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HIDDEN IN PLAIN SIGHT: KNOWLEDGE BROKER TEACHERS AND PROFESSIONAL DEVELOPMENT

A DISSERTATION

Submitted to the Faculty of
Montclair State University in partial fulfillment
of the requirements
for the degree of Doctor of Philosophy

by
MARGARET M. JUSINSKI
Montclair State University
Upper Montclair, NJ
November 2018

Dissertation Chair: Dr. Michele Knobel

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MONTCLAIR STATE UNIVERSITY

THE GRADUATE SCHOOL

DISSERTATION APPROVAL

We hereby approve the Dissertation

HIDDEN IN PLAIN SIGHT: KNOWLEDGE BROKER TEACHERS AND PROFESSIONAL DEVELOPMENT

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ABSTRACT

HIDDEN IN PLAIN SIGHT: KNOWLEDGE BROKER TEACHERS AND PROFESSIONAL DEVELOPMENT

by Margaret M. Jusinski

This qualitative study was prompted by initiatives that addressed the need for teachers to engage in professional development that enables them to be 21st century ready. Recommendations put forth by government and business have stressed that professional development foster connected teaching and create networked educators by emphasizing peer-to-peer collaboration and sharing. Despite this focus, little attention has been paid to the role that regular teachers play in becoming professional developers for their colleagues. My study investigated how four K-12 teachers, that I termed “knowledge broker teachers,” created new pathways for informal, teacher professional development in their schools.

Extending on the concept of “knowledge brokers” from business studies, knowledge broker teachers serve as an informal source of professional development, moving knowledge from those who have it to those who need it. This study’s purpose was to examine examined how knowledge broker teachers built and shared their knowledge, and to identify their attributes. I applied a situated learning approach to frame this study, emphasizing the social nature of learning. Participants included four K-12 knowledge broker teachers and 12 of their teacher colleagues with whom they shared knowledge. Data collection included the use of interviews with participants and screen casts of the knowledge broker teachers’ online activity. Data analysis employed open coding to generate categories, then themes.

Three findings about knowledge broker teachers emerged: *brokers*, *brokering*, and *brokerage*. Brokers encompassed the context-dependent ways the four knowledge broker teachers shape-shifted and assumed different personas (e.g. knower-learner, comrade, cheerleader, shrinking violet) enabling them to be knowledge broker teachers. Brokering entailed the processes they used to build and share knowledge. These included processes of making connections through online and face to face opportunities, taking advantage of moments of kismet, and tailoring knowledge to match their colleagues' ability. Brokerage involved the actions that affected the quality of social relationships and the emergence of trust between the knowledge broker teachers and their colleagues. Brokerage actions presented by the knowledge broker teachers included giving and taking knowledge with colleagues, recognizing and honoring their colleagues' potential, and being expected to go above and beyond.

My study recognized the existence of knowledge broker teachers and their effect on informal professional development. However, given the findings, formalizing their roles in schools may have a detrimental effect on their ability to build and share knowledge. Considering ways to leverage these findings may provide new ways for thinking about informal teacher professional development.

Keywords: education, knowledge brokers, knowledge broker teachers, informal professional development, teacher professional development, teacher knowledge, teacher learning, situated learning

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As a wife, mother, and full-time teacher, completing a doctoral program was a challenging task. Juggling my responsibilities at home, taking classes at night, and carving out time on weekends and vacations to read, conduct research, and write was a daunting task. However, the support of so many special people helped to make every minute of my doctoral journey worthwhile and personally fulfilling.

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Last, but not least, my daughters, Katie and Ava, this dissertation is proof that "girls can do anything." Dream big!

DEDICATION

To my loves, Stephen, Katie, and Ava.

To all the knowledge broker teachers who make a difference, while you may be hidden in plain sight, your influence is clearly visible.

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HIDDEN IN PLAIN SIGHT: KNOWLEDGE BROKER TEACHERS AND PROFESSIONAL DEVELOPMENT

CHAPTER 1: 21ST CENTURY TEACHERS

The focus of this qualitative study was to recognize how certain K-12 teachers served as school-based knowledge brokers. Grounded in situated cognition, this study sought to introduce the concept that these teachers were knowledge broker teachers and to understand how they informally provided professional development opportunities for their colleagues. Using a qualitative methodological design, this study sought to better understand how four knowledge broker teachers built and shared their knowledge and to identify the attributes that distinguished them as knowledge brokers.

Background to the Study

As a technology teacher and technology coach for over 20 years, I always noticed that there were some teachers who stood out as “go-to” people. Whether it was for the latest resources for lessons, technology help, professional advice about classroom management or parent issues, or for guidance in understanding the cliques and social scenes of their schools, the teachers I worked with always seemed to know which “one person” to seek out when they needed insight or expertise. Given how these go-to teachers operated in their schools, I soon realized that they were really operating as knowledge brokers, engaging in processes that enabled them to act as intermediaries and to broker knowledge for their colleagues. Wenger (1998) has described knowledge brokering as

> processes of translation, coordination, and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating

> transactions between them, and to cause learning by introducing into a practice, elements of another (p. 109).

In this study, I proposed that these digitally connected teachers offered an alternative, more personalized approach to teacher professional development for their colleagues which was “embedded in practice” and “just in time” in format. This approach ensures that support for colleagues is available at the moment it is required, such as right before a lesson would be taught.

Akin to Brown and Gray’s (1995) descriptions of how experienced Xerox technicians informally shared their knowledge around the “coffee pot” with other workers, these teachers fulfilled a similar role in their schools. For the purposes of this study, I drew from Wenger’s (1998) definition of knowledge brokers and referred to these particular teachers fundamentally, as school-based knowledge brokers, which in turn allowed the development of my new concept to determine that they were not just knowledge brokers, but actually knowledge broker teachers. Knowledge brokers have been described as individuals who, through their varied social connections, pick up and learn new knowledge and move that knowledge to those who may need it or find a use for it (Hargadon, 1998; Wenger, 1998). Additionally, they have a capability to explain complex knowledge in understandable ways in order to make it accessible to others (Meyer, 2010; Nonaka & Takeuchi, 1995; Wenger, 1998). The development of this new concept was instrumental in the creation of a definition of knowledge broker teachers as being educators who had a “knack” for identifying other teachers’ curricular or professional needs, and who capitalized on these situations to share and locate knowledge which originated or emerged from online contexts. Additionally, they promoted new ideas or merged and adapted existing ideas to fit the situations that their colleagues encountered. I proposed that these knowledge broker teachers also possessed strong interpersonal attributes that contributed to their success in both learning and sharing knowledge.

Over time, I became deeply interested in learning more about these teachers, such as who they were, what made them tick, what kept them doing what they did, and how they had come to know about so many different topics and subjects. Additionally, I wondered how these knowledge broker teachers impacted their colleagues' professional development.

Statement of the Problem

Over the past two decades, educational policies and initiatives have stressed the importance of 21st century-skills and learning for students throughout their academic curriculum areas (Common Core State Standards Initiative, 2016; ESSA, 2015; NASBE, 2012; NCLB, 2001; National Research Council, 2015; P21, 2016; World Economic Forum, 2015). All of these policies have collectively asserted that today's students require specific proficiencies and a range of processes that will empower them to be successful in the fast-paced, quickly changing, globalized, innovation-driven economy of the 21st century. Student success will rely on their ability to be critical thinkers, problem solvers, communicators, and collaborators (Common Core State Standards Initiative, 2016; ESSA, 2015; P21, 2016) in order to thrive in a future that "rewards creativity, flexible thinking, on-the-job learning, and comfort with technology" (P21, 2016, p. 9). As such, traditional, industrial-era models of education need to be fundamentally altered to successfully prepare students for a new information- and innovation-driven economy and society (Hargreaves, 2009; Hargreaves & Shirley, 2012; World Economic Forum, 2015; Zhao, 2012). Given these claims concerning the skills and proficiencies that today's students need to face future expectations, there needs to be an emphasis on provisions to ensure that their teachers are equally prepared in terms of how to be 21st century-ready educators.

The issue of the ways in which teacher professional development can be more effectively implemented to support the goals outlined by these 21st century-initiatives has been discussed widely and pronounced upon by policy makers and educational researchers interested in educational reform (e.g., Johnson, Adams, Estrada, & Freeman, 2014; NASBE, 2012; U.S. Department of Education, 2010, 2016; World Economic Forum, 2015). The policies that focus on 21st century- skills indicate that important school support systems need to be aligned and in place, notably “scalable, sustainable” (Greenhill, 2010, p. 13) teacher professional development opportunities. Similarly, recent reports concerning 21st century-skills have stressed the need for a renewed focus on teacher professional development that fosters “connected teaching” (U.S. Department of Education, 2010, p. 40) and “networked educators” (NASBE, 2012, p. 25). Overall, according to teacher research literature, professional development of teachers for the 21st century should “support the teaching and learning of 21st century-knowledge and skills in more purposeful ways” (Greenhill, 2010, p. 27), emphasizing educator collaboration, connections, and sharing of expertise (NASBE, 2012), as well as ongoing professional development that is just in time and embedded in teachers’ classroom practices (Darling Hammond & Rothman, 2015).

Almost a decade ago, in 2010, the U.S. Department of Education’s National Education Technology Plan (2010) put forth an agenda that sought to transform teaching and learning by emphasizing 21st century-competencies with technology and digitally-mediated communication. Specifically, the plan claimed that teacher professional development “should support and develop educators’ identities as fluent users of advanced technology, creative and collaborative problem solvers, and adaptive, socially aware experts throughout their careers” (U.S. Department of Education, 2010, p. 45). This would be accomplished by engaging teachers in professional development that is both interwoven with daily school and classroom activities, as well as with teacher professional learning “that crosses time and space boundaries” (U.S. Department of Education, 2010, p. 45) through online learning resources and communities. Additionally, the plan indicated that current professional development programs should enable collaboration by encouraging teachers to construct their own learning communities by using 21st century-tools, such as social networks. Despite touting the positive effects of teachers being digitally connected to and tuned in with other educators and educational resources, the plan just assumed that teachers, in general, possessed the know-how, or the practical, tacit knowledge, to easily join these learning communities, participate in social media, gather resources, and collaborate with others in a digital capacity (U.S. Department of Education, 2010, p. 21).

Likewise, it should not be taken for granted that teachers would automatically know which learning communities exist, how to join them, or how to use social media as a form of professional learning. Recognizing this as a need, the updated U.S. Department of Education Technology Plan (2016) moved beyond a focus as to whether technology can enhance educational experiences for students and instead moved the discussion to how technology can be used to improve the quality of educational experiences for students (U.S. Department of Education, 2016). One prominent focus of this plan was its emphasis on teacher professional development and teachers’ needs for “continuous, just-in-time support that included professional development, mentors, and informal collaborations” (p. 25). While the 2010 plan again assumed that teachers could simply gather resources and collaborate with other educators by using the Internet and participating in virtual learning communities and social media (U.S. Department of Education, 2010, p. 21), the updated plan acknowledged that not all teachers possessed the understanding or knowledge to do so. The plan reported that at least two-thirds of all teachers wanted to incorporate more technology in their classrooms but identified the two biggest barriers to infusing and using technology as being their own lack of professional training and lack of support (U.S. Department of Education, 2016). As a result, one goal of the current national technology plan was to support teachers' learning in ways that would enable them to be "fluent users of technology; creative and collaborative problem solvers; and adaptive, socially aware experts throughout their career" (p. 34).

Indeed, the potential of collaborative and participatory technologies in facilitating access to ideas, know-how, and resources is a growing focus within the field of teacher professional development (Herrington, Herrington, & Olney, 2012; Richardson & Mancabelli, 2011; Visser, Evering, & Barrett, 2014). With the availability of new digital technologies, resources and services, teachers do have opportunities to take part in larger educational communities and networks that reach well beyond the limits of their schools. Advances in digital technology and communication offer new possibilities for teacher professional development. Collaborative and participatory digital resources, such as social networking sites and virtual communities have enabled teachers to meet, share ideas, and collaborate in innovative ways (Brown & Adler, 2008; Krutka & Carpenter, 2016; Trust & Horrocks, 2017). In doing so, they engage in interactions that enable them to become more knowledgeable about available resources and emerge as more effective practitioners (Avis & Fisher, 2006; Davis, Preston, & Sahin, 2009; Elkordy & Zumpano, 2018: Krutka & Carpenter, 2016; Krutka & Carpenter, 2017). However, these generalizations about access and use assume that teachers can easily and expertly navigate the online landscape of seemingly unlimited educational resources and communities. Little emphasis has been placed on efficacious methods and strategies that would expose these teachers to online resources and enable these teachers to connect to social networking sites, such as Twitter chats and virtual learning communities.

Oftentimes, the answer to the question that emphasizes how teachers can learn about and implement new ideas is to provide opportunities through formal, structured sessions in professional development. As is the case when teachers do require professional development, typically the onus is placed on leaders at school and district levels to organize and offer workshops and other learning opportunities. For instance, national reports that discussed the implementation of 21st century-skills suggested that teacher “professional learning communities” be created by school districts (NASBE, 2012, p. 9), or that districts needed to “provide teachers” with opportunities for professional development to learn how to implement new technologies (Johnson et al., 2014, p. 9). Granted, while these efforts exposed teachers to new ideas and new insights, the just-in-time nature of 21st century-skills, along with their focus on contextualized learning, called into question the overall effect of these formalized approaches. As is often the case, highly structured, top-down professional development may not be entirely effective in changing teachers’ practices (Darling-Hammond & Richardson, 2009). Therefore, with the implementation of 21st century-tools and resources, new directions need to be considered for informing and supporting teacher professional development. It is critical to draw from and capitalize on the ability of these tools and resources in order to enable teachers to quickly locate needed information or to connect and share with others. As promoted in the recent federal educational technology plan, teacher professional development “should address challenges when it comes to using technology learning: ongoing professional development should be job embedded and available just in time” (U. S. Department of Education, 2016, p. 34).

Responding to the need for 21st century-ready students, the International Society for Technology in Education (ISTE) issued a list of standards for teachers to help them address the teaching skills and dispositions that an increasingly digital and global world require (ISTE, 2017). These teaching standards focused on the need for teachers to facilitate student learning in face-to-face and in virtual environments, to design digitally mediated learning experiences and assessments, model digital-age work and learning, and promote digital citizenship. The ISTE standards also included a specific standard devoted to teacher professional development and leadership. Teachers are expected to “continually improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources” (ISTE, 2017, p. 1). To meet this standard, ISTE recommended that teachers participate in learning communities, demonstrate a vision for technology infusion, evaluate their use of digital tools to support student learning, and contribute to the vitality and renewal of their school and community (ISTE, 2017). Overall, the ISTE standards provided important guidelines for connected teachers; however, no further guidance was provided as to how teachers can even begin the process of becoming connected 21st century-educators.

One approach to providing job-embedded, just in time 21st century-professional development involves tapping into the expertise within schools or districts through the creation of *technology coach* positions in schools. According to the ISTE, the technology coach’s role is to “bridge the gap from where [teachers and schools] are to where we [teachers and schools] need to be” (ISTE, 2011, para. 1). The standards for technology coaches, developed by ISTE, are outlined in specific, role-focused guidelines called the ISTE Standards-C. These standards describe the skills, dispositions, and knowledge that coaches need to support their peers in becoming digital-age educators (ISTE, 2011). To ensure the successful 21st century-professional development of teachers, technology coaches should “conduct needs assessments . . . design, develop, and implement technology rich professional development programs that model principles of adult learning . . . and evaluate professional learning programs to determine the effectiveness on deepening teacher content knowledge . . . pedagogical skills and/or increasing student learning” (ISTE, 2011, para. 5).

While ISTE's (2011) standards for technology coaches stress personal attributes like "visionary leadership," "digital citizenship," and "content knowledge," technology coaches need to possess skills beyond technological know-how and understanding. The standards have been crafted to address the needs of 21st century-schools and their growing reliance on using digital tools and communication; however, they do not include a discussion of interactional attributes or qualities that technology coaches also need. To be successful, technology coaches require interpersonal skills that will enable them to be responsive, patient, and empathetic to the needs of teachers (Sugar, 2005; Sugar & van Tryon, 2014), as well as to promote positive changes in fellow teachers' beliefs about their own ability to use technology (Flanigan, 2016; Kopcha, 2012). Indeed, depending on a technology coach's personal attributes and qualities, teachers may over-rely on the coach's position as "the expert" and expect the coach to provide all the answers to their problems. Or, perhaps, teachers may be too intimidated by the credentials or title of the coach to seek help and expertise.

While the formal definition of a school technology coach appears to provide necessary job-embedded and just in time 21st century-professional development for teachers, there can be downsides to relying on a funded position to address schools' 21st century-professional development needs. Despite the growing advocacy for technology coaches, some researchers caution that these instructional coaching positions are often some of the first areas that are not implemented or are eliminated in times of budget cuts and shortfalls to professional development programs (Frank, 2011; Le Floch, et al., 2014; Miles, 2011; NASBE, 2012; Petrilli, 2012; Plattner, 2011). If districts find themselves constrained by budgetary factors, professional development plans that are focused on using salaried technology coaches to implement innovative teacher professional development may fall by the wayside. The technology coach position may not be perceived as critical to student instruction or to meeting educational mandates. Therefore, expecting technology coaches to be the panacea to schools' professional development needs may be unrealistic, especially given the possibility of losing salaried technology coaches to either budgetary constraints or in the case of interpersonal skills, potential personality clashes. While the position of technology coach does fill a necessary role in schools, little attention has been paid in the research literature as to how *regular* classroom teachers, meaning those who do not hold technology coach positions, have come to *informally* assume the roles of professional developers for their colleagues. With the use of new digital technologies, resources and services, regular classroom teachers have more opportunities to take part in and join larger educational communities and networks that reach well beyond the limits of their schools. These communities and networks provide a means by which teachers can bypass traditional forms of in-person professional development for collaborative and participatory technologies and can facilitate access to ideas, know-how, and resources (Avis & Fisher, 2006; Carpenter & Krutka, 2014; Davis et al., 2009; Gao, 2017; Matherson & Windle, 2017). In doing so, teachers can take the initiative to engage in interactions and learning experiences that allow them to become more knowledgeable about new digitally-mediated learning opportunities and become more effective practitioners. As a result of becoming better informed and more effective practitioners, these teachers also may fill the role of *turn-keys* for their colleagues by sharing what they learn and know and passing on this knowledge. With the knowledge, connections, and levels of understanding acquired from their participation in online spaces and communities, these teachers can become the go-to people for information and ideas across a variety of topics and subject areas.

Therefore, the growing emphasis placed on 21st century-skills which stresses collaboration, connections and sharing among students also places a similar emphasis on enabling teachers to collaborate, make connections, and share their expertise. Studying contemporary, digital-age, school-based knowledge brokers provides a new dimension toward understanding teacher professional development in the 21st century and how it can be cultivated not only informally, but in a local context.

Purpose of the Study

The purpose of this qualitative study was to learn how four regular K-12 teachers, identified as knowledge brokers by a district-level director, participated in networks, collaborated with others, and created opportunities for their own and others' informal, contextualized teacher professional development. This study aimed to provide insights into how teachers operated or practiced as school-based knowledge brokers and how they served informally as a vital means of professional development for their colleagues or as turn-keys for a new concept that this study has branded *knowledge broker teachers*. Discovering how these teachers established and cultivated their role as a knowledge brokers, I argue, may help to support and foster a richer understanding of some teachers' professional learning, and give insights into more meaningful and effective informal teacher professional development for the 21st century.

Considering knowledge broker teachers, and their informal role in affecting the professional development of their colleagues, this study was framed by three research questions:

1. How do four knowledge broker teachers build their knowledge?
2. How do four knowledge broker teachers share knowledge?
3. What attributes do colleague teachers identify as being important in a knowledge broker teacher?

Conclusion

Chapter 1 has provided a summary of the current educational context in terms of policy initiatives that stress the development of 21st century-skills for both students and teachers. In terms of enhancing teacher professional development, these initiatives emphasized the need for teachers to take advantage of technologies that can spur their ability to become more connected with other educators and professionals. However, within their own schools, teachers informally have access to colleagues who perform the role of knowledge brokers. They fulfill a valuable role by means of this informal provision of professional development. Looking ahead, Chapter 2 provides an overview of how I used situated learning theory as a framework for this study. I also discuss knowledge brokers, types of knowledge, how knowledge is acquired, shared, and moved. Chapter 3 presents the methodology, research tools, and data analysis used in this qualitative study to support the identification and existence of knowledge broker teachers. In Chapter 4, I present my findings and discussion of the knowledge broker teachers as brokers, who acted as shapeshifters and adopted different personas depending on the context within which they found themselves. Chapter 5 provides insight into how the knowledge broker teachers engaged in brokering processes, namely how they built and shared knowledge. Chapter 6 presents the findings about how the knowledge broker teachers engaged in brokerage actions, which were the subtle interactions that played out in the social relationship between knowledge broker teachers and their colleagues. Finally, Chapter 7 offers a discussion of my findings about knowledge broker teachers, how research concerning knowledge brokers can be extended to school setting, and the implications of this research on practice.

In summary, this study was designed and conducted to gain a better understanding of how regular teachers acted as knowledge brokers for their colleagues. By assuming this role, the study coined the term *knowledge broker teacher* to define them and explored how, via this role, they informally influenced the professional development of their colleagues.

Chapter 2 highlights the theoretical framework of this research study, as well as the supporting literature that details professional development, knowledge brokers, types of knowledge, and the movement of knowledge.

CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

This chapter provides an explication of the theory and various concepts that were integral to this study's development and completion. A discussion of situated learning theory and its emphasis on the contextualized nature of learning in social contexts provides a basis for the root of this study's design and focus. I present various elements to build my concept of the existence of knowledge-broker teacher. These include a discussion of knowledge brokers, types of knowledge, online communities and their effect on knowledge, and a discussion of Brown and Adler's (2008) "Circle of Knowledge Building and Sharing." Additionally, teacher professional development will be discussed in terms of its various approaches as well as the notion of the "push and pull" (Hagel, Brown, & Davison, 2010) of knowledge. All these provide the necessary framings and boundaries for this study's intent to help understand how knowledge broker teachers informally affect the professional development of their colleagues.

Theoretical Framework: Situated Learning Theory

There were many theoretical approaches that could have been used to understand the professional development of teachers as an endeavor or phenomenon--such as reflective professional learning (Schön, 1983) or critical inquiry (Cochran-Smith & Lytle, 1999; Dewey, 1904). In this study, situated learning, also known as situated cognition, was used as a framework in collecting and analyzing my data. Situated cognition emphasizes how learning, as an integral and inseparable part of all social practice, is rooted in authentic contexts and activities (Brown, Collins, Duguid, 1989; Lave, 1988). According to Lave and Wenger (1991), effectively learning new knowledge does not occur when students are passively participating in situations that may be isolated from authentic contexts, as is often the case in traditional classrooms and lecture halls. They called such instances "intentional instruction," and that intentional instruction is "not the source or cause of learning" (Lave & Wenger, 1991, p. 41). Rather, intentional instruction simply involves the transfer of knowledge or information from one person to another. Similarly described by Brown and Duguid (2000), situations that depend on intentional instruction involve the transfer of information from one person to another. Information in this sense is seen as something that people “pick up, possess, pass around, put in a database, lose, find, write down, accumulate, count, [or] compare” (Brown & Duguid, 2000, p. 120). In contrast, situated learning theory proposes that learning occurs when individuals participate in authentic social contexts since “learning is an integral and inseparable aspect of social practice” (Lave & Wenger, 1991, p. 31). Learning occurs in the context within which it is applied which includes social interactions and relationships with others in authentic activities. Unlike the transfer of knowledge found in intentional instruction, learning within a specific and authentic context does not necessarily lend itself to being compartmentalized (Brown & Duguid, 2000). In short, from a situated learning perspective, learning occurs through the act of interacting and socializing in real contexts with others who possess varying degrees of expertise and knowledge. Depending upon the context, participants may have different levels of understanding about the situation at hand, which may naturally cause more experienced participants to model or share their expertise with their novice counterparts. In turn, novices also may share their knowledge with experts. This ebb and flow of knowledge sharing within a situation leads to meaningful, contextualized learning by all. Applying a situated learning approach to understanding how certain teachers contribute to their colleagues’ professional development helps to explain how teacher learning occurs through ongoing social interactions in context.

Situated learning theorists claim that specific contexts, social interactions, and collaborations foster the emergence of a “community of practice” (Lave & Wenger, 1991) among the participants. The “community” dimension of a practice, as defined by Wenger (1998), is bounded by mutual engagement in or around an activity or topic. Community is a “joint enterprise” (Wenger, 1998), where people are brought together by using a shared repertoire of resources, tools, and language to gain a common understanding and accountability about an activity or topic. Considering how communities of practice operate within an educational setting, they can be centered upon a shared topic, such as inclusive classroom practices, shared problems or dilemmas, like managing mobile technology in schools, or behavior management. These topics and problems provide the glue that bonds groups of people. By means of their ongoing interactions combined with each other's contributions, their knowledge and understanding are broadened and deepened. In essence, members of a community of practice are bound to each other by the value they find in learning together in authentic contexts (Wenger, McDermott, & Synder, 2002).

From a communities of practice orientation, members new to the community can infuse it with new interests, perspectives, and ideas. These things may pull the focus of the community toward new aims and allow established members to extend their level of understanding and continue to learn (Wenger, et al., 2002). For example, established communities that are situated around a specific interest may have a core group of members who work with a particular set of shared knowledge about their area. When new members join, not only do they learn the established knowledge and practices, but they also bring new perspectives or new practices to the community. In a healthy community of practice, this interplay of old and new knowledge, old and new practices, situated around the interactions of established members and new members enriches the community and its ways of doing things. Thus, communities of practice rely on developing members’ communal or shared knowledge and practices as a means to enable full participation in and to sustain the community (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991, Wenger, 1998).

Research on communities of practice provides numerous instances of how they facilitate learning. Studies include those of girl scouts (Rogoff, 1995), insurance claims processors (Wenger, 1998), online video game players (Chen, 2011), and Xerox copier repair technicians (Brown & Duguid, 2000; Brown & Gray, 1995). For instance, in their observations of Xerox copier repair technicians, Brown and Gray (1995) found that the community of practice built by these professionals was centered on the co-construction of knowledge based on their daily work practices. By gathering informally and engaging in discussions about their dilemmas and successes in relation to repairing copy machines, these copy machine repair technicians were able to extend and add to their knowledge of how to successfully solve problems. These technicians became viewed by Xerox as "knowledge workers" because of how their conversations and sharing of knowledge affected their performance and efficiency. The knowledge, consisting of practices and information, shared by these technicians was not considered part of a "formal business process" put into place by management. Rather, as Brown and Gray (1995) emphasized, this sharing primarily occurred through informal, impromptu gatherings in the warehouse or "around the coffee pot" as the technicians came together in unplanned ways and connected with each other as a result of their shared experiences and expertise. Therefore, considering the ways that the technicians learned and shared knowledge through informal conversations and meetings, it becomes clear that knowledge is generated and developed by people through their experiences, ideas, and activities in which they find themselves situated. Expanding on situated learning and the role that context and social interactions play in learning, Brown, Collins, and Duguid (1989) argue that knowledge is "inextricably a product of the activity and the situations in which they are produced. . . . A concept . . . will continually evolve with each new occasion of use, because new situations, negotiations, and activities inevitably recast it in a new, more densely textured form. So, a concept . . . is always under construction" (p. 32).

Even though in these examples of communities of practice, legitimate peripheral participation ultimately led to full participation in the community in terms of the knowledge gained, this does not always have to be the case. According to Wenger, McDermott and Snyder (2002) downsides to communities of practice exist, such as issues with egalitarianism, stagnation, or dependence on others. Certain members of the community, who may hold high levels of power or knowledge as compared to others in the community, may limit or deny others access to full participation. For example, the authors described that as newcomers enter, members may become "locked in a blind, defensive solidarity as members try to protect each other from challenges [that newcomers present]" (p. 145). There is a threat that the infusion of newcomers, with their increasing participation in the community, may result in the replacement of "old-timers" or established members in a community which may cause the old-timers to become more possessive of and less likely to share their knowledge. Familiarity and strong bonds between community members may actually create a "toxic coziness that closes people to exploration and external input" (p. 144). As a result, communities become tightly bound, offering little in the way of opportunities to bring in new members in order to foster the cross-pollination of knowledge. Despite these downsides, the effect of welcoming members who "cross boundaries" of communities can be a "source of a deep kind of learning . . . from informal exchanges" (p. 153) to renew and reinforce learning. Successful communities of practice nurture both "deep expertise . . . and constant renewal" (p. 154). In light of this current study, knowledge brokers often play the key role of crossing boundaries and in enhancing connections between communities and their bodies of knowledge (Wenger, et al., 2002). These individuals provide the necessary renewal and infusion of new ideas to a community.

In sum, considering a situated learning orientation and its components, in light of researching how certain teachers that I called knowledge broker teachers influenced the teacher professional development of their colleagues, required an examination of the social contexts and situations that shaped how and what knowledge was learned and shared by teachers. A situated learning lens provided the means to focus on how context, shared experiences, and social interactions could play a role in the professional development of teachers. Just like the "coffee pot" discussions of the Xerox technicians previously referenced, teachers may take advantage of informal social engagement as a means to share and learn with their colleagues. I argue that a key component to the professional development of educators are knowledge broker teachers and their ability to enhance professional development in their schools.

Knowledge Brokers

The increasingly digital landscape of 21st century-teaching affords an inarguably immeasurable amount of resources and services for teachers to learn about, access, and apply in their practice (Collins & Halverson, 2009; Richardson & Mancabelli, 2011; Selwyn, 2012; Thomas & Brown, 2011). Social networking sites, Twitter feeds, resource sharing sites like Pinterest, and the practice of "Googling" topics, enable teachers to push beyond the traditional boundaries and resources of twentieth century professional learning that were grounded in printed texts and face-to-face exchanges. Teachers now can take charge of their own learning, on their own terms, 24/7. Despite this freedom to learn, improving and enhancing their own professional know-how can be overwhelming and challenging for many teachers. Some may feel overwhelmed and ill-equipped in terms of their technical skills and ability to locate new resources (Mishra, Koehler, & Kereluik, 2009), or they may lack the know-how and motivation to spend time learning how to use these resources and tools (Holden & Rada, 2011). Even with these challenges, I argue that there nonetheless *are* teachers who take advantage of this new professional learning landscape *and* who act as informal, but important go-to people for less technically savvy teachers in their schools. These individuals serve as up-to-date sources of knowledge in their school buildings and hold answers to teachers' instructional needs and immediate concerns. For the purposes of this study, such individuals are described as knowledge broker teachers.

Knowledge brokers have been described by researchers for many years, especially in the fields of technology, healthcare, and business. Other terms have been used to similarly describe people who possess knowledge and facilitate the exchange of knowledge by acting as turn-keys, moving knowledge from its source to those who need it. These terms include "bridges" (Hargadon, 2002), "network entrepreneurs" (Rheingold, 2012), "human intermediaries" (Lomas, 2007), "boundary spanners" (Cross & Prusak, 2002), or "helpers" (Tough, 1979). Knowledge brokers have been described by Wenger (1998) as individuals who have the ability to establish new connections and relationships between people. Through these connections and relationships, the knowledge broker picks up new knowledge and delivers it where it is needed. Wenger (1998) explained that "certain individuals seem to thrive on being brokers: they love to create connections and engage in 'import-export' [of knowledge]" (p. 109). For example, knowledge broker teachers who fit Wenger's "knowledge broker" description may spend time during weekends browsing Twitter feeds or Pinterest boards. While browsing, these individuals may come across not only new and innovative ideas for their own practice, but also for colleagues who may be looking for specific content to enhance upcoming units. They will informally share this "extra" knowledge with their colleagues. This process of filling in the knowledge gaps that exist among their colleagues forms the core of what a knowledge broker teacher does on a regular basis.

To stay abreast of the latest knowledge and to build a varied knowledge base, knowledge brokering requires multi-membership affiliations that span across a wide range of communities and venues. This is an essential requirement for knowledge brokers because of their role in moving knowledge across groups and group boundaries (Wenger, 1998). In the case of teachers, a middle school teacher who actively participates as a member of an English language arts curriculum organization engages in content-specific conversations about topics that are highly specialized and directed toward teachers of this subject. But yet, this teacher, acting as a knowledge broker, has the capability to sift through the subject specific content and pinpoint bits and pieces of knowledge that may be applicable to other teachers in their school. Most importantly, these knowledge broker teachers have the ability to relay this information in terms that are understandable to their colleagues. Like knowledge brokers, the knowledge broker teachers' facility to straddle different affiliations, discern how the knowledge from each affiliation can be moved and "spread around," and make that knowledge understandable, is what places these types of teachers in this role. To expand on the assumption that they need to participate in formal, face-to-face communities and groups, this study sought to demonstrate that teachers acting as knowledge brokers also gather knowledge through less formal, more ambiguous means, such as participating in online spaces, groups, and communities, or through simply surfing the Internet.

In this study, I examined four K-12 teachers who were identified as knowledge broker teachers. I proposed that in addition to *knowing what* and *knowing how* in terms of knowledge, these teachers also possessed an understanding of *knowing where from* and *knowing where to* in order to facilitate the professional development of their colleagues. Neither of these latter two dimensions are dealt with explicitly in the existing educational literature. However, findings from research studies conducted in fields outside education certainly seem to suggest that these are important dimensions of being a knowledge broker. knowledge broker teachers harbor a wide range of knowledge that originates from past experiences (knowing where from) which they then have the ability to access when circumstances and situations would benefit from applying and sharing this knowledge (knowing where to).

For instance, a science teacher who is also considered a knowledge broker in a school may have extensive experience searching for lesson plan ideas on the Internet for classes, but often comes across lesson plans that would be valuable to language arts teachers. The knowledge broker catalogues this information and then shares it with language arts colleagues. In other words, rather than dismissing knowledge, the knowledge broker teacher stores this information for future use. When considering the role that knowledge broker teachers serve in sharing knowledge among and between people and groups with different areas of expertise, perspectives, and understandings, it becomes apparent that certain processes and attributes are involved also. A discussion of each follows under Processes and Attributes.

Processes

Processes include translating and bridging knowledge (Wenger, 1998). “Translating” knowledge consists of taking knowledge that may be too complex or not easily understood and making it more understandable for recipients. “Bridging” (Nonaka, 1994) knowledge involves the process of sharing specialized knowledge with recipients who may benefit from this knowledge. In addition to translating and bridging, the literature suggests that knowledge brokers require attributes that enable them to exert a level of influence among the people and groups with whom they work while engaging in a process of coaching that allows others to learn and “do for themselves” (Conklin, Lusk, Harris, & Stolee, 2013). Each of these two elements—translating and bridging—are described below.

Translating. Because of their affiliations with different groups and people across different work and social boundaries, knowledge brokers have the capability to introduce new knowledge from one group to another by using language or syntax that is understandable to recipients of the new knowledge (Nonaka & Takeuchi, 1995). Knowledge brokers are able to *translate* new or complex knowledge to make it more easily accessible for others. That is, knowledge that is proprietary to a specific group may not be easily understood by those who do not share the same level of expertise and understanding as those who regularly create and work with this knowledge (Meyer, 2010; Wenger, 1998). In the literature, a considerable amount of research describes the role of knowledge brokers-as-translators in the field of public policy (Choi et al., 2005; Lavis, Robertson, Woodside, McLeod, & Abelson, 2003), healthcare (Conklin et al., 2013; Ward, House, & Hamer, 2009), and the business world (Nonaka, 1994; Zook, 2004). Despite the differences in contexts, common to these studies is the existence of highly specialized, content-specific knowledge that needs to be translated to make it understandable and usable. In a study of knowledge brokers working in the Canadian healthcare system (Conklin, et al., 2013), researchers found that knowledge brokers possessed an ability to facilitate processes of translating scientific knowledge into everyday practice. By attending meetings, dialoguing with professionals, and locating resources, the knowledge brokers worked to ensure that any relevant scientific knowledge was in the “right format” and understandable for those who sought to put this knowledge into practice. Having the facility to appraise highly specialized knowledge concerning the latest medical trends and treatments and being able to informally assess health care professionals’ current levels of understanding with respect to those trends and treatments, required a highly skilled knowledge broker who promoted learning and enhanced practice by translating highly specialized knowledge to the benefit of others.

In sum, while anyone can share knowledge, knowledge brokers share knowledge that undergoes a process of translation. They translate knowledge, so it becomes more understandable, more applicable, and more relevant within a specific context and for specific people.

Bridging. Knowledge brokers not only work with the top-down translation of knowledge, they also fulfill the role of "moving information" (Lomas, 2007; Meyer, 2010) between groups by "bridging" a knowledge gap (Pawlowski & Robey, 2004). Knowledge brokers, by means of their wide-ranging social connections, perform the role of middleman, or "knowledge bridges" by transferring helpful, relevant, and necessary knowledge from people or groups that possesses it to those that need it and who could put it to use (Hargadon, 1998; Hargadon, 2002; Wenger, 1998). For instance, research from business studies describes how knowledge brokers were an integral part of the relationship between learning, problem solving, and innovation. Because of knowledge brokers' access to information across a wide range of public and private sector sources, they had the ability to move knowledge in the form of ideas, artifacts, and even people that may be of value (Hargadon, 2002; Long, Cunningham, & Braithwaite, 2013; Pawlowski & Robey, 2004). Through their various connections, past experiences, and knowledge sources, knowledge brokers address problems and resolve issues by bringing solutions and new levels of understanding to those who may not have access to them. Hargadon (2002), for example, described the role that knowledge brokers played in the creation of the popular *Nike Pump* sneaker. Knowledge brokers, who understood and had knowledge of the functions of medical devices, were called to work with engineers at Nike. The Nike engineers were able to tap into the knowledge brokers' understanding of medical technologies, such as IV bags, pumps, and valves, and turned this knowledge into the creation of an innovative and profitable sneaker. In this example, being able to transfer knowledge required that the knowledge brokers be both “inward and outward facing” (Cranefield & Yoong, 2009, p. 49) with respect to their position in an organization. They accomplished this by establishing and maintaining connections and relationships with sources of knowledge that existed beyond their work boundaries. Some of these may consist of face-to face or virtual affiliations and memberships.

In sum, knowledge brokers facilitate the bridging of specialized knowledge that is held within groups, organizations, or individuals. Through their varied and widespread affiliations, knowledge brokers become a link or bridge through which the transfer of knowledge occurs. The following section discusses the literature pertaining to the attributes of knowledge brokers.

Attributes

While translating and bridging knowledge are key processes of knowledge brokers, research has suggested that people who are regarded as knowledge brokers by others possess certain attributes or qualities that facilitate their ability to translate and transfer knowledge effectively across different situations and contexts (Conklin et al., 2013; Hellström, Malmquist, & Mikaelsson, 2001; Phipps & Morton, 2013; Traynor, DeCorby, & Dobbins, 2014; Williams, 2002). These attributes are evident in how knowledge brokers weave, expand, and draw knowledge from various sources, networks, and people to seek out or draw from new knowledge and levels of understanding which can then be communicated and shared with those who may benefit (Conklin, et al., 2013). Knowledge brokers possess certain personal attributes (Conklin et al., 2013; Williams, 2002) that enable them “to manage carefully the coexistence of membership and non-membership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to” (Wenger, 1998, p. 110) in each new context they find themselves.

However, many studies addressing the attributes of knowledge brokers were unable to pinpoint the exact attributes that contribute to a knowledge broker’s success. Changing contexts, social interactions, and group dynamics, coupled with the type of knowledge to be brokered affect how knowledge brokers interact with others in a given situation (Phipps & Morton, 2013; Robeson, Dobbins, & DeCorby, 2008; Waring, Currie, Crompton, & Bishop, 2013). For instance, Waring and colleagues' (2013) study of knowledge brokers working in large hospitals in England found that knowledge brokers' structural positions and formal roles in the hospital organization affected knowledge sharing. Those who held positions that were lower in the managerial chain tended to be more effective knowledge brokers. Their findings indicated that the most effective knowledge brokers were those who "straddle and legitimately participate in multiple communities simultaneously . . . and internalize and support the use of evidence [from these communities] for learning and change" (Waring et al., 2013, p. 85). However, the researchers did not pinpoint the personal competencies or attributes that enabled the knowledge brokers in their study to be successful.

In another study, Williams (2002) suggested that knowledge brokering, or "boundary spanning," required the use of particular personal characteristics to effectively mediate the interpersonal and hierarchical relationships that defined and differentiated social groups. Some of these characteristics included communicating, listening, understanding, and empathizing, as well as being approachable and reliable. Additionally, Williams explained that an "overlap and interdependency" (p. 115) existed between situational context and personal characteristics of knowledge brokers. For example, his research revealed that fostering and sustaining relationships with those around them required knowledge brokers to possess desirable personal qualities, such as honesty, openness, tolerance and sensitivity.

The degree to which these qualities were elicited depended upon the context and mix of social interactions (Phipps & Morton, 2013; Williams, 2002). Knowledge brokers also needed to exhibit credibility and trustworthiness (Lomas, 2007), as well as capability in gaining the respect of others (Thompson, Estabrooks, & Degner, 2006). Granted, many of these qualities are highly subjective in many ways because they are socially assigned; nonetheless, their inclusion in the literature suggests that there is something important about attending to the personal attributes of people who can be described as knowledge brokers.

There is some evidence to suggest that the attributes of knowledge brokers have an effect on those they are assisting and with whom they are working. For instance, studies by Traynor, DeCorby, and Dobbins (2013) about knowledge brokers in public health departments focused on how knowledge brokers were able to enhance and support the application of scientific, research-based evidence in everyday health care practices. Their research results indicated that participants who worked closely with knowledge brokers showed a statistically significant change in their knowledge and skills. These participants viewed knowledge brokers as “mentors” and “go-betweens” (p. 536). Additionally, the majority of those interviewed attributed their improved levels of understanding to the ability of knowledge brokers to teach them and to support their learning. The researchers also documented specific personal attributes of the knowledge brokers and how these affected understanding. The researchers described knowledge brokers as possessing “intangible personal qualities, or ‘soft skills’ that could be challenging to pinpoint” (p. 538). The “soft skills” that the researchers alluded to included being approachable, responsive, and supportive. Knowledge brokers were able to put participants at ease and help them to deal with change and the anxiety of learning something new. Finally, the study described knowledge brokers as “teachers,” who possessed clear communication skills and the patience to support a person’s new learning. As one participant described, “I don’t think we would have gotten through the process [of learning new knowledge] if it hadn’t been for [one of the knowledge broker’s] mentoring. Just having somebody who is there that you can bounce questions . . . was really helpful” (p. 538). Therefore, as a result of the support of knowledge brokers, participants also noted that they had greater confidence in their ability to apply research into their practice. As a knowledge broker in the study explained, “sometimes there is literature on a particular topic, but it may not transfer easily to [a particular] setting and context and so . . . part of my role is trying to help find what’s available and help with the contextualizing of that” (p. 538).

In some literature, knowledge brokers possessed specific interpersonal attributes, as well. In some research, knowledge brokers were described as leaders who “wield influence, rather than power” (Conklin, et al., 2013, p. 1) when facilitating exchanges among people. Similarly, Hellström, Malmquist, and Mikaelsson (2001) described knowledge brokers as “being all around, sitting at different tables every lunch and talking to people with different positions” (p. 17) as a way to stay connected and tuned-in to the needs of others. Therefore, being comfortable with maintaining a visible presence legitimizes the knowledge broker’s position. However, it must be said that knowledge brokers who hold leadership positions are not without problems. Other studies highlighted how knowledge brokers in positions of authority often reside in a “grey area” of illegitimacy with respect to the people with whom they work (Printy, 2008). Hellström, Malmquist, and Mikaelsson (2001) pointed out that the “natural broker, i.e. the one that had not been formally appointed, was usually self-selected and in a way informally elected by co-workers and management” (p. 21). These natural brokers tended to be viewed as people who can build capacity rather than serve their own self-interests (Phipps & Morton, 2013).

To explore how holding a leadership position affected knowledge brokering, Printy’s (2008) study investigated how and whether department chairpersons acting as knowledge brokers enhanced high school math and science teachers’ communities of practice. Findings indicated that when teachers participated as a productive community of practice, the influence of strong department chairs detracted from innovation within the community. Because of their leadership position, the chair was perceived as someone who slowed down the learning work of the community. Printy concluded that to be “fully engaged in the professional sense-making that takes place within teachers’ communities, [department] chairs might have to find a way to step outside their chair positions to be viewed as community members” (p. 216) in order for the teachers to be engaged in innovative practices. Therefore, studies like Printy’s showed that it was imperative for knowledge brokers to straddle a fine line with regard to how others perceived their level of power or leadership qualities. Indeed, it seemed that in order to be effective, successful knowledge brokers somehow understood that they needed to relinquish ownership of knowledge, assume a position that provided credibility with those with whom they will work (Pawlowski & Robey, 2004) and work hard to be “distinctive without becoming distinct” (Shinn & Joerges, 2002, p. 214). As a result of their role in moving and making knowledge flow across boundaries, creating boundaries is clearly not a viable option (Meyer, 2010).

To summarize, according to the literature, knowledge brokers possess a wide range of attributes. These attributes include personal qualities, such as empathy, tolerance, and approachability. They also include, to varying degrees, attributes related to social standing and perceived leadership position in a group or organization. That is, they need to be viewed as credible, on an equal footing with their peers, and not appear to be threatening. Ultimately, the presence or absence of these attributes has a profound impact on whether or not a knowledge broker is able to engage in building effective relationships through which knowledge is translated and bridged. Therefore, this study sought to identify the attributes of knowledge broker teachers. Recognizing how the knowledge broker teachers in this study acted as natural brokers and how they were identified as such was key to this research. The next section explores how knowledge is defined in this study.

Knowledge

This study's aim was to find out how knowledge broker teachers built new knowledge and how they shared their knowledge with others. Given the focus on knowledge, defining this term is essential. While there are any number of definitions for knowledge, this study used Brown and Duguid's (2000) construct of knowledge. Brown and Duguid (2000) proposed that while "knowledge" was often used synonymously with "information," they are not similar, interchangeable terms. Firstly, they posited that knowledge, unlike information, required a "knower," as people are more apt to associate knowledge as something being embodied within an individual. Secondly, given the attachment between knowledge and the knower, it was not as easily detached because of its bond to the knower. Unlike information, which was something that people "pick up, possess, pass around, put in a database, lose, find, write down, accumulate, count, [or] compare" (p. 120), knowledge did not lend itself to being compartmentalized. As the authors described, "[y]ou might expect . . . someone to send you or point you to the information they have, but not to the knowledge they have" (p. 120). Finally, knowledge was difficult to give or receive because knowledge required assimilation with the knower. Brown and Duguid noted that knowledge was something that "we digest rather than merely hold. It entails the knower's understanding and some degree of commitment" (p. 120). Considering how knowledge broker teachers built and shared their knowledge, Brown and Duguid's description of knowledge focused on the role that these individuals played in informally fostering professional development in their schools. Recognizing the importance of these knowledge broker teachers as creators and carriers of knowledge in their schools can perhaps awaken schools to the notion that "knowledge lies . . . in its people" (p. 121).

In the next section, I describe two types of knowledge, explicit and tacit.

Explicit knowledge

Knowledge does not just exist as a singular construct; it is multi-dimensional. According to Polyani (1966), knowledge is classified into two types: explicit and tacit. Explicit knowledge is transmitted using language. It is codified, discrete, declarative, or digital, and can be "captured in records . . . libraries, archives, databases" (Nonaka, 1994, p. 17). It is like a "strategy book" (Brown & Duguid, 2000) and constitutes *knowing what* (Brown & Duguid, 1998; Duguid, 2005) about subject matter through sources, such as texts and documents. Cook and Brown (1999) noted that this form of knowledge consists of things can people can know, learn, and express explicitly, like concepts, rules, or stories. Because it is transmitted through language, it can be circulated with ease (Brown & Duguid, 1998). Considering the focus of this study, all teachers are exposed to and learn explicit educational knowledge of instructional practices, classroom management strategies, or new educational technology trends through formal professional development workshops, lectures, professional journals, or web sites. While these sources of knowledge are valuable to teachers, they simply provide teachers with the *knowing what* but not the *knowing how*.

Tacit knowledge

The other dimension of knowledge, tacit knowledge, or knowing how (Brown & Duguid, 1998; Duguid, 2005; Hagel, Brown, & Davison, 2010), refers to knowledge that draws on an individual's experiences and intuition. This form is context dependent and more difficult to articulate and communicate than explicit knowledge (Nonaka, 1994). Tacit knowledge is "immeasurably rich in things we know and cannot tell" (Polyani, 1966, p. 13). Emerging through observation and social interactions, the development of tacit knowledge is highly context dependent. For instance, Polanyi (1966) used an example of riding a bicycle and described that while a person may have the explicit knowledge of operating a bicycle, the tacit knowledge of how to stay upright was not something that is easily codified. Staying upright drew upon a very different knowledge source than the explicit knowledge of pedaling or turning the handlebars. In order for a novice cyclist to learn how to stay upright, one needed to practice riding and with continued practice over time, develop the tacit knowledge needed to successfully ride without falling.

Therefore, knowledge represents a combination of explicit and tacit--some of which can be easily shared, while some can be difficult to express (Hagel, Brown, & Davison, 2010). Important to this study was the interplay between these two dimensions of knowing, explicit and tacit, and how they affected the way knowledge broker teachers built and shared knowledge, which influenced the professional development of their colleagues.

Building and sharing knowledge

Given this study's focus on the role of knowledge broker teachers' contributions to the informal professional development of their colleague teachers, it is important at this point to expand on how situated learning defines how knowledge is learned. Within situated learning, the optimum conditions for acquiring knowledge occur when it is linked to social participation in a community of practice which is centered within a specific context or situation (Lave & Wenger, 1991). The importance of the social interactions among the participants that lie at the heart of a community of practice provide an effective means for supporting learning. Within a community of practice, through what Lave and Wenger (1991) called "legitimate peripheral participation," newcomers, or those with fewer experiences, pick up and learn new knowledge from the "old-timers," or more experienced members. As Lave and Wenger (1991) noted, "learning is configured through the process of becoming a full participant in a sociocultural practice" (p. 29), meaning that the newcomers eventually become more active participants as they accumulate more knowledge and become recognized as legitimate members of the community. Through social participation, members transform from newcomers to old-timers--passing on and learning established knowledge and new knowledge.

While a singular community of practice plays an important role in fostering learning and knowledge sharing around specific topics and content, the reality is that people belong to numerous communities of practice, across various facets of their lives, each with its own members and body of knowledge (Wenger, 1998). In some communities, a person may be an expert, while in others they might be a peripheral participant. Most notably, numerous communities of practice have emerged in online contexts in light of the ever-expanding repertoire of participatory, collaborative digital technologies constituting online spaces. These communities are supported by social networking websites and virtual communities, like LinkedIn and Facebook, where "people with common interests [can] meet, share ideas, and collaborate in innovative ways" (Brown & Adler, 2008, p. 18). The medium of online spaces has facilitated the ability for people to connect with others virtually and physically who share their interests, as locating interest-driven online groups is merely a Google search away for many people. For example, education-related searches on Google or Twitter feeds enable teachers to seek out and learn about #edchats, conferences, meetups, or Edcamps specific to their interests and content areas to initiate their own informal professional development (Hunter & Hall, 2018; Owen, Fox, & Bird, 2016; Rehm & Notten, 2016) and membership in new communities of practice (Jones & Dexter, 2014).

However, tapping into these communities and the potential for learning that exists within them requires that teachers be both aware of their existence and have the technical expertise to access and use them. Additionally, when teachers actively participate in online communities, they may experience information overload (Riverin & Stacey, 2008). The wide array of teacher communities and resources on the Internet can be daunting to them. For instance, teachers described how their online experiences made them feel lost and aimless (Flanigan, 2011). One teacher described her experience using an #edchat on Twitter this way:

> I felt like the new kid in a small high school who didn't know the social rules. I knew something cool was happening, but I had no idea how to be a part of it. In essence, I was standing in the cafeteria with my tray held high, hoping someone would take pity. (Flanigan, 2011, p. 44)

Developing connections with others by sharing insights and expertise lies at the heart of a community of practice. While the concept of communities of practice was developed within the context of offline spaces, studies (Macia & Garcia, 2016; Matzat, 2009; Matzat, 2010; Riverin & Stacey, 2008) suggested that online communities may benefit from offline interactions among participants. Since the focus of this study sought to understand how knowledge broker teachers affected their colleagues' professional development, I argue that knowledge broker teachers carried out an indispensable role in contributing to their colleagues' learning by culling from a wide range of resources through their offline and online participation in various groups.

Online communities and knowledge sharing

In light of the current, ever-expanding repertoire of participatory, collaborative digital technologies constituting online spaces, such as social networking sites and virtual communities, teachers now have the means to locate others and "share ideas and collaborate in innovative ways" (Brown & Adler, 2008, p. 18). These online spaces include, among others, Twitter, Facebook, Ning, and education blogs. When participating in these spaces, teachers no longer need to be in the physical presence of other teachers. Rather, online spaces enable teachers to connect, share, and learn with a wide range of educators from nearby and far-flung places, all within a shared, albeit, virtual context. The way that teachers are using these online spaces to inform and empower their own professional learning, supports a different way of thinking about teacher professional development.

According to studies of how and why teachers use online spaces, many of them access and participate online in virtual communities of practice, or with like-minded networks and groups, to enhance and take charge of their own professional development (Baran & Cagiltay, 2010; Cranefield & Yoong, 2009; Davis, 2015; Marcia & Garcia, 2016; Trust, 2015; Wesely, 2013). Through the act of custom-tailoring their own professional development, teachers use online spaces, like Twitter, to learn about the latest trends in education and to connect and share resources with other educators (Risser, 2013). In their study of grassroots professional development through the use of Twitter, (Forte et al., 2012) reported that most teachers used Twitter as a means to follow and network with teachers who worked outside their school districts. However, Owen, Fox, and Bird (2016), in their study of how their survey instrument best captured teachers' professional use and attitudes regarding social media, noted that teachers varied in their use and non-use of social media. The researchers described how teachers ranged across a continuum from "social media enthusiasts" (p. 25), who reported high levels of professional social media use, to "conscious luddites" (p. 27), who "perceive . . . new technology to not be beneficial to [their teaching] practice, or as an active hindrance to it . . . [and display] awareness towards online safety and the potential harm that social media may cause both teachers and students" (pp. 27-28). The social media enthusiasts, who also reported the highest degrees of technology proficiency, indicated that they were "optimistic about [technology's] potential to be useful for them in the future and for students in a range of ways (from being part of online learning communities to tackling [online] bullying)" (p. 25). Other groups described by Owen, Fox, and Bird made up the bulk of teachers in their study and the bulk were found around the middle of the continuum. This middle group included "social media engagers" and "social media skeptics" (p. 26). Clearly, their evidence suggests that not all teachers are eager and regular participants in social media. Just like their face-to-face communities of practice counterparts discussed previously, online communities harbor similar dynamics in terms of who were full participants and who were the lurkers and observers.

While Wenger, White, and Smith (2009) noted that technology has the power to "extend and reframe how communities organize and express boundaries and relationships, which changes the dynamics of participation, peripherality, and legitimacy" (p. 11), it is clear that some teachers are not connected to online communities and do not have access to resources available within these communities. It is, however, a gross oversimplification to claim that such teachers are simply "conscious luddites" (Owen, Bird, Fox, 2016); any number of reasons for them not to avail themselves could be in play. Teachers simply may not have the technical understanding or know-how for gaining access (Brass & Mecoli, 2011; Conole & Culver; Duncan-Howell, 2010; El-Hani & Greca, 2013); they may not be interested in networking with others online; or they may lack the time to seek out and fully participate in online communities (Seo & Han, 2013). Given these varying degrees of access--and especially in relation to teachers who do not avail themselves of online communities or resources--I argue that knowledge broker teachers can fill this gap by contributing informally to their teacher colleagues' professional development by means of numerous offline and virtual connections.

Knowledge broker teachers can support their colleagues' learning by doing the "dirty work" of building knowledge consisting of resources and know-how through a variety of both online and offline channels, and then sharing what they have found or learned with their colleagues based on their direct knowledge of each colleague's teaching context. As the literature about knowledge brokers indicated, they have a knack for promoting and facilitating the spread of knowledge between groups and individuals because of their extensive participation in a wide range of communities (Brown & Duguid, 1998; Wenger, 1998). This wide-ranging exposure to a cross-section of different people, who possess knowledge from similarly diverse fields of expertise, enables knowledge broker teachers to situate themselves among different communities to both learn and share knowledge and know-how. As a result, the knowledge broker teachers become knowers who integrate new information with their own existing knowledge (Brown & Duguid, 2000), and act as intermediaries between knowledge sources and knowledge recipients (Wenger, 1998). In terms of this study, I propose that knowledge broker teachers informally engage, learn, and share from and with communities and individuals that exist well beyond the scope of school buildings.

Brown and Adler's (2008) description of knowledge building and sharing is depicted in the next section about the circle of knowledge building and sharing which details a better understanding of how knowledge broker teachers appear to build and share their knowledge,

Circle of Knowledge Building and Sharing

Researchers have focused on how knowledge moves among teachers who use participatory technologies and social media. Notably, Brown and Adler (2008) described this constant and collaborative generation and movement of knowledge in their "Circle of Knowledge Building and Sharing." Drawing inspiration from virtual learning communities, where educators collaborate and share experiences and evidence with each other to improve their teaching practice, Brown and Adler described the cycle of knowledge building and sharing that occurs within an online learning community as a recursive process. While their description of the cycle of knowledge building and sharing was developed a decade ago, it maintains its relevance. Rather than participants learning about new knowledge through what they described as a traditional, "Cartesian model" of learning, which defines knowledge as something that is transferred from teacher to learner, Brown and Adler stressed that learning is a social activity, occurring through human interactions and activities from which knowledge is built and shared. As Brown and Adler explained within a traditional Cartesian educational model, students

> spend years learning about a subject; only after amassing sufficient (explicit) knowledge are they expected to start acquiring the (tacit) knowledge or practice of how to be an active practitioner/professional in a field. But viewing learning as the process of joining a community of practice reverses this pattern and allows new students to engage in 'learning to be' even as they are mastering the content of a field . . . [They are engaging in] the process of seeking the knowledge when it is needed in order to carry out a particular situated task. (p.20)

In the case of online communities and how they encourage and promote social learning, Brown and Adler's (2008) Circle of Knowledge Building and Sharing consists of three components: creating, using, and remixing knowledge. Participants in an online community create representations of knowledge concerning their experiences around a particular topic which are shared with the community. These interpreted experiences are used by community members, who then review, critique, use and eventually remix their peer's knowledge with their own knowledge to create something entirely new. That said, remixing in this regard involves the "appropriation and transformation" (Jenkins, et al., 2006) of knowledge that originates from different sources and situations. Once remixing occurs, the cycle begins anew with creating, using, and remixing. Remixed knowledge then becomes the newly created knowledge, and the recursive process continues. An example from education is when teachers remix unit ideas that they find online to be better tailored to the needs of their students by removing lessons, adding their own lesson, or remixing the existing lessons with their own twist.

Brown and Adler's model assumes that the actions of creating, using, and re-mixing occur "organically and sustainably" as learners seek out knowledge and share what they know through online communities and spaces, or the “open knowledge exchange zones” (Brown & Adler, 2008). However, research has indicated that not all teachers are engaged in online communities and spaces for a variety of reasons, ranging from time constraints to information overload (Carpenter, 2016; Carpenter & Linton, 2016). In their model, Brown and Adler (2008) assumed that teachers intuitively know how to access these open knowledge exchange zones and engage in the process of creating, using, and remixing. I suggest that not all teachers have the technical expertise or know-how to do this. Instead, many teachers draw on the expertise of their more knowledgeable colleagues, described in this study as knowledge broker teachers, to indirectly gain access to the knowledge that emerges from these spaces. These knowledge broker teachers become useful connections to circles of knowledge building and sharing for their colleagues. Through their informal social interactions with their school colleagues, knowledge broker teachers share what they have learned from online spaces, and in the process of discussing this with their colleagues, participate in an additional recursive process of creating, using, and remixing. Knowledge broker teachers may tailor knowledge to better suit a colleague’s content area when creating new lessons or when providing guidance to a colleague about a classroom management problem. In essence, circles of knowledge building and sharing that are centered around specific open knowledge exchange zones are not necessarily singular entities, but rather they comprise a larger network of circles of knowledge building and sharing that are connected by nodes and links; that is, connected by people (nodes) and their relationships (links) within and across communities (Hagel, Brown, Davison, 2010). I propose that knowledge broker teachers travel from circle to circle, creating, using, remixing knowledge, and, in their case, remembering what they have learned and having the forethought as to who might benefit from it. Through this process, the knowledge broker teachers become an important informal conduit for professional development in their schools.

A discussion of formal and informal teacher professional development is introduced in the section on Approaches to Teacher Professional Development.

Approaches to Teacher Professional Development

My study was most concerned with informal teacher professional development that emerged organically and collaboratively within school contexts and focused on what I call knowledge broker teachers who were supported in their efforts by participatory, collaborative digital technologies. Informal approaches to teacher professional development are best understood when compared with more structured types of professional development experiences or opportunities. A range of teacher professional development approaches has been described in the literature over the years. For simplicity, it is possible to classify these approaches as formal and informal (Desimone, 2009; Feiman-Nemser, 2001; Garet, Porter, Desimone, Birman, & Yoon, 2001; Jones & Dexter, 2014; Lieberman, 1995; Little, 1993; Richter, Kunter, Klusmann, Lüdtke, Baumert, 2011). These two broad approaches can be viewed as falling at either end of a continuum with almost unlimited variations in their design regarding control and structure (Borko, Koellner, Jacobs, & Seago, 2011; Koellner & Jacobs, 2015). Recognizing these approaches and their effects on teacher practice and student learning has been evident in much of the literature on teacher professional development. Teacher professional development can be viewed in terms of whether or not it is imposed on teachers from the top-down or if it is more organic and self-directed (Darling Hammond, 2005). Given this study's focus on knowledge broker teachers and how they impact the professional development of their colleagues, a discussion of the differences between formal and informal approaches is key, especially with regard to how they affect and shape educational trends and practices.

Formal approaches

Formal approaches to teacher professional development typically comprise learning opportunities that emphasize a more structured format and generally include pre-identified content or skills that teachers need to master or learn (Desimone, Porter, Garet, Yoon, & Birman, 2002; Desimone, 2011; Feiman-Nemser, 2001). Regularly described as the “training model” (Little, 1993), the “traditional view” of professional development (Birman, et al., 2000, Lieberman, 1995; Sandholtz, 2002), or highly specified (Koellner & Jacobs, 2015), formal approaches often take the shape of within-district workshops and presentations, graduate or certificate courses, out-of-district workshops and conferences (Birman et al., 2000: Desimone et al., 2002; Desimone, 2011). Koellner and Jacobs (2015) described how more formal, or highly-specific models of professional development require “a commitment and adherence to the precise specifications of the [professional development], including resources for published texts and materials” (p. 52). Typically, the focus of these formal sessions or classes is to introduce teachers to or reinforce what they have learned about new teaching methods, programs, or initiatives (Lieberman & Miller, 1990; Lieberman, 1995). These approaches also rely on predetermined goals, content resources, and facilitation materials to ensure a standardized professional development experience (Borko, et al., 2011). For instance, schools may use trainers or consultants to present a finite amount of information concerning the use of new educational materials, tools, or strategies such as textbooks, or learning management systems. In some of these formal approaches and because of this standardization, expert trainers or consultants may design the sessions or classes with the assumption that all teacher attendees possess the same level of skill and knowledge, regardless of the teachers’ content areas, grade levels, or past experiences (Lieberman & Miller, 1990; Lieberman, 1995).

However, research suggested that sometimes formal, large group professional development was often disconnected from teachers’ practices and existing knowledge. For instance, in a study of how state-based department of education online professional development modules impacted teachers’ classroom practices (Herrington, Herrington, Hoban, & Reid, 2007), findings indicated that the design of the online professional development modules discounted teachers’ past classroom experiences and knowledge. Many teachers in Herrington and colleagues’ study (2007) found the information and lesson plans presented in the state-based modules to be restrictive and linear in their content, and neglectful of teachers’ past experiences, levels of understanding, and teaching contexts. Indeed, in today’s educational landscape of high-stakes testing and measurable teacher quality, and implementation of Common Core Standards and Next Generation Science Standards, a one-size-fits-all approach to professional development has emerged as the dominant and common method for delivering teacher professional development (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Darling-Hammond & McLaughlin, 2011; Day & Gu, 2007; Hill, 2009). Researchers cautioned that the knowledge learned from formal professional development limited “active participation” (Cho & Rathburn, 2013) and noted that the content learned in such approaches was only briefly retained by teachers (Garet et al., 2008). Additionally, Hargreaves and Fullan (2012) described how one real dilemma encountered in formal, one-size fits all professional development concerned the limited follow-up or school-level support that was available to teachers. As a result, the sharing of new knowledge among teachers was hampered. Therefore, in terms of this present study, discussion of informal professional development is necessary in order to better understand how knowledge broker teachers become key participants in enriching the professional development of their colleagues in their local contexts.

Informal approaches

Unlike their formal counterparts, informal approaches to teacher professional development has been noted to be “usually intentional, but not highly structured” (Marsick & Watkins, 2001, p. 25). Informal professional development has been described as being “highly adaptive, whereas it is “readily responsive or adapted to the goals, resources, and circumstances of the local . . . context” (Koellner & Jacobs, 2015, p. 51). Referring to my earlier discussion of Brown and Gray’s (1995) study of Xerox technicians and the important role that informal, serendipitous interactions played in transferring knowledge in the workplace, teachers also learn about new approaches, techniques, and strategies through similar informal means (Tytler, Symington, Malcolm, & Kirkwood, 2009). Opportunities for informal gatherings or less prescribed and structured meetings encourage teachers to become active participants in a professional development process that enables them to bring their ideas, reflect on their practice, socialize with others, and learn directly from colleagues to jumpstart positive changes in their teaching practices (Putnam & Borko, 2001). This informal format provides teachers with opportunities to learn how new methods, strategies, or tools can be meaningfully implemented into their teaching. For example, informal learning can happen naturally or offline during the course of a school day when teachers “bump” into each other and share ideas for lessons or strategies for working with challenging students. These moments provide teachers with opportunities to learn about how new methods, strategies, or tools can be meaningfully implemented into their teaching.

Recently, an important dimension of informal professional development is the use of online social networks and communities among teachers, such as Teachers Connect, The Teaching Channel, and Edmodo; there exist thousands of teacher communities that are accessible through Facebook, Google+, and Twitter. While accessing and taking part in these spaces, teachers access and learn from other educators who share similar interests and teaching areas, as well as find out about new pathways to pursue learning new techniques, content, and ideas through personal learning networks. These online spaces enable teachers to create their own professional development by determining their own content and interests for further exploration (Hew & Hara, 2007; Lieberman & Pointer Mace, 2010; Olofsson, 2010). In their exploration of how innovative teachers used Twitter to engage in their own "grassroots" professional development, Forte, Humphreys and Park (2012) noted that teachers were able to create and maintain personal ties beyond the scope of their school communities. Twitter enabled these teachers in this study to learn about new practices and ideas and become "conduits for new practices and ideas to move in and out of their local communities" (p. 112). These "innovative" teachers also indicated that the ideas found on Twitter improved their own teaching practice. In sum, these researchers suggested that teachers who used Twitter were progressive teachers who supported informal networks for professional development and leadership in their school communities.

Indeed, research strongly suggests that because teachers feel that existing professional development opportunities offered by districts and schools do not meet their needs, many take on the responsibility for their own professional development by tapping into a wide range of online communities and resources. When viewed as a whole, these resources and connections have been labeled by some scholars and educators as "personal learning networks" (PLNs) (Flanigan, 2012; Richardson & Mancabelli, 2011; Trust, 2012). PLNs consist of a system of interpersonal connections and resources that provide instant, and mobile access to information, resources, and connections to other professionals (Carpenter, 2015, Jones & Dexter, 2014; Krutka & Carpenter, 2017; Trust, 2012). Taken together, these online resources include Twitter chats, webinars, blogs, wikis, social bookmarking sites, and education-centered communities (Jones & Dexter, 2014; Richardson & Mancabelli, 2011). A number of resources are available on the Internet to assist teachers in cultivating their own PLNs. For example, Edublogs, a free blogging resource for teachers, outlines steps for creating a PLN. These include instructions for how to participate in Twitter chats, using curation tools, and creating a blog. Through their construction of and participation in a PLN, some teachers indicated they feel less isolated because they can informally connect with other educators who offer support for classroom or curriculum concerns, as well as share information and educational resources (Flanigan, 2012; Noble, McQuillan, & Littenberg-Tobias, 2016).

While creating a PLN has become a trend among educators to take charge of their professional development, some educators find PLNs to be too impersonal and ineffective. In her online commentary, "The Downside to Being a Connected Educator," Thomas (2014) described the frustrations of PLNs. She recounted, for example, how her teaching-related questions posted to her various social networks, which included Google+, Facebook, and LinkedIn, received no answers from anyone, despite a combined following of 2500+ educators. In her frustrations, she noted,

> I ended up going to my default PLN--my husband--who gave me the feedback I needed, asked the right questions, and ultimately helped me. . . . He did what a good PLN would do for me--and what my digital PLN hadn't. (Thomas, 2014, para. 5)

Despite the advantages in providing teachers with free, 24/7 access to information and resources, finding ways in which the benefits of constructing and accessing a PLN could be cultivated with the strength of face-to-face interactions is key to ensuring a strong source of timely and relevant informal professional development among teachers. Summing up her thoughts about online PLNs, Thomas (2014) concluded that "[s]ome problems require ongoing collaboration with people we can count on to be at a given place at a given time because it matters to both of us, not just whoever happens to be online at a given moment" (para. 7). Clearly, despite their benefits, online connections at times fall short in terms of being meaningful for the participants.

Recently, other offline informal professional development approaches have emerged and grown popular among teachers, such as Edcamps and TeachMeets. These offline, informal professional development opportunities are modeled on the "unconference" format. According to Boule (2011), unconferences are gatherings organized by individuals or groups who share a common mission or interest. Unlike planned professional development conferences and meetings, unconferences, are designed with no predetermined agendas and encourage participants to volunteer to share what they know (Owen, 2008). An unconference is a participant-focused meeting where the attendees decide upon an agenda, topics for discussion, and workshops while maintaining a focus on prioritizing participant conversation over presentation (Budd, et al., 2015). Unconferences are seen as a valuable way of getting people involved, making connections with others, and exchanging knowledge (Budd, et al., 2015).

The influence of unconferences and their participant- and interest-driven focus is changing--at least in small part-- the way in which teacher professional development workshops are being structured. One example of this restructuring is the phenomenon of Edcamps. Edcamps seek "to bring teachers together to talk about the things that matter most to them: their interests, passions, and questions" (Edcamp Foundation, n.d., para. 3). Edcamps initially form organically through Facebook communities, or by using Twitter hashtags that contain the hashtag, #edcamp. While some teachers may advertise their Edcamps on their own, there are online sources that will aggregate and advertise upcoming Edcamps, such as Edcamp Foundation (Edcamp Foundation, n.d.). According to Swanson (2014), sessions were not driven by a preset schedule; participants wrote down their interests on a large, communal sheet. Once these interests were determined, the attending teachers created the schedule together, negotiating which interests to address. The development of sessions based on interests and needs was “positive and organic” and “an empowering experience for everyone” (Swanson, 2014, p.37). An Edcamp’s informal nature places an emphasis on choice and social connections for adult learners (Barnett, 2014) as sessions tend to enable teachers to be spontaneous in sharing content, starting up impromptu conversations, and demonstrating new technologies or resources (Carpenter, 2016; Swanson, 2014). In addition to working with other educators face-to-face, Edcamps’ extensive use of social media, such as Twitter, before, during, and after events enable both attendees and non-attendees to stay informed and connected with each other (Barnett, 2014; Boule, 2011; Carpenter, 2016). Research conducted on Edcamps indicates that participants had positive experiences with their organic and open format. Attendees expressed that the session topics were relevant to their teaching and the mood of the sessions was positive and enthusiastic (Carpenter & Krutka, 2015; Swanson & Leanness, 2012; Wake & Mills, 2014). Research by Carpenter and Linton (2016) indicated that Edcamps spoke to teachers’ desires for teacher-led professional development, and for opportunities to take greater responsibility for their own learning. The authors also described that participants shared what they had learned with their colleagues (whether they had attended the sessions or Edcamps or not) and feel that Edcamps allowed them to “connect with others and become better teachers” (p. 102).

While it appears that Edcamps do fulfill a need for more teacher autonomy with regard to their professional development, Edcamps nonetheless have shortcomings. According to Carpenter and Linton (2016), in their study of teachers across the United States and Canada who attended Edcamps, participating teachers indicated that the “brief duration of Edcamp events and lack of integration with educators’ work in their schools” (p.104) were shortcomings found in this form of professional development. Other weaknesses of this model included its reliance on limited time to collaborate with peers and using complicated jargon to discuss new technologies and trends that could be overwhelming and confusing to attendees (Carpenter, 2016; Carpenter & Linton, 2016; Carpenter & McFarlane, 2018). As one teacher noted, “I have 25 or more web sites and downloads and apps--but do not know how to actually use one of them” (Carpenter & Linton, 2016, p. 104). Additionally, their brief duration of only a few hours, often a Saturday, limited the deeper collaborative exploration of topics and skills to better enhance teachers’ practices and understandings (Carpenter, 2016).

Edcamps also proved to be intimidating to some attendees, especially those who were novices to its format (Carpenter, 2016). From their survey results, Carpenter and Linton (2016) noted that teachers who may be “accustomed to passive [professional development] approaches may need scaffolding to facilitate their active participation” (p. 105) in an Edcamp. The important roles that technology and social media played in the Edcamp format also could provide a barrier to full participation by less tech-savvy participants (Carpenter, 2016). Other shortcomings of the Edcamp format were issues with ensuring the quality and relevance of sessions (Swanson, 2014) as some participants reported that the sessions did not meet their particular needs with regard to their teaching interests or concerns (Carpenter, 2016). Despite their focus on the organic development of session topics and discussions, many attendees described Edcamps as lacking true spontaneity (Carpenter, 2016). As one participant described, “it seemed like veteran edcampers already came in and knew exactly what [sessions] they wanted to lead” (Carpenter, 2016, p. 92). Finally, while Edcamps are growing in popularity in the United States, fewer than one percent of all teachers have ever attended an Edcamp (Carpenter, 2016), which points to their limited effect on most teachers’ professional development. While Edcamps support the idea that teacher professional development should be organic and accessible to all, their limited participation rate reflects that teachers may not have the proper connections or know-how in terms of their existence and how they operate.

In sum, the various ways, both formal and informal, in which teachers engage in professional development should all work to enhance their teaching knowledge and practices. Despite this, each approach described above has its shortcomings and downsides with respect to meeting this goal. According to the research, professional development should not be disconnected from teachers' work in their classroom contexts and should be closely aligned with school-wide initiatives (Desimone, 2009; Opfer & Pedder, 2011). Considering how teachers, acting as a community of practice, can share their expertise and information gained from professional development opportunities can be one approach to transmitting new ideas and approaches in a school. However, creating an entire school full of teachers as a "community of professionals" under Brown and Gray's (1995) terms is a tall order. In most schools, teachers still have few opportunities to engage in planned professional collaborations and discussions with their colleagues (Doolittle et al., 2008; Guskey, 2002). Nevertheless, despite these roadblocks to collaboration and exchange, I argue that there are teachers in schools who serve a vital role as knowledge brokers. They act as repositories and conduits by obtaining, mediating and sharing pertinent relevant knowledge with their colleagues. They put professional development into action by tailoring it to the contextualized needs of their fellow teachers.

Details about different ways that knowledge moves from source to recipient are discussed in the section called Push and Pull of Knowledge.

Push and Pull of Knowledge

In light of informal teacher professional development, the manner in which knowledge is built and shared has undergone changes directly resulting from the ease of accessibility to new forms of technology and communication. With greater accessibility to new ideas, resources, and people, the manner in which knowledge is controlled and disseminated by organizations and institutions is undergoing fundamental changes. According to Hagel, Brown, and Davison (2010), the technological changes of the past century have resulted in a shift from “push” to “pull.” The authors ascertained that established organizations and businesses tended to handle the movement of new knowledge by using “push.” The push paradigm relies on centralized control and top-down directives from upper tiers of management. Calculating forecasts, determining needs, scripting actions, and ensuring that the right resources and people are available from the heart of a system designed around push. The push paradigm views an organization’s body of knowledge as explicit “stocks of knowledge,” (p. 50), which are “hoarded . . . compiled . . . and added to” (p. 53). These stocks of knowledge are protected and defended, and services based on that knowledge are efficiently delivered (Hagel, Brown, Davison, 2010). As a result, push systems are often characterized as “rigid and inflexible” (Hagel, Brown, Davison, 2010, p. 35) and if the parts of the system are changed or altered, “disruptions and difficulties” (Hagel, Brown, Davison, 2010, p. 35) will result in other parts of the system. Push approaches often result in boredom and stress for groups because the highly controlled, scripted roles used “suppress their natural curiosity” (Hagel, Brown, Davison, 2010, p. 36). In the case of education, more formalized teachers’ professional development can be viewed in terms of push. Professional development that relies on the highly scripted exchange and control of knowledge through the use of workshops or training sessions that are conducted by “professionals” who share their stocks of knowledge operate using a push model.

With the changes that have taken place over the past few decades in terms of how technology mediates the creation and sharing of knowledge, push approaches are being replaced by what Hagel, Brown, and Davison (2010) describe as “pull.” The authors describe the pull paradigm as the “ability to draw out people and resources as needed to address opportunities and challenges" (p. 2). Pull is about expanding "awareness of what is possible and evolving new dispositions, mastering new practices, and taking new actions to realize those possibilities" (p. 6). With the use of the Internet and the proliferation of social networking web sites and search engines, those who learn and know how to use these resources "will pull their institutions into a new era of higher performance and achievement" (p. 8). Unlike push, pull operates on the flow of newer forms of knowledge that emerge along the "edge," rather than from the "core" where old thinking is concentrated (Hagel, Brown, & Davison, 2010). The edge makes up areas that exist outside or beyond the confines of the traditional stocks of knowledge that an organization possesses. From the edge, knowledge flows into an organization through the connections that people have that exist beyond the bounds of the organization. Oftentimes, this knowledge is tacit in nature and therefore difficult to share. It is not easily accessible, categorized, or transferrable to others. As a result of its raw, latent nature, the knowledge associated with pull approaches is disseminated through relationships that are built on mutual trust and acceptance (Hagel, Brown, & Davison, 2010). With regard to teacher professional development, using the power of pull as a means to channel new educational ideas and approaches from outside the confines of the school building, or predetermined professional development workshops, can shift and fundamentally alter the way in which teachers learn from each other.

Hagel, Brown, and Davison (2010) presented a dichotomous view of push and pull approaches. Push approaches are slowly being replaced by pull approaches, shifting from stocks of knowledge to flows of knowledge that are mediated by new technologies. While knowledge broker teachers informally support the professional development of their colleagues by operating in professional and personal spheres that are tempered by pull, I argue that they also participate in a workplace that operates and perpetuates push. Mandated curriculum, board of education policies, hierarchical levels of leadership, such as department supervisors to administrators, and pre-set agendas and initiatives for teacher professional develop all embody and exemplify push. This study argues that knowledge broker teachers have found a happy medium, or a way to build a bridge between the worlds of push and pull, to “become motivated to connect with others in efforts to reorient these institutions” (p. 245). Through their ability to mediate the paradigms of push and pull, these knowledge broker teachers, rather than fleeing their institutions to become more self-actualized, stay in their schools, and try to provide small, but influential changes from within by working with their colleagues to help enrich their teaching practices.

Conclusion

For the purposes of this study, knowledge brokers were defined as people who identify needs and opportunities for knowledge sharing, promote new ideas, merge and adapt existing ideas to fit different situations, and know where to find knowledge and where to apply it. They act as bridges and translators of explicit and tacit knowledge and connect these to individuals or groups who would benefit from new understandings using circles of knowledge building and sharing. Depending upon the situation to which and the context through which knowledge is being transferred and bridged, successful knowledge brokers also possess key personal attributes that ensure their success.

The educational climate is ripe with governmental mandates and policies that emphasize high student achievement and high-quality teaching coupled with a world that has become increasingly connected and collaborative as the result of participatory digital technologies. Ensuring that practicing teachers have the necessary understandings, tools, and resources to navigate this changing educational landscape is paramount. While districts and schools may provide teachers with ample opportunities for formal professional development through large-group conferences and workshops, or through less formal collaborative workshops and meetings, these professional development offerings may not provide the complete story of how certain teachers, called knowledge broker teachers, emerge as the go-to people for assistance, suggestions, and solutions. These knowledge brokers teachers work informally, as repositories of knowledge and conduits for answers. They mediate and broker the ebb and flow of knowledge.

The theory and concepts presented in this chapter were explained to afford a better understanding of this study's research about four knowledge broker teachers and their role in influencing the professional development of their colleagues. The next chapter, Chapter 3: Methodology, provides a detailed overview and discussion of this qualitative study's design. A discussion of the methodology in terms of rationale, tools, participants, and contexts is included as well as an explanation of the data analysis process.

CHAPTER 3: METHODOLOGY

This chapter provides an overview of the qualitative research design used in this study. The purpose of this study was to gain deeper insights into the knowledge building and sharing practices and attributes of four K-12 teachers who filled the role of school-based knowledge brokers within their respective school contexts. The research questions that drove this study included:

1. How do four knowledge broker teachers build their knowledge?
2. How do four knowledge broker teachers share knowledge?
3. What attributes do colleague teachers identify as being important in a knowledge broker teacher?

In what follows, I describe the rationale for this study, the methodological approach, the context, and the participants. Following this, I provide details about data sources and the data analysis process. Finally, this chapter concludes with an acknowledgement and discussion of concerns and insights regarding ethics, positionality, and trustworthiness.

Rationale for This Study

As described in Chapter 1, the purpose of this research study was to examine four knowledge broker teachers and their effect on the informal professional development of their colleagues in K-12 settings. I sought to understand how they built and shared their knowledge with their colleagues as well as their attributes. Choosing a design that would enable me to employ several different approaches that allowed for flexibility in terms of my ability to pose questions and use various forms of data was key. Therefore, a qualitative design informed by a hybrid approach (Flick, 2014) was chosen because it enables and employs useful and fruitful methods from different, albeit methodologically consonant, research approaches.

Methodological Approach: A Hybrid Design

To understand the attributes and practices of school-based knowledge brokers, a hybrid, qualitative design was used because it offered the greatest flexibility regarding data collection and analysis. In describing a hybrid design, Flick (2011, 2014) describes it as not necessarily as a new way of considering a methodological approach. He instead notes that hybridization already is “evident in many . . . research perspectives and schools” (Flick, 2014, p. 525). Hybridization is viewed as the selection of “methodological approaches . . . according to pragmatic research needs and [combination of] different methods if it seems useful to do so. . . . [T]he avoidance of a restricting subscription to a specific methodological discourse have been termed hybridization” (Flick, 2011, p. 16). Moreover, Flick (2014) considers how new forms of data, such as email, Internet communication, and other electronic data, require different qualitative research approaches. For instance, methods that are used to conduct textual analysis may not suffice for new forms of digital communication or social media. Considering knowledge broker teachers in terms of their situated context, how they built and shared their knowledge, as well as their attributes, necessitated the use of a flexible methodology that allowed me to combine a basic, interpretive qualitative approach with narrative analysis, using various data sources. Therefore, picking, choosing, and combining approaches that met the needs of my research study was a pivotal aspect for why I chose a hybridized approach.

Hybridity, in the case of the present study, took the form of techniques drawn from basic qualitative research (Merriam, 2009), ethnography (Flick, 2014), and narrative analysis (Czarniawska, 2004). A basic qualitative approach seeks to discover, describe, and understand a process or perspectives (Merriam, 2009). As a means to understand knowledge broker teachers, the data in this study was collected using a range of methods, such as various forms of interviewing techniques among the participants. The interviewing techniques that I had set out to use included semi-structured interviews, episodic interviews, and elicited think-alouds. Semi-structured interviews, with their combination of formally structured and open-ended questions enable researchers to keep the interview from deviating beyond the topics to be addressed, while also enabling further expansion on participants' responses to seek further information (Merriam, 2009; Patton, 2014). Episodic interviews are semi-structured in nature. According to Flick (2007, 2014), the episodic interview combines the approaches of semi-structured interviews and narrative interviews. Episodic interviews are conducted with the assumption that a person's experiences regarding specific situations or instances are best shared through narratives or storytelling. This form of interviewing uses the "interviewee's competence to present experiences in their course and context as narratives" (Flick, 2014, p. 279). Unlike a typical narrative interview, episodic interviews provide the interviewer with more options to intervene and direct the interview through a series of key questions asked of the participant who is recounting and defining situations (Flick, 2014). By linking the descriptions inherent to narrative interviewing, with the structure of guiding questions, a more focused understanding of specific situations and contexts typically emerges. As Flick (2014) noted, with this combination, "the extremely one-sided and artificial situation given in the narrative interview . . . is replaced by a more open dialogue" (p. 279). Therefore, these interviews consisted of rich descriptions of events. An elicited think-aloud is a form of data gathering that asks interviewees to verbalize their thoughts in response to performing an action or task (Ericsson & Simon, 1993). Using different forms of interviewing enabled me to triangulate the data gathered from the participants.

In addition to interviews, data was also collected and used from other sources. Data was drawn from post facto field notes and a researcher's journal. The data collected during interviews were documented using post facto field notes. My thoughts and reflections concerning this study were written and organized in a researcher journal (cf. Flick, 2014; Merriam, 2009; Ortlipp, 2008). From the ethnographic tradition of research that is driven by observing events as they occur (Flick, 2014), using techniques such as "screencasts" of Internet activity enabled me to be privy to the actions of the knowledge broker teachers as they operated and socialized in an online setting. Screencasts allow for the recording of online activities that relate to professional practice. Finally, using narrative analysis and its emphasis on story-telling and recounting situations (Czarniawska, 2004; Clandinin and Rosiek, 2007) in my study, I collected interview data through episodic interviews and screencasts which were used as "eliciting devices." (Lankshear & Knobel, 2004). Lankshear and Knobel (2004) describe eliciting devices as a tool used in projective methods, which use "some object, activity, or text to draw out information from respondents" (p. 211). The screencasts were used to recount the details of specific online situations and contexts to better understand the four knowledge broker teachers.

Using all these different techniques allowed me to gain a stronger foothold with my study, especially given the external limitations placed on me since I work as a full-time teacher. Observing the participants interacting with their colleague teachers firsthand was not feasible. However, meeting with the participants for interviews after school, and having them record their screencasts provided me with data to gain an understanding of the attributes of knowledge broker teachers and how they build and share their knowledge. Therefore, for this study, a hybrid approach using a variety of data collection sources allowed me to gain better understanding of the knowledge broker teachers by identifying, comparing, and interpreting patterns and themes across all the data collected.

In sum, the research design chosen for this study was best described as a hybrid approach. Using this approach enabled me to capture the highly situated and contextualized role of knowledge broker teachers. Specific details regarding this hybrid methodology will be discussed later in this chapter but first a study overview is provided.

Study Overview

This qualitative study about knowledge broker teachers used a situated framework to document and explain the choice of the candidates who became the focus of this study on knowledge broker teachers. This study sought to uncover the attributes of these knowledge broker teachers and the processes by which they built and exchanged knowledge with colleagues. As a means to identify these knowledge broker teachers, a suburban, regional school district was chosen as the context for the study. The district's Director of Curriculum, Instruction, and Assessment was used as an appropriate contact to identify potential knowledge broker teachers who worked in the district. Guided by a definition of knowledge brokers based on the review of literature on knowledge brokers, the director suggested potential K-12 teacher candidates for this study. The director was asked to narrow his suggestions to four candidates from elementary, middle, and high school who best fit the parameters of knowledge brokers. Each teacher was contacted via email, and all four agreed to participate in this study. After the first round of interviews to verify that they each met the established criteria, the four knowledge broker teachers who became the focus of this study provided names of colleague teachers with whom they often shared knowledge. After the colleague teachers agreed to participate in this study, interviews about participating in this study were then conducted with them as well. Three non-consecutive months of data collection involved a focus on the knowledge broker teachers' backgrounds, interactions with their respective colleagues, online practices and interactions, and their formal and informal sources of educational knowledge. Teacher colleagues were asked to provide details concerning specific instances and interactions with their respective knowledge broker teachers. Data concerning the knowledge broker teachers was collected using recorded semi-structured interviews, elicited think-alouds, as well as screencasts of Internet browsing. Data gathered on the colleague teachers was done using episodic interviews. Once data collection was completed and all audio was transcribed, data analysis was conducted using open-coding to identify and establish patterns and themes. The context of this study focuses on its participants.

Context

This study was conducted in a single, large, regional school district in suburban, northern New Jersey. For convenience, this district was chosen because of its proximity to my workplace. I wanted to ensure that I was able to meet with all the teacher participants in a timely fashion after their school day finished. While future studies of knowledge broker teachers could focus on their existence in a variety of district and school settings, this would have added an unnecessary layer of complexity to the current study. From this district, I selected three schools: one elementary school, one middle school, and one high school. From each of these schools, participants who fit the definition of knowledge broker, as defined in my review of the literature, were identified by the Director of Curriculum, Instruction, and Assessment. Choosing teachers who spanned the kindergarten through twelfth grade continuum enabled me to broaden my understanding of possible commonalities in order for the knowledge brokers to be labeled knowledge-broker teachers, and to observe processes and actions that were specific to each of their teaching contexts.

Participants

The four knowledge-broker teachers were selected using a mix of two forms of purposeful sampling (Merriam, 2009; Patton, 2015). The two forms of purposeful sampling that were used included convenience and criterion-based approaches (Patton, 2015). Choosing participants from one district to conduct this study was necessary for me. As a full-time teacher, having the convenience of traveling a short distance to one school district after school hours enabled me to better focus on the study and spend more time with the participants. Additionally, criterion sampling was employed using specific criteria that were delineated by a definition of a knowledge-broker teacher, as discussed in detail in the section on the initial discussion regarding potential participants. In addition to the four teachers identified as knowledge broker teachers, I also invited the participation of twelve colleague teachers who had been assisted by or worked directly with the identified knowledge-broker teachers. Using snowball sampling (Merriam, 2009; Patton, 2015), these colleague teachers were identified by each of the four knowledge brokers over the course of this research study.

Initial Discussion Regarding Potential Participants.

An initial pool of possible participants was developed in consultation with the district's Director of Curriculum, Instruction, and Assessment. My decision to utilize this district's curriculum, instruction, and assessment director as a means to have access to knowledge broker teachers was based primarily on his extensive interactions with and knowledge of all the teachers in the regional district's schools. I did not feel as though I was equipped to identify the knowledge broker teachers for this study. I did not have first-hand experience with the teachers in the district. Also, identifying the teachers using an interview or some other type of reporting tool would have been too cumbersome, impersonal, and may have resulted in adding to the pool, teachers who may not have fit this study's definition of a KNOWLEDGE BROKER TEACHER. Additionally, I decided against using school-based administration to assist me in the identification process because of the possibility that teachers would feel pressured in *having* to work with me. Knowledge brokers identified by their school principal may have felt singled out by their administrators and would have worried that there would be repercussions if they decided against participating in my study. Therefore, given the director's unique position of working with all the teachers in this one regional district on various curriculum and instruction committees, as well as in their schools and classrooms, he possessed unique insight into teachers who likely acted in the role of knowledge brokers. In other words, he provided me with names of teachers who were considered to be go-to people; that is, who acted as up-to-date sources of knowledge in their schools and found answers to questions or found resources to suit their own and their colleague teachers' needs and search for solutions to problems, concerns, or questions related to their teaching practice.

Prior to meeting with the director, I provided him with the criteria I was using to identify potential knowledge brokers. The criteria were compiled from business and organizational literature about knowledge brokers. I provided him with these criteria ahead of time because the process of suggesting names of an elementary, middle, and high school teacher in the K-12 school district required some forethought and reflection. The criteria I provided to the director included the following:

1. Participation with multi-membership or affiliations that spanned across a wide range of communities and venues (Wenger, 1998) such as professional organizations and/or online groups and communities.
2. Capability to introduce new knowledge from one person or group to another by using language that was understandable to recipients of the new knowledge (Nonaka & Takeuchi, 1995); ability to translate new or complex knowledge to make it more easily accessible for others (Meyer, 2010; Wenger, 1998).
3. Ability to bridge a knowledge gap (Pawlowski & Robey, 2004); capacity to perform the role of middleman, or knowledge "bridge" by transferring helpful, relevant, and necessary knowledge from people or groups that possess it to those that needed it and who could put it to use (Hargadon, 1998; Hargadon, 2002; Wenger, 1998).

In addition to providing the director with the criteria prior to our consultation, I also asked him to consider specific instances in terms of how the potential knowledge brokers that he was suggesting demonstrated these criteria either from interactions with them, or through word-of- mouth.

My discussion with the director focused on identifying possible knowledge brokers in the regional district based on the criteria of a knowledge broker used in research literature, and how each of the teachers he recommended fit the description of a knowledge broker. I asked him to elaborate on specific instances or interactions that he had observed or heard that supported his recommendations. I also asked him to identify specific attributes of the teachers he recommended. During our discussion, the director suggested more than eight teachers who fit the criteria. Interestingly, all of his choices who were either suggested or included in this study, were experienced, female teachers. I asked the director to elaborate on his choices by providing me with some examples that demonstrated how they exhibited the criteria of a knowledge broker. Doing this, it seems, enabled him to better narrow his choices regarding whom to recommend for this study.

The director narrowed his choices to four teachers who spanned grades kindergarten through twelve and matched the terms of the criteria I had provided for being a knowledge broker. While I was only seeking three names, I decided to use all four teachers he had recommended in case of attrition or the chance that one or more teachers did not ultimately fit the criteria determined for the study. After consulting with the director, I was pleased with the depth of knowledge he possessed about each of the teachers that he identified. He not only suggested names of potential knowledge brokers, but also thoughtfully shared situations and vignettes about his interactions with them that supported the criteria.

Simply relying on the district's curriculum, instruction, and assessment director to assist in identifying potential knowledge brokers caused me to run the risk of not having identified other teachers who might have fit the definition of knowledge brokers as outlined above. However, my initial interactions with these four teachers and my first semi-structured interview with each teacher confirmed that all four teachers were well-identified by the director. During the course of my interviews with these teachers, it became clear through their responses to questions about building their knowledge and sharing with their colleagues that the director precisely understood the type of teacher I was seeking to study.

The Knowledge Broker Teachers. The director identified four candidates who were determined to be knowledge broker teachers based on the criteria adapted from the literature on knowledge brokers. These participants were all mid-career, white females with at least twelve years of experience in the field of teaching. To protect the participants' privacy, I assigned pseudonyms. Each of the participants will be described in more detail.

Theresa. As the K-5 middle school technology teacher and technology coach, Theresa has been teaching for approximately18 years. She has been working in her current district for 16 of those years. Prior to working in her current district, Theresa taught for two years in a suburban middle school as a K-5 technology teacher and basic-skills teacher. Additionally, she taught adult classes for the community in a previous school district. She holds an undergraduate degree in psychology and a master's degree in educational leadership and supervision.

Meg. A teacher for over 15 years, Meg used to teach high school English. Currently, she is a high school library-media specialist. She holds an undergraduate degree in English. Meg has earned three master's degrees in the areas of English education, library science, and educational leadership and supervision. She had been enrolled in a doctoral program in English, but she decided not to pursue the degree.

Alice. Alice is a third-grade teacher and has been teaching for over 16 years. Alice has been a teacher in her current school for the past three years. She holds degrees in psychology and English. Over the course of her career, she taught in a variety of contexts, from elementary grades to middle school. Additionally, she also worked as a preschool director, reading specialist, and elementary literacy coach.

Jennie. Before becoming a second-grade teacher, Jennie worked as a recruiter in the technology field for three years. Once she decided to change careers, she returned to school to earn her master's degree in teaching. Jennie has been teaching for over 12 years in her current district and has taught a variety of elementary grade levels ranging from kindergarten through second grade. She holds a bachelor's degree in communications and an additional master's degree in educational leadership and supervision.

Colleague Teachers

During the first semi-structured interviews with the knowledge broker teachers, I asked each of the four knowledge broker teachers to provide me with names of colleague teachers with whom they often share and work. This information is shown on Table 3.1.

Table 3.1

Knowledge Broker Teachers, Colleagues' Identifiers, and Colleagues' Grade Levels Taught

Knowledge Broker Teacher	Colleague Identifier	Colleagues’ Grade Levels Taught
Theresa	Colleague 1:1	Third grade
	Colleague 1:2	Second grade
	Colleague 1:3	Elementary basic skills
	Colleague 1:4	Third grade
Meg	Colleague 2:1	High school English
Alice	Colleague 3:1	Elementary special education
	Colleague 3:2	Preschool inclusion
	Colleague 3:3	Third grade
	Colleague 3:4	Elementary special education
Jennie	Colleague 4:1	Elementary library media specialist
	Colleague 4:2	Kindergarten
	Colleague 4:3	Kindergarten

Each knowledge broker teacher provided me with names of colleague teachers. Afterwards, I reached out to the twelve female colleague teachers via email to ask if they would like to participate in my study. All of the colleague teachers agreed to participate in one semi-structured episodic interview with me. While Theresa, Alice, and Jennie each provided me with the names of three or more teacher colleagues, Meg only provided me with the name of one teacher colleague. The reason behind this decision resulted because Meg was only available toward the end of the school year. Given the schedules of her work colleagues, she provided me with the name of one teacher who would be available for an interview during the summer months. While I had initially considered removing Meg from the study, both she and her colleague teacher offered invaluable insights into knowledge broker teachers.

A detailed discussion of data collection methods follows in the section on data collection methods and sources.

Data Collection Methods and Sources

As this study sought to understand the attributes of knowledge broker teachers and how they built and shared their knowledge, this goal necessarily required drawing on multiple data sources to obtain as rich and detailed a picture of what these knowledge broker teachers do and how they do it. This purpose meshed well with my situated learning theoretical framework, which emphasized the highly social, inter-networked and contextualized nature of learning. After receiving Institutional Research Board (IRB) approval from my institution, as well as site approval from each of the knowledge broker teachers' and their teacher colleagues' schools, data collection began in February 2016. For this study, these data collection methods included three rounds of interviews, screencasts, post facto field notes, and a researcher's journal.

Interviews

This study used various interviewing techniques and approaches to achieve a wider understanding of how knowledge broker teachers built and shared their knowledge. The forms of interviews used included, in this order: semi-structured, episodic, and semi-structured with elicited think-alouds. Most important to this study was the proper sequencing of these interviews; that is, the information obtained during each of the interviews provided the topics of discussion for the subsequent interviews.

Semi-structured interviews. In this study, an audio recorded, semi-structured interview was conducted at the start of the research with the four knowledge broker teachers to confirm that they truly fit the established criteria. The use of semi-structured interviews allowed me to combine my formal questions with open-ended questions and new ones as they arose throughout the interviews. The semi-structured interviews were guided by general questions and topics; however, because of their nature, it offered the flexibility to ask other questions in response to topics or situations that emerged. In this study, one 60-minute, audio recorded, semi-structured interview was conducted with each of the four identified knowledge broker teachers. From early March to late April of 2016, these interviews were conducted in each teacher’s classroom, except for one, which was conducted at a local restaurant.

The first semi-structured interviews were designed to last sixty-minutes and focused on each teacher’s background, education and work experience, organizational or group membership (online or in-person), and online habits (See Appendix A). Additionally, during this interview, the knowledge broker teachers were asked to provide the names of colleague teachers with whom they often shared knowledge, or for whom they had sought out solutions to problems, concerns, or questions related to their teaching practice. The knowledge broker teachers were asked to provide specific examples or instances describing how they assisted their identified colleague teachers. Elaborating on specific instances provided the basis and content for the second round of interviews: episodic interviews that took place with each colleague teacher.

The first semi-structured interviews with the knowledge broker teachers were all conducted in their classrooms, except for Meg, the high school teacher. Her interview was conducted at a local restaurant because of scheduling concerns on both our parts. The teachers were all receptive to my questions and provided detailed responses. While I had scheduled these interviews to last no more than one hour, all the interviews exceeded that time limit. Given the semi-structured format, I asked for elaboration on many of their responses, and at times found that the interviews were providing very rich, detailed descriptions of how they built and shared knowledge, as well as their feelings about their colleagues, work, and their opinions about education. When I asked the knowledge broker teachers to identify teacher colleagues whom I could interview, both Alice and Theresa provided the names of four colleagues. Jennie provided three, and Meg provided only one. While at the time I did not foresee any issues with Meg only sharing the name of one colleague to interview, in retrospect, more interview data from another of her colleagues would have added more details and insight to my findings and anecdotes. Additionally, the interview with Meg was delayed by one month due to a scheduling conflict. Initially, I had considered removing Meg from my study, but decided to include her because of the importance of her perspective at the high school level and the fascinating insights that she shared which were valuable and interesting. She also expressed a keen willingness to remain in the study. All data from the semi-structured interviews were transcribed to facilitate the analysis of the data.

Episodic interviews. The situated nature and orientation of my study required using an approach to interviewing that offered a glimpse into authentic contexts and interactions that occurred by chance or on a moment-by-moment basis between the knowledge broker teachers and their colleagues. Episodic interviews provided the means to capture the context-dependent nature of these moments. The use of episodic interviews provided a glimpse into specific episodes, or situations that I would not be able to capture otherwise. Through the episodic interviews with the colleague teachers, I would be provided with recounting of their interactions with the knowledge broker teachers.

Once the twelve colleague teachers were identified by the knowledge broker teachers, one 60-90-minute, audio-recorded episodic interview with each colleague teacher was conducted in each teacher's classroom during March, April, and August 2016. The exception was Meg’s colleague teacher who required a phone interview, which took place during summer vacation. (See Appendix B).

With their focus on the context of the episodes described, each episodic interview focused on having each colleague teacher recount their version of specific instances or episodes that had been identified by the knowledge broker teachers about which the colleague teachers had sought their help or advice and the manner in which the knowledge broker teacher had shared information with them. While the interview sessions did address all the questions I had prepared, because episodic interviews are semi-structured and narrative in nature, they resulted in an expansion on those questions, and all the colleague teachers provided me with additional perspectives and information. For instance, when the colleague teachers were asked to recall the specific instance that the knowledge broker teachers shared with me from the semi-structured interview, their recounting of these instances often led to discussions of other instances of sharing with the knowledge broker teachers. The additional discussions provided rich insights about the knowledge broker teachers in terms of their personality, social relationships, and their relationships with other teachers and administrators. These tangential conversations offered important data and insights that could be included in my analysis.

Second semi-structured interview (with elicited think-aloud). As intended, the episodic interviews which are a recounting of specific situations, allowed for planning a second semi-structured interview with each knowledge broker teacher, but this time, the second semi-structured interview was coupled with an elicited think-aloud. In this study, the elicited think-aloud refers to data gathering that asks interviewees to verbalize their thoughts in response to performing an action or task in order to discuss what had been shared with me by the colleague teachers (See Appendix C). In each of the one hour-long, audio recorded, second semi-structured interview sessions (with elicited think-alouds), my plan was for the knowledge broker teachers (a) to respond to one or more of the episodes identified by the colleague teachers they helped, and (b) when applicable, to “walk” me through the episodes using the elicited think-aloud technique in order to demonstrate how they found their online resources or information. However, I came to the realization during the first of these interviews that this pre-planned, elicited think-aloud technique would not be as productive as I hoped. The reason for not using it resulted from the fact that the episodes described by the colleague teachers did not consist of applicable, online or technology-enhanced information as I had been envisioning them in my data collection planning phase (e.g., I predicted they would mention a website and I would ask them to show it to me on my laptop). Instead, they talked and elaborated on how they worked with and assisted their teacher colleagues in ways that did not involve the use of technology to locate teaching resources and materials. They shared other ways that they assisted their colleagues based on their existing knowledge and experience from their years of teaching. I found the information that came from the second semi-structured interviews, about the episodes that had been shared by the colleague teachers, to be very fruitful in terms of how the knowledge broker teachers responded to them and provided me with additional insights. Their receptiveness made me worry that if I had them begin a process of walking me through web sites and online activity, the flow of the interviews would have been interrupted, resulting in skimpy data. The episodes described by the colleague teachers had few references to sharing technology-enabled knowledge. Finally, another reason for deciding not to use this technique concerned the screencasts of online activity that only two of the knowledge broker teachers shared with me. Adding an additional layer of a method that required the use of a computer during this interview session would have resulted in a spending too much time documenting the technology techniques, rather than on the rich, spoken data that the knowledge broker teachers provided. It would have taken too long to set up my laptop, connect to Wi-Fi, and navigate to websites when in the end, I preferred a more seamless process to engage in meaningful discussion with the knowledge broker teachers. In the end, I did not abandon the use of the elicited think-aloud, but instead decided to use this technique while reviewing the knowledge broker teachers' screencasts, which will be discussed below.

Prior to the second semi-structured interviews and the intended elicited think-aloud with the knowledge broker teachers, I combed through each of the transcripts from their respective colleague teachers. I jotted down key highlights of their recollections from the episodes which I then planned to share with the knowledge broker teachers (e.g., what I noticed about the context, what was being done). Using this approach to collect data provided me with a better sense of the various processes and resources that school-based knowledge brokers used to locate and gather knowledge by probing them for details contained in an actual situation. These second semi-structured interviews also offered an opportunity for the triangulation of data, since the knowledge broker teachers were responding to their colleagues' episodic interviews. While these interviews primarily focused on the gathering of data regarding the episodes, other topics arose during the interviews, such as the knowledge broker teachers' perceptions about their jobs, their positions in their schools, thoughts about education and teacher professional development, and personal impressions regarding their feelings about being educators. Again, the rich responses and insights provided by the knowledge broker teachers during this interview proved to be invaluable to my data analysis process. Therefore, my decision to forego using the elicited think-aloud technique—while sticking with the second round of semi-structured interviews-—was a sound one given these circumstances.

Screencasts. To add a more contextualized dimension to understanding how knowledge broker teachers used collaborative and participatory online digital technologies to build and share their knowledge, I asked all four knowledge broker teachers to record two of their online sessions--when I was not present--using a free screencasting app, Screencastify. By engaging in these screencasts, two of the four knowledge broker teachers provided me with data that was completely situated in an online context. Additionally, these data enabled me to get to the core of what these teachers were doing online, “in the moment,” rather than solely relying on their recollections during the second semi-structured interviews. To capture these moments, the knowledge broker teachers were asked to turn on their screen-capture app at least twice during a two-week period and record their online activities that were related to their professional practice. After each session, screencasts were shared with me via Google Drive.

As a means to obtain responses from the teacher knowledge brokers, I then used their screencasts as eliciting devices. In the case of this study, it was during the highly engaged walk-through of the screencast activities that I was finally able to ask them to use a “think-aloud” technique (Lankshear & Knobel, 2004) whereby they described their thinking and the active processes that they were using in the screencasts to help recollect how they built or shared their knowledge online. While the knowledge broker teachers were recounting their online activity, I was able to employ the same technique to capture my own a screencast of the session and their recollection. Having this additional recording, or “meta-screencast,” assisted me in understanding the particular scenes and events that they were verbally describing during our interview.

It is important to acknowledge that only two, of the four knowledge broker teachers, provided two screencasts each of their online activity. Scheduling and time constraints were among two reasons why the other knowledge broker teaches did not create any screencasts. While I would have preferred to have all four participants supply me with this additional data, the two knowledge broker teachers who did share their screencasts, Theresa and Alice, had a vibrant and varied online presence. These teachers were active users of Twitter and Twitter chats, as well as followers of numerous educational blogs. The four screencasts provided by these two knowledge broker teachers contributed ample material about their online practices in terms of building and exchanging knowledge. The process of having these two teachers “think aloud,” or give a narrative about the screencasts of their online activity, resulted in a more descriptive understanding about what was happening during their online sessions and what their thought processes were in the recounting of a certain situation. For instance, having one of the knowledge broker teachers provide me with a think-aloud description of her online actions and subsequent reflection of what was occurring during a Twitter chat helped me to develop a deeper appreciation for what was occurring onscreen. Overall, while I would have preferred to have all the knowledge broker teachers share screencasts and debrief with me, it would have ended up being an ambitious undertaking because the screencasts added additional time to the interview session (approximately 45 minutes), and as a result, I became cognizant of this added time and felt a bit rushed to get through the screencast discussions. However, I still think that screencasts with a think-aloud were a valuable method for learning about online activity, especially regarding building and sharing knowledge in digital spaces, like Twitter. Moreover, because of the situated lens that I used in this study, screencasts accompanied by think-alouds enabled me to experience a highly contextualized situation with commentary from the knowledge broker teacher about what was happening and why she was making certain decisions and choices. This added method enabled me to be privy to and become part of an authentic learning context.

Transcriptions and Screencast Recordings

All audio recordings from interviews and the screencast think-alouds were transcribed. Due to time constraints, I employed the use of a transcription service to transcribe all audio recordings. After receiving each transcribed interview, I used a transcript format recommended by Merriam (2009). I included line by line numbering down the left-hand margin, single-spaced, and double-spaced between speakers. I checked the quality of the transcription against the original audio recording of the interview. When I did find errors, I would immediately correct them. The process of listening to the audio of the interviews while reading the transcripts was also useful in picking up salient points in and across the study's data. When I came across interesting points, I jotted them down in my post facto field notes which are discussed in the next section.

Post Facto Field Notes

The planned interviews described earlier required me to be fully "present" and attentive during all the interviews with both the knowledge broker teachers and their teacher colleagues. As such, I engaged in a process of taking post facto field notes as soon as possible after each interview. Field notes, in this sense, were detailed accounts of the actions of the knowledge broker teachers and their teacher colleagues over the course of the interview, what their classrooms looked like, and how they presented themselves during the interview. While my methods did not employ the use of formal observations of interactions with colleague teachers, taking field notes proved to be a useful mechanism for me to jot down my own reflective comments about each of the interviews and the situation at hand. For instance, some of my post facto field notes included my reactions to the knowledge broker teachers and their colleague teachers, as well as my thoughts about the school settings in which they worked. Additional field notes also were made while reviewing audio recorded interview sessions and recorded screencasts of the knowledge brokers' online activity. I would occasionally jot down interesting quotes, make note of the speakers' intonations or emphasis they would place on certain words or ideas. Using post facto field notes was also very helpful when reviewing the video footage of the online screencasts. For example, making notes of where the knowledge broker teachers were clicking and sites they were visiting, proved to be helpful when I spoke with the teachers about their online activity during the second semi-structured interview.

Researcher Journal

A handwritten researcher journal was maintained throughout the research process. The purpose of this type of journal was to provide me with a place to note my thoughts, insights, hunches, and reminders concerning my study. This journal served a number of different purposes in terms of my study. One purpose of the journal was that it enabled me to keep the study organized and to meet deadlines. I often jotted notes about due dates, upcoming tasks, and interview schedules. Using the journal in this way facilitated the research process, as I had written reminders about where I had left off or things that needed to be addressed. I also used this journal to regularly reflect on the research process by writing down my feelings, concerns, questions and wonderings. These notes also became fodder for formulating possible findings and for building early analytic and theoretical connections, as I would make notes to myself about possible trends that I was seeing in the research, or certain literature that I might want to refer to during my analysis. Finally, since I was regularly meeting with critical friends and other doctoral candidates who were very familiar with my study, I used this journal to write down their suggestions and comments. For instance, during meetings with these groups, I shared interesting aspects of my interview data and how I was coding the data, as well as questions that I had about the research process. I made sure to note their comments and advice in my journal. Throughout the course of writing about my study, I regularly referred to this journal to help me better interpret my overall findings. Both my critical friends and doctoral study group suggested new angles or ways to interpret the data. I wrote down their suggestions in my journal as I discussed the progress of my study with them over its course and took onboard their suggestions and comments regarding my progress. Therefore, this researcher journal became a vital record of my research process, and a necessary component of my audit trail.

In sum, the data collection methods used in this study were an effective means for providing me with information that eventually led to informative insights into how knowledge broker teachers influence the professional development of their colleagues. The data gathered from semi-structured interviews to screencasts to my researcher journal enabled me to begin to grasp the richness of the phenomenon I was studying. In the section on data analysis, I will discuss the processes for analyzing the data that was collected

Data Analysis

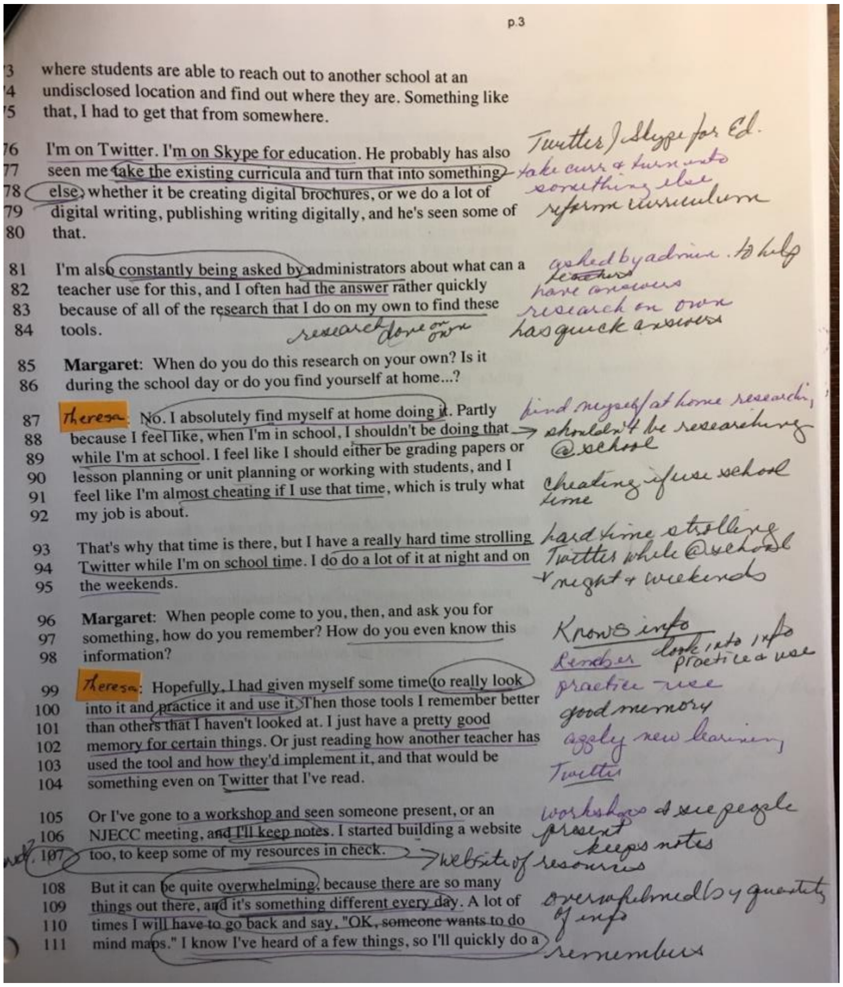
The recorded data collected for this study and described above were converted into text for the purposes of analysis. The approach I took to analyzing data is grounded in open coding. Open coding (Rapley, 2011; Saldaña, 2012), also referred to as initial coding (Charmaz, 2006) or basic coding (Saldaña, 2012), is loosely defined in the field. It can mean everything from line grounded analysis to theory-driven categorical analysis (Charmaz, 2006). In the case of this study, the process of coding leading to the establishment of themes will be described in more detail in the next section.

Preparing the data for analysis

All transcribed data of the interviews and screencasts were analyzed by first labeling and then using initial coding (Saldaña, 2012), as a first cycle coding process. To facilitate this coding process, all audio data was transcribed using a transcription service. All electronic versions of the transcriptions were then formatted with "wide" margins to accommodate the inclusion of handwritten annotations. I printed all the transcripts. The post facto field notes and the researcher journal were available when reading the transcripts for possible clarification of each interview session, or for references concerning insights and thoughts during the study.

Coding the data: An overview of the process

Using Flick's (2014) hybrid qualitative approach provided flexibility when choosing an analytical method. In this study, data were first analyzed using an initial coding process (Charmaz, 2006). I viewed coding my data as an organic process that entailed completing a number of "passes" or "cycles" through the data in order to generate descriptive labels for salient data items. As a novice researcher, it also entailed a process of trial-and-error in terms of finding an approach to coding that would eventually become systematic and more streamlined when combing through the data. In the case of the present study, this process entailed multiple readings of all the transcribed interviews. I started my first cycle coding using a flexible combination of line-by-line, sentence-by-sentence, and paragraph-by-paragraph coding processes. I underlined and highlighted data by hand, as well as jotted down potential labels that consisted of words or phrases to describe phenomenon that seemed significant to my research questions. (see Figure 3.1)



p.3

where students are able to reach out to another school at an undisclosed location and find out where they are. Something like that, I had to get that from somewhere.

I'm on Twitter. I'm on Skype for education. He probably has also seen me take the existing curricula and turn that into something else, whether it be creating digital brochures, or we do a lot of digital writing, publishing writing digitally, and he's seen some of that.

Twitter / Skype for Ed.
take curr. & turn into something else
reform curriculum

I'm also constantly being asked by administrators about what can a teacher use for this, and I often had the answer rather quickly because of all of the research that I do on my own to find these tools.

research done on own

asked by admin. to help teachers
have answers
research on own
has quick answers

Margaret: When do you do this research on your own? Is it during the school day or do you find yourself at home...?

Theresa: No. I absolutely find myself at home doing it. Partly because I feel like, when I'm in school, I shouldn't be doing that while I'm at school. I feel like I should either be grading papers or lesson planning or unit planning or working with students, and I feel like I'm almost cheating if I use that time, which is truly what my job is about.

find myself/at home researching
shouldn't be researching @school
cheating if use school time

That's why that time is there, but I have a really hard time strolling Twitter while I'm on school time. I do do a lot of it at night and on the weekends.

hard time strolling Twitter while @school
✓ night & weekends

Margaret: When people come to you, then, and ask you for something, how do you remember? How do you even know this information?

Knows info
Rember
look into info
practice & use

Theresa: Hopefully, I had given myself some time to really look into it and practice it and use it. Then those tools I remember better than others that I haven't looked at. I just have a pretty good memory for certain things. Or just reading how another teacher has used the tool and how they'd implement it, and that would be something even on Twitter that I've read.

practice - use
good memory
apply new learning
Twitter

Or I've gone to a workshop and seen someone present, or an NJECC meeting, and I'll keep notes. I started building a website too, to keep some of my resources in check.

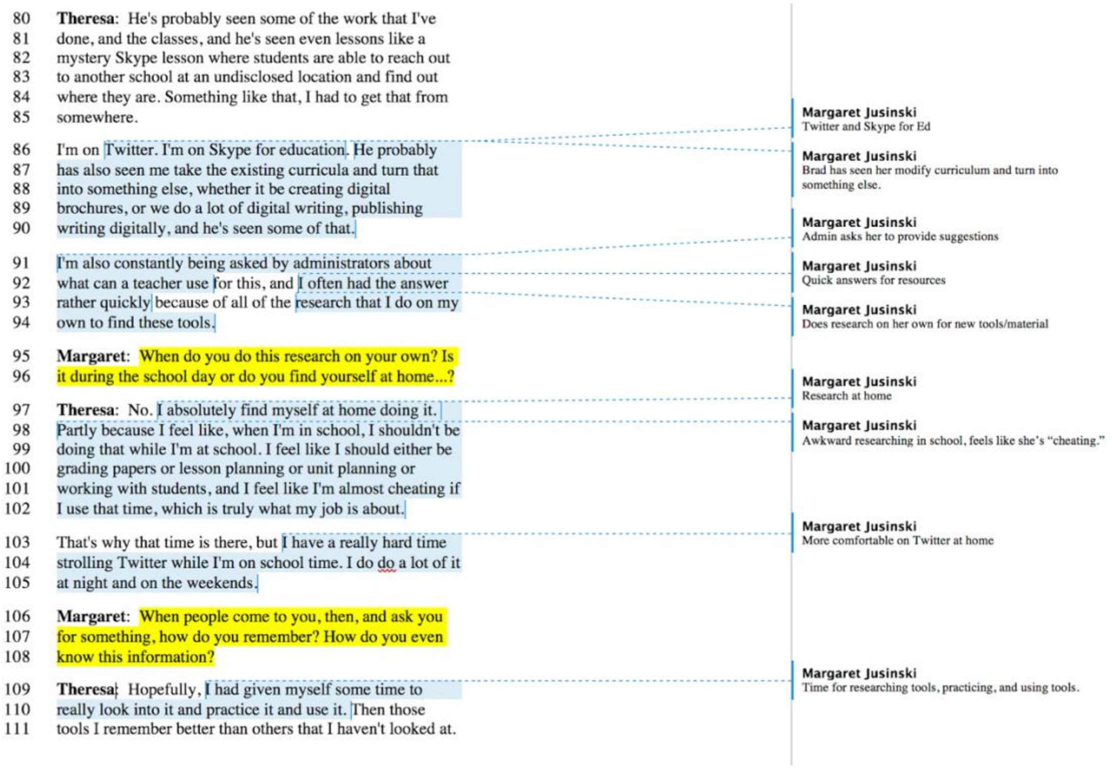
workshops & see people present
keeps notes
website of resources

But it can be quite overwhelming, because there are so many things out there, and it's something different every day. A lot of times I will have to go back and say, "OK, someone wants to do mind maps." I know I've heard of a few things, so I'll quickly do a

overwhelmed by quantity of info
remembers

Figure 3.1. Sample of the handwritten labeling process showing potentially significant codes.

This first cycle coding process generated a set of potential labels (e.g., “research at home,” “does research on her own for new tools/materials”). However, the large amount of data I collected meant that it became increasingly cumbersome to keep track of the labels I was developing for each transcript using my convention of handwritten labels. After annotating labels by hand for all transcribed interviews, I made the decision to digitize my labels by using the “comments” feature in Microsoft Word, and thus began to consolidate the labels into initial codes. (see Figure 3.2)



Theresa: He's probably seen some of the work that I've done, and the classes, and he's seen even lessons like a mystery Skype lesson where students are able to reach out to another school at an undisclosed location and find out where they are. Something like that, I had to get that from somewhere.

I'm on Twitter. I'm on Skype for education. He probably has also seen me take the existing curricula and turn that into something else, whether it be creating digital brochures, or we do a lot of digital writing, publishing writing digitally, and he's seen some of that.

I'm also constantly being asked by administrators about what can a teacher use for this, and I often had the answer rather quickly because of all of the research that I do on my own to find these tools.

Margaret: When do you do this research on your own? Is it during the school day or do you find yourself at home...?

Theresa: No. I absolutely find myself at home doing it. Partly because I feel like, when I'm in school, I shouldn't be doing that while I'm at school. I feel like I should either be grading papers or lesson planning or unit planning or working with students, and I feel like I'm almost cheating if I use that time, which is truly what my job is about.

That's why that time is there, but I have a really hard time strolling Twitter while I'm on school time. I do do a lot of it at night and on the weekends.

Margaret: When people come to you, then, and ask you for something, how do you remember? How do you even know this information?

Theresa: Hopefully, I had given myself some time to really look into it and practice it and use it. Then those tools I remember better than others that I haven't looked at.

Margaret Jusinski
Twitter and Skype for Ed

Margaret Jusinski
Brad has seen her modify curriculum and turn into something else.

Margaret Jusinski
Admin asks her to provide suggestions

Margaret Jusinski
Quick answers for resources

Margaret Jusinski
Does research on her own for new tools/material

Margaret Jusinski
Research at home

Margaret Jusinski
Awkward researching in school, feels like she’s “cheating.”

Margaret Jusinski
More comfortable on Twitter at home

Margaret Jusinski
Time for researching tools, practicing, and using tools.

Figure 3.2. Image of my initial code-development process in Microsoft Word.

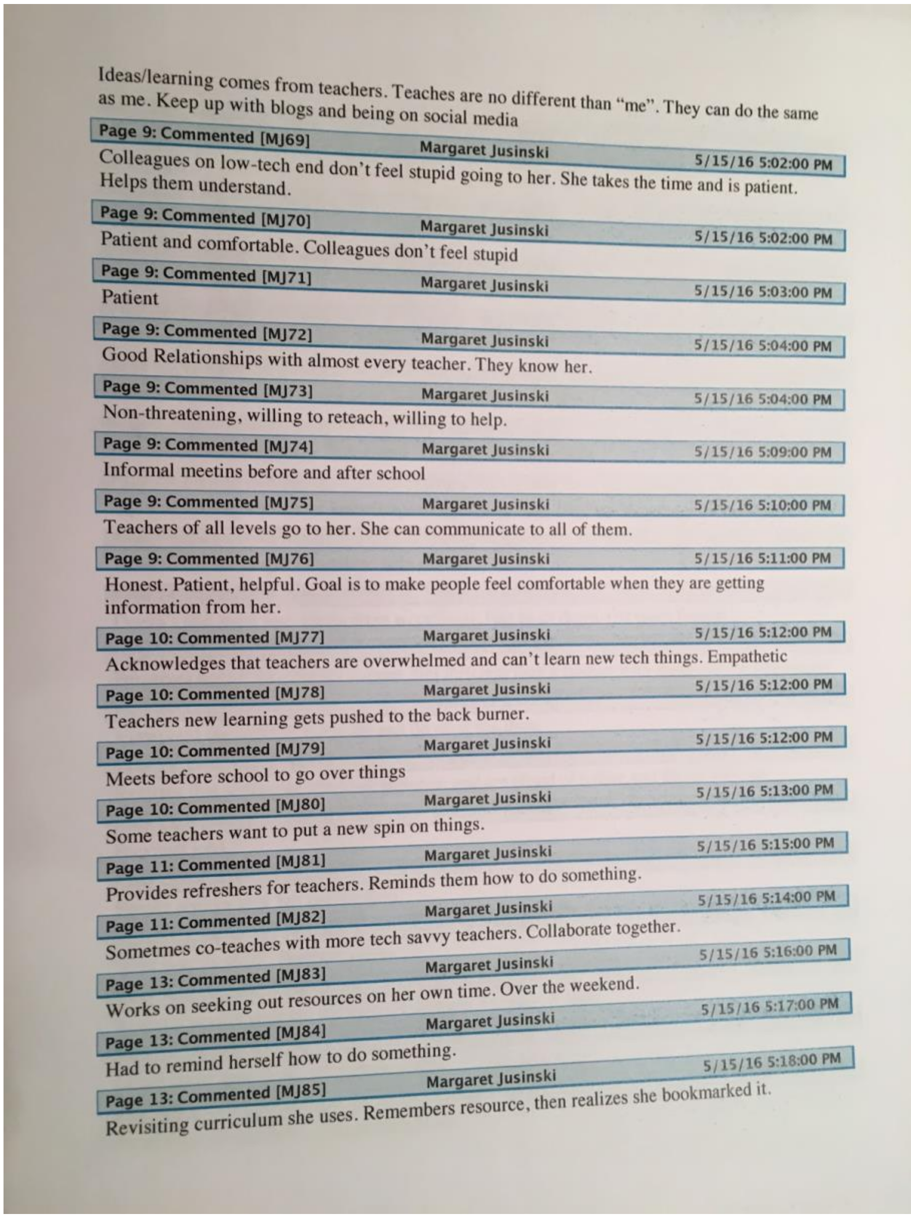
With a digital version of each transcript open on my computer, along with my handwritten, annotated version of the same transcribed interview, I meticulously reviewed the transcripts and refined my labels by adding them as comments using the comments feature available in Microsoft Word. (see Table 3.2)

Table 3.2

Examples of Initial Codes Developed in My First Cycle Analysis

Initial Code	Definition of code from label	Example
Awkward researching in school, feels like she's cheating	Takes time to research at home; research is pleasurable	"I absolutely find myself at home [researching]. Partly because I feel like, when I'm at school, I shouldn't be doing that. I feel like I should either be grading papers or lesson planning or unit planning or working with students, and I feel like I'm almost cheating if I use that time"
Knows information	Looks into information to practice and use; good memory	"I have given myself some time to really look into it and practice it and use it. Then those tools I remember better than others. I just have a pretty good memory for certain things. Or just reading how another teacher has used the tool and how they'd implement it, and that would be something even on Twitter that I've read."
Informal collaboration	Informal situations, try new things and change things, informal conversations	"A lot of times, I'm noticing. I love it when they approach me first, but that doesn't always happen, but, yes, it is very informal. Sometimes it's via email, or something that they're thinking about they want to try, or do you know how I can change this by adding some tech to it? So, email and very informal conversations."

After I completed this iterative process for every transcribed interview in my study, I printed out each set of the initial codes that emerged. (see Figure 3.3)



Ideas/learning comes from teachers. Teaches are no different than "me". They can do the same as me. Keep up with blogs and being on social media

Page 9: Commented [MJ69] **Margaret Jusinski** **5/15/16 5:02:00 PM**

Colleagues on low-tech end don't feel stupid going to her. She takes the time and is patient. Helps them understand.

Page 9: Commented [MJ70] **Margaret Jusinski** **5/15/16 5:02:00 PM**

Patient and comfortable. Colleagues don't feel stupid

Page 9: Commented [MJ71] **Margaret Jusinski** **5/15/16 5:03:00 PM**

Patient

Page 9: Commented [MJ72] **Margaret Jusinski** **5/15/16 5:04:00 PM**

Good Relationships with almost every teacher. They know her.

Page 9: Commented [MJ73] **Margaret Jusinski** **5/15/16 5:04:00 PM**

Non-threatening, willing to reteach, willing to help.

Page 9: Commented [MJ74] **Margaret Jusinski** **5/15/16 5:09:00 PM**

Informal meetins before and after school

Page 9: Commented [MJ75] **Margaret Jusinski** **5/15/16 5:10:00 PM**

Teachers of all levels go to her. She can communicate to all of them.

Page 9: Commented [MJ76] **Margaret Jusinski** **5/15/16 5:11:00 PM**

Honest. Patient, helpful. Goal is to make people feel comfortable when they are getting information from her.

Page 10: Commented [MJ77] **Margaret Jusinski** **5/15/16 5:12:00 PM**

Acknowledges that teachers are overwhelmed and can't learn new tech things. Empathetic

Page 10: Commented [MJ78] **Margaret Jusinski** **5/15/16 5:12:00 PM**

Teachers new learning gets pushed to the back burner.

Page 10: Commented [MJ79] **Margaret Jusinski** **5/15/16 5:12:00 PM**

Meets before school to go over things

Page 10: Commented [MJ80] **Margaret Jusinski** **5/15/16 5:13:00 PM**

Some teachers want to put a new spin on things.

Page 11: Commented [MJ81] **Margaret Jusinski** **5/15/16 5:15:00 PM**

Provides refreshers for teachers. Reminds them how to do something.

Page 11: Commented [MJ82] **Margaret Jusinski** **5/15/16 5:14:00 PM**

Sometmes co-teaches with more tech savvy teachers. Collaborate together.

Page 13: Commented [MJ83] **Margaret Jusinski** **5/15/16 5:16:00 PM**

Works on seeking out resources on her own time. Over the weekend.

Page 13: Commented [MJ84] **Margaret Jusinski** **5/15/16 5:17:00 PM**

Had to remind herself how to do something.

Page 13: Commented [MJ85] **Margaret Jusinski** **5/15/16 5:18:00 PM**

Revisiting curriculum she uses. Remembers resource, then realizes she bookmarked it.

Figure 3.3. Image shows my initial codes as comments in Microsoft Word.

I read all the initial codes from each transcript without their supporting examples to decide whether I could begin to develop a cursory understanding of trends within my data. I did find that by reading the initial codes in a decontextualized, abstract manner benefitted my data analysis. I began to notice certain trends within my data, which related to my research questions about the knowledge broker teachers’ attributes, as well as their knowledge building and sharing processes.

After reading the initial codes that I had printed from Microsoft Word, I still did not feel as though I had a complete handle on all the nuances that I was uncovering with regard to who the knowledge broker teachers were and how they operated in their schools as sources of professional development. The sheer number of initial codes from the many interview transcripts was still overwhelming. Therefore, after some deliberation, as well as seeking the advice from my critical friends and doctoral study group members, I made the decision to use Dedoose, a cloud-based, password-protected, computer assisted qualitative data analysis program. I moved to Dedoose to facilitate the task of generating categories from the initial codes.

Using Dedoose, I uploaded all my transcribed interviews and screencast transcriptions. I then returned the “drawing board” of combing through each of the previously hand-annotated transcriptions line by line, and, in Dedoose, highlighting and marking text, and inserting the same labels electronically. I decided to take the time to do this laborious process because I wanted to make sure that the digital versions of my analyzed transcripts that were being housed in Dedoose had every stage of my analysis. While this process of copying my labels from their handwritten versions into digital versions took a great deal of time, it resulted in being an exercise that helped me to become even more familiar with my data. It also provided me with digitized versions of all my data analysis.

Even with the ease of digitizing my labels that corresponded with the transcribed text, I was still overwhelmed with what to do in terms of analyzing my data. While I had started making initial codes on the previously described Microsoft Word document, I was not satisfied with the analysis because I had indicated the initial codes as comments in the margins. This method proved to be too confusing and scattered. So, after digitizing all the labels in Dedoose, I exported approximately 1,300 labels from Dedoose into Microsoft Excel with identifiers indicating from which participant's transcription they originated. I printed the file containing every label that I coded on the transcription and cut them into strips. I then took the time to sort the labels into piles, such as "One of a Kind" or "Go-to Person." My process of sorting into piles was determined by whether or not the labels "fit" together based on my expanding familiarity with the interview data. Each pile represented an initial code. All told, when this process was complete, the labels were sorted into 103 initial codes. I placed the strips of paper into envelopes with the initial codes listed on them. (see Figure 3.4)

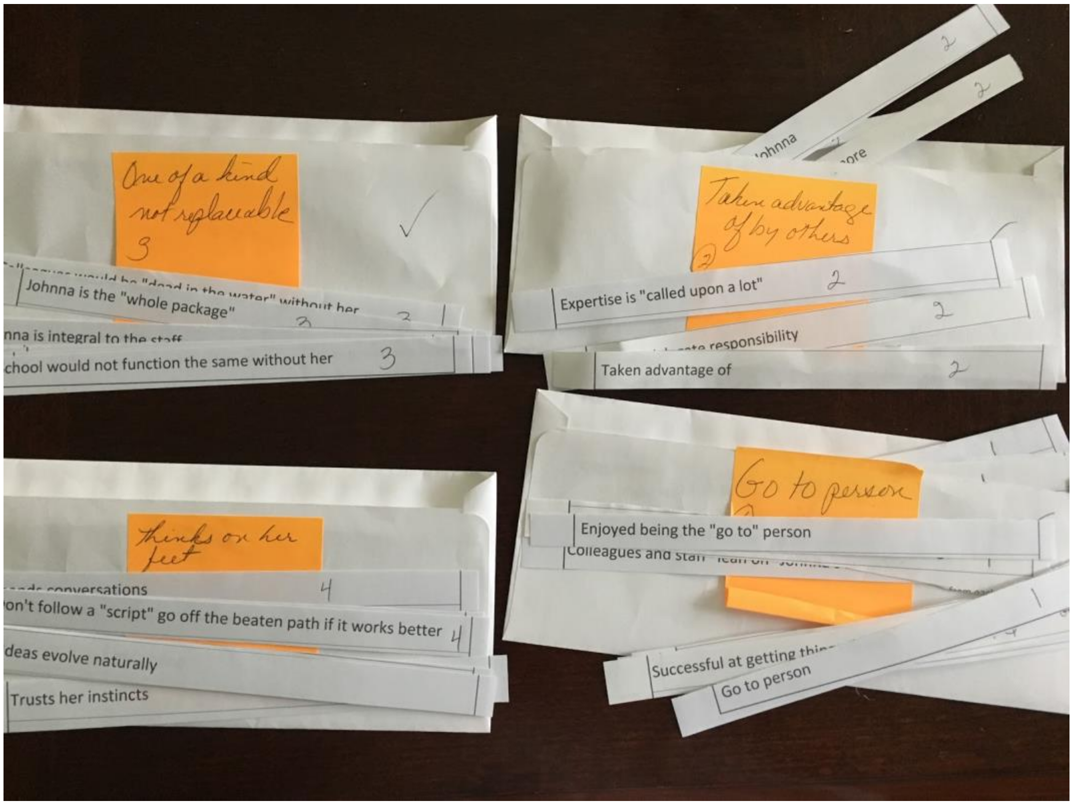
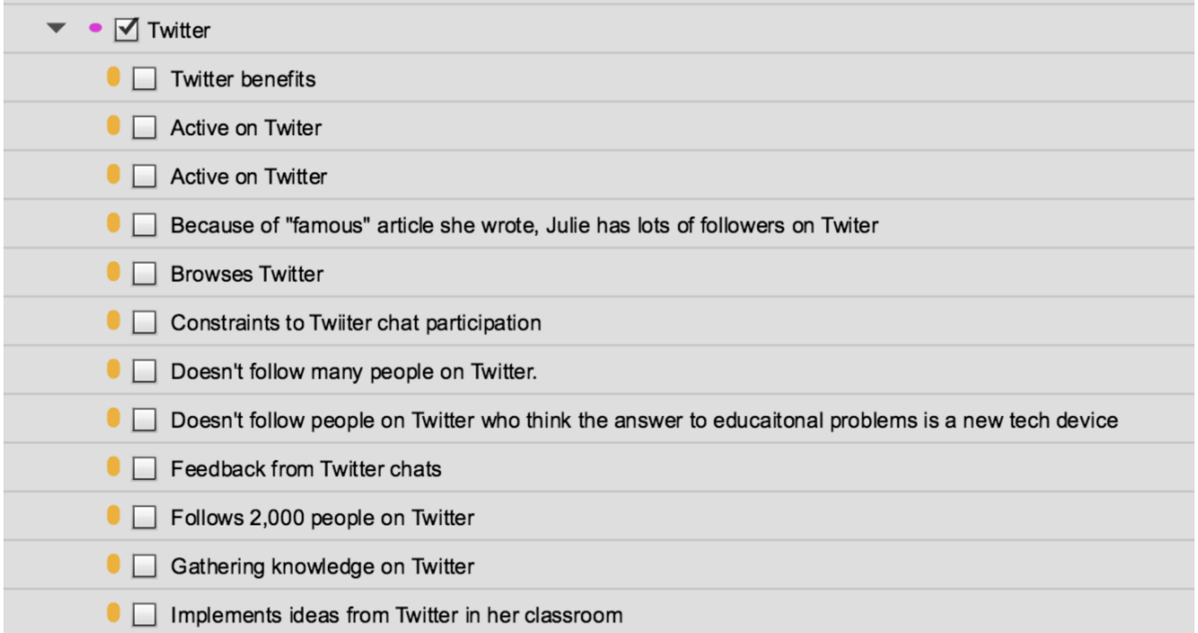

One of a kind not replacable 3
Johnna is the "whole package" 3
chool would not function the same without her 3
Taken advantage of by others 2
Expertise is "called upon a lot" 2
responsibility 2
Taken advantage of 2
thinks on her feet
conversations 4
on't follow a "script" go off the beaten path if it works better 4
deas evolve naturally
Trusts her instincts
Go to person
Enjoyed being the "go to" person
Colleagues and staff
Successful at getting thi
Go to person

Figure 3.4. Sample of labels with their corresponding initial codes listed on envelopes.

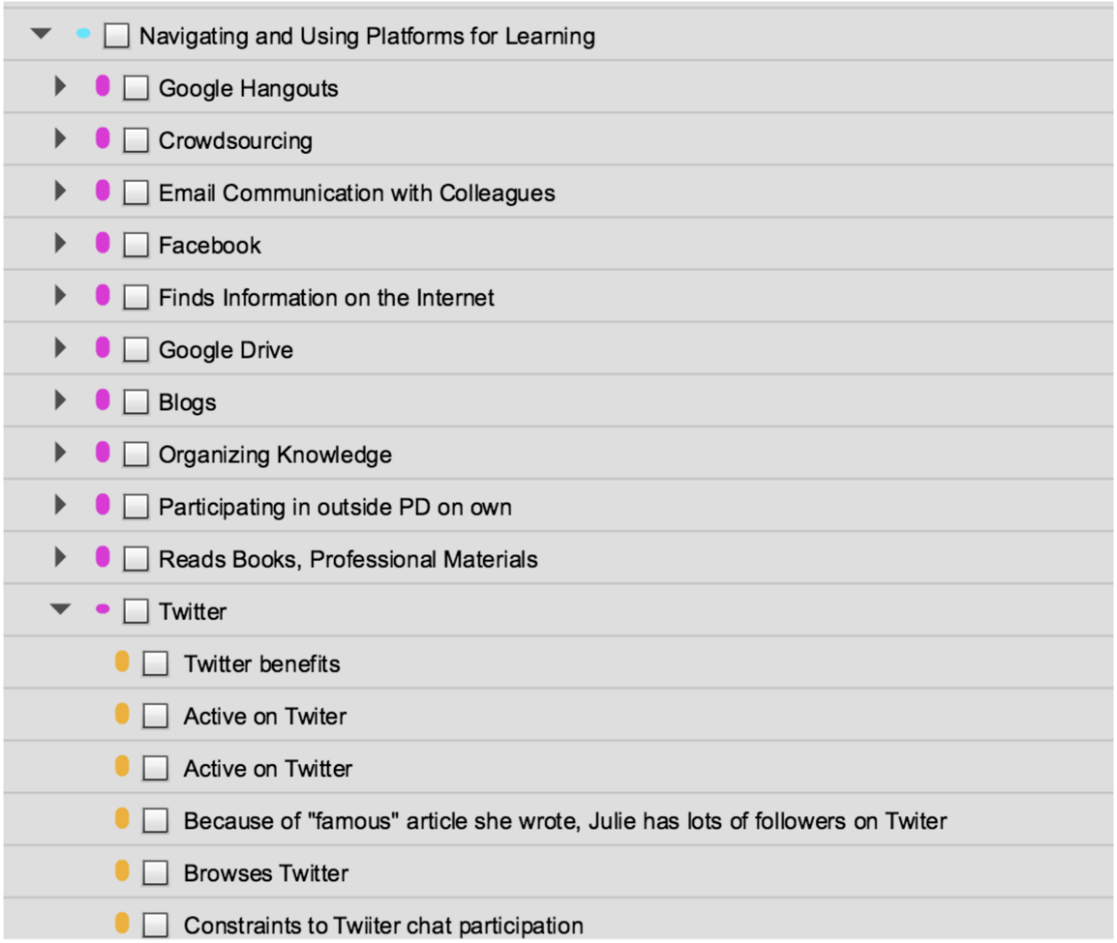
Once my labels were all sorted and labeled with initial codes, I then meticulously coded all the data transcripts in Dedoose using the named initial codes. After establishing these initial codes, I began an iterative second cycle of coding where I worked on refining the codes that were emerging from or being constructed for me by the data. I sorted them into categories based on what the initial codes in the piles described. (see Figure 3.5)



☑ Twitter
  ☐ Twitter benefits
  ☐ Active on Twiter
  ☐ Active on Twitter
  ☐ Because of "famous" article she wrote, Julie has lots of followers on Twiter
  ☐ Browses Twitter
  ☐ Constraints to Twiiter chat participation
  ☐ Doesn't follow many people on Twitter.
  ☐ Doesn't follow people on Twitter who think the answer to educaitonal problems is a new tech device
  ☐ Feedback from Twitter chats
  ☐ Follows 2,000 people on Twitter
  ☐ Gathering knowledge on Twitter
  ☐ Implements ideas from Twitter in her classroom

Figure 3.5. *Image of the initial codes that comprise the Twitter category in Dedoose.*

The next step involved analyzing the categories that emerged. Again, I sorted through the categories, nesting similar ones. Eventually, 17 themes emerged as a result of this sorting process. (see Figure 3.6)



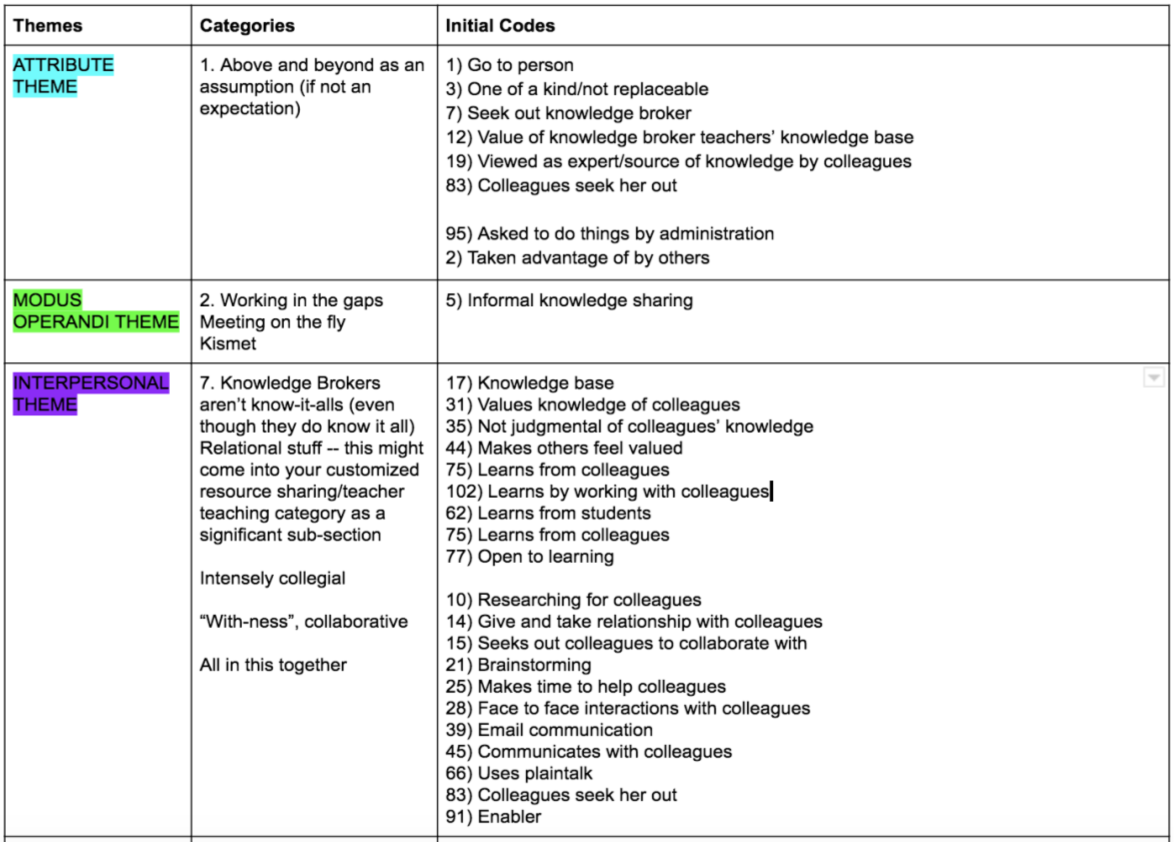
- ☐ Navigating and Using Platforms for Learning
  - ☐ Google Hangouts
  - ☐ Crowdsourcing
  - ☐ Email Communication with Colleagues
  - ☐ Facebook
  - ☐ Finds Information on the Internet
  - ☐ Google Drive
  - ☐ Blogs
  - ☐ Organizing Knowledge
  - ☐ Participating in outside PD on own
  - ☐ Reads Books, Professional Materials
  - ☐ Twitter
    - ☐ Twitter benefits
    - ☐ Active on Twiter
    - ☐ Active on Twitter
    - ☐ Because of "famous" article she wrote, Julie has lots of followers on Twiter
    - ☐ Browses Twitter
    - ☐ Constraints to Twiiter chat participation

Figure 3.6. Nested categories, initial codes, and labels in Dedoose.

For example, the theme, "Navigating and Using Platforms for Learning," contains the category, "Twitter," with its nested initial codes.

My decision to use Dedoose, while albeit an initially time-consuming process, was clearly a smart analytical move. All data and analysis were at my fingertips. Moving initial codes and categories around the interface was easy to do and finding excerpts from the transcriptions that corresponded to initial codes could be done quickly. I found it helped me to manage the many different codes I had generated, and both nesting and pulling-apart codes was an easy process, which simply required clicking and dragging. The interface was very user-friendly, consisting of color-coded coding levels, multiple tabs that could depict different elements of the data (codes, media, etc.). Dedoose's tech support was easily accessible, as I had reached out to them with a question about coding data. Finally, because Dedoose stored remotely, on their secure, cloud-based servers, I was able to work on a variety of devices to analyze my data across a wide range of locations, such as work and home. As a result, I was not tethered to a specific computer.

After establishing my categories, I began to work on developing themes. According to Saldaña (2012), a theme is defined as an end result of coding and categorization and is not something that is in itself coded. After browsing my categories, I initially tried to fit them into themes that would address my research questions. Some initial themes I considered included those related to attributes, modus operandi (or how the knowledge broker teachers built and shared knowledge), and interpersonal relationships. (see Figure 3.7)



Themes	Categories	Initial Codes
ATTRIBUTE THEME	1. Above and beyond as an assumption (if not an expectation)	1) Go to person 3) One of a kind/not replaceable 7) Seek out knowledge broker 12) Value of knowledge broker teachers' knowledge base 19) Viewed as expert/source of knowledge by colleagues 83) Colleagues seek her out 95) Asked to do things by administration 2) Taken advantage of by others
MODUS OPERANDI THEME	2. Working in the gaps Meeting on the fly Kismet	5) Informal knowledge sharing
INTERPERSONAL THEME	7. Knowledge Brokers aren't know-it-alls (even though they do know it all) Relational stuff -- this might come into your customized resource sharing/teacher teaching category as a significant sub-section Intensely collegial "With-ness", collaborative All in this together	17) Knowledge base 31) Values knowledge of colleagues 35) Not judgmental of colleagues' knowledge 44) Makes others feel valued 75) Learns from colleagues 102) Learns by working with colleagues 62) Learns from students 75) Learns from colleagues 77) Open to learning 10) Researching for colleagues 14) Give and take relationship with colleagues 15) Seeks out colleagues to collaborate with 21) Brainstorming 25) Makes time to help colleagues 28) Face to face interactions with colleagues 39) Email communication 45) Communicates with colleagues 66) Uses plaintalk 83) Colleagues seek her out 91) Enabler

Figure 3.7. Themes with supporting categories and initial codes.

While they were logically based on the groupings of categories, I decided to seek the help of my dissertation advisor, as well as my peers in my doctoral study group, to assist me with developing themes. This group's makeup and purpose will be discussed in more detail in the section on positionality. To do this, I prepared the list depicted in Figure 7 by cutting out each row of themes, categories, and initial codes so that they could be physically moved around with my peers in the doctoral study group. I had my peers determine if the categories and supporting initial codes either reflected the theme I had discovered, or if there was another theme that seemed more appropriate, or if the categories should have been renamed. After working with my doctoral study group, we decided to keep my original themes, but to refine them with respect to how they were termed, intentioned themes, given the nuances of the categories and their supporting initial codes. The final themes that emerged as a result of the suggestions from my doctoral study group included, (1) brokers, (2) brokering, and (3) brokerage. Each of these themes will be discussed in more detail in the findings chapters.

I felt confident in the themes that emerged after the analysis of my data. Most importantly, the input of my doctoral study group into theme development made for insightful and interesting results about knowledge broker teachers. Meeting with my peers in both my critical-friends group and doctoral study group via face-to-face and virtual meetings, allowed me to gather new insights about my data-analysis process through their constructively critical questions and suggestions. I found myself accepting much of their feedback and incorporating it into my study.

As a result, my purpose in conducting this research was to make a worthwhile contribution to the corpus of educational research about the existence of knowledge broker teachers and their influence the professional development of their colleagues. My data analysis, which used a variety of techniques to delve into the heart of who knowledge broker teachers are and what they do, sheds light on how this phenomenon occurs. To this end, I needed to address issues regarding ethical and methodological concerns.

Ethical and Methodological Concerns

Making sure this study was considered a credible contribution, I performed several protocols to support my study. All decisions that I made were done with careful consideration of my own positionality, accountability, and trustworthiness. Prior to undertaking this study, I sought permission from my institution's Internal Review Board (IRB) to conduct research with human participants. All participants were treated in an ethical manner. This involved protecting subjects from physical, emotional, and social harm, risk, or deception (Merriam, 2009; Miles, Huberman, & Saldaña, 2014). Additionally, I took measures to ensure their privacy as much as possible and provided them with consent forms to sign prior to the start of this study describing their commitment to participate in this study. participation in this study. Participants were presented with the option to leave the study at any time. All recorded interviews, video recordings, transcripts, documents, and field notes were stored on a password-protected computer. All cloud-based documents were password protected. The participants were provided with pseudonyms for the purposes of this research. This was a non-judgmental study, as I was not interested in evaluating the effectiveness of the teachers as knowledge brokers but their effectiveness as a resource for professional development. I was only interested in gaining a deeper understanding of how they influenced the professional development of their colleagues through my research questions which involved uncovering their attributes and how they built and shared their knowledge. Given the intentions and nature of my study, I did not encounter any ethical conundrums or issues. Next, I describe how I handled positionality, credibility, transferability, and consistency issues throughout this study.

Positionality. Positionality is described as how a researcher is positioned in terms of their worldview with regard to their assumptions, experiences, biases, and dispositions (Merriam, 2009). In terms of this study, my positionality took on a special significance. I am employed as a technology teacher in one of the schools that belongs to the regional school district from which my participants were selected. However, I was clear with the Director of Curriculum, Instruction, and Assessment that he should not select participants from my own school. While I had worked with many teachers from other schools in the district, I had no personal relationships with any teachers in the wider regional district that would have interfered with the data I had collected from this study's participants.

Given my role in my school as a technology teacher, I have a keen interest in how both students and teachers use technology to enhance their learning. I am fervent in my belief that technology use in the classroom should not be a means to an end. Instead, it needs to be used as a tool for both students and teachers to facilitate their learning. When I work with students and, at times, teachers, my focus often lies on the content to be learned and then turns toward how technology can enhance that learning. Certainly, my understanding of new technologies and online social media tools enabled me to have an insider's understanding of how the knowledge broker teachers and their teacher colleagues were using technology to enhance their professional development. While at times my interest was piqued by novel ways that they were using technology, I did my best to "stay the course" as a researcher who let them explain in their own terms without allowing my own levels of understanding or beliefs to interfere with the data being collected. Because of my insider knowledge of teaching and familiarity with the regional school district, I steered clear of guiding and influencing what the participants in my study said or did during our interview sessions. I endeavored to keep my a priori assumptions in check. I also maintained and will continue to maintain their trust by keeping their identities confidential.

Granted, at times, my insider knowledge of the teaching profession helped me to better understand educational ideas, trends, practices, and jargon that were spoken about and the contexts in which events occurred. Certainly, this put me at an advantage, as I innately understood such things such as how the schedule of a school works, or the manner in which curriculum development occurs. In sum, my goal was to be an interested and curious researcher who wanted to uncover the impact of knowledge broker teachers on the professional development of their colleagues.

Working with my advisor, my critical-friends group, and the doctoral study group enabled me to see my own positionality and blind spots with regard to my research. They pointed out aspects of my research that I had overlooked or provided the service as sounding boards during the entire research process--from developing my theoretical framework to refining my themes. My advisor was especially pivotal in providing constructive feedback with regard to every aspect of my research—from developing my theoretical framework, to providing her thoughts about my analysis and development of themes. My critical friends consisted of varying numbers of doctoral candidates who would meet with me approximately once a month over the past three years. My doctoral study group regularly met on campus and was led by my dissertation advisor. Typically, the group consisted of eight participants. The membership did undergo changes over the past three years during which the group met, due to members completing their doctorates. In both groups, all members' dissertation research was discussed. To reiterate, the usefulness of these groups of people in supporting my research by providing valuable critiques and thoughtful advice was critical to its completion. Trustworthiness is the next topic of significance in this study.

Trustworthiness. Having standards for rigor in qualitative research requires that the study be trustworthy, and possess credibility, consistency, and transferability (Lincoln & Guba, 1985; Merriam, 2009). As Merriam (2009) described, the credibility of a study involves whether or not the study is believable from the perspectives of the participants, considering the purposes and circumstances of the research. To ensure the credibility of this study, triangulation was used when collecting data from interviews and screencasts. Built into the data collection process were opportunities for the knowledge broker teachers to clarify what their colleague teachers reported to me, as well as opportunities for them to discuss how their colleagues represented them in their episodic interviews. The knowledge broker teachers were given opportunities to clarify their responses and to provide feedback concerning my interpretations during the final interview.

Peer review was also used throughout the entire study with my advisor, critical friends, and my doctoral study group to ensure credibility. These individuals were very familiar with my study. Throughout the data analysis process and the crafting of my findings, they had intimate knowledge as to what was taking place. When I would pose certain ideas or ways to present my findings, they were an invaluable sounding board for me. They constantly offered practical guidance, letting me know what a valid or invalid approach was, in order to move my study forward.

In a qualitative study, transferability refers to whether or not the results are consistent with the data collected (Merriam, 2009). Lincoln and Guba (1985) describe that the onus of a qualitative study being applied by another researcher rests on the original investigator. Hence, the original investigator must include “sufficient descriptive data” (p. 298) to ensure that transferability is possible. In order to ensure the transferability of my study, I maintained a clear audit trail. I documented in detail, how I collected data, derived my themes, and how I made decisions throughout the research process. Over the course of the research project, I carefully documented my thoughts, insights, and actions in my researcher’s journal. This audit trail added rigor to my study by including details regarding my data analysis decisions that led to my interpretations and findings.

Limitations

This qualitative research’s findings relate to the knowledge broker teachers that were studied. The limitations inherent in this study concern the number of participants from a regional district in New Jersey. With four knowledge broker teachers and twelve colleague teachers participating, the study can only present a snapshot of knowledge broker teachers and their effect on teacher professional development. Additionally, the absence of additional colleague teachers from the high school level knowledge broker teacher resulted in less data concerning her influence on her colleagues. Despite these limitations, the findings have the potential to add to the ongoing discussions about what constitutes effective informal teacher professional development from an obscure source, knowledge broker teachers.

Conclusion

In sum, I have provided an overview of the methods that this study used to explore knowledge broker teachers. I have outlined my data collection method, data analysis, and the study’s limitations. Thorough descriptions of methodological aspects ensure that the findings and discussion presented in each of the three subsequent chapters stem from attention paid to this study’s design and a careful and deliberate analysis of the data.

CHAPTER 4: BROKERS AS SHAPE-SHIFTERS

Introduction

This chapter presents an analysis and discussion of one of the three main outcomes of systematically coding the data as discussed in Chapter 3. This coding process generated key themes in response to examining the role that four knowledge broker teachers—Theresa, Meg, Alice, and Jennie—had in contributing to their colleagues' professional development. Specifically, the questions driving this study included:

1. How do four knowledge broker teachers build their knowledge?
2. How do four knowledge broker teachers share their knowledge?
3. What attributes do colleague teachers identify as being important in a knowledge broker teacher?

This chapter loosely responds to the third question listed above with regard to the attributes of knowledge broker teachers. Throughout my interviews with the 12 colleague teachers participating in this study, I explicitly asked about the attributes of knowledge broker teachers so as to provide a richer understanding of the types of teachers who are knowledge brokers, and how those teachers' attributes contribute to their success as knowledge brokers. Attributes, as defined in Chapter 2, are comprised of certain personal characteristics that facilitate the knowledge brokers' ability to translate and transfer knowledge effectively (Conklin, et al., 2013; Hellström, Malmquist, & Mikaelsson, 2001; Phipps & Morton, 2013; Traynor, DeCorby, & Dobbins, 2014; Williams, 2002). While my original research question only sought to identify attributes based on the feedback from the colleague teachers, I found that my knowledge broker teachers provided just as much rich and interesting data concerning their attributes. Rather than collapse the responses of the knowledge broker teachers and their colleagues as a means to define the attributes, I used both sets of comments in my analysis.

Therefore, the findings presented in this chapter include a combination of comments from both knowledge broker teachers and their colleague teachers.

While one of my research questions sought to describe knowledge broker teachers' attributes in terms of how their colleagues perceived them, the data suggested that the original question seeking a list of defined attributes that could be useful in identifying knowledge broker teachers was too simplistic in its outlook. I found that the notion of attributes was much more nuanced and complex than the literature on knowledge brokers had led me to believe. After analyzing all the participants' responses, a richer portrait of knowledge broker teachers' unique qualities emerged. Indeed, rather than simply generating a laundry list of attributes that matched what had been described previously in the literature concerning knowledge brokers, such as being a good listener (Williams, 2002), being trustworthy (Lomas, 2007), or being able to facilitate the transfer knowledge (Traynor, DeCorby, & Dobbins, 2014), the findings of this study strongly suggested that knowledge broker teachers' attributes were not one-dimensional, fixed, or even steadfast traits. The data indicated that what may have been previously described as attributes were mutable, and at times even contradictory. Indeed, I found that what had been defined in the literature as attributes were actually deeply associated with the context and situations within which the knowledge broker teachers found themselves. The nuanced and varied descriptions provided by both the colleague teachers and the knowledge broker teachers led me seek a new way to define the term, "attributes." As a result, I decided on the term, "persona." Persona is derived from the Latin term for "a mask, or character played by an actor" ("Persona," 2018). The term "persona" points to characteristics someone takes on within a role and, at the same time, includes how this person is "presented to or is seen" ("Persona," 2018) by others. To account for the mutable quality that the knowledge broker teachers were described as having, I opted to use the term, "shape-shifters" which accounted for their ability to assume different personas depending upon the context or situation. Additionally, the term suited the situated learning theoretical framework of this study. Describing the knowledge broker teachers' knack for shape-shifting into different personas at will, depending upon the context or situation, enabled me to better understand the ways in which they adjusted their approach when dealing with other colleagues. For instance, one knowledge broker teacher described her own shape-shifting as knowingly "adjusting" to the learning preferences and personalities of her colleagues (Theresa, Interview 2, May 16, 2016). As a result, instead of describing their attributes, it became clear that these knowledge broker teachers engaged in processes of shapeshifting by taking on different personas. After analyzing the data, there were several notable personas that I identified. These included the following: knower and learner, benefactor, comrade, cheerleader, forward-thinker, and shrinking violet along with a description for each one.

Knower and Learner

While being both a knower and a learner at the same time may seem contradictory, the knowledge broker teachers in this study revealed how these two personas worked hand-in-hand. As knowers, the knowledge broker teachers possessed an expansive range of knowledge that was in demand and sought after by their colleagues. Additionally, the knowledge broker teachers simultaneously were eager learners, who sought, savored and squirreled away new knowledge for further sharing with their colleagues. Oftentimes, throughout the course of the interview sessions, instances were described by both the colleague teachers and knowledge broker teachers where the knowledge broker teachers seemed to throttle between the persona of being both knower and learner almost simultaneously.

Throughout all the interviews with all four knowledge broker teachers as well as those of their colleague teachers in this study, the acknowledgement of the knowledge broker teachers' breadth of knowledge and intellectual ability emerged as a constant topic of conversation. These knowledge broker teachers were also recognized as learners: always willing to immerse themselves in situations where they could expand their own knowledge. While somewhat expected, given the focus on knowledge brokering in this study, what was not expected as much, on my part, was the fluidity and ease with which all four knowledge broker teachers moved between being a knower and learner, and how this ability to shift and change personas in response to the context at hand, strengthened their intellectual credibility and accessibility in the eyes of their colleagues. The director and colleague teachers explicitly identified and voiced respect for the knowledge brokers' range of knowledge. They described each of the four knowledge broker teachers as being "incredibly bright" (Director Interview, February 18, 2016), "knowledgeable" (Colleague 3:4, Episodic Interview, March 15, 2016), "intellectually generous" (Colleague 2:1, Episodic Interview, August 9, 2016). They were also described as "lifelong learners" (Colleague 2:1, Episodic Interview, August 9, 2016) and "eager to learn" (Colleague 1:1, Episodic Interview, April 18, 2016). To best understand how the four knowledge broker teachers demonstrated this fluid persona of being a knower and a learner, I will describe how this mixed persona was manifested across various contexts. At this point, the colleague teachers who were involved in this study will be referred to as colleagues. As a result of different contextual factors, being a knower and a learner took on different facets across varying situations. These different facets of being a knower and a learner included being tenacious, being collaborative, and being curious.

Being Tenacious

At times, the knowledge broker teachers exhibited their knowledge, or sought new learning in a tenacious way depending upon the context. In this regard, being tenacious could best be described as being persistent and confident in admitting what they knew and admitting what they didn't know. In the case of Jennie, she was described by her colleagues as "very knowledgeable at what she does" (Colleague 4:3, Episodic Interview, April 19, 2016) and spent a good deal of her own time reading about a variety of educational topics, such as literacy approaches and technology trends. As a possible result of her desire to stay current and on top of technological trends, Jennie often took the initiative to share her knowledge with her fellow colleagues, sometimes without prompting. Another of Jennie's colleagues described how Jennie was widely recognized and respected among the administrators and other teachers in her district for her knowledge and how valuable Jennie was in terms of the administrators being able to draw on her knowledge when serving on district-wide committees. Jennie's colleague recollected a time when Jennie used her knowledge about goal writing and student assessment to step up and take control of a district-wide meeting that had gone adrift and lacked clear focus by the administrators leading the meeting:

> [Jennie] was at [a] meeting with me [which involved rewriting district technology goals]. The first 10 minutes were a little bit slow because there really wasn't a focus [from the administrators present]. [Jennie] jumps in, and she immediately connects the goals that we're going to be rewriting to the assessments that are going to be used. . . . [S]he gets everybody talking about connecting assessments and goals, and how those should be interrelated. . . . [S]he got everyone talking about that connection. She even directed [the executive director of technology]. I don't want [it to seem as if she's] brash, because she's not brash, but she is not really intimidated by other people in the room, even if they have a bigger title than her, because she knows [and understands] the right things that need to happen, and she's not afraid to say it. (Colleague 4:1, Episodic Interview, April 1, 2016)

In this instance, Jennie's knowledge of goal writing and its connection to assessment helped to redirect a meeting that was floundering into one that became more purposeful and productive. As this situation showed, it was easy to see that Jennie's knowledge, when combined with a tenacious confidence in that knowledge, clearly enabled her to turn on her knower-persona and take charge and redirect the listless meeting. Asserting her knowledge without receiving push-back from her administrators points to the respect that Jennie's knowledge commanded in her district.

Using the knowledge broker teachers as sources to infuse and spearhead new initiatives in their schools was a topic that emerged during the interviews. Within the school district, new initiatives were being planned that involved increasing teacher professional development. Jennie was selected by her administrators to perform a key role in this initiative. She mentioned that perhaps she was chosen because she was "willing to try new things" (Jennie, Interview 2, May 20, 2016). She continued to describe that over the years she had piloted the new teacher evaluation system in her district, participated in her district's initiative to spearhead the practice of Japanese lesson study, and assisted teachers in designing lessons that correlated with the Next Generation Science Standards. Jennie suspected that being chosen to be involved in new initiatives made sense because she was always willing to take part, "especially if it's something new" (Jennie, Interview 2, May 20, 2016). Being recognized by her administrators for her tenaciousness enabled them to use her as a key player in new initiatives. They had faith in her as a knower and a learner.

In addition to being viewed as tenacious knowledge holders, the data pointed to the knowledge broker teachers as tenacious learners. Theresa's colleagues made specific mention of Theresa's desire to push forward her own knowledge and understanding of technology. As one colleague explained, "She loves technology. This is her thing. She loves the research end of it" (Colleague 1:2, Episodic Interview, April 21, 2016). Her colleague continued to share insights about Theresa as a learner, "She loves coming up with new ideas. It excites her. . . . She gets pleasure out of finding these new things and coming up with the latest and greatest" (Colleague

1:2, Episodic Interview, April 21, 2016). Another colleague mentioned a specific instance when Theresa did not “know all the ins and outs” (Colleague 1:3, Episodic Interview, April 22, 2016) regarding the use of one particular computer application. As her colleague described, rather than being deterred and directing the colleague to not bother seeking further answers, Theresa used this situation as a catalyst to push her own learning:

> If I ask [Theresa] something, and she doesn't necessarily know all the ins and outs of it, she'll go home, and then two nights later, I'm having a conversation with her. She goes, "No, when I was working on that at home, and I was going through the thing." I'm like, "Two nights in a row?" She's like, "Yeah." She will spend her time at home, trying to figure stuff out. If somebody asks her about something, she doesn't necessarily have any contact with it, she'll go home and study it. (Colleague 1:3, Episodic Interview, April 22, 2016)

Theresa’s tenacious desire to learn not only translated into pushing her own learning and understanding, but it also overflowed into affecting her colleagues’ learning as well. As one colleague put it, “I feel like she makes the most of every opportunity and gives . . . her own time in order to help new things happen in the building” (Colleague 1:4, Episodic Interview, April 5, 2016). This tenaciousness, in terms of allowing herself to take on new learning without hesitation, enabled Theresa to become more accessible to her colleagues.

Being tenacious was also inherent in some of the ways that Meg and Alice interacted with their colleagues. Meg described a situation involving changes to the curriculum about which few teachers had prior knowledge. As a result, she felt strongly about sharing the implications of these changes on teaching and learning despite the ramifications of being the bearer of this knowledge. She explained, “I thought like, ‘They’re not going to like this, but that doesn’t mean they shouldn’t know about it.’ I don’t always give people information they’re going to like, [laughs] just what I think they can use or should be aware of" (Meg, Interview 1, April 27, 2016). Similarly, Alice displayed a tenaciousness through her activity on and use of Twitter to both learn and share her knowledge with a variety of people. Alice noted that she diligently maintained two Twitter accounts, one for her professional development and one for her classroom. Through these accounts, she communicated with her respective audiences, such as other professionals and her students' parents. Additionally, Alice indicated that she was an active participant in several Twitter chats for the past few years, which offered her a regular venue to learn and share. The Twitter chats enabled her to forge friendships with other educators, with whom she maintained professional relationships. As she described, "I got friendly with people doing Twitter chats … we started contacting each other [through email] and [gave] ideas to each other" (Alice, Interview 1, March 9, 2016).

Therefore, being tenacious in situations where knowledge was needed, when new learning had potential benefits for themselves or colleagues, enabled the knowledge broker teachers to assume the persona of a tenacious knower or learner.

Being Collaborative

While their colleagues clearly regarded the knowledge broker teachers as smart and intellectually capable, they recognized that a good deal of their knowledge and learning resulted from interactions with others. Indeed, these four knowledge broker teachers demonstrated a commitment to learning with and from others. That is, the knowledge broker teachers, while working with or helping their colleagues address a problem or issue, would often find themselves absorbing new knowledge during the course of their collaborative work. The knowledge broker teachers engaged in problem-solving with their colleagues, such as learning about new pedagogical approaches while searching the Internet for new trends or picking up new ideas from their colleagues through their informal conversations while sitting together at lunch. As reported throughout the various interviews conducted with the colleague teachers and the knowledge broker teachers, learning with and from others not only increased the breadth of knowledge for each person involved, but also fostered a sense of camaraderie. The knowledge broker teachers, through their demonstrated eagerness to learn, despite their recognized intellect, were seen by their colleagues as not at all intimidating, but rather reassuring and encouraging. Theresa's colleague described how "She is very easy to work with. If you don't know something, which is usually the case for me all the time. . . . [T]hen she is just there to say, 'No, let's do this, let's figure it out [together].' She wants to problem-solve with you. She wants to teach you for the long haul" (Colleague 1:3, Episodic Interview, April 22, 2016). For this colleague, learning and figuring things out together engendered a real sense of camaraderie. Theresa was viewed as being open to and welcoming of learning by being collaborative and respectful of her teacher colleagues.

In another instance, Theresa demonstrated an ease with making the most of a given situation to take on and learn about new approaches and ideas in a collaborative fashion. A colleague teacher recounted that she asked Theresa for assistance with helping her students create web pages. While in the computer lab with her students and Theresa, her colleague described,

> [Theresa's] great to team teach with. [With my] third graders we would go into the computer room and I would be learning from her . . . while she was teaching . . . you're learning. . . . [S]he really does portray that as team teaching, that it's fine, this is how you do it, and then like I said, if there's glitches, "Oh, we'll try this." The great thing about her is she might have a glitch too, and then we're bouncing ideas off of each other, so it's that camaraderie I think that really works well, because she's eager to learn. Although she's the expert in this technology field, she's like, "No, sometimes there are things I don't

> know," then we're bouncing ideas off and she's like, "Yeah, this is what works. She never feels that she's all-knowing, so you can ask all these questions and feel comfortable." (Colleague 1:1, Episodic Interview, April 18, 2016)

While her colleague clearly viewed Theresa as the expert in the room, Theresa was similarly recognized as a learner, too. Admitting that sometimes she does not know things and possessing a willingness to bounce ideas off her colleagues demonstrated how comfortable she was with taking off her “expert hat” and collaboratively learning with her colleagues.

Furthermore, another of Theresa’s colleagues added that Theresa possessed an openness and excitement when she learned alongside her colleagues, despite being recognized in her school as a master teacher. As her colleague described, “She's teaching you for the long haul, not just for the moment. She might help you fix the problem for the moment, but she's trying to get you to be more confident, to go further” (Colleague 1:3, April 22, 2016). Her colleague further noted that Theresa would admit how she was a learner, as well, noting that “[Theresa would] even say, ‘You just taught me something, I didn't know that.’ She'll say it, right out loud. She'll be like, ‘I didn't know that’ ” (Colleague 1:3, April 22, 2016). Theresa encouraged her colleagues to engender a growth-mindset in terms of their own learning which she internalized, too. Through their shared learning experiences, there was a collaborative, fluid exchange of ideas. This recursiveness, moving from being an expert to being a novice, pointed to how Theresa took advantage of situations where she could take on dual personas.

The knowledge brokers displayed this persona not only in their interactions with colleagues, but with students as well. Alice’s colleague teacher, for example, described instances when Alice and she learned from and with each other and students:

> I think that . . . a great thing for other educators to learn is to be vulnerable, to be really open to new ideas like [Alice is]. [I]t was really helpful for me and equally for her, that

> we had this relationship . . . [where both Alice] and I are . . . learning and collaborating with each other. (Colleague 3:3, Episodic Interview, April 1, 2016)

Alice's colleague continued by describing how she and Alice added to their collaborative blog specific instances about how they learned from their students. She noted that in their blog post, Alice described learning from her students, "how she really could see from the [classroom] walls . . . what was happening [in my classroom], and how the walls are actually living documents of the kids. We talked about being present as learners [through the students' work]" (Colleague 3:3, Episodic Interview, April 1, 2016). As described by Alice's colleague, collaborative learning did not only occur between and among the knowledge broker teacher and their colleague teachers. Students were also viewed as sources of knowledge. In essence, viewing the important role that interacting with students played in impacting the learning of the knowledge broker teacher says volumes about the openness of the knowledge broker teacher to new learning, regardless of the source.

In a subsequent interview with Theresa, I asked if she picked up new trends and ideas from her students. She responded that she did learn from them often and that she had "no problem admitting [to the students], 'I've never seen that before, show me that.' Or, telling them it's the first time that I'm trying something. [and saying,], 'We're going to learn about this together and see where it goes' " (Theresa, Interview 2, May 16, 2016). Indeed, she also acknowledged her openness and willingness to take advantage of the situation at hand, to learn new things through collaborating with her students.

Engaging with colleagues and even students in contexts and situations that were marked by opportunities for the knowledge broker teachers and their colleagues to work together often to participate in a collaborative give-and-take of learning. The knowledge broker teachers were recognized not only as expert knowers who willingly imparted their knowledge to their colleagues, but also as willing and eager learners who often took advantage of the expertise of others.

Being Curious

Throughout the course of the interviews, both the knowledge broker teachers and their colleagues spoke about situations where the knowledge broker teachers demonstrated curiosity and described ways that this curiosity manifested itself. In the case of Theresa, she admitted that she was always the person “to fix anything” and that she loved “learning new things and finding information . . . to solve a problem. . . . I am a researcher” (Theresa, Interview 1, March 28, 2016). This curiosity with tinkering and fixing things was evident in the instances described by Theresa’s colleagues who indicated that she had a relentless desire to help them solve problems. Theresa found satisfaction in taking on extra work in her own free time or doing research at home to find answers for her colleagues, such as locating resources or troubleshooting technology.

Similarly, Meg described herself as wanting to know everything. As she described, “That’s the good quality of my brain, to be broadly curious. It’s a good quality in a teacher, also, because you want to model curiosity. There’s only one way to model curiosity, and that’s to be curious” (Meg, Interview 1, April 27, 2016). At times, Meg overtly displayed her curiosity at workshops and meetings in less conventional ways. Indicating that her tenure status and experience gave her license to be more critical of certain educational ideas and practices, she felt a level of confidence questioning those practices. As she noted, “I can be the person sitting in a meeting going, ‘Why are we doing that?’” (Meg, Interview 1, April 27, 2016). Whether it was because of her work with colleagues, students, or friends, Meg was recognized as being curious and was often sought out by her colleagues who needed answers. When I questioned her why others looked to her for answers, Meg said that her curiosity was co-mingled with her experiences, as well as with a sense of caring for her colleagues, students, or friends:

> One of the people that I did this for recently was working on her master's degree. When I tell you that her topic was not innately interesting to me, [laughs] it really was not innately interesting to me, but I'm like, ‘OK, . . . tell me more about it.’ One, you have to be curious. You have to care, otherwise you'll just do it the lazy way. Two, you have to see the big picture and also the details that make up the big picture. You have to be curious. . . . It also helps to have been [helping others] for a long time. (Meg, Interview 1, April 27, 2016)

As noted in this example, others approached Meg because of her store of knowledge and experience, as well as her ability to take advantage of her curiosity as a learner to push the boundaries beyond what she already knew. With her eclectic interests and regular practice of “looking stuff up [on the Internet] and her need to “absorb a lot of information [and] categorize it” (Meg, Interview 1, April 29, 2016), there was no doubt that Meg was curious in her quest for knowledge. In turn, this quest for knowledge enabled her to become a known source of knowledge about an eclectic range of subjects for her colleagues.

Curiosity and learning went hand in hand for these knowledge broker teachers and emerged as a core component of their knower-learner persona. A colleague of Meg’s noted how much of Meg’s breadth of knowledge and intelligence perhaps resulted from her “active, creative life outside of school as a reader, and a writer, and a parent” (Colleague 2:1, Episodic Interview, August 9, 2016). The knowledge broker teachers discussed how their curiosity embodied a central part of how they viewed themselves. When asked how she described herself, Alice indicated first and foremost that she was a learner and that she was “quite curious and. . . ambitiously seeking answers or new directions” to further her knowledge (Alice, Interview 1, March 9, 2016). When I asked her to elaborate on this claim, she mentioned that that she was not “content” with knowing what she knew. Rather, she often found herself seeking new ideas or ways to increase her professional knowledge and know-how. For instance, when discussing her early experiences with Twitter chats, she mentioned that her adrenaline would flow and that she would try “to keep up with everything that’s happening” so that she could turn-key the new knowledge she learned from the Twitter chats back to colleagues in her school (Alice, Screencast 1, May 11, 2016). Additionally, she explained how she was a “big nerd when it comes to more learning. I’m always trying to do new things and trying to learn new processes to keep myself excited about what I’m doing” (Alice, Interview 1, March 9, 2016). Alice’s comments about being a big nerd provided evidence of the self-realization that she worked to maintain her curiosity through her need to keep abreast of new trends and expand her current knowledge.

Therefore, as seen through various situations, the knowledge broker teachers’ curious-persona tended to be prompted by the needs of others, such as finding answers to problems or when sought out for advice. Additionally, sometimes their curiosity was driven by their desire to expand their own existing knowledge. As part of the knower and learner persona, the knowledge broker teachers’ stores of knowledge were always being used and renewed through new learning and experiences that drew upon their knowledge.

In sum, the interconnection between both being a knower and a learner, and the different ways that this persona was manifested, pointed to the importance of context and situations, and their inherent complexity. Each of the facets of being a knower and learner, such as being tenacious, being collaborative, and being curious, emerged and was drawn on as certain needs arose. The knowledge broker teachers willingly shape-shifted into knowers and learners and used their ability to do so as a benefit to their colleagues.

Benefactor

Another persona that emerged after analyzing the data was that of *benefactor*. A benefactor-persona was seen across the interviews, during instances when the knowledge broker teachers were sympathetic, empathetic, and what some even described as extraordinarily generous in addressing the needs and search for solutions to problems, concerns, or questions related to the practices of their teacher colleagues. For instance, when I asked Alice about her relationships with her teacher colleagues, she mentioned that she felt a special affinity towards the new teachers with whom she worked. She described how she was someone who “remembers what it’s like when you’re trying so hard to do so much and everything’s so brand new to you” (Alice, Interview 1, March 9, 2016). Because of these feelings, she noted that she made “a lot of effort to [reach out to] new teachers in the building . . . and have chats with them about how things are going” (Alice, Interview 1, March 9, 2016). When I asked one of Alice’s colleagues, who was a first-year teacher, about Alice’s concern for and outreach to new teachers, she did not hesitate to share an instance when Alice voluntarily provided her colleague with many of her personal teaching materials. Alice’s colleague described that Alice “lugged [the materials] all in for me . . . with a smile (Colleague 3:2, Episodic Interview, March 15, 2016). Her colleague continued to describe Alice as extremely accommodating with sharing the materials she had, “She gave me everything and said, ‘Look at these and return whatever you don’t want whenever you can.’ She’s very easy going and understands teachers—I mean, she’s a teacher. We have a million things going on [and need help]” (Colleague 3:2, Episodic Interview, March 15, 2016). Arguably, Alice’s concern for the well-being of her colleague hearkened back to a time when Alice was a new teacher and remembered what that experience was like. Her desire to provide this support for her colleague was embedded in her own experiences when she was a new teacher.

Moreover, throughout the course of my interviews with both the knowledge broker teachers and their colleagues, descriptions of instances surfaced that highlighted the knowledge broker teachers' genuine sense of caring about their colleagues. Whether by providing a sympathetic ear when colleagues were feeling overwhelmed, or by nurturing their colleagues' learning of new technology, the knowledge broker teachers both saw themselves and were seen as benefactors, going above and beyond to take care of their colleagues. Alice admitted that she nurtured new teachers in their learning about both the curriculum they would teach and the context in which they would teach:

> I think I feel sometimes a little more comfortable with newer teachers. I don't know if it's the nurturing part of me … or that someone who remembers what it's like when you're trying so hard to do so much and everything's so brand new to you. I feel like I make a lot of efforts [with] new teachers. (Alice, Interview 1, March 9, 2016)

One of Alice's colleagues who was new to the district described how Alice's kind nature was expressed through Alice's openness to helping fellow colleagues whenever they required help. As she said, "[Alice] really cares about the teachers. She wants you to ask her questions. When she's done, she's like, 'Please feel free to just text me, call me, email me, whatever'" (Colleague 3:4, Episodic Interview, March 15, 2016).

Jennie also expressed a similar tendency to nurture other teachers. Through her facilitation of the district's new teacher mentoring program, she indicated that she enjoyed establishing relationships with the new teachers. As a result of her new relationships, she expressed feeling a sense of responsibility for their success and well-being. She said, "I feel like they're my little cohort [of teachers]" (Jennie, Interview 1, March 18, 2016). One colleague who served as a new-teacher mentor and worked with Jennie expressed how Jennie was always available to listen to her. In one instance, this colleague was experiencing some difficulty with a mentoring situation. Jennie's colleague said that she called Jennie on her drive to work to discuss this issue. She noted, "[Jennie] just listened. She's a really good listener, and she helped me to understand the [new teacher's] point-of-view, because I hadn't really seen that" (Colleague 4:1, Episodic Interview, April 1, 2016). Through these instances, the knowledge broker teachers acted as benefactors who felt a responsibility to ensure that others' needs were met.

The knowledge broker teachers were not only empathetic to the needs of their colleagues, but they were at times empathetic to their situations, as well. Often in the interview data the knowledge broker teachers and their colleagues pointed to times when they "felt" what their colleagues were experiencing. These instances included managing new programs and curriculum, navigating school administration, or dealing with personal challenges and struggles. As Theresa's colleague explained,

> [Theresa] has been in your shoes. . . . I think it would be huge if she wasn't here. I know they say anybody can be replaced, but you can't be replaced with certain demeanors, or patience. . . . She gets people. . . .It's wonderful to have her and to feel so comfortable. (Colleague 1:1, Episodic Interview, April 18, 2016)

Given their own first-hand experiences as teachers, and their tight connection to the goings-on in their schools, the knowledge broker teachers intimately understood their colleagues' stresses and needs.

When enacting the benefactor-persona, the knowledge broker teachers responded to situations and contexts that called for responses that made their colleagues feel at ease and cared for. As the data suggests, the knowledge broker teachers were able to do this because they possessed sympathy and empathy with regard to their colleagues. Their colleagues' visceral experiences resulted in the knowledge broker teachers taking on the persona of benefactors, who kept the best interests of their colleagues in mind by genuinely caring for their well-being.

Comrade

Given their position as teachers, not administrators or supervisors, the knowledge broker teachers did not hold a formal position of power or act in a supervisory capacity in their schools. They were perceived both by their colleagues as a peer and viewed themselves as on an equal playing field with their teacher colleagues. As a result of their social standing within their schools, the knowledge broker teachers at times assumed the persona of a comrade, or a trusted friend. This *comrade*-persona emerged as a result of their strong personal and professional social relationships with their colleagues, non-intimidating manner, and honest and trustworthy nature.

Over the course of all the interviews I conducted with all the participants, the knowledge broker teachers clearly articulated time and again the importance of developing strong social relationships with their colleagues. For some knowledge broker teachers, such as Theresa, Alice, and Jennie, their longevity in their current school districts have enabled them to develop deep personal relationships with their colleagues—including new teachers who joined their districts. Theresa described how she had a good relationship with almost all the teachers in her school. One of the reasons she provided for these strong social ties was that she viewed herself as “non-threatening.” She explained how she was “non-threatening”, and that she would “never say, ‘Oh, you should already know how to do this’, or ‘I showed you this before, you should remember this’ ” (Theresa, Interview 1, March 28, 2016). She attributed her non-threatening manner to her friendliness, “I guess maybe I have that face. I have a pleasant face . . . [laughs] where people feel comfortable approaching me. I'm approachable’ ” (Theresa, Interview 1, March 28, 2016). A colleague explained that Theresa was “enthusiastic without being pushy” (Colleague 1:4, Episodic Interview, April 5, 2016). When I suggested to Theresa that she possessed a deep understanding of her colleagues’ learning styles and personalities, she said, “Yeah, I know. You’re right. . . . I know how they learn, and I know what they’re capable of and what they need [as teachers]" (Theresa, Interview 1, March 28, 2016). In addition to knowing what her colleagues needed as teachers, Theresa developed strong social relationships with her colleagues. One colleague described how having a social relationship with Theresa, which involved spending personal time together, was important not only for her professional development, but also for student learning. The colleague mentioned that feeling comfortable with Theresa made an impact on her teaching practice. They often ate lunch together and would sometimes meet before and after school. When I asked what would happen if Theresa was replaced, or if she left the school, her colleague responded,

> it would have an impact. If it was a different person, different personality, I think it would impact the relationship. It is so easy for us. It's so easy for me to say to her like, "That idea sucks," like actually not that sentence, or for her to say to me, "That's dumb. It's never going to work." If it was a person I wasn't as comfortable with, I don't know that it would be as smooth of a working relationship. I don't know how smoothly that would transition with the kids either, because it is hard when you're not as familiar with the person to say like, "I really don't like that idea. I don't think that's going to work". . . . I don't think it would work as well as it does. (Colleague 1:2, Episodic Interview, April 21, 2016)

I further asked this colleague if it was primarily because of the informal moments that she shared with Theresa that engendered the type of relationship she had with her. She responded that these moments were pivotal. Clearly, all from these responses, Theresa's colleague had an insider relationship with Theresa that allowed her to speak plainly about her abilities and was not made to feel as though she were inadequate. Their informal meetings, such as during lunch time, facilitated moments for them to collaborate and thereby enhance her colleagues' professional development. Theresa, in this regard, was viewed as a true comrade.

Like Theresa, Jennie’s social relationships with her colleagues made an impact on her working relationships with them. A few of her colleagues mentioned how they would informally meet in each other’s rooms before and after school or stopped in each other’s classrooms during the school day. As one colleague described, “when you have a conversation with her, you feel like you know her. You want to continue conversations with her. She’s a very, very likable person” (Colleague 4:3, Episodic Interview, April 19, 2016). Jennie’s sense of humor was also something a colleague mentioned that would help “people to soften, and . . . warm up to her” (Colleague 4:1, Episodic Interview, April 1, 2016). In short, these knowledge broker teachers worked to relate to their colleagues in a likeable way. These knowledge broker teachers had a knack for understanding the nuances of situations as well as their colleagues to treat them and to be treated like a trusted comrade.

In the case of Alice, who does not have the same degree of longevity in her school as the other knowledge broker teachers in this study, her experiences as a teacher and coach over the years have helped her to successfully navigate the social scene in her relatively new-to-her school. Despite working in her current school for only three years, Alice reports making successful inroads with her fellow teachers who have been in the district longer than she. It seems that using a good natured, roundabout way to suggest new ideas to her colleagues has worked for Alice. As a colleague described, “Even in our team meetings, she’ll say, ‘I’ve done it this way and it worked for me, but I don’t know if it would work for you.’ It’s always in a roundabout, positive way. . . . She knows how to do that, it comes natural to her. . . .It’s never threatening, ever, at all” (Colleague 3:1, Episodic Interview, March 29, 2016). Even Alice described herself in similar terms. When she suggested that new questions needed to be added to an existing assessment, she explained, “I'm trying to do more of that kind of work but in a non-pushy way. I feel, sometimes, that I have to dip in and out carefully” (Alice, Interview 1, March

9, 2016). Alice strongly felt as though that becoming an insider required her to be seen as non-pushy. In this instance, Alice worked to downplay her abilities as a way to gain the trust and acceptance of her colleagues: “I try to be very careful. I don't want to give the appearance that I feel that a certain something that I'm doing is better” (Colleague 3:1, Episodic Interview, March 29, 2016). Clearly, Alice understood the value of building social connections with her colleagues:

> I feel like even my most successful relationships that I had with teachers, as colleagues, in the past, . . . have been, when I feel like I'm really with somebody. . . . I feel like there's always more comfort and strength when you're together, definitely when you're learning. . . . I think there's something that's really great about not feeling like you're in it by yourself and feeling like you have teammates . . . or a partner, somebody to bounce ideas off of lean on with each other a little bit. (Alice, Interview 1, March 9, 2016)

She further noted, “The relationship building has to be a precursor to knowledge sharing, but then both need to coexist, and grow, and develop, and change. . . .They must become inseparable” (Alice, Interview 2, May 11, 2016). From Alice’s descriptions, she understood the importance of using her strong social connections as a means to learn and share with her colleagues.

In summary, the data point to the effect that taking on the comrade-persona had on the knowledge building and sharing practices of the knowledge broker teachers. The manner in which they would shape-shift as trusted insiders to assist in their colleagues’ professional development was both important and effective for both enabling and reaffirming their relationships with their colleagues and building and sharing their knowledge.

Cheerleader

Another persona which emerged from the interview data involved the knowledge broker teachers' knack for being the eternal optimist, regardless of the situation at hand. Throughout the interviews, the colleagues of the knowledge broker teachers, as well as the knowledge broker teachers themselves, were cast as *cheerleaders*. Whether by boosting the confidence of colleagues who were struggling with technology, or by excitedly sharing new teaching ideas that they learned from a Twitter chat, interview data suggested that the knowledge broker teachers embodied and exuded enthusiasm, eagerness, and positivity. They eased their colleagues' self-doubts by being uplifting and enthusiastic when working with them. Even over the course of my interviews, the knowledge broker teachers described themselves as "an optimist . . . an enthusiastic learner, teacher" (Alice, Interview 1, March 9, 2016), "very friendly" to others (Theresa, Interview 1, March 28, 2016), or as someone who "fuels" the fire of success for colleagues (Jennie, Interview 2, May 20, 2016). This recognition of taking on the persona of someone who is a cheerleader was quite evident in the data.

Likewise, the knowledge broker teachers' colleagues viewed their knowledge broker counterparts in similarly optimistic ways. Jennie was described as being "excited to share . . . information, but not in a know-it-all type of way" (Colleague 4:3, Episodic Interview, April 19, 2016). Through Jennie's involvement in creating a makerspace program in her school that would promote hands-on learning among her students, her positivity shone through. Her colleague noted: "[Jennie] was gung-ho . . . to make the makerspace happen" (Colleague 4:1, Episodic Interview, April 1, 2016). Similarly, showing genuine interest and enthusiasm about her colleague's classroom activities and providing positive feedback, Meg's colleague described,

> [Meg] is always interested in what I'm doing in my classroom. If I want to say, 'Hey [Meg], look at this cool thing I'm about to do, or this resource I found,' she'll jump over

> and want to look with me and offer additional resources that she thinks might fit in or just compliment me (Colleague 2:1, Episodic Interview, August 9, 2016).

After detailing this particular instance, Meg's colleague also noted, "It's really a treat to have someone, who I respect, [tell me], 'Wow, that's really incredible work you're doing'" (Colleague 2:1, Episodic Interview, August 9, 2016).

Alice's colleagues echoed similar sentiments. One colleague mentioned that Alice always made time for her fellow teachers when they sought her guidance and help. As one colleague indicated, "It could be the beginning of the day. It could be the end of the day. [Alice is] always so up and upbeat that you know she's going to tell you, 'Oh, sure. [I can help you]' " (Colleague 3:1, Episodic Interview, March 29, 2016). This same colleague continued, "[Alice is] pleasant, optimistic. Glass is overflowing, never close to being empty, really. Always sees the best in everything and puts a positive spin on it" (Colleague 3:1, Episodic Interview, March 29, 2016). Another colleague remarked that Alice compliments colleagues on their successes by saying, "Wow! That's a great idea that you had. Maybe I'll try that" (Colleague 3:4, March 15, 2016).

A cheerleader-persona, one that included encouraging fellow teachers using pep talks and positive reinforcement, was also described in the interviews with Theresa's colleagues. Reassuring and boosting the confidence of her colleagues when they were faced with new challenges that may have seem insurmountable was often attributed to Theresa. Her colleague noted that Theresa would always "make it work" (Colleague 1:3, Episodic Interview, April 22, 2016). During our interview, her colleague mentioned that when she presented Theresa with a hypothetical classroom management scenario where a student could be doing something wrong and could potentially ruin a project, Theresa would reassure her colleague by saying, "Right, then what happens? You always go back to here. This is what you do. . . . 'You know how to do it. . . . Don’t be afraid of it.’ [Theresa] would really walk me through all of that” (Colleague 1:3, Episodic Interview, April 22, 2016).

The knowledge broker teachers’ positive outlooks eased their colleagues’ self-doubts about their own abilities or shortcomings. Clearly, the knowledge broker teachers were the in-house *Pollyannas* of their schools, being consistently optimistic and positive. They did their best to encourage their colleagues, cheer them on, and support their efforts, just like actual cheerleaders. Therefore, taking on the persona of a cheerleader when the need or context required them to do so went a long way in affecting not only their relationships with their colleagues, but by uplifting their colleagues, the knowledge broker teachers also had a profound effect on their colleagues’ professional development.

Forward-Thinker

A *forward-thinker* persona emerged from my interviews with the knowledge broker teachers and their colleagues. Being forward-thinkin*g* can be defined as considering how current actions could promote better outcomes for the present into the future. For instance, throughout the interviews, both the knowledge broker teachers and their colleagues expressed how the knowledge broker teachers’ vision for education focused on an imperative regarding the need to stay current with new educational trends and learn about new technology innovations. The knowledge broker teachers were also interested in finding new ways in which they could remain abreast of curricular innovations. The interviews resulted in a persona as forward-thinkers. They were forward-thinkers who strived to always stay ahead of the curve, not just in terms of technology, but also in terms of educational trends and ideas. This outlook often emerged during situations marked by a need or request for new ideas or approaches to which the knowledge broker teachers would respond.

Whether she was trying out new classroom strategies or sharing teaching ideas that she had come across from her literacy Twitter chats or from fellow teachers in her school, Alice involved herself in a process of placing her new knowledge into action. She her excitement about taking a course offered in her school district on designing classroom activities that promoted student inquiry. She noted, “[The course] was amazing. I would get so excited every single time I left a session, and I couldn’t wait to try something. I was just trying things out [from the course] in my classroom” (Alice, Interview 1, March 9, 2016). Similarly, Theresa’s colleague mentioned that on collaborations, Theresa would “take the lead” when introducing new technology tools to students. When I asked her colleague to further elaborate, she described that Theresa “loves coming up with new ideas. . . . [They] excite her” (Colleague 1:2, Episodic Interview, April 21, 2016). Her colleague also recounted how when she asked Theresa why she bothered to change the technology tools and unit outcomes every year, Theresa described how she got excitement out of trying new approaches and that she loved working with the “latest, the greatest, and the newest” technology (Colleague 1:2, Episodic Interview, April 21, 2016). After I asked her colleague if she thought Theresa was focused on future needs and planning ahead, she said, “Yeah, that’s her thing” (Colleague 1:2, Episodic Interview, April 21, 2016).

The persona of being forward-thinking emerged from the interviews with all the participants. The knowledge broker teachers were at the forefront of ushering progress, whether through their ability to think ahead when planning units with colleagues or being long-range planners when working with their administrators. For example, Alice noted that her motivation to seek new literacy texts and strategies was driven by possibly needing this information for a potential professional development course she might teach, or if her colleagues or students would benefit from the information. She mentioned that she voraciously read and saved professional texts about literacy teaching. As she said, “I’m pretty much always reading. . . . I have a big stack [of books] next to my bed that just always grows, grows, grows" (Alice, Interview #3, May 11, 2016). By stockpiling this "big stack" of books, Alice indicated that she would then be prepared for a "presentation that I might be doing" or a class that she may teach (Alice, Interview #3, May 11, 2016). Preparing for potential opportunities in the future spurred Alice on to collect necessary resources that could be used to share with others.

Driven by her research and understanding of future technology trends, Theresa fostered what was best described as an innovative spirit when working with her colleagues and students. This especially was the case when teaching her own students about new technology tools to enhance the curriculum, such as initiating a coding program with students as young as kindergarten or developing a makerspace program for the school. One of her colleagues shared with me that Theresa's innovative spirit was driven by her desire to push students' learning about technology as well as with it. This colleague mentioned that Theresa often said that the students should possess a solid understanding of meaningful technology use because "this is where the world is going. They should know these things because they're going to need to know it for [their future" (Colleague 1:3, Episodic Interview, April 22, 2016). With regard to another instance that highlighted Theresa's forward-thinking persona, her colleague described how Theresa encouraged faculty and students to "go paperless." Rather than printing activities, notices, and handouts on paper, she urged everyone to digitize documents as often as possible because "this is how the world is going" (Colleague 1:3, Episodic Interview, April 22, 2016).

Similar to Alice and Theresa, Jennie became involved in circumstances that highlighted her inclination to be forward-thinking. Being called on by administrators to spearhead school initiatives, Jennie explained how she was valued for her long-range thinking. In one instance, Jennie was an important catalyst for designing a future makerspace program in her school's library. Her excitement and vision for creating a space for all the teachers and students in the school to create and tinker using a variety of materials and technology tools was palpable. As her librarian colleague recounted,

> [Jennie] was on the strategic planning committee last year for the Makerspace team, and so she had been talking to me and kind of buzzing in my ear [about it] since last year. After she'd get out of those strategic planning meetings, she'd always come and tell me what kinds of things were going on, and she said, “I really would love for us to do stuff here in the library”. . . . [Jennie] was really helpful because she had this idea back in the fall, she's always thinking. [Jennie] is a thinker, like long range. She's always planning like what's happening next month, three months, next year. . . . [She] laid all the groundwork [for this space]. (Colleague 4:1, Episodic Interview, April 1, 2016)

In addition to this, further evidence of Jennie being a forward-thinker was provided though details from the data about her interest and willingness to innovate. She described how she piloted several initiatives, such as the new teacher evaluation plan, lesson studies with other teachers, and the new Next Generation Science Standards committee for her district. She noted that if there was a new initiative, she was ready and willing to take on an active role. As Jennie admitted, “I’m willing to try new things” (Jennie, Interview 2, May 20, 2016).

Throughout the interview data, there were many instances documenting how the knowledge broker teachers used the persona of being a forward-thinker, coupled with their storehouse of knowledge, to offer innovative and novel suggestions and plans for different approaches to situations that required a new way of doing things.

Shrinking Violet

Notwithstanding the knowledge broker teachers’ recognized intellect and ability to easily acquire and share knowledge, both they and their colleagues discussed their tendency to be self-effacing. Despite the valuable role that the knowledge broker teachers played in the professional development of their colleagues, many of the colleague teachers pointed to instances where the knowledge broker teachers purposely downplayed their abilities and intellect and preferred to position themselves on the sidelines. The colleague teachers expressed often that the knowledge broker teachers were overwhelmingly humble and did not want to be perceived as know-it-alls. For the purposes of this research, the persona they shape-shifted into that best fit these situations was shrinking violets. A *shrinking violet* has been defined as “a person who is very shy or modest and does not like to attract attention” (dictionary.cambridge.org).

Instances of how they enacted the persona of a shrinking violet, who displayed great humility and modesty of their ability, was evident throughout the data. Alice’s colleague indicated that Alice was “humble . . . [and] . . . doesn’t want people to think that she thinks that only her answer could be the right answer” (Colleague 3:4, Episodic Interview, March 15, 2016). She continued by saying that she thought Alice “doesn’t want people to think that she thinks that only her answer could be the right answer as trying to be over smart or zealous” (Colleague 3:4, Episodic Interview, March 15, 2016). Similarly, Jennie was described as not coming across as a “know-it-all” (Colleague 4:1, Episodic Interview, April 1, 2016) when sharing information with her colleagues. Another of Alice’s colleagues surmised that Alice’s tendency to downplay her abilities was to ensure that others would feel more comfortable and less intimidated by her. She mentioned that Alice was always “right there with you” (Colleague 3:3, Episodic Interview, April 1, 2016), which then allowed for a relationship that was comfortably collaborative and open to the give-and-take of the sharing of ideas and taking suggestions. As her colleague described, “[Alice] doesn’t come across like, ‘You must seek knowledge from [me]’ ” (Colleague 3:3, Episodic Interview, April 1, 2016). Likewise, the trend of describing the knowledge broker teachers as humble and self-effacing was evident in Theresa’s colleagues’ remarks. They described her as wanting to “sink into the background” (Colleague 1:2, Episodic

Interview, April 21, 2016), or despite being a highly capable user of technology, she more than often freely admitted her shortcomings. All these pointed to Theresa's predilection to "not give herself enough credit" and to be "hard on herself" (Colleague 1:3, Episodic Interview, April 22, 2016).

Evidence of becoming a shrinking violet emerged during the interviews with the knowledge broker teachers. Feelings of uncertainty, or lack of confidence, with regard to their abilities and knowledge often emerged when discussing others' perceptions of them when I shared their colleagues' comments. Most notable were Alice's remarks to me when I asked her about being a recognized knowledge broker. She indicated that she didn't see herself in this role, and that it was a "little uncomfortable . . . [and] a little shocking" (Alice, Interview 1, March 9, 2016) to be identified in this way. In light of her previous position in another district as a literacy coach, Alice continued that she tried "to tread carefully" and avoided telling her colleagues that she previously worked as a coach. Her reasoning was that she did not want to "overstep bounds" or give the appearance that she might be a know-it-all. Most important to her was her desire to be "non-pushy" with her knowledge. By downplaying her abilities, Alice described that she then avoided coming across as "knowing more than somebody else" (Alice, Interview 2, May 11, 2016) and not wanting others to think that she was flaunting her ability. Theresa also downplayed her abilities and spoke often of her deficiencies and gaps in her knowledge. To remedy this, she attended workshops on topics about which she felt she did not have a full grasp. However, after attending the workshops, she noted that she sometimes realized that she "could have taught the [professional development] class." She then expressed that she used these types of workshops as confidence boosters, which would leave her feeling, that she actually did "know a lot about certain things" (Theresa, Interview 1, March 28, 2016).

When situations called for it, the knowledge broker teachers shape-shifted into shrinking violets. While they regularly downplayed their abilities and appeared at times to lack confidence, they also acknowledged that not being boastful of what they knew and maintaining a sense of humility had benefits in terms of their relationships with others. The social relationships that were forged by the knowledge broker teachers with their colleagues relied on the knowledge broker teachers humbling themselves, coming across as non-threatening, and not appearing to be know-it-alls. Theresa captured the essence of this persona:

> Maybe I'm not a know-it-all. Maybe I am more approachable because of that. There are other people who may have just as many tools and know how to implement them just as well, but they don't have . . . the personality to work with other teachers or other people and build those relationships and have those people feel comfortable with them. (Theresa, Interview 1, March 28, 2016)

In sum, taken together, these results suggested that the knowledge broker teachers shape-shifted into various personas, depending upon the needs presented by different situations or contexts. As a result of this shape-shifting, the knowledge broker teachers were able to work more effectively with their colleagues and have an effect on their professional development as teachers. While I initially expected the results described in this section to address my research question concerning the attributes of knowledge broker teachers, the findings suggested that the term *attributes* was too limiting for how the knowledge broker teachers presented themselves across different contexts and social situations. In the next discussion, I will address this set of findings in greater detail.

Discussion

This chapter focuses on this study's findings concerning teacher knowledge brokers as brokers of knowledge and how they can be best described. This theme, of being a broker of knowledge, homed in on the types of personas these teachers appeared to assume, or into which they shape-shifted, as described by themselves and by their colleagues. This theme was developed in large part out of a concern for addressing Question 3 of my study, which sought to identify specific attributes of knowledge broker teachers. The purpose of this question was to provide a way to distill their essence and bottle it, so that the benefits of recognizing knowledge broker teachers could be tapped as a valuable informal source of professional development. In retrospect, seeking such a "formula" to identify knowledge broker teachers was a rather naive goal to have set for my study. The findings indicated that reducing the identification of knowledge broker teachers to a list of attributes was not possible based on the data from this study. The knowledge broker teachers did not simply fit into neat categories of attributes (e.g., intelligent, patient, empathetic). Rather, close analysis of the interview data for all participating teachers strongly suggested a richer and more nuanced picture of these four knowledge broker teachers as shape-shifters, who took on different, mutable personas depending on the situation and the social interactions inherent to those situations. As described previously, I defined a shape-shifter as a person who willingly changes how they present themselves in a given situation. Additionally, in the case of these knowledge broker teachers, I chose to use the term *persona* rather than terms such as *attributes* or *identity* because each of those terms pointed to more fixed characteristics or qualities. From my results, I found that there was no single set or list of essential, fixed characteristics or qualities that defined my knowledge broker teachers.

In this study, I identified the four knowledge broker teachers as shape-shifting into the following personas: knower and learner, benefactor, cheerleader, comrade, forward-thinker, and shrinking violet. In their case, situations called for them to approach and interact with their colleagues and others in certain ways as a means to engage in the building and sharing of knowledge. I found that doing this facilitated the process of knowledge movement. The four knowledge broker teachers would shape-shift into a persona that would best fit the situation and the types of interactions called for by the situation. As a result of their ability to shape-shift, these four knowledge broker teachers were successful in contributing to and supporting their colleagues' informal professional development. Therefore, they supported their colleagues by turning on and modulating different personas to ensure that needs, concerns, questions and solutions related to the situation were addressed in the most beneficial and effective way.

Interestingly, a few scholars have commented on how context and social interactions can affect both the role of knowledge brokers and their responses to a situation. Granted, a similar connection between the skills required by knowledge brokers and the ways in which these skills were used by knowledge brokers in the field of public policy was investigated by Williams (2002). He noted that the skills (e.g., communicating, listening, inviting personality, trusting) of his "boundary spanners" were "deployed in different permutations depending on particular circumstances" (p. 115). By permutations, he meant that particular skills, abilities, experience and personal characteristics were drawn upon at differing levels, depending upon the circumstances in which these boundary spanners found themselves a part. However, Williams's findings nonetheless still pointed to specific discrete skills that knowledge brokers drew on during certain circumstances, rather than also taking context, purpose, and role into account. My study strongly suggested that the latter were key elements in understanding the nuances that enabled the knowledge broker teachers to shape-shift into different personas. For example, in considering the knower and learner persona, the knowledge broker teachers did not merely possess a set of attributes that enabled them to be tenacious, collaborative, or curious, but rather the circumstances affected the choices they made to shape-shift into these different personas of being a knower and learner.

Much of the literature concerning knowledge brokers from the fields of organizational studies, business, and healthcare claimed evidence of knowledge brokers possessing very specific attributes. Some attributes of knowledge brokers that facilitate the movement of information include being supportive mentors or having an affinity for gathering and analyzing information (Robeson et al, 2008). Other literature has focused on the importance of the social attributes of knowledge brokers, which include developing relationships (Dobbins, Rosenbaum, Plews, Law, & Fysh, 2007), communicating, mediating, and networking with others (Lomas, 2007). Overall, knowledge brokers have been described as consisting of certain types of people, who possess key attributes and therefore the ability to be knowledge brokers.

Despite the orientation of the knowledge broker literature toward these varied attributes, the findings of my study did not match what had previously been described in the research literature. In the case of some of the literature, attributes of knowledge brokers have been described as a means for them to be identified by companies and organizations to facilitate the hiring or appointing of specific types of people who display such attributes for formal positions as knowledge brokers (Dobbins, et al., 2007; Robeson, et al., 2008). Given this study's findings, I realized that if I simply identified the attributes of my knowledge broker teachers as a checklist of items, it would be a disservice to the four knowledge broker teachers in this study. Doing this would have completely decontextualized the inherently social aspect of being a knowledge broker teacher. By being a shape-shifter who had a knack for picking up the essence, or vibe present in particular situations, and then turning on a persona that would work best, the four knowledge broker teachers in my study were able to successfully navigate a wide variety of situations they encountered. For instance, the knowledge broker teacher, Theresa knew when to put on her comrade persona and be non-threatening when passing on knowledge to colleagues who felt as though their own knowledge was inadequate. Rather than simply providing her colleague with the knowledge her colleague needed and moving on, Theresa deeply understood the importance of modulating her approach, assessing the situation, and shape-shifting into a comrade who sincerely understood her colleague's concerns and anxieties. In this and other situations, all four knowledge broker teachers made conscious decisions to shape-shift and put forward a certain persona to ensure that the knowledge was successfully built and shared.

The research literature described how knowledge brokers have an ability to span boundaries between groups of people and mediate those relationships. Being able to do this required that knowledge brokers possess certain attributes, such as empathy, approachability, or reliability (Traynor, DeCorby, & Dobbins, 2013; Williams, 2002). Additionally, it has been noted how knowledge brokers possess soft skills that enable them to be responsive and supportive to the needs of others (Traynor, DeCorby, & Dobbins, 2013). However, the literature does not go far enough to explore how different situations affect the ways in which the knowledge brokers respond, and almost seems to assume that the knowledge brokers encounter situations with immutable attributes. The knowledge broker teachers in this study shape-shifted into sometimes contradictory personas, from being either tenacious in their acquisition or exchanging of knowledge, to being shrinking violets when the need arose. This study's findings suggested that more intentional and nuanced processes were at play among the four knowledge broker teachers.

This study found that the four participating knowledge broker teachers did not just pick and choose specific skills that they wanted to turn on. Rather, a multitude of skills were bundled into specific situation-dependent personas into which they shape-shifted. Instead of simply displaying optimism or turning on an inviting personality, the knowledge broker teachers became cheerleaders. That is, they engaged in pep talks and energized and inspired their colleagues by complementing their ideas and accomplishments. I also argue that these knowledge broker teachers did not just shape-shift depending on the context or other's purposes alone. Their shape-shifting also enabled them to *create* learning opportunities for their colleagues and for themselves. For instance, Jennie's shape-shifting into the role of a being a tenacious knower during a listless curriculum meeting, where she readjusted the context of the meeting to make it more goal-oriented and coherent for the participants, displayed her knack for tinkering with contexts and situations to promote learning and positive action.

Conclusion

In light of the situated learning theoretical framework of this study and the role that knowledge broker teachers played in the informal professional development of their colleagues, the idea of shape-shifting among knowledge broker teachers provided a useful way of understanding how they take on different personas depending on the situation and the people involved. Within situated learning theory, learning necessarily is embedded within a context that consists of activities and social interactions (Lave, 1988; Lave & Wenger, 1991). The findings of my study indicated that the knowledge broker teachers as *brokers* drew upon more than just attributes when engaging in knowledge brokering. In the case of this study, the social context and social interactions set the stage for how the knowledge broker teachers responded and which personas were summoned. For example, at times they were forward-thinkers by planning or thinking about how their knowledge could motivate and innovate; other times they were comrades, being sympathetic and understanding to the needs of their colleagues. Therefore, this study strongly suggests that when considering how best to describe a knowledge broker teacher, using the terms *shape-shifting* and *personas* provided a much more fruitful way of thinking about knowledge broker teachers and how they affected the professional development of their colleagues. Reducing them to a laundry list of personality traits or personal skills does little to explain the important nuances of their interactions with others, as well as the value of these interactions in promoting the informal professional development of their colleagues.

This chapter focused on the theme of the knowledge broker teachers being brokers, and how they shape-shifted into different personas to address unique situations and social interactions. The following chapter will address the theme of brokering, or how the knowledge broker teachers built and shared their knowledge.

CHAPTER 5: BROKERING—BUILDING AND SHARING KNOWLEDGE

Introduction

One focus that guided this study of teacher knowledge brokers was to understand how the four knowledge broker teachers built and shared knowledge. As defined in Chapter 2, knowledge exists in two forms, explicit and tacit. Explicit knowledge, or knowing *what*, ,is easily shared and transmitted from one person to another because it exists in highly codified forms, such as documents, formulas, and other media. Tacit knowledge, or knowing *how*, is a more intuitive form of knowledge that emerges and is transferred through social interactions. As evident through the interview data with both the knowledge broker teachers and their colleagues, these two forms of knowledge were both learned and passed around through social interactions that took place in their schools. In the case of the knowledge broker teachers, the explicit knowledge they would both build and share took the form of useful educational websites, technology tools like educational apps and programs, and educational books and other tangible materials that focused on specific content areas and teaching methods. This type of knowledge was highly situational, more amorphous in nature, and tended to be shared "off the cuff" through informal conversations with their colleague teachers. Examples of tacit knowledge that the knowledge broker teachers passed on included skills and ideas that were acquired through their experiences like workshops and Twitter chats, for instance, by verbally sharing and demonstrating shortcuts when explaining how new technology tools worked, or how teaching strategies could be successfully implemented in the classroom. Rather than having their colleagues refer to written instructions or manuals, the knowledge broker teachers channeled their understanding of explicit knowledge and provided a tacit twist to conveying it to their colleagues. Additionally, given the knowledge broker teachers' facility with "tuning into" the needs and personalities of their colleagues enabled them to modulate and strike a balance with how they went about sharing their knowledge--and the type of knowledge to be shared.

Throughout my interviews with the four knowledge broker teachers, all four detailed the wide variety of ways that they learned about new educational trends and ideas, and how they went about sharing what they knew with their teacher colleagues, as well as with virtual counterparts and teachers they may have met through organizations and conferences their schools. As part of my semi-structured interview discussing these practices with the knowledge broker teachers, I discussed the knowledge acquiring and sharing practices of the knowledge broker teachers with their colleague teachers. The colleague teachers provided instances and situations regarding their interactions with the knowledge broker teachers concerning the acquisition and sharing of explicit and tacit knowledge. After these instances were described, the knowledge broker teachers provided further clarification about the specifics of these instances. In short, the data suggest strongly that these four knowledge broker teachers exhibited distinct ways in which they went about building and sharing knowledge.

A readily identified theme that was generated from the data concerning building and sharing knowledge pertained to the knowledge broker teachers' use of certain processes that allowed them to engage in brokering, or how the knowledge broker teachers built and shared knowledge. Studies of knowledge brokers indicate that they have great facility in engaging in certain "processes" (Wenger, 1998) that make them successful in knowledge brokering, or bridging divides between those who have knowledge and those who need it. My data suggested that there were additional complementary processes that knowledge broker teachers successfully used when brokering knowledge. These processes included making connections, taking advantage of moments of kismet, and tailoring knowledge to optimize learning and are discussed in the following section.

Connections

As evident from their interviews and screencasts, the four knowledge broker teachers connected to social media platforms and face-to-face networks to build and share their own knowledge. This study’s data suggested the knowledge broker teachers keenly understood how certain digital platforms and face-to-face networks provided them with the latest “ in-the-moment” information about trends in educational practices and strategies meaning they were able to get what they needed and wanted at the time that they needed it and wanted it. All four of the knowledge broker teachers indicated that much of their know-how resulted from their self-directed, proactive, personal approach of taking charge of their own professional development. This proactive approach was evident through their use of digital affordances, in-person networks, and their participation in both formal and informal educational workshops and courses to connect with people and knowledge.

Digital Affordances

The four knowledge broker teachers in this study exhaustively used digital affordances as a means to enhance their own knowledge and as a way to share with other educators. Through their facility to tap into digital platforms such as Twitter and Facebook, following and maintaining blogs, and conducting Internet searches, the knowledge broker teachers were able to access and leverage knowledge from vast numbers of online resources for their professional development, as well as to enhance their colleagues’ professional development.

Twitter. Use of the microblogging platform, Twitter, among the four knowledge broker teachers, was signaled throughout the interviews with them and their colleagues. While Theresa and Jennie used Twitter to locate classroom resources, both Alice and Meg were early adopters of Twitter, using it as a tool to enhance their learning and teaching, make connections with other teachers and non-educators, and share knowledge. In their recollections about their use of

Twitter, the knowledge broker teachers expressed how it was an important platform for establishing connections with other educators as a means to enhance their professional development. One knowledge broker teacher, Alice, regularly participated in educationally-oriented Twitter chats. As Alice commented, “when a lot of the Twitter chats first started . . . I got on Twitter. For me, it was a way to connect with some of the most brilliant people from all over the world” (Alice, Interview 1, March 9, 2016). For instance, through her participation in Twitter chats, Alice shared with me that over the past few years, she forged friendships with other educators both nationally and internationally. She noted that fellow Twitter-chat participants would regularly contact her after the chats were finished by sending private messages to her on Twitter or via email. These emails included invitations to continue discussions concerning the content from recent Twitter chats, or even requests to just discuss educational ideas, strategies, or lesson ideas. For example, Alice described how the relationships she built affected her own professional growth.

> Every single Monday and Wednesday, I [would] be doing Twitter chats. Then I got friendly, believe it or not, with people that I just knew from doing Twitter chats. . . . [W]e started contacting each other and giving ideas to each other. [This] grew into [creating] digital documents and databases [where] we keep different strategies for different things [related to teaching]. (Alice, Interview 1, March 9, 2016)

Undoubtedly, Twitter chats consisted of more than isolated discussions; they were a catalyst for the development of relationships, which in turn promoted the professional development of the knowledge broker teachers. Alice summed up the value of the Twitter chats:

> I think that it’s so important that you surround yourself with people [who] motivate you, and excite you, and kind of keep you excited to do what you do and bring you up instead of bringing you down. . . . [T]here are [teachers or professionals] home doing [Twitter

> chats] on their own time. . . . [After] I do a chat, in my classroom the next day, I'm doing something that . . . got sparked from the [Twitter chat] the night before . . . it gets you excited to come to work and . . . be a little bit more innovative and not just doing the same things all the time. (Alice, Interview 2, May 11, 2016)

Connecting on Twitter with others who enhanced their professional development was important to the knowledge broker teachers. This was often accomplished through the use of hashtags. *Hashtags* are comprised of "a keyword or phrase preceded by the # symbol, which indicates that a tweet includes content on a particular topic. . . . [They allow] educators to join ongoing discussions with others tweeting on similar topics and direct their messages and resources to those who have a shared interest" (Carpenter & Krutka, 2015, p. 11). Through her use of targeted hashtags, Theresa described how she was able to establish connections with other educators on Twitter:

> I was a little surprised, because usually if you use the right hashtag and you're reaching out to the right community you'll get responses. . . . I ended up looking at some of my connections that I had made over the past few years, and they led me to other educators who were doing the same thing. That's how I branched out [and made more connections]. (Theresa, Interview 1, March 28, 2016)

However, while Meg described the value of connecting randomly with other educators through Twitter, and would often follow teachers who followed her, she offered a cautionary tale that some of her followers' feeds were not worthwhile to her professional development. She preferred to follow feeds that challenged her intellect and noted, "there are an awful lot of people . . . who just are not thinkers [on Twitter]" (Meg, Interview 1, April 27, 2016). Despite this, Twitter provided the knowledge broker teachers with opportunities to develop and expand their existing professional, face-to-face connections by providing a platform that facilitated the continued development of relationships. The knowledge broker teachers described that through Twitter, they were able to continue conversations and discussions with teachers in their district and with presenters they had met at educational workshops and conferences. For instance, Theresa described how she was able to continue to learn from and communicate with the presenters at a Google Summit workshop because of Twitter. As she recounted, "I went to a [presentation] that was really engaging, and I thought [the presenters were] doing great things . . . I follow[ed] them on Twitter and then [got] other ideas that way" (Theresa, Interview 1, March 28, 2016).

The knowledge broker teachers considered Twitter to be an indispensable resource for expanding and sharing their knowledge. Alice explained that Twitter posts saved her the "hassle of going out and seeking [information] on her own" (Alice, Interview 1, March 9, 2016). As she elaborated,

> The first place I hit is Twitter because so many people will post links to blogs and articles and research or podcasts. . . . I feel like I follow really amazing people on Twitter that post such great things. . . . If I can click through, and I could see what they're reading or what they're posting . . . I feel like I find a lot out. (Alice, Interview 1, March 9, 2016)

Additionally, Twitter was used as a tool to gather ideas. The knowledge broker teachers then turnkeyed those ideas to colleagues. Finding out about new trends from their Twitter feeds often resulted in the knowledge broker teachers sharing this new knowledge with colleagues at school. *Retweeting*, or sharing valuable Twitter posts, was a common practice among the knowledge broker teachers. When the Twitter accounts they followed posted relevant or intriguing tweets, they shared the content with the expectation that their Twitter followers would find them useful. Alice discussed the practice of spreading knowledge through retweeting and how these posts would spur collaboration and socializing. She mentioned, "I don't . . . keep [information] to myself. . . . I have colleagues that are definitely interested [in what I find] because we're always chatting and discussing these kinds of things" (Alice, Interview 2, May 11, 2016). For example, when discussing her Twitter feed, Theresa said, "A lot of my things are . . . retweets or great articles that I found about educational technology, and I will share those out [on Twitter]. I also use [them] for trying to make connections . . . with other teachers" (Theresa, Interview 1, March 28, 2016).

Interestingly, despite the importance and relevance of Twitter as a tool to access knowledge, the knowledge broker teachers acknowledged that there were constraints to using Twitter. The knowledge broker teachers tended not to browse their Twitter feeds at school. They would often do this alone, on their own time, outside of the school day. For instance, Theresa shared that she browsed her feed when she was not at school, during nights and weekends. She noted that catching up with her feed was something that she "shouldn't be doing" at school (Theresa, Interview 1, March 28, 2016). She expressed that she felt guilty browsing her feed during the school day, "I feel like I should be grading papers or lesson planning. . . . I feel like I'm almost cheating if I use that time [for Twitter]" (Theresa, Interview 1, March 28, 2016). Additionally, the timing of Twitter chats posed difficulties for the knowledge broker teachers. Given her interest in literacy practices, Alice has been a Twitter chat participant for many years. She indicated that she would participate in a Twitter chat at least twice per week. However, she lamented that sometimes being on time or making a Twitter chat was challenging because of her own family's and children's schedules. As she mentioned, "The great thing is it's happening right there. The bad thing is that if you miss [a chat], you miss it. There's no going back to it or something later on. . . . People storify the chats, [but] . . . it's not the same" (Alice, Interview 1, March 9, 2016).

Facebook. Actively maintaining social connections by means of digital networks seems to have provided the knowledge broker teachers with the means to continue to grow professionally, seek out new knowledge, and share what they know with others. In addition to Twitter, they used the social media platform, Facebook. Both Alice and Meg indicated that Facebook offered them an easy and efficient way to engage with others online for multiple purposes. For instance, Alice joined education-related book clubs that were mediated through Facebook's "Groups" feature. In these groups, Alice indicated that she would participate in discussions surrounding professional education-related texts. She felt as though the educational book groups on Facebook gave her an opportunity to share her thoughts and experiences, but also served as a way to receive feedback from others in the group. This feedback provided Alice with validation of her knowledge, yet also made her aware of her shortcomings. Meg used Facebook as a mechanism to "crowdsource" with regard to finding answers to questions or problems. In other words, when she sought answers to questions she had, she just "put it out on Facebook" (Meg, Interview 1, April 27, 2016). Interestingly, Meg did not restrict her crowdsourcing strategy to education-related groups. She would simply crowdsource on her personal Facebook timeline with the hope of receiving as much feedback as possible. As she explained, "knowledge is passed around in communities . . . [to] crowdsource a question among a geographically diverse group of 300 people is an amazing thing to be able to do. That's one thing I do" (Meg, Interview 1, April 27, 2016). The ability to reach out to so many with one post pointed to the valuable connections that Facebook facilitated.

Blogs. Aside from Twitter and Facebook, some of the knowledge broker teachers also kept up with educational trends by frequenting blogs maintained by teachers, educational consultants, or education advocates. Theresa indicated that she regularly followed a large number of education-related blogs. As a result of following so many blogs, Theresa used Bloglovin' which is an online organizational platform that enables followers of multiple blogs to see all blog updates listed together. This platform provided Theresa with a means to organize the numerous blogs she followed, and to stay up-to-date with their content. As a result, rather than opening multiple blog sites individually, Theresa would log into her Bloglovin’ account to view new posts. For instance, one of the blogs that Theresa regularly followed was Free Technology for Teachers (www.freetech4teachers.com). This blog site provided teachers with updates regarding free technology resources and strategies for using those resources in the classroom. She explained that she learned about many technology-related tools that she and her colleagues could use with their students. Especially useful were the how-to videos that demonstrated the way that the technology-related tools worked and how they could be applied in a lesson. Overall, for Theresa, the strategy of using Bloglovin’ to regularly revisit and browse the blogs she followed helped to refresh her memory about the many different classroom strategies and technology tools that the bloggers discussed and demonstrated. In essence, these blogs that Theresa followed became her repository of professional knowledge and know-how that she tapped into as needed.

In addition to following educationally-oriented blogs, both Alice and Meg actively maintained their own blogs. Meg has maintained an eclectic blog for a number of years. Her blog consisted of posts that covered a wide range of topics from education and writing, to library topics, and to politics. She noted that several thousand people followed her blog and responded to her posts. Meg explained that one of her posts regarding school library practices “went viral in the library world. . . . I’ve gotten all these hits from the university of so-and-so, and it’s because somebody’s using it in the library school classroom” (Meg, Interview 1, April 27, 2016). Alice also was involved in regularly authoring blog posts, both individually and collaboratively. Through her collaborations with a teacher from another school district, whom I interviewed, Alice co-authored blog posts consisting of reflections and ideas about literacy practices in the elementary grades. As this out-of-district teacher colleague described, the blog started when both she and Alice thought about how they could “continuously collaborate” with each other

(Colleague 3:3, Episodic Interview, April 1, 2016). Alice's and her teacher colleague's everyday classroom and teaching practices with their students provided fodder for the topics that they wrote about in their blog posts. Most often, the blog posts "[grew] from the kids," which included reactions and feedback about the work they were doing in their classrooms. At times, since they were in separate districts, the two teachers made plans and visited each other's classrooms while they were teaching. For instance, Alice's colleague noted that when Alice visited her classroom, she was able to really "see what was happening. . . . [S]o she sat in the room and learned alongside [my students]. . . . She wrote down a couple of ideas, and the next day we met and wrote a blog about it" (Colleague 3:3, Episodic Interview, April 1, 2016). Being reflective about this with a trusted colleague allowed both of them to be "present as learners [and] for ourselves as teachers" (Colleague 3:3, Episodic Interview, April 1, 2016). Overall, the blog collaboration has enabled Alice to reflect on how she viewed herself, both as a learner and a teacher.

Searching the Internet. A common practice among the knowledge broker teachers was to seek knowledge for themselves and their colleagues using the Internet. Oftentimes, this involved visiting tried-and-true websites that they had used in the past for gathering information, as well as searching various terms to discover new resources and ideas, "Sometimes, I usually will Google it if I want an idea" (Jennie, Interview 1, March 18, 2016). When describing her habits, Meg indicated that searching the Internet was like "deep sea fishing. You throw out a line, and something might bite" (Meg, Interview 1, April 27, 2016). Using the Internet as a means to access new ideas and trends was a common practice among the knowledge broker teachers. Whether reading journal articles from professional organizations, watching YouTube videos to develop an understanding of what a reading strategy "looks like" (Alice, Interview 1, March 9, 2016), or perusing user-reviews about professional texts on Amazon, "I think once I read it, the write up, I knew I would want to get it" (Alice, Interview 2, May 11, 2016), the Internet provided the knowledge broker teachers with a wellspring of resources for their professional development, as well as plenty of knowledge to share with their colleagues. When Theresa discussed her screencast that she created for this study, which captured her searching for new coding resources for kindergarteners, she described how she deliberately browsed the website, Code.org (the website of an organization dedicated to teaching students coding skills), while toggling back and forth with a website that listed student technology standards. She indicated that, "I like to make sure that I'm always on the right track, so I have another resource to compare what we're doing with what else is out there" (Theresa, Interview #3, May 16, 2016). The time that Theresa spent carefully reading the website's content was evident through her cursor movements and the amount of time spent on the website. When I asked Theresa about the amount of time she spent on reading the text from the website, she noted that as she was reading, she started making connections for other possible applications for the new information she was finding:

> Theresa: I may even have been thinking about the NextGen science standards, starting a makerspace at this school, what might be involved in something like that. That might have been part of this session also, because I'm looking now, I can see that I'm getting into some robotics and things like that.
>
> Margaret: Here you were looking for coding, and now you branched out into robotics. That caught your eye.
>
> Theresa: Probably the STEM, the integrating STEM into the curriculum. Shortly after that I remember I had a discussion with my principal because I almost felt like is that now another role that I should be fulfilling. We had that discussion and she said she was very happy with what was going on here in terms of our curriculum and that really that

> we need to add additional staff to touch on the STEM components. (Theresa, Interview 3, May 16, 2016)

This example pointed to how Theresa was able to make connections between subject areas as well as how the content she was viewing on the Internet could be applied in other places or curriculum areas.

Additionally, Meg provided an explanation for how her Internet browsing led her to connect web site content with curriculum. She described,

> I saw an article . . . the other day . . . that said something like, “The FBI Falsified an Entire Field of Forensics.” I thought, “Well, that's an interesting headline,” and I clicked on it. It was about how hair analysis is not reliable, but many people are in prison because they were convicted on hair analysis. [Our school has] a forensics class, so I sent it off to the forensic teacher. I said, ‘You probably know this, but I thought your students might be interested,’ and she said that they did do hair analysis. She said that one of the things she hoped that they realized, as she was teaching it, was how unreliable it was. I'm reading a lot of different things. If I see something, I'll go, “Oh, hey. That would be good for math, or that would be good for health. (Meg, Interview 1, April 27, 2016)

In this instance, Meg shared how she made connections between the different subject matter that she was reading about on the Internet. Her ability to make connections was demonstrated in a variety of ways. Her original intent for being on the Internet was to explore her own interests, but connections seemed to have been triggered by the subject matter when she realized a topic’s value to colleagues’ curriculum areas and their students. Therefore, she took the initiative to send the information to her colleague. However, Theresa described that the amount of resources on the Internet was overwhelming:

> There are so many things out there, and it's something different every day. A lot of times I will have to go back and say, ‘OK, someone wants to do mind maps.’ I know I've heard of a few things, so I'll quickly do a Google search, and, ‘Oh yeah, that's right. bubbl.us is a great one to use.’ Then, I'll refresh my memory. (Theresa, Interview 1, 2016)

Even with the proliferation of resources, maintaining an organizational system from which to cull was key for the knowledge broker teachers. Developing highly organized bookmarks in their web browsers, using Google Drive and Google Docs to maintain and share resources with their colleagues, and keeping track of online sources, was key to staying organized.

In-Person Networks

Despite the wide-ranging use of the Internet to locate information described by the other knowledge broker teachers, Jennie mentioned that while she used the Internet, she tried not to over-rely on the information she would find online for her instruction and for her suggestions to colleagues. She noted that while she would search online for ideas, she often found that she could just as easily seek new ways of doing things from her students. As she described, “Why do I have to go on a website to get an idea? Maybe [I could] get an idea, but then let [the students] make it come alive, and then it’s just more organic …” (Jennie, Interview 1, March 18, 2016). Echoing this sentiment of seeking alternatives to the Internet for learning about new ideas and information, Meg provided an example from her time when studying to be a librarian:

> The professor said, ‘Where do most people find out something they don't know?’. . . [Students] were saying, ‘They go on the Internet, they ask their doctor, they look at a database.’ The professor's going, ‘Eh, maybe, keep going.’ I just raise my hand and say, ‘They ask their friends, and they ask their family.’ He's like, ‘Exactly.’. . . . Knowledge is passed around in communities. (Meg, Interview 1, April 27, 2016)

The power of Meg’s recollection provided an understanding of just how the knowledge broker teachers in this study became the go-to people for their colleagues. Just as easily, their colleagues could have “Googled” answers, but instead, like Meg’s professor foreshadowed, they did not seek outside experts. They sought answers through the knowledgeable people in their school community.

Formal and Informal Workshops

A notable commonality among the knowledge broker teachers was their commitment to their own professional development. While some of their professional development resulted from formal offerings, such as district mandated seminars or workshops, others occurred less formally. Despite their reliance on Twitter, Facebook, blogs, and Internet searches to both build and share knowledge, the four knowledge broker teachers all reported participating regularly in a wide variety of face-to-face professional development opportunities, such as workshops, courses, and meetings. Some of these opportunities were formal in nature, where attendance was mandated by the school district or administrators; the knowledge broker teachers initiated other opportunities themselves.

Formal opportunities tended to be driven by curriculum initiatives in the schools. For Jennie, district-mandated language arts workshops, organized and conducted by hired professional consultants, were found to be valuable in enhancing her knowledge of literacy trends. Jennie discussed the important responsibility she had in being a recognized turn-key teacher. As a turn-key, Jennie absorbed new knowledge from the literacy consultants who led the workshops, and in turn, she would relay this knowledge to teachers in her district. She described that when she attended these workshops, she came back to her district feeling “pumped,” “energized,” “reset” and “ready” to share her learning with her colleagues (Jennie Interview 1, March 18, 2016). Participating in these workshops provided Jennie with the chance to discuss and see in-action practices modeled by the consultants. At the same time, Jennie had opportunities to discuss the nuances of these practices with other teachers from different districts who were also in attendance. They shared how they could "improve . . . instruction . . . and [brainstorm] ideas to bring back to the classroom and share with . . . colleagues" (Jennie, Interview 1, March 18, 2016). Once back in her school, Jennie expressed that she shared and passed on her new knowledge at faculty or grade level meetings, but also through less formal means. Jennie described passing on literacy strategies in the hallway and during impromptu moments and how that knowledge is informally turnkeyed to other teachers. In discussing how this occurs, she said, "I'll say it to a teacher … and then [she'll] tell [another teacher]" (Jennie, Interview 1, March 18, 2016).

Other types of formal, face-to-face opportunities in which the knowledge broker teachers took part included those sponsored by professional groups, such as statewide, regional, and county level educational technology and literacy groups. These groups enabled the knowledge broker teachers to participate in sustained professional development related to a specific interest or subject because they met on a regular basis, either monthly or several times a year. Taking part in the meetings exposed the knowledge broker teachers to the latest educational trends and ideas, as well as provided them with chances to meet new teachers and catch up with those they knew from previous meetings. Theresa emphasized the importance of attending monthly meetings for a statewide technology educators' consortium. Through her participation, Theresa described these meetings as an invaluable resource for expanding her knowledge. As she described,

> A lot of times they will have teachers who will present and offer best practices of how they're integrating technology, and then I feel like you might get a tip as to a school that's really using [technology] well, and then I would do my research and look on their school

> website and check out what's really going on to get ideas that way. (Theresa, Interview 1, March 28, 2016)

She indicated that the group's practice of inviting teachers to share and present their best practices related to technology integration was helpful for learning about new technologies and learning about how to integrate them in the classroom.

Aside from her involvement with the consortium, Theresa also researched informal professional development workshops. Her use of Twitter facilitated her ability to access Google Summits, high intensity training events that focus on integrating, and using different Google tools for the classroom. While these experiences afforded Theresa an opportunity to reinforce her skills using different Google-based products, most importantly, these workshops enabled her to pick up new instructional knowledge with regard to ideas and practices. Like her participation in the technology consortium, the Google workshops offered her a means to pick and choose new ideas and remix them for her teaching context and those of her colleagues. Theresa's colleagues also recognized her willingness and initiative to participate in professional development opportunities on her own time. One colleague mentioned that she recognized that Theresa did this out of a genuine willingness to help other teachers. As she described, "she's doing things with summer programs, and she's learning [new content] to bring back to the school . . . that's what [Theresa] does" (Colleague 1:1, Episodic Interview, April 18, 2016).

In addition, the knowledge broker teachers attended informal workshops that they would hear about through postings from people and organizations they followed on social media or by word of mouth. Despite the positive feedback the knowledge broker teachers provided about these informal workshops, there were times when the workshops fell short of the knowledge broker teachers' expectations. For example, during her summer break, Theresa attended a two-day Google Boot Camp to learn about topics like creating digital portfolios using Google Apps in the classroom. While she found some of the new knowledge presented at the workshop to be informative and valuable, Theresa described that sometimes when she attended these types of informal workshops, she left them “thinking ‘I could have taught that class’” (Theresa, Interview 1, March 28, 2016). Undoubtedly, despite her acknowledgement of not coming away with new knowledge, Theresa’s participation in such informal workshops provided validation about her existing knowledge and her potential to be able to share it with others.

Seeking out and attending professional development opportunities was evident among the knowledge broker teachers. Their interest in participating in these outside ventures was spurred by their curiosity and their desire to learn as well as their felt-need to keep up-to-date with the latest trends in education. As a result of their participation, the knowledge broker teachers were able to absorb new ideas and approaches and then bring them to their schools and share with their colleagues.

Moments of Kismet

A common thread that emerged among the knowledge broker teachers concerned the times when their knowledge building and sharing occurred with their colleagues. Oftentimes, the knowledge broker teachers interacted with their colleagues during *moments of kismet*. These moments could best be described as moments of happenstance, when the knowledge broker teachers found themselves in the right place at the right time, sharing their knowledge, and even learning new knowledge “on the fly.” These impromptu moments of kismet would often take place when the knowledge broker teachers walked through hallways, stopped by their colleagues’ classrooms, or during lunchtime in the teachers’ room. During these moments of kismet, the knowledge broker teachers engaged informally in chats with their colleagues. These chats tended to be contextually dependent, focusing on things such as current curriculum units and lessons that were being taught, or colleagues’ immediate needs for resources or new ideas.

The contextually dependent nature of the topics during these interactions provided the fodder for the knowledge broker teachers to share knowledge that they may have had stored in their "internal file cabinets" (Meg, Interview 1, April 2), gathered and picked up from workshops, Twitter chats, or random online searches. Describing one instance, Theresa explained, "A lot of times, I'll be walking by [a colleague's room] and say, 'Oh, you're doing geometry right now. I have a great website,' or, 'I have a great tool that we can use to help the kids learn more about geometry' " (Theresa, Interview 1, March. 28, 2016). In a similar vein, one of Jennie's colleagues noted how Jennie provided her with on-the-spot resources. She described, "I'll come in [Jennie's classroom], and . . . I'll notice something in [her] classroom [that could help me with my lessons] . . . [then] she might pull out samples [of an assignment] and show me [how to get started]" (Colleague 4:3, Episodic Interview, April 19, 2016).

Additionally, these informal moments of kismet would occur during off-hours, such as early mornings, lunchtime, or after school. Often, these times of day proved pivotal in terms of addressing the immediate and pressing needs of teachers. The relaxed nature of these "non-working hours" provided both the knowledge broker teachers and their colleagues with a chance to communicate on a less formal basis. Alice explained how most of the sharing in which she engaged with other teachers was done on a "very casual basis" (Alice, Interview 1, March 9, 2016) during after school hours. Alice's colleague described,

> I was walking [out] with my coat on and everything and I said [to Alice], 'I got to tell you about this great website that you may want to try and look at . . . I'll send the information to you. Just take a look at it.' I told her what it did, and she goes, 'Oh, please send it,' because she knows that anything might help [other teachers later]. (Colleague 3:1, Episodic Interview, March 29, 2016)

Her recollection indicated the importance of how unstructured moments enabled the seamless sharing of strategies and resources. Additionally, when a former grade-level colleague of Jennie's was asked about when knowledge sharing occurred, she explained that they both would meet "before school . . . [and] on prep [time]" (Colleague 4:2, Episodic Interview, March 24, 2016). According to Jennie's colleague, these moments of kismet benefitted her own professional development.

The physical proximity of the knowledge broker teacher to their colleagues facilitated these moments of kismet, such as Theresa's colleague mentioning that she could "just come in" (Colleague 1:1, Episodic Interview, April 18, 2016) her classroom in the morning without prior notice, or how colleagues could "slip into" (Colleague 3:4, Episodic Interview, March 15, 2016) Alice's classroom when she did not have students. However, sharing knowledge during moments of kismet was more difficult for Meg. While her colleague teacher mentioned that she was lucky to be able to take advantage of Meg's extensive knowledge-base, proximity played an important role. As she mentioned, "I had the good fortune of randomly getting assigned to library duty each year, which means I have one hour every four days that I'm seated right outside Meg's office window and can talk with her [and tap into her knowledge] for a whole hour. Some weeks, twice a week" (Colleague 2:1, Episodic interview, August 9, 2016). However, Meg's physical location in the school limited other colleague teachers from connecting informally with Meg. Perhaps this also was a reason why Meg provided the name of one colleague teacher to interview. In describing where Meg was situated in the school, Meg's colleague described:

> [Meg's office] enclosed in glass and, literally, dead center of the building. It's a throughway that every teacher or student might pass through once a day, at least, so you can easily walk right by and chat with her. [However], [h]er office is set in the back with a glass window, like a teller, that you can slide open or closed. Her location is funny. It's

> central, but a little bit out of reach, where you'd have to take the steps to walk back there, and some [teachers] may think they [are] interrupting [her]. (Colleague 2:1, Episodic interview, August 9, 2016)

Just as Meg’s physical proximity limited her connections to her colleagues, the scarcity of common planning periods or time set aside for teacher collaboration seemed to have spurred the knowledge broker teachers and their colleagues to capitalize on moments of kismet to share with each other. When Theresa was asked about these impromptu meetings, she described how they would just happen in an instant, taking place in the hallway or the teachers’ room. She surmised that these informal moments of kismet where knowledge would be shared took place because “[teachers] don't have any common prep time. . . . [So] sharing ideas and strategies with others tended to happen during impromptu moments” (Theresa, Interview 1, March 28, 2016). In essence, based on the data described, the constraints imposed by school schedules provided the catalyst for the informal exchange of knowledge through such moments of kismet.

Tailoring Knowledge

This section describes how knowledge broker teachers present their knowledge to recipients. Whether by guiding their colleagues toward workable solutions, or making complex knowledge easily understandable, the knowledge broker teachers sought to ensure that the knowledge they would share would be suitable for their colleagues’ learning styles, personalities, content areas, and skill levels. Engaging in the process of tailoring knowledge required the knowledge broker teachers to engage in certain processes that would optimize their colleagues’ learning. These included scaffolding knowledge, making complex knowledge user-friendly, and differentiating knowledge to make it understandable.

Scaffolding Knowledge

When colleague teachers found themselves in predicaments that involved using new technologies, learning new instructional strategies, or trying to figure out how to develop student growth objectives, they turned to the knowledge broker teachers for guidance and a helping hand. In these situations, Alice and Theresa, discussed how they scaffolded complex knowledge as a means of support for their colleagues. Alice’s unique position as a former literacy coach turned classroom teacher enabled her to use her experiences as a coach to help her colleagues develop understandings of new content. She described her approach to scaffolding knowledge as being temporary in nature. While guiding and supporting her colleagues’ learning, she was clear about removing the support she provided for her colleagues “when it [was] time to remove it . . . slowly, but surely, and in appropriate steps” (Alice, Interview 2, May 11, 2016). One instance that Alice described in depth centered upon her idea to have students utilize a word study notebook as a means to build their vocabulary and spelling skills. After creating a prototype of the notebook, she shared this with her colleagues. With her gentle guidance, her colleagues developed their own notebooks, each with their own twist to Alice’s original. As Alice described, “I think that [my colleagues] have been happy with [the word study notebooks], so it was nice that I got to share, and begin creating with [them] in a fun way, and we got to spark ideas off each other. . . . People were interested” (Alice, Interview 1, March 9, 2016). Despite her success with scaffolding knowledge for her colleagues, Alice noted, “ [I]f I was going in [to my colleagues’ classrooms] and doing something for [them], every single time, I’m not being . . . effective. I’m just going in there and doing their job” (Alice, Interview 2, May 11, 2016). Without a doubt, Alice was aware that not mediating the scaffolding of knowledge could quickly turn into enabling her colleagues.

Theresa also discussed the importance of scaffolding new content as a support to ensure that her colleagues developed deeper understandings and became more independent in taking on the responsibility of continuing their learning. Similar to Alice’s view of scaffolding turning into enabling, Theresa emphasized that her colleague teachers needed to assume responsibility in terms of becoming self-reliant. Even her colleagues were aware of Theresa’s “tough love” approach to supporting their learning. Being encouraged to do for themselves, while still receiving Theresa’s assistance and guidance was how the colleague teachers described Theresa’s way of scaffolding knowledge for others. For instance, one colleague explained that Theresa “teaches and shows you, but also says, ‘You need to play with it . . . because if you don’t play with it and make mistakes . . . [but] . . . I’m here’ ” (Colleague 1:3, Episodic Interview, April 22, 2016). Another colleague mentioned Theresa would place the onus for learning on the colleague by creating tasks for them. In one instance, this colleague approached Theresa about web resources that she could possibly use with her class:

> [Theresa] [gave] me homework [and said] . . . ‘OK, you're going to go on the website tonight . . . I'll check back with you in two days. Let me see what you found out.’ I would go, and I'd do my homework or whatever, and then she'd say, ‘What are the problems that you came up with’ or ‘What happened?’ We would kind of go back and forth. (Colleague 1:3, Episodic Interview, April 22, 2016)

When discussing her role in helping her colleagues learn about new technology tools, such as educational apps and computer programs, Theresa described, “I’m so proud of some of the people that I have helped that actually do go home and try [the new technology tools] and they’ll try it on their own before they come to me to ask any further questions. That’s probably the best part of my job” (Theresa, Interview 2, May 16, 2016). Undoubtedly, Theresa’s approach to scaffolding the informal professional development of her colleagues through carefully crafted scaffolding, without being enabling, was well-known, accepted, and respected among her teacher colleagues.

Making Complex Knowledge User-Friendly

Aside from scaffolding learning for their colleagues, the knowledge broker teachers worked to make complex knowledge easily accessible and understandable for others. When their colleagues approached them for help in understanding knowledge that was complicated or entirely new, the knowledge broker teachers employed various strategies to make learning the new content more user-friendly. By acting as a bridge through which highly complex and specialized knowledge transferred from their outside networks and connections, the knowledge broker teachers were able to bring this knowledge to their colleagues. They then helped their colleagues understand this knowledge by translating for them. Time and time again during the interviews, both the knowledge broker teachers and their colleagues mentioned how knowledge was made more user-friendly and understandable so that it would more likely be used by other teachers in the knowledge brokers' schools. For example, while consulting with the district's Director of Curriculum, he mentioned that despite Theresa's advanced understanding of technology, she possessed an ability to translate this knowledge into easy-to-understand terms or steps for her colleagues. As he said, "[Theresa] has very advanced skills, but she knows how to bring [the knowledge] down to a level of each teacher so that they are going to really get it and use it" (Director Interview, February 18, 2016). Explaining her own assessment of translating for others, Alice indicated that during her time as a literacy coach, and even now in her present position, she felt an urgency "to take recent research and . . . break it down . . . [and] show how [this knowledge] could practically and feasibly look [and be used] in a classroom in a way that's not going to rock the [teachers'] whole world" (Alice, Interview 1, March 9, 2016).

Additionally, the director continued with his assessment of how the knowledge broker teachers translated knowledge when describing Jennie's ability to make knowledge accessible. District level administrators and supervisors often invited Jennie to participate in planning sessions and meetings concerning new district initiatives because of her in-depth understanding of new practices, programs, and initiatives. (Director Interview, February 18, 2016). Her ability to translate the knowledge she acquired had not gone unrecognized. From her participation, Jennie had been tasked with communicating these initiatives, such as the district's new literacy program, to her teacher colleagues. As the director described, "She understands the core of any new practice or new program or new innovation . . . she's the person who can really understand it enough to communicate it to others" (Director Interview, February 18, 2016). Given these descriptions of Jennie's ability to translate information, Jennie also noted how she easily made information accessible to others. For instance, when describing her day-to day work with colleagues, she indicated that she was able to "take [an] idea that was so intense in the way it was presented [originally] and [bring] it down to [understandable terms for other teachers]" (Jennie, Interview 1, March 18, 2016).

Colleague teachers described many instances when the knowledge broker teachers translated knowledge into user-friendly terms. In one instance, a colleague teacher approached Theresa about possible technology tools that her third graders could use for an upcoming unit. The colleague said that Theresa suggested that the students create websites, since Theresa was "going to workshops and . . . finding things out [about building websites] . . . . [W]e would sit together before each session [with my class] . . . and she would teach me what she was about to teach the kids" (Colleague 1:4, Episodic Interview, April 5, 2016). Another of Theresa's colleagues described Theresa's common practice of using layman's terms to convey information. This involved using easy-to-understand vocabulary and examples. When explaining how to use technology, such as online tools, Theresa also performed an important function as a bridge for knowledge. As her colleague recounted, Theresa exposed both her and her colleagues to "information that we probably never would have read about. She'll bring it in and describe it. . . . [She makes it] very easily understood" (Colleague 3:1, Episodic Interview, March 29, 2016).

Differentiating Knowledge

With their keen awareness of their colleagues' learning styles, personalities, ability levels, and strengths and weaknesses as learners, the knowledge broker teachers often differentiated the knowledge being shared. Throughout the course of the interview sessions, the knowledge broker teachers and their colleagues described times when the knowledge that was being shared was differentiated and customized to better suit their teacher colleagues' learning styles and knowledge levels. This ability of the knowledge broker teachers to truly customize learning experiences was described by the director. He noted that these knowledge broker teachers had a knack for "being able to identify what a teacher really needs . . . and do that without training, it's just very natural [for them]" (Director Interview February 18, 20160. Theresa further highlighted this when she described how she came to understand the needs and learning styles of her colleagues. She explained that her position as a technology coach provided her with access to most of the staff in her school. As a result, she noted "I know how they learn, and I know what they're capable of and what they need" (Theresa, Interview 2, May 16, 2016). Knowing her colleagues' ability levels enabled her to tailor her approach to each person, resulting in more targeted and successful learning among her colleagues. She shared the success of this approach,

> I have people that are on the low-tech end and they feel extremely comfortable coming to me. [They tell me] . . . 'you don't make me feel stupid' . . . or 'you really take the time . . . and you help me understand.' They often start apologizing because maybe it's

> something I've shown them once, but maybe . . . they need a little refresher. Most times, people walk away thanking me . . . and how comfortable they are coming to me [to get help]. (Theresa, Interview 1, March 28, 2016)

Additionally, Jennie described being tuned in to her colleagues' learning styles and needs. This was especially important when she suggested that they learn about new knowledge, which may result in steep learning curves. She explained, "I know my colleagues, . . . I know my group . . . . I don't want to stress anyone out with something that we're [doing]" (Jennie, Interview 1, March 18, 2016). Likewise, both Theresa's and Alice's colleagues described instances when they made new knowledge accessible or understandable. A colleague of Theresa's explained that Theresa provided her and other teachers with the latest knowledge about teaching practices "that we never would have read about. She'll bring [it] in and describe it [to us] . . . [i]t's very easily understood" (Colleague 3:1, Episodic Interview, March 29, 2016). Another colleague mentioned that Theresa understood her colleagues' ability levels and would "adjust to the different personalities of the staff . . . and their needs" (Colleague 1:1, Episodic Interview, April 18, 2016). One of Alice's colleague teachers shared that Alice "gives you choices that might work for you because what works for her might not work for me and vice versa. [She understands] we all have our individual personalities [and learn differently]" (Colleague 3:4, Episodic Interview, March 15, 2016).

In sum, all these results highlighted the brokering processes undertaken by the knowledge broker teachers to build and share knowledge. The findings about brokering processes are summarized in the following discussion.

Discussion

This chapter detailed the different processes in which the knowledge broker teachers engaged in the work of brokering explicit and tacit knowledge. Using a term like *brokering* to describe the theme of how the knowledge broker teachers both built and shared these types of knowledge provided a richer and deeper description of what the knowledge broker teachers did when engaged in these processes. While the data suggested that the four knowledge broker teachers fulfilled the role of a knowledge broker by moving knowledge from those who had it to those who needed it (Hargadon, 2002; Lomas, 2007; Nonaka & Takeuchi, 1995), the processes used in terms of how they learned and moved knowledge were more nuanced. Two of the original questions guiding this study sought to understand how these four knowledge broker teachers built and shared knowledge, and while the findings presented in this chapter provided some answers to this question, there were nuances present to the processes of building and sharing. These nuances were evident when these knowledge broker teachers established and took advantage of their connections with other educators and knowledge sources, used moments of kismet to enhance the knowledge of others, and shared knowledge that was custom-tailored for their colleagues. Clearly, knowledge was built and shared, but there was more than just learning new knowledge and passing it on to their colleagues.

One of the findings in this study indicated that the four knowledge broker teachers engaged in the work of brokering by making various types of connections. These connections included their use of digital affordances, like Twitter, Facebook, and blogs, as well as participation in formal and informal workshops. These connections not only enhanced their own professional development, but also the professional development of their colleagues. In essence, through the use of these platforms and networks, these knowledge broker teachers appeared to “pull” (Hagel, Brown, and Davison, 2010) resources and ideas on an as-needed basis. As discussed in Chapter 2, Hagel, Brown, and Davison (2010) described that the growing ability for people to connect and communicate through social and collaborative technologies resulted in the ability for them to locate and “pull” the knowledge they needed when certain situations and demands arose. Similarly, in this study, rather than solely relying on knowledge being “pushed” at them, the knowledge broker teachers took the initiative to pull knowledge, locating and accessing relevant people and resources when they needed knowledge. However, unlike the assertions made by Hagel, Brown, and Davison (2010), the knowledge broker teachers in this study did not completely disregard the “power of push.” The findings of this study point to the value that traditional “stocks of knowledge” have in sparking the knowledge broker teachers’ desire to pull knowledge from established sources. Whether it was through their participation in district mandated literacy workshops, or following state mandated curriculum, the knowledge broker teachers found ways to take existing forms of knowledge that were pushed and remix it or even use it to further pull innovative knowledge that was better suited to their immediate needs and those of their colleagues.

Despite the argument made by Hagel, Brown, and Davison (2010) that the explicit knowledge often presented as push knowledge was diminishing in terms of its influence, I would argue that in the case of the knowledge broker teachers, knowledge that was pushed enabled them to successfully and gainfully employ the power of pull. Unlike the authors’ description that push approaches could have negative effects on intellectual curiosity, in this study, Jennie used the knowledge that was pushed on her from her attendance at mandatory literacy workshops to spur her further exploration, or pull, of new approaches to classroom literacy practices. While Jennie, and the other knowledge broker teachers were forced to go to workshops, they made connections with sources from which they could pull. For Jennie, push resulted in pull. Therefore, despite the Hagel, Brown, and Davison’s assessment, I would argue that one of the reasons that the knowledge broker teachers in this study were successful was because of their ability to be open-minded about the knowledge that was pushed at them from traditional means, like workshops, and to use it as a way to seek out more applicable and innovative knowledge by pulling it from their numerous connections. In this study, oftentimes it seemed when knowledge was pushed, the knowledge broker teachers responded by pulling.

Another finding concerning how the knowledge broker teachers engaged in the work of brokering was how they took advantage of moments of kismet. I found that these impromptu meetings, when knowledge broker teachers also would informally interact with their colleagues in less formal times and spaces, often resulted in off-the-cuff knowledge sharing among the four knowledge broker teachers and their colleague teachers. This informal knowledge sharing was not unlike the coffee pot discussions that would occur among Xerox technicians (Brown and Gray, 1995) who would discuss and pass on knowledge related to their jobs. Similarly, the knowledge broker teachers shared informally with their colleagues as well. While these moments of kismet gave the impression of spontaneously popping up while walking in the hall or during lunch, the findings noted that the overarching school context played a pivotal role of bringing together the knowledge brokers and their colleagues. In their study of physical proximity and how it related to social ties among school staff, Spillane, Shirrell, and Sweet (2017) found that teachers who were shared a close physical proximity to their colleagues were more likely to share with each other. While the physical proximity of the participants in my study affected interactions, also having an effect were the constraints inherent in school schedules. This constraint directed whether or not the knowledge broker teachers and their colleagues would have informal opportunities to interact with each other and what type of knowledge could be shared. In essence, while these moments did seem like kismet, they were orchestrated by the context of the school. Granted, Brown, Collins, and Duguid (1989) noted that knowledge was a product of the situation in which it was produced. Similarly, the findings of this study showed that the overarching school context affected the knowledge that was produced and the types of social interactions through which the knowledge flowed. In the case of this study, the context played a pivotal role in determining which teachers benefitted from the interactions with the knowledge broker teachers. For instance, Meg's lack of proximity to other teachers because of the positioning of her office affected her interactions with many teachers in her school. However, because of one colleague's schedule which placed her in the same space as Meg, this colleague was able to benefit from Meg's knowledge. In another case, colleagues who shared the same lunch period as the knowledge broker teacher were able to benefit from these moments and to tap into the knowledge broker teacher's wealth of knowledge. Though similar to Xerox technicians, the four knowledge broker teachers did not have the luxury of a regular time to meet around a coffee pot over the course of a day. The limitations imposed by the context of the school, namely schedules and positioning of classrooms, played an important role in setting the stage for how and when knowledge broker teachers engaged in the work of brokering, and most notably, which teachers could benefit from the knowledge broker teachers.

The last finding about the knowledge broker teachers and their work of brokering knowledge concerns the knowledge broker teachers' focus on tailoring knowledge for their colleagues. By tailoring knowledge for their colleagues through scaffolding, by making knowledge user-friendly, and differentiating knowledge for their colleagues' needs, the knowledge broker teachers engaged in practices of translating and bridging knowledge. As described in Chapter 2, translating and bridging knowledge are key processes of knowledge brokers (Wenger, 1998). Translating knowledge involved making knowledge understandable and relevant for others (Nonaka, 1994), whereas bridging involved "bridging" a knowledge gap by transferring information from those who had it to those who needed it (Hargadon, 1998; Wenger, 1998). While the literature seemed to provide these basic definitions of these processes, the data in this study illustrated that the translating and bridging performed by the knowledge broker teachers involved the mindful tailoring of knowledge that was shared with their colleagues. For instance, when Alice and Theresa scaffolded knowledge for their colleagues, they both were aware that such supports could lead to enabling and doing their colleagues' work. Infusing a "tough love" approach which mediated their support when working with their colleagues was one way that they helped them to bridge a knowledge gap. A combination of bridging and translating knowledge occurred simultaneously during some of the times the knowledge broker teachers worked to make complex knowledge more user-friendly. In one instance when Jennie helped her superiors to gain a better grip on planning new initiatives, she did not hesitate to guide and direct the agenda for a planning meeting. Her confidence in her knowledge, and her desire to make sure that others understood resulted in her breaking the information down into understandable segments in order to move their task along. Finally, possessing a keen understanding of the different colleagues' learning styles, circumstances, and abilities drove the knowledge broker teachers to present their knowledge in differentiated ways. The knowledge broker teachers did not merely translate knowledge for their colleagues, they fine-tuned how it was presented. In this way, the knowledge broker teachers were ardent in making new or difficult knowledge both accessible and customized to their colleagues' needs and abilities. The importance of knowing the cast of characters and what would work for them lied at the heart of what the knowledge broker teachers accomplished on a day-to-day basis.

Conclusion

The findings in this chapter suggested that the knowledge broker teachers intimately knew their colleagues' needs and they made decisions and choices about how best to engage in brokering processes to meet those needs. As a result, knowledge bridging and transfer might not necessarily stay true to a one-size-fits-all model in terms of how knowledge was moved in this study. Most definitely, this process was more complex than the literature concerning knowledge brokers described. While many of the studies about knowledge brokers have focused on the areas of organizations, business, and healthcare, perhaps the unique context that schools and teachers presented, required that knowledge broker teachers engage in different types of brokering processes with regard to the movement of knowledge. Unlike traditional workplaces documented in the literature, schools are unique in their structure, clientele, and knowledge. The knowledge broker teachers in this study used certain brokering processes that enabled them to successfully impact their own knowledge development, as well as their colleagues' professional development. From their self-directed, proactive approach to making connections, taking advantage of moments of kismet, and knowing their colleagues and what would work for them as learners, the knowledge broker teachers engaged in brokering processes that best fit these unique situations.

In sum, this chapter focused on the theme of brokering, which involved the processes in which knowledge broker teachers engaged to build and share knowledge. This occurred through connections, moments of kismet, and differentiating knowledge. Chapter 6 focuses on how knowledge broker teachers took part in brokerage actions which relied on the formation of trust relationships.

CHAPTER 6: BROKERAGE—THE FORMATION OF TRUST RELATIONSHIPS

Introduction

As described in Chapters 4 and 5, the four knowledge broker teachers in this study were brokers who engaged in processes of brokering. As brokers, they became shape-shifters, assuming different personas, such as comrades or cheerleaders, to navigate different situations and social relationships. While engaging in these brokering processes, they built and shared knowledge by making connections, capitalizing on moments of kismet, and tailoring the transfer of knowledge, ideas, and resources to their colleagues. This chapter presents findings that dig deeper into the actions that enabled the four knowledge broker teachers to be successful brokers, who engaged in process of brokering. For the sake of this study, I have termed these actions "brokerage." As captured by my data, *brokerage* can best be described as the subtle actions that would play out in the social relationships between the knowledge broker teachers and their colleagues. Specific to this study, by engaging in certain types of brokerage actions, the knowledge broker teachers appeared to establish, maintain, and strengthen social bonds with their colleagues that facilitated the sharing and movement of knowledge. References to these actions have not been referenced in any of the studies on knowledge brokers, and perhaps this finding is what sets knowledge broker teachers apart from their counterparts in other industries. Findings in this study indicated that the ability to engage in brokerage was necessary in order to be recognized as a knowledge broker teacher.

In the case of this study, brokerage was more than the sum of the knowledge broker teachers' personas or the processes used to build and share knowledge. Brokerage involved a set of actions that have been crafted and groomed over time, over many social interactions, experiences, and contexts. These actions included the giving and taking of knowledge, honoring colleagues' potential, and going above and beyond expectations. Crafting and grooming these actions, I realized, resulted in the emergence of "trust" between the knowledge broker teachers and their colleagues. In the case of this study, I likened the role of trust in brokerage actions to the lubricant that enabled the knowledge provided by the knowledge broker teachers to flow freely and unimpeded between knowledge broker teachers and their colleagues. The establishment of trust became the conduit without which the brokerage actions outlined in this chapter, I argue, would be ineffective or non-existent.

By closely analyzing my interviews with this study's participants, I came to understand that the success of these knowledge brokers seemed to require relationships with their colleagues that were built on trust. The concept of trust has been described and written about as a philosophical, psychological, and sociological concept (Flores & Solomon, 1998; Lewis & Weigert, 1985). To best fit the situated perspective of this current study, I drew on definitions of trust that are inherently social in nature and describe how trust is enacted through social interactions. In sociological literature, trust has been discussed as a social attribute that is developed and enacted through social interactions and relationships with others (Giddens, 1990; Lewis & Weigert, 1985; Luhmann, 1988). According to Simmel (1950), trust can be viewed as the mutual "faithfulness" that social relationships rely upon, which is continually reinforced through social interactions. In his work, Giddens (1990) defined trust as, "confidence in the reliability of a person or system, regarding a given set of outcomes or events, where that confidence expresses a faith in the probity or love of another, or in the correctness of abstract principles (Giddens, 1990, p.34). Giddens further described that trust "exists in the context of . . . the general awareness that human activity . . . is socially created" (p. 34). In terms of the relationship between trust and knowledge, trust is needed when there is a lack of knowledge (Giddens, 1990). However, Giddens noted that in situations where there exists a clear understanding and readily available knowledge, there is little need for trust in others.

In this study, trust required the establishment of strong, reciprocal relationships between the knowledge broker teachers and their teacher colleagues. Because they relied on trust, my findings suggested that brokerage practices necessarily evolved over time and especially came into being through the knowledge brokers' active and sustained participation in and across various social interactions and contexts with their colleagues. All of these were built on the establishment and maintenance of mutual trust between the participating knowledge broker teachers and their colleagues. While the personas of being a knowledge broker teacher had the potential to be forged, or consciously created or taken on by the knowledge broker teacher herself, and the processes of brokering knowledge could be learned, establishing trust, and therefore engaging in brokerage, was not something that could be taken on by any single teacher operating on their own.

This study's findings illustrated that trust was dependent on and affected by relationships with others, and the presence or absence of knowledge affected the trust relationships. Therefore, the brokerage actions of the four knowledge broker teachers could be understood as inherently social interactions that depended on the presence of trust with their teacher colleagues. In this study, trust manifested itself in the brokerage actions performed by the four knowledge broker teachers, which included: the giving and taking of knowledge, honoring colleagues' potential, and going above and beyond expectations. A discussion of these manifestations follows.

Giving and Taking Knowledge

While the knowledge broker teachers were often the ones sought out by their colleagues for the knowledge they possessed or to which they had access, the knowledge broker teachers also often engaged in a "give-and-take," "bouncing off," or "fluid exchange" of knowledge with their colleagues. During these situations, if the tables became turned on the knowledge broker teachers, then they would self-identify as the learners or novices. Rather than keeping their knowledge shortcomings to themselves, the knowledge broker teachers and their colleagues seemed to have a mutual sense of trust when they shared their vulnerabilities in terms of knowledge gaps. Throughout the interviews with the knowledge broker teachers and their colleagues, recollections of collaborative knowledge sharing and admitting knowledge shortcomings were evident. During these instances of knowledge sharing, the knowledge broker teachers and their teacher colleagues would “brainstorm together” (Colleague 3:1, Episodic Interview, March 29, 2016) or “spark ideas off each other” (Alice, Interview 1, March 9, 2016) as a way to improve their mutual teaching practices or to solve problems. For instance, when Jennie approached a colleague teacher for ideas about a new approach to an American symbols unit, her colleague described how there was “a lot of back and forth . . . it all came together very naturally. . . .We’re going to talk about it and think about what we want to do . . . to continue to improve [the unit]” (Colleague 4:1, Episodic Interview, April 1, 2016). When I asked one of Alice’s colleagues about bouncing ideas off Alice, she similarly suggested that she and Alice would often brainstorm together. She noted, “I’ll come up with an idea. She’ll come up with something that’s similar . . . and it morphs into something a little better than what we both had” (Colleague 3:1, Episodic Interview, March 29, 2016). The comfort and ease which both the knowledge broker teachers and their teacher colleagues had with each other to eagerly bounce ideas off each other and admit their shortcomings pointed to the underlying presence of trust.

Many times, the give-and-take that occurred focused on solving problems. Some of the colleague teachers described times when they called upon the knowledge broker teacher to help them with learning how to use new web apps or troubleshooting a computer, and the knowledge broker teachers did not have the answers. Despite this, the knowledge broker teachers would admit their knowledge shortcomings, and begin a process of talking with their colleagues to better understand what the issues were, and through their conversations, joint solutions often emerged. One colleague teacher noted of Theresa, “Although she’s the expert in this technology field, she’s like, ‘No. Sometimes there are things I don’t know,’ then [we bounce] ideas . . . and she’s like, ‘Yeah, that is what works’ ” (Colleague 1:1, Episodic Interview, April 18, 2016). Alice’s colleague described how she and Alice co-authored a piece for their instructional practices blog and how most of their writing on the blog was a “total back and forth” (Colleague 3:3, Episodic Interview, April 1, 2016). According to Alice’s colleague, they each engaged in a “flood of ideas” using a shared Google Doc, which facilitated the process of finding “where their [ideas] fit together” (Colleague 3:3, Episodic Interview, April 1, 2016). In another example, Meg explained that when teachers came to her for ideas about new teaching approaches to include in curriculum units, she often helped them by creating a mind map, or graphical representation, of their topic. Rather than just suggesting her own ideas, she engaged the teachers in talking about their knowledge of certain topics. Meg indicated that “people who know me, know that I’ll brainstorm with them” (Meg, Interview 1, April 27, 2016). When creating a mind map for her colleagues, Meg said she would encourage them to “Keep talking. Keep talking” (Meg, Interview 1, April 27, 2016) as she built the map. When the mind maps were completed, she would add her suggestions and summations, and then “hand [the mind map] to them” (Meg, Interview 1, April 27, 2016).

The knowledge broker teachers also expressed that engaging in give-and-take with their school colleagues, and even with other educators in their online social networks, often resulted in not only the solving of problems, but also in generating good feelings and a sense of camaraderie. Alice expressed this sentiment:

> I think there’s something that’s really great about not feeling like you’re [trying to solve a problem] by yourself and feeling like you have teammates . . . somebody to bounce ideas off of, lean on . . . a little bit. . . . [I]t’s really nice . . . to be able to build each other up. . .

> . [This] happens more fluidly and consistently once a relationship has been established."
> (Alice, Interview 2, May 11, 2016)

The knowledge brokers and their colleagues did not hesitate in their willingness to be open with each other in terms of what they knew and what they did not know. Their comfort in displaying their vulnerabilities pointed to the presence of trust in their relationship with each other.

Honoring Colleagues' Potential

The nuances of how the knowledge broker teachers engaged in the process of "brokerage" was manifested in the subtle actions that played out in the social relationships with others. This resulted in the establishment and maintenance of those relationships. Both knowledge broker teachers and their colleagues shared examples and scenarios that supported the sense of how brokerage actions depended on the trust that existed between the knowledge broker teachers and their colleagues. The interviews with both the knowledge broker teachers and their colleagues contained examples of how the knowledge broker teachers did not downplay or criticize colleagues' shortcomings. The colleague teachers were not faulted for things such as weak technological know-how, lack of social media savvy, or not being up-to-date in terms of the latest and greatest resources to support their teaching and lessons. Rather, the knowledge broker teachers took great pains to honor their colleagues' potential and showed deference to the existing knowledge their colleagues possessed, especially with regard to their teaching experience, talents, and expertise. Indeed, the data suggest that the knowledge broker teachers made a concerted effort to consistently honor their colleagues' abilities and potential by not being judgmental of their shortcomings. I argue that engaging with their colleagues in this manner engendered and supported mutually positive and productive relationships, and further reinforced trust in the relationship.

In many of the interviews, the knowledge broker teachers both described and were described as valuing their colleagues' knowledge, and not being judgmental of what they did not know. For instance, Alice acknowledged that her colleagues knew that she respected their ideas. When describing an instance when she would "pop in" to her colleagues' classrooms, she noted that she wouldn't push her ideas on them, but instead would wait for them to "bring something up" about their curriculum. If they did, she would then engage with them. If she did have something to share, she indicated that she would say something to the effect of, "Oh, I just happen to have this. If you're at all interested, if you see this and you like it, if you want to come in, I'll show you what else or we could talk about this together" (Alice, Interview 1, March 9, 2016). Alice made it clear to me that she did not want to be pushy with her ideas and resources because it could harm the comfortable relationship she had with her colleagues. For Alice, her colleagues seemed to be so willing to share their ideas and practices, as well as their shortcomings, that she surmised that it was because they knew that "I respect their ideas as well" (Alice, Interview 1, March 9, 2016). She emphasized how she did not want to appear pushy, or "give the appearance that I feel that certain that something that I'm doing is better," (Alice, Interview 1, March 9, 2016). She expressed a deference to her colleagues' contributions, too: "There's nothing I would like more than a messy table and everybody's resources . . . . I say, 'Two brains are better than one, and three brains are better than one' " (Alice, Interview 1, March 9, 2016). Additionally, Alice's colleagues indicated that Alice "made them feel important" (Colleague 3:2, Episodic Interview, March 15, 2016), and that "[s]he's just right there with you . . . learning alongside you. I think that is a nice quality . . . . You don't want to ever feel worried around her or concerned that [she'll] . . . shoot down your idea" (Colleague 3:3, Episodic Interview, April 1, 2016). Clearly, Alice realized the value of not being heavy handed in terms of judging her colleagues' abilities. Such instances pointed to the importance that honoring others’ abilities played in establishing a sense of trust, and therefore, ease in the movement of knowledge.

Similarly, Theresa indicated how she did not judge her colleagues’ existing knowledge, and, as a result, she felt her colleagues did not hesitate to seek her help. Theresa described how colleagues who were not savvy with technology or with how to integrate it into their instruction felt “extremely comfortable” seeking her help (Theresa, Interview 1, March 28, 2016). She noted that her colleagues often commented openly to her that she did not make them “feel stupid” (Theresa, Interview 1, March 28, 2016). Theresa also added that she felt a responsibility to help her colleagues learn, and as a result, she would go out of her way “not to make them feel insecure or inadequate about a topic that they’re really not familiar with” (Theresa, Interview 1, March 28, 2016). Several of Theresa’s colleagues similarly acknowledged Theresa’s non-judgmental manner. Theresa “never makes you feel like you’re silly for asking a question. . . . [E]very question is valuable” (Colleague 1:1, Episodic Interview, April 18, 2016), and that she “doesn’t judge you, she’ll automatically say to you ‘Why would you know that?’ ” (Colleague 1:3, Episodic Interview, April 22, 2016). One colleague expressed that she was “never afraid to ask [Theresa] a question about something, [I] never felt like I was dumb” (Colleague 1:3, Episodic Interview, April 22, 2016). Undoubtedly, not being critical of colleagues’ shortcomings was crucial in strengthening bonds between knowledge broker teachers and their colleagues.

When examining the brokerage action of honoring colleagues’ potential, it was important to consider how trust was created and reinforced by the knowledge broker teachers’ stance of being non-judgmental of their colleagues’ shortcomings or lack of knowledge. In turn, this practice of not making their colleague teachers feel inadequate opened up many instances for learning and working together with the knowledge broker teachers. Without this interconnection, the movement of knowledge and the effectiveness of the knowledge broker teachers as a source of informal professional development for their colleagues would be diminished.

Going Above and Beyond Expectations

Throughout the course of this study, my discussions with the four knowledge broker teachers and their colleagues provided insights regarding a noticeable tendency for the knowledge broker teachers to exceed, or “go above and beyond” what I would see as normal or standard responsibilities that would be expected of most teachers in schools. Unlike what most of their colleagues did during the course of the day as a classroom teacher, such as lesson planning, teaching, and engaging with students and parents, the knowledge broker teachers handled their classroom teacher responsibilities, as well as additional responsibilities. The knowledge broker teachers tended to be given responsibilities that extended beyond the norm of what a classroom teacher was expected to do. For example, they described being tasked with taking on complex responsibilities such as assisting administrators in curriculum development and staff training, taking on leadership roles in spearheading new technology and STEM initiatives, as well as being called on to work with and support other teachers in a quasi-administrative, or mentor-like role. Additionally, they were sought out by their teacher colleagues to help with planning lessons or locating resources, often during non-working hours. Throughout the data, it was evident that all four knowledge broker teachers repeatedly described carrying out such requests with no hesitation, and without saying *no*. Most interesting was how the knowledge broker teachers revealed that they considered these extra expectations and requests by their administrators and colleague teachers almost a mark of honor and pride, and not a sign that they were being taken advantage of. The knowledge broker teachers viewed meeting the needs--and even the demands--of others as a critical, integral, and requisite part of their job as a teacher, regardless of their formal role or status within their school. In some regards, they perhaps felt it was their duty, their vocation, or more aptly, their responsibility to “take one for the team,” and to do so without hesitation or complaints.

Certainly, the knowledge broker teachers’ expertise was recognized by others in their school, and even online, and called upon repeatedly because they described how they usually exceeded expectations and with mostly positive results, especially when assisting with technology use or incorporating new ideas into the curriculum. In essence, the knowledge broker teachers could be trusted to deliver positive results for their administrators and teacher colleagues. On the flip side, they could also be trusted to always be available, willing, and ready to take on extra work. At this point, it is important to note that this manifestation of the trust that existed between the knowledge broker teachers and others who called on them could be viewed from two vantage points. The knowledge broker teachers viewed the trust placed in them as a pat on the back, whereas administration and other teachers viewed it as a way to get things done.

As described in the literature, Wenger, McDermott and Snyder (2002) addressed the downsides to communities of practice, such as the existence of cliques or the imperialistic tendencies of leaders with the community. Similarly, the manifestation of trust presented downsides as well. The downside to this combination of communally acknowledged expertise and the internal drive of the knowledge broker teachers to always push their workload boundaries and to go above and beyond, was the self-admitted understanding that they also were likely to be taken advantage of by others, and often with little complaint or resistance on their own part. In this case, the trust that the knowledge broker teachers established with their colleagues could be described almost as an exploitation of their inherent generosity in terms of helping others. Indeed, Theresa’s tireless desire to ensure her colleagues were taken care of and satisfied was universally acknowledged by her colleagues. When I asked one of Theresa’s colleagues about how other staff viewed Theresa’s integral role in the school, she described that they “lean on her a lot” (Colleague 1:2, April 21, 2016) because she is a “hot commodity” (Colleague 1:3, April 22, 2016) for not only assisting teachers with projects and sharing her knowledge of new digital tools and trends, but also for bringing her internal motivation to solve the problems of others. Another colleague reiterated Theresa’s value to the school community as well as how her expertise was taken advantage of:

> it would be huge if she wasn't here. I know they say anybody can be replaced, but you can't be replaced with certain demeanors, or patience, or being able to be quick with somebody. [Theresa] who's very quick. She gets people, she gets technology, so that whole package, it's wonderful to have her and to feel so comfortable. Again, in a role where everybody comes to her, that's a lot of pressure on her, and she never, ever makes you feel like, “OK, I've got to go to the next person.” She's always calm, and always has time for you. It's that open door policy, she means it, she shows it, so it's not just words, her actions show everything and make you feel so comfortable. (Colleague 1:1, April 18, 2016)

After this interchange with her colleague, I asked Theresa about her colleagues’ view that she was relentless in seeking answers and helping others. Theresa suggested that she was more than just a go-to person for her school colleagues. When asked to elaborate, she continued, saying that others in her school viewed her as a “tool,” which was used to “get [her colleagues] somewhere, or to help them [solve a problem]” (Theresa, Interview 2, May 16, 2016). Because of her non-threatening nature and her established relationships with her colleagues she surmised that other teachers in her school did not think twice to use her expertise as a tool in a wide range of areas. However, Theresa also mentioned that an administrator was aware of how her colleagues took advantage of her knowledge. As Theresa recollected,

> My administrator has [said to teachers], “It can’t just be [Theresa]. You have to help yourselves. . . . [F]inding . . . resources on your own”. . . . I guess [teachers] just . . . rely so heavily on me being there to help. . . [and] see that as my role. (Theresa, Interview 2, May 16, 2016)

Likewise, Meg described how her colleagues “pick my brain” (Meg, Interview 1, April 27, 2016) and used her knowledge and expertise for their own benefit, as a means to an end. She indicated that colleagues sought her out for a variety of purposes. These included asking for her feedback when working on a master’s thesis, locating scholarly research and texts for their own professional learning communities, or needing “peer-reviewed sources about this or that” (Meg, Interview 1, April 27, 2016). Despite her self-described efforts with helping others with their personal goals, one of Meg’s colleagues mentioned that at times she felt as though Meg was actually underutilized by many of the teachers in the school. She noted, “I think that's the tragedy [of being underutilized] . . . she's so incredibly qualified, holding multiple degrees, capable of doing so much more, even, than what she already does” (Colleague 2:1, Episodic Interview, August 9, 2016). Her colleague indicated that Meg’s full capacity to assist teachers with curriculum, classroom resources, and technology integration was often overlooked because of Meg’s designated position as the district library-media specialist, Meg, according to her colleague, could provide so much more for teachers beyond book and article suggestions if “there were avenues that allowed her to do so . . . [perhaps] rebranding her [with a different title] . . . could make [her more utilized by other teachers]” (Colleague 2:1, Episodic Interview, August 9, 2016). By far, this is an interesting contrast Meg’s colleague teacher posed to the comments shared by the other knowledge broker teachers’ colleagues. Perhaps Meg’s colleague did not already fully understand the many ways that Meg’s intellect, efforts, and time were already being used by others in her school, communicated via email.

One unexpected consequence of the knowledge brokers' intimate understandings of others' needs and capabilities, along with their seeming desire to please others was that they were often used or taken advantage of by not only their teacher colleagues, but also by their administrators. While Meg's expertise was tapped into and taken advantage of when a fellow teacher sought out her assistance with their master's thesis, the dynamics between the knowledge broker teachers and their administrators was different.

Throughout the various interviews with both the knowledge broker teachers and their colleagues, they all shared instances where the knowledge broker teachers were called upon by their school administrators to handle complicated tasks and asked to go above and beyond their role as teachers. In these instances, the knowledge broker teachers were being called upon and singled out to perform these tasks. Clearly these actions were different than the knowledge broker teachers' informal encounters with their colleagues, and thus change the dynamics between the individuals involved as described in this study. Despite these heightened demands, the knowledge broker teachers obliged these requests with no complaints. In the case of Meg, she described being asked to research some science topics by the district science supervisor:

> When [the supervisor] asked me to do something for science, my first thought was, "Oh, God, I can't do that. . . . There's no way." My first thing [was] always like, "Oh no, I can't do that," but I had put a note on the side of my computer once that said, "Say yes and do it well." [laughs] So I was like, "OK. Yes. I can do that." (Meg, Interview 2, May 11, 2016)

Additionally, Alice expressed some reticence in admitting that she was often times taken advantage of by her administrators. When I asked her about this, she asked if she could give me a "nonverbal response" (Alice, Interview 2, May 11, 2016). Alice then proceeded to shake her head in the affirmative. Clearly, she felt uncomfortable answering the question in front of me.

My question certainly caused her to feel conflicted about being taken advantage of by her administrators. When I asked her why she was not answering my question verbally, she then provided a contradictory response that she actually found it and fulfilling that her administrators were asking her to take on extra work:

> Honestly though, there's sometimes when people do it still and I'm still so surprised and I feel so great that someone would think that, “Wow, I can do that.” Maybe it comes from me not always feeling so great, the fact that somebody else might think that I'm capable of doing something, I'm like, “Oh wow, if they see me like that, I can do it”. . . . Yeah, I think I do get a lot back. I feel so touched and excited that people would want me to participate in different things. I also feel like there are different parts of my brain, and I really like doing different types of things as well, so it fulfills different niches that I find professionally fulfilling. (Alice, Interview 2, May 11, 2016)

Similarly, Theresa described being “constantly asked by administrators” to locate digital tools and online content to assist her colleague teachers with their instruction. She assumed that administrators called on her because they were aware of all the research she does on her own time to learn more about how these tools and this content can enhance teaching. For instance, with her district’s new STEM curriculum initiative, Theresa felt it was her obligation to assist her principal. Assuming that she would be approached by her principal to play a role in the initiative, she revealed, “I had a discussion with my principal because I almost felt like, ‘Is that now another role that I should be fulfilling?’” (Theresa, Interview #3 screencast, May 16, 2016)

While not directly admitted that they took advantage of Theresa, Theresa’s colleagues perceived that she was often taken advantage of by other teachers and administrators because she was a “yes-person” (Colleague 1:2, Episodic Interview, April 21, 2016). As one colleague confirmed, “She never says no, which is a great quality, but also it could be a fault. . . . You ask her the impossible, and she is, ‘I’ll find it,’ and she will do it at home. She will do it at night. . . . She is a people-pleaser” (Colleague 1:2, Episodic Interview, April 21, 2016). Her colleague continued, “She always feels like, ‘If I don’t do it, I’m not doing my job.” But I think some things that [colleagues and administrators] ask her for oversteps the boundaries of her job. She always says yes because she feels that she’s not being professional [if she says ‘no’]” (Colleague 1:2, Episodic Interview, April 21, 2016). This same colleague provided some additional details regarding Theresa’s obliging manner. She stated, “[Theresa] always says, ‘We'll make it work.’ She's agreeable. She's easy. She always says yes. Sometimes, people can see that as, like: ‘We will just take advantage of her. [Theresa] will do it.’” (Colleague 1:2, Episodic Interview, April 21, 2016).

This section detailed the ways that the knowledge broker teachers often went above and beyond the normal expectations for what was expected from classroom teachers. Their knowledge of resources or ideas was often drawn on to complete different tasks from writing curriculum to mentoring colleagues. In a word, the knowledge broker teachers could be trusted to meet the demands and whims of their administrators and teacher colleagues without hesitation. They could be trusted to go above and beyond.

In sum, these results pointed to how the knowledge broker teachers engaged in brokerage actions. These actions relied on the formation of the various ways that trust relationships emerged. In the following sections, I will further discuss these findings in light of the existing literature.

Discussion

This chapter detailed the different ways in which the knowledge broker teachers engaged in the practice of brokerage. As described previously, brokerage in the context of this study is defined as the subtle interactions that played out in the social relationships between the knowledge broker teachers and their teacher colleagues. If taken at face value, the interactions appeared to be commonplace (i.e., one person finds something relevant useful and passes it on to someone else). However, these interactions between the knowledge broker teachers and others took on a special significance when looked at more closely in terms of the quality or type of relationships that were being brought into play because they had been established, maintained, and leveraged by the presence of what was best described as *trust* between the knowledge broker teachers, their colleagues, and others, like administrators. My findings suggested that simply looking at the flow of knowledge (resources ideas, know-how, etc.) was insufficient for really appreciating the complexities entailed in being a knowledge broker teacher. Attending to what established and sustained these relationships, and how these relationships engendered the formation of trust, as well as the breach of trust, which in turn affected the sharing paths of knowledge. This added important social and relational insights to role of knowledge broker teachers.

Within the context of the findings presented in this chapter, I have sought a definition of trust that arose from and depended on social relationships and interactions. As described previously, the sociological literature provided guidance with regard to understanding trust as an outgrowth of social relations, that resulted in a sense of a mutual sense of faithfulness, confidence, and dependence on others (Giddens, 1990). Trust takes shape in the hope that certain outcomes could be achieved through the dependence on others (Barbalet, 2009). As mentioned at the start of this chapter, trust has been studied widely across many different disciplines, such as client relations (Nikolova, Möllering, & Reihlen, 2015), online relationships and interactions (Chang, Cheung, Tang, 2013; Roghanizad & Neufeld, 2015), e-commerce (Clemens, et al., 2016; Nica, 2015), online agreements and terms of service (Chang, Liu, & Shen, 2017). In addition, the education research literature has studied trust. For example, some of these studies focused on the effect of trust with regard to teacher-teacher (Hoy & Tschannen-Moran, 1999; Louis, 2007), principal-teacher (Cosner, 2009; Moye, Henkin, Egley, 2005; Tshannen-Moran & Gareis, 2015), and teacher-student (Dobransky & Frymier, 2004; Van Maele & Van Houtte, 2011) relationships. While these studies have looked at how trust is manifested in these types of formal relationships, this was not what this study explored. My study uncovered a new finding; how trust played a role in the informal relationships between the knowledge broker teachers and their colleagues, and their administrators, in terms of moving knowledge. This study also found that while had positive outcomes, it also caused negative outcomes.

In the case of the four knowledge broker teachers at the heart of the present study, the findings presented in this chapter supported the notion that brokerage relationships relied on the formation and continuation of the trust that had been developed between the knowledge broker teachers and their colleagues. The trust between the knowledge broker teachers and their colleagues and even administrators was forged over time, through the expectation that the knowledge broker teachers often provided successful outcomes. There was a certainty that the knowledge broker teachers would fulfill their part in coming through in terms of meeting the others' needs and search for solutions to problems and concerns, or questions related to teaching practices, and to cast aside any uncertainties that they would not be able to deliver what was needed in a particular situation. They therefore almost always garnered the full trust of their colleagues. The brokerage actions of the knowledge broker teachers, which included giving and taking of knowledge, honoring colleagues' potential, and going above and beyond, all relied on the establishment of trust.

Throughout the interviews with both the knowledge broker teachers and their colleagues, the giving and taking of knowledge was discussed often. Most importantly, the comfort and ease with which both sets of participants participated in eagerly bouncing ideas off each other pointed to the underlying trust they had in each other. Based on the situations where the knowledge broker teachers and their colleagues engaged in this give and take of knowledge, it became evident that that they did not hesitate to display their vulnerabilities with regard to their knowledge shortcomings. The literature on trust discusses the importance of being open about vulnerabilities as a key part of building trust relationships (Baier, 1994; Giddens, 1990; Hardin, 2001). As Giddens (1990) explains, a point of vulnerability occurs when an individual who lacks knowledge meets with another who holds the knowledge that is needed. These points of vulnerability provided the opportunities for mutual trust to be established between the individuals involved. In the case of this study, by admitting to their knowledge deficits and being open to accepting and learning from each other, the knowledge broker teachers and their colleagues openly displayed their vulnerabilities. This in turn contributed directly to building a basis for strong trust relationships. Additionally, by being taken advantage of, the knowledge broker teachers became vulnerable to the trust that others had in their reliability and ability to get things done.

When examining findings concerning the brokerage practice of how knowledge broker teachers honored their colleague’s potential, the knowledge broker literature did not fully explain how this brokerage action took place. Granted, some of the knowledge broker literature did address how knowledge brokers may possess certain attributes, such as being supportive (Williams, 2002). However, this study’s findings suggested that this particular brokerage action was an intentional action, rather than just an innate quality held by knowledge brokers. Honoring their colleagues’ potential turned out to be more nuanced, complex, and situation-dependent than just being described as supportive. To try to better understand this brokerage action, I looked to research concerning peer coaching and its use in education. Peer coaching has been described as the assistance a designated teacher-coach provides to their teacher-colleague to help this person further develop teaching skills, strategies, and techniques, as well as to address any shortcomings (Strother, 1989). Additionally, the peer coaching model indicates that the coach and the teacher work together as peers, collaborating in an equal partnership, rather than in a relationship that consists of an expert tasked with "fixing" a colleague's problem. The peer coaching literature has described instances where both the coach and the teacher welcomed feedback and support that would improve their classroom practices, rather than feedback that felt more like an evaluation (Jao, 2013; Klingner, 2004). When teachers have been provided with the chance to work with a peer coach in a manner that was nonjudgmental and collaborative, positive changes have occurred in teachers' practices (Knight, 2009). In my study, with their action of recognizing their colleagues' potential, the knowledge broker teachers focused on how they could have a positive impact on their colleagues by taking a similar approach. Passing on knowledge in a tactful, non-threatening manner made their colleagues feel comfortable and more open to taking suggestions, which in turn fostered mutual trust between the two. The trust that developed through this brokerage action hinged on the nonjudgmental approach of the knowledge broker teachers, as well as their position in the school as a true peer, meaning they were not designated or titled as instructional coaches.

Throughout the interview data, comments offered by the knowledge broker teachers' colleagues indicated that the knowledge broker teachers honored their knowledge. In turn, their intentional actions of not making their colleagues "feel stupid," or inadequate, opened up many instances for learning and working together in aninformal, collaborative way. Unlike what I found in my study, the literature on peer coaching pointed to challenges that instructional coaches faced when working with teachers in their schools. One of the challenges was the perception that when a teacher was coached, it was a corrective measure. Coaches were viewed as being "pushed on" and "correcting" teachers' deficiencies (Gallucci, Van Lare, Yoon, &

Boatright, 2010; Lockwood, McCombs, & Marsh. 2010). Often, coaches could be perceived as experts whose job was to direct teachers in how they should be teaching (Chval, et al., 2010; Desimone & Pak, 2017). However, because the knowledge broker teachers honored their colleagues' potential, approached them informally in a personable, non-threatening manner, or when sought out by their colleagues responded with respect and genuine interest, trust continued to be developed and strengthened. In the case of this study, unlike formal peer coaches, the knowledge broker teachers operated beneath the radar. They understood their colleagues' needs and respected their existing knowledge. In essence, the knowledge broker teachers embodied principles that guided adult learners, namely, that when adult learners felt as though their ideas were accepted, respected, and supported, they would become more invested in their learning (Knowles, 2012; Merriam, Caffarella, & Baumgartner, 2007).

The last finding regarding brokerage actions concerned how participating knowledge broker teachers often found themselves in situations where the needed to go above and beyond was a normal expectation of them. The findings indicated that they were often called upon by administrators to spearhead initiatives or asked by their colleagues to supply assistance or advice "on demand." Despite these constant requests that drew on their expertise, the knowledge broker teachers did not say *no*. They appeared to take on these extra tasks because they knew that assuming a greater set of responsibilities was expected of them by their colleagues and administrators. While modest about their abilities, the four knowledge broker teachers possessed an awareness of their reputation among teachers and administrators as the go-to person. This reputation identified them as being capable and smart, as well as selfless, dutiful, and supportive. From the literature, reputations provided the means to help people manage the complexities of finding out who could be trusted. In short, reputation enabled people to single out those who were trustworthy (Cuesta, Gracia-Lázaro, Ferrer, Moreno, & Sánchez, 2015; Jasielska, 2018;

Misztal, 1996). Given the emphasis on the role that reputation seemed to play in the manner that the knowledge broker teachers accepted extra responsibilities without question, pointed to the trust that others had in them, and their willingness not to betray this trust and thus, leaving them vulnerable to having their reputations potentially damaged.

Considering how the knowledge broker teachers' reputations became enmeshed with their built-in need to go above and beyond, required an understanding of how reputation related to the role of trust. Reputation had been mentioned in the research literature on the role of trust in business and organizations. According to studies addressing risk in business relations, reputation had been described as a precondition for placing trust in others (Dasgupta, 1988; Good, 1988; Khodyakov, 2007). Reputation arose from expectations about a person's actions based on information about their past actions (Abdul-Rahman & Hailes, 2000; Cuesta, Gracia-Lázaro, Ferrer, Moreno, & Sánchez, 2015; Dirks & Ferrin, 2001; Mayer, Davis, & Schoorman, 1995). In the case of the knowledge broker teachers, over the many encounters they had with others, they developed a proven record of accomplishment that emphasized their ability to deliver results for those who needed them. The findings indicated that the knowledge broker teachers took on new tasks and responsibilities without question or hesitation, and often found the requests to be flattering of their abilities. However, in the case of these knowledge broker teachers, their positive reputation often resulted in having others overstep their bounds and take advantage of them. While their reputation enabled others to find value in the knowledge broker teachers' abilities, their reputation became entangled with the assumptions of what those others expected from them, and how the knowledge broker teachers were expected to perform.

Conclusion

The findings of this chapter pointed to the importance of brokerage actions in enabling the knowledge broker teachers to build and share their knowledge. However, brokerage actions relied on the development of trust between the knowledge broker teachers and their colleagues. Without trust, these brokerage actions, the giving and taking of knowledge, honoring colleagues' potential, and going above and beyond, would not exist. While knowledge would still be built and shared between the knowledge broker teachers and their colleagues, I argue that without trust to grease the wheels of these relationships as manifested through these brokerage actions, the building and sharing of knowledge may be impeded. However, being taken advantage of by others because of their knowledge, as well as their desire to go above and beyond in addressing the needs of others left the knowledge broker teachers vulnerable to exploitation. In the next chapter, I discuss the findings about knowledge broker teachers that are apparent across all three chapters of findings and suggest recommendations resulting from my findings.

CHAPTER 7: CONCLUSION

Introduction

This study shed light on the role that the teachers, identified as knowledge broker teachers, played in providing a source of informal professional development for their colleague teachers. The research findings make clear that these knowledge broker teachers do exist in their schools, and not just as a concept developed for this study. While not formally recognized by their school districts or administrators as professional developer or consultants, they operate through word of mouth among their colleagues, providing guidance and support for their colleagues' professional development. The concept of a knowledge broker teacher gives a new dimension to the definition of a knowledge broker. The purpose of this study was to better understand the ways that knowledge broker teachers served as a key source of informal professional development for their colleague teachers by "operating" or "practicing" as knowledge brokers. This study was guided by the following research questions:

1. What attributes do colleague teachers identify as being important in a knowledge broker teacher?
2. How do knowledge broker teachers build their knowledge?
3. How do knowledge broker teachers share knowledge with their colleagues?

To explore these questions, systematic data collection and analysis using a hybrid qualitative methodological approach (Flick, 2011, 2014) were undertaken to uncover useful patterns in the data. The findings of this study have resulted in new insights into how the four knowledge broker teachers operated informally as sources of professional development for their teacher colleagues. I identified three key findings concerning the four knowledge broker teachers in my study.

Summary of Key Findings

This study's findings concluded that:

1. knowledge broker teachers assumed different personas, which enabled them to broker knowledge to their colleagues,
2. knowledge broker teachers engaged in the act of "brokering," building and exchanging knowledge through connections, moments of kismet, and differentiating knowledge, and
3. knowledge broker teachers took part in "brokerage" actions, which relied on the formation of trust relationships.

This study found that the contribution of the knowledge broker teachers to the informal professional development of their colleagues depended on situational factors and social contexts. While some of the findings were foreshadowed by existing studies, other findings extended beyond the scope of my original research questions and the published research that I initially investigated and cited. As a result, the findings of this study provided a richer picture of the four knowledge broker teachers studied and their informal influence on professional development in their schools. Implications of this study on further research will be discussed in turn in the section on Extending the Research about Knowledge Brokers.

Extending the Research About Knowledge Brokers

While some of the findings were consistent with previous research about knowledge brokers, there are several areas where my research expanded on the notion of knowledge brokers. Focused primarily on the areas of business, technology, and healthcare, the knowledge broker research emphasized the critical role that knowledge brokers play as intermediaries. They were viewed as having an ability to transfer and translate knowledge between and among individuals and groups, as well as between knowledge creators and knowledge users. Knowledge, in this regard, has been described as both explicit and tacit knowledge, ranging in type from content to practices. As I described in Chapter 2, making new or complex knowledge easily understood and accessible lied at the heart of the work done by a knowledge broker. Some of my findings were consistent with this research. The knowledge broker teachers in my study engaged as intermediaries, moving knowledge from those who had it to those who needed it. However, the movement of knowledge as depicted in my study could not simply be reduced to transactions involving the handing-off of explicit and tacit content knowledge that would fill a knowledge gap for the recipient. I argue that the knowledge broker literature did not explicitly emphasize the *contextual* and *social* factors that influenced and shaped the flow of knowledge between knowledge brokers and their colleagues. The knowledge broker teachers in my study had an acute awareness of contextual factors that, in fact, affected the manner in which they acquired and shared knowledge. They had a keen understanding of when to move knowledge, with whom to move knowledge, and how to best to move knowledge. Taking a nuanced and contextually tailored approach to performing the role of a knowledge broker enabled the knowledge broker teachers in this study to be successful as carriers of knowledge. Additionally, my findings pointed to a wider definition of what constitutes knowledge. Thinking closely and carefully about an academic understanding of the knowledge dimension for knowledge brokers and how it is dependent on contextual factors could be an avenue for further exploration because in the case of the knowledge broker teachers, they were key intermediaries in not only moving content knowledge, but also in supporting their colleagues teaching practices, suggesting resources, providing guidance, and offering moral support. The knowledge broker teachers prompted and provided this to their colleagues, depending upon what was called for by certain situations.

In contrast to a solid body of existing research that focuses on the actions of knowledge brokers, there has been limited research that discusses the attributes of knowledge brokers. While I did draw on past research that provided descriptions of what scholars regarded as key attributes to inform this study, my findings pointed to a much more complex depiction of knowledge broker teachers in my study. Rather than possessing fixed attributes, or qualities, the knowledge broker teachers in my study shape-shifted in and out of certain personas, depending on the situations and social contexts in which they found themselves. These findings throw into question the usefulness of developing a fixed and typically decontextualized set of attributes for describing knowledge brokers. Doing so would very likely overlook important interpersonal knowledge that accounts for their knack to shapeshift into different personas when working with others. It would also serve to downplay the role of context in affecting the manner in which knowledge brokers both built and shared their knowledge.

Another unexpected finding related to how the knowledge broker teachers were taken advantage of by others because of their extensive knowledge and competence, and the effects of this on their reputation. Interesting about this finding was that the knowledge broker teachers willingly accepted the extra requests placed upon them. In some cases, they were flattered for being tasked with additional work, especially by their administrators. As a result, they would maintain their positive reputation. Perhaps future studies that explore the dynamic between knowledge broker teachers and those in powerful positions, such as administrators, would certainly shed more light on the potential that knowledge broker teachers could be easily intimidated into doing the bidding of others because of the damage their reputations could suffer.

Future Research on Knowledge Brokers

As described previously, the knowledge broker research has primarily focused on the roles that knowledge brokers play in fields other than education. While there have been some studies conducted on knowledge brokers in schools, additional studies need to be conducted to better understand how certain teachers become what I describe as “knowledge broker teachers.” Future studies may seek to uncover how these teachers become known among their colleagues as go-to sources of knowledge, and how they can more widely influence and provide professional development for their colleagues by studying such teachers from the perspective of those they help. In this current study, when asked to provide me with names of their colleagues to whom I could reach out, they provided me with the names a few colleague teachers. Perhaps a future study could seek to reach out to more colleague teachers in their schools in order to obtain an even richer account of what knowledge gets shared, with whom, and under what conditions. All of these dimensions can afford scholars and educators interesting insights into informal teacher-learning within schools. Studying whether or not the knowledge broker teachers had a wider effect on the professional development of the teachers in their schools is warranted. Perhaps, because of the social circles within which the knowledge broker teachers interacted, not all the teachers in their schools were privy to their access like those who were included in this study. Given this, research that focuses on social network analysis, by mapping the social networks, nodes, and ties within a school to better understand how knowledge flows to and from knowledge brokers teachers could provide additional insights into which teachers have access to the knowledge broker teachers as an informal source of professional development. Mapping informal sources and flows of knowledge in a school, to develop a deeper understanding of the interpersonal dynamics at play that influence informal professional development, would provide insights into how professional knowledge moves around a school.

Another possible research avenue could be to study the influence that school culture, and notably, how a school's culture of learning, affects the rise and work of knowledge broker teachers. Uncovering whether a school's culture influences the ability of teachers to act as knowledge brokers has value as a research study because of this study's findings that suggested the highly situational and social nature of the work that the knowledge broker teachers performed in their schools. Perhaps a school's culture, in terms of the ways that the school promotes social interactions among teachers as well as the proximity that teachers have to one another can provide a conducive context for teachers to seek each other out informally for advice and help, as well as offer each other suggestions for improving teaching practices. Given the role that context and social relationships played in enabling the knowledge broker teachers in my study to engage in supporting their colleagues' informal professional development, research whose approach is to seek understanding who knowledge broker teachers are, how they influence their colleagues, and how the school culture can affect the informal movement of knowledge among teachers can provide valuable levels of understanding about grassroots forms of professional development in schools. This is an especially interesting and valuable research trajectory within the current climate of formal--and often costly and alienating--professional development that seems to aim at fixing teachers, rather than at encouraging teachers to seek the expertise of their colleagues. As this study showed, knowledge broker teachers often not only have the knowledge to pass on, but an intimate understanding of the situation within which the knowledge will be used, as well as which colleagues and students will be involved.

A final possibility for research into knowledge broker teachers could be to consider whether or not the gender of a teacher affects their ability to act as a knowledge broker teacher. In the case of this research study, all the identified knowledge broker teachers were female, despite the employment of male teachers in each of the district's schools. The majority of teachers employed in each of the schools used in this study were overwhelmingly women. The director who assisted in identifying teachers for this study only provided names of women, all of whom were veteran mid-career teachers. This trend opens up research possibilities about how female teachers may be perceived by others in terms of their role as knowledge broker teachers in their schools, and what enables them to perform this role in a more recognizable fashion.

Additionally, it provokes the possibility of exploring whether or not the findings are similar among male knowledge broker teachers.

Implications for Practice

This study was designed to gain a better grip on how at least some teachers engaged in professional development through informal means; namely, through the use of knowledge broker teachers. While my study certainly highlighted the positive impact that knowledge broker teachers had on the professional growth of their colleagues, I am not necessarily advocating for formalizing the role of knowledge broker teachers in schools. As a result of the findings generated by this study, the knowledge broker teachers tended to operate in the shadows of their schools. Their role was informal, often passed on through word of mouth by means of the social interactions in which teachers engaged; their knowledge was also shared informally in their teachers' rooms and hallways and not in dedicated sessions during mandated professional days. Given the important role that trust played in the relationships that the knowledge broker teachers seemed to have with their colleagues, formalizing their role may ultimately minimize or destroy the trust relationships that they have established. While there has been a push to recognize teacher-leaders as a mechanism to spur professional development, I argue that the relationships that the knowledge broker teachers built with their colleagues depended on more than just transferring and exchanging knowledge. To facilitate the movement of knowledge, other factors that depended on the social relationships that the knowledge broker teachers established with their colleagues were equally important. Stemming from this, the type of knowledge that was being moved back and forth between the knowledge broker teachers and their colleagues was not simply content knowledge. Instead, the knowledge encompassed a variety of forms, such as teaching strategies, classroom management, resources, and advice and support. Given the quasi-administrative role that a teacher-leader holds, they may be less effective than knowledge broker teachers in providing valuable informal professional development for their colleagues. Their positioning as a leader may cause some teachers to view them with less trust and be less likely to expose their weaknesses and shortcomings for fear that they may share them with the teachers' administrators and supervisors.

In terms of the social nature of informal professional development, it is key to keep in mind that the interactions between the knowledge broker teachers and their colleagues was organic in nature, often spurred by contextual factors such as proximity, happenstance, and word of mouth. While most formal professional development trends tend to be planned in advance and maintain a general focus, the informal professional development that emerged between knowledge broker teachers and their colleagues was multidimensional in nature, covering a wide range of knowledge. Additionally, making their positions more "formal" has the potential to do more harm than good. Perhaps a better tact would be for administrators and supervisors to identify who these teachers are and indirectly support their efforts. The knowledge broker teachers' ability to informally provide professional development is perhaps a result of their layers of experience both inside and outside the teaching profession. They come from varied backgrounds and have a multitude of experiences which have served them well in passing on knowledge to their colleagues, as well as with learning new knowledge from different sources. Additionally, teachers who sought out knowledge broker teachers in their schools showed that teachers are certainly more than capable of recognizing their own professional development needs. As Kennedy (2016) noted, teachers have their own "motivations and interests" (p. 974) when it comes to professional development. Placing more autonomy in terms of professional development in teachers' hands is key to helping them to grow and learn.

My Own Place in This

My study was designed based on my interest in and experiences with teacher professional development. As a veteran teacher for over 20 years, I have attended a wide range of officially recognized professional development by my school districts. I have gone to formal conferences where I would sit with an audience of a few hundred fellow teachers and watch a PowerPoint presentation about how the latest technology could be used in my classroom. I have participated in district-mandated personal learning communities which focused on reading and discussing a book a chosen by the district. Faculty meetings were also considered professional development; so were the plethora of videos and quizzes concerning such topics as blood-borne pathogens to dyslexia awareness. However, what did not count were the many times that I sat with my colleagues and brainstormed about how we could plan a lesson or learn a new type of technology. Reading professional texts, following blogs and Twitter feeds most certainly did not count either. Therefore, I have always been struck by the lack of attention paid to the really informal—yet really important—professional development in which I engaged and saw happening over my teaching career.

The results of this study certainly seem to underscore the value and benefits of knowledge broker teachers' roles in professional development. Despite this, I can say with certainty that I am not advocating the transformation of knowledge broker teachers into a formal source of professional development. Meddling and tinkering with such an informal source of professional development would have detrimental effects for both the knowledge brokers and those who rely on them. Rather, a more valuable approach could be to determine how the benefits of knowledge broker teachers could be leveraged more formally without meddling too much and destroying a good thing. In sum, what this will take is a greater understanding and recognition of the value of knowledge broker teachers who can have a positive effect on teacher professional development.

Conclusion

This study's results showed that knowledge broker teachers operated as an important source of informal professional development for their teacher colleagues. Each theme developed from the data provided insights into who the knowledge broker teachers were and how they learned about and shared a wide range of knowledge with their colleagues. The established themes pointed to the complexity surrounding the designation of being a knowledge broker teacher. The nuances of situations, in terms of social contexts and the type of knowledge that was shared, all affected how the knowledge broker teachers handled each situation. Their role was more than just being a mediator of knowledge.

In the long term, considering teachers as powerful catalysts for improving and enhancing their own and their colleagues' professional development needs to be supported by policy makers, administrators, and supervisors. However, caution should also be taken in how teachers who fit the description of knowledge broker teachers are recognized and called upon. Given this study's findings, formalizing their roles in schools may have a detrimental effect on their ability to share with their colleagues by destroying the trust relationships that they have built with them. Therefore, administrators can seek to find and enable informal ways for teachers to have opportunities to get to know and socialize with their colleagues, so that they can learn through word of mouth about who the go-to knowledge broker teachers are and what they can offer. Taking simple actions, such physically locating knowledge broker teachers in optimum locations or gently guiding teachers to the knowledge broker teachers for help, can go a long way in setting the stage for meaningful and valuable professional development to occur through informal means. In sum, knowledge broker teachers are just hidden in plain sight willing and eager to help their colleagues.

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APPENDIX A

Semi-Structured Interview Script and Questions for Knowledge Broker Teachers

Hello, my name is Margaret Jusinski. I am a doctoral student in Teacher Education and Teacher Development program at Montclair State University. Thank you for taking time to talk with me and help me to identify teacher knowledge brokers in your district.

I am conducting a research study entitled, Knowledge Broker Teachers: A Qualitative Study. I am interested in examining how certain teachers emerge as school-based knowledge brokers, and how they provide an informal means of professional development for their colleagues.

I would like to begin with a few disclosures:

Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time. You may choose not to answer any questions at any time.

I will ask you to provide names of at least three colleague teachers that you have worked closely with in a knowledge broker capacity. If you decide not to share the names of colleague teachers, you may still be a part of my study. Since my study is qualitative in nature, I am not seeking generalizable results. Therefore, all participants and their contributions are valuable and provide an opportunity to collected unanticipated data.

This interview will be recorded in order to have a complete record of our discussion. The discussion will be kept completely confidential. I will use pseudonyms to refer to participants in the collection, analysis, and reporting of all data. Your name will not be associated with any discussion results. However, the director of curriculum, instruction, and evaluation and colleague teachers you recommend will know that you are a participant in this study because some of your responses will be shared or discussed. I expect our discussion to last approximately 60 minutes. Again, thank you so much for your time today. Your responses will be useful in *understanding how knowledge broker teachers influence informal professional development in schools.*

Semi-Structured Interview Questions

1. *Tell me a bit about yourself.*
2. *The director of curriculum, instruction, and assessment identified you as a teacher who is really tapped into finding resources for colleagues and using digital resources. Can you describe why he would view you in this capacity? How do you view yourself in terms of this description?*
3. *How do you connect with and keep up-to-date with your interests?*
4. *Do you belong to any outside groups or have any memberships in any organizations? If so, tell me about them.*
5. *Do you belong to any education-related groups or organizations? If so, tell me about them.*
6. *Tell me about your online habits. Do you regularly use the Internet? How so? If not, why not?*
7. *How do you go about sharing information/resources/ideas with your teaching colleagues?*
8. *Why do you think these colleagues come to you for information?*
9. *Who are some of the colleagues that you share and learn with?*
10. *Can you recall and describe some of these instances and the knowledge that was shared or learned?*
11. *I'm hoping to interview some of these people to find out how you've helped them. Would you mind if I reached out to some of these colleagues to ask them some questions about these interactions?*
12. *Is there anything else that you would like to share with me at this time?*

APPENDIX B

Episodic Interview Script for Colleague Teachers

Hello, my name is Margaret Jusinski. I am a doctoral student in Teacher Education and Teacher Development program at Montclair State University. Thank you for taking time to talk with me.

I am conducting a research study entitled, Knowledge Broker Teachers: A Qualitative Study. I am interested in examining how certain teachers emerge as school-based knowledge brokers, and how they provide an informal means of professional development for their colleagues.

I would like to begin with a few disclosures:

Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time. You may choose not to answer any questions at any time.

This interview will be recorded and videotaped in order to have a complete record of our discussion. Additionally, if you are sharing any artifacts, I would like to either photocopy them, or "screenshot" them. The discussion will be kept completely confidential. I will use pseudonyms to refer to participants in the collection, analysis, and reporting of all data. Your name will not be associated with any discussion results. However, the knowledge broker teacher who referred you, and other colleague teachers who are participating in this study may know that you are a participant because some of your responses will be shared or discussed.

I expect our discussion to last approximately 60 minutes,

Again, thank you so much for your time today. Your responses will be useful in understanding how knowledge broker teachers influence informal professional development in schools.

Episodic Interview Questions

1. *Can you tell me a little bit about yourself, such as your position in this school and the number of years you've been a teacher?*

2. *How long have you known [knowledge broker teacher]?*
3. *I recently had the opportunity to talk with [knowledge broker teacher] about how they share information and learn about new things. They mentioned that they have had the experience of sharing useful stuff with you about [topic]. Do you recall this? Can you recount it for me?*
4. *Do you have any materials or stuff that resulted from this sharing? (handouts, web pages, etc.)*
5. *Have you ever sought out the help of [knowledge broker teacher] for anything else? Why did you seek this person out in particular?*
6. *Can you recount any of these other instances?*
7. *Would you mind if I shared your responses with [knowledge broker teacher] because I am going to ask them about their recollection of this/these instances?*
8. *Is there anything else that you would like to share with me at this time?*
9. *Do you have any other questions for me?*

APPENDIX C

Screencast Procedure for Knowledge Broker Teacher

To add another dimension to my study that will enable me to better understand how knowledge broker teachers use collaborative and participatory online digital technologies to build their knowledge, I am asking that you record your online sessions when you are looking for educational “stuff.” Since I won’t be “present” for these “in the moment” sessions, you will use a free screen casting app or software, such as Screencastify or QuickTime to record. These programs will generate a video of what is happening on your screen. By doing this you will provide me with data that is completely situated and immersed in an online context. Additionally, this data will enable me to get to the core of what you are doing in the “moment,” rather than solely relying on reenactments during the interview sessions we have had.

To capture these moments, turn on your screen capture app or software at least twice a week for two weeks (total of 4 sessions) and record your online activities that relate to educational resources. I’m hoping you will record up to an hour for each of these sessions. The purpose of these recordings is for me to have a bird’s eye view of how you go about “brokering” knowledge for yourself and for your colleagues. When I meet with you again, you will talk me through what you were doing (which will be recorded by the software/app) and basically “think out-loud” about what you did.

After each session, share your screencast with me through a file sharing service, such as Google Drive or Dropbox. If you are unfamiliar with these, or you do not have access, please let me know. Please use my email: jusinskim1@mail.montclair.edu

Remember: Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time.

The screencast will be kept completely confidential. I will use pseudonyms to refer to participants in the collection, analysis, and reporting of all data. Your name will not be associated with any discussion results. Should these videos be used in a presentation, your voice will be removed, and subtitles used to preserve anonymity.

Thank you for your participation.

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