAMING STATEMENT: For the second part of the interview, I will be asking questions about how your school district uses social media, your thoughts concerning social media, and its relationship to your role as a superintendent?

4) What social media does your district use?
5) What role does social media play in the way your district communicates and/or engages with your stakeholders (teachers, students, parents, community)?
6) What are your district’s policies and/or protocols about staff use of social media?
7) What are your district’s expectations and/or requirements about staff use of social media?
8) What connections do you make between your participation on social media and your role as a superintendent?
9) When you use social media as a superintendent, does someone else post for you or do you post for yourself? Is it accessed/monitored/used by you or someone else? Why?
PART 3 FRAMING STATEMENT: For the next part of the interview, I will be asking questions specific to Twitter and the ways in which you use it.

10) How did you first learn about Twitter? Why did you join?
11) What is your primary purpose for using Twitter as a superintendent?
12) As a superintendent, what types of things do you think are important to tweet?
13) Tell me about a memorable experience you had using Twitter as a superintendent.
14) What influences your decision to follow someone on Twitter.
   a) Describe the interactions you have had with those whom you follow on Twitter.
15) What do you think are the reasons others follow you on Twitter?
   a) Describe the interactions you have with your followers on Twitter.
16) (Referencing a tweet or set of tweets pulled for analysis) I have pulled some tweets that I believe are interesting. Tell me about these tweets.
17) As I look at these tweets, it seems like one way you use Twitter is to X (Share learning. Enact Leadership. Exert Influence). How does that connect to your leadership philosophy?
18) Thinking back to the reason you first joined Twitter, have the reasons you maintained your account remained the same as why you joined? Have they changed? What caused them to change?
19) If I asked you to talk to a superintendent who was thinking about joining Twitter, what would you tell him or her? What type of advice or insight would you offer?
20) Is there anything else you would like to share with me?
### Appendix E: Comparison of Coded Tweets to Superintendent’s Description

<table>
<thead>
<tr>
<th>Superintendent</th>
<th>Tweet #</th>
<th>Researcher Coding</th>
<th>Participant Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Learn*</td>
<td>Leverage*</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Leverage*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Learn*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Learn*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Lead*</td>
<td>Leverage*</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Lead*</td>
<td>Learn*</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>Leverage*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Leverage*</td>
<td>Personal*</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td>F</td>
<td>1</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Leverage*</td>
<td>Learn*</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Leverage*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Learn</td>
<td>Learn</td>
</tr>
<tr>
<td>G</td>
<td>1</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Lead</td>
<td>Lead</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Leverage*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Leverage</td>
<td>Leverage</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Leverage*</td>
<td>Lead*</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Lead*</td>
<td>Leverage*</td>
</tr>
</tbody>
</table>

*Note: An * indicates a discrepancy between the coding of the content of the tweet by the researcher and the intent as described by the superintendent during application of the interview protocol.*
REFERENCES


