SOCIAL MEDIA AS A PERSONAL LEARNING NETWORK FOR PROFESSIONAL

DEVELOPMENT: TEACHERS IN INTERNATIONAL SCHOOLS USE AND

PERSPECTIVES

by

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DEDICATION

This dissertation is dedicated to my wife Jing Lei and my son Kalei Kai Doak. I love you both very much and am so grateful for the support you both have given me in this long process. To Jing, you are always there to support me and give me your invaluable motivation to reach further. Our commitment, one to the other, and our mutual attachment of mind and heart has enabled us to become loving companions and comrades improving the spiritual life of each other, building a fortress for well-being and salvation. For this, I am eternally grateful. To Kalei, I started this when you were six years old. I thank you for sharing your dad with a computer. I can't even begin to express my gratitude for your sacrifice. I hope you know that everything I do, I do for you!

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ABSTRACT

Traditional professional development methods are not optimal for international school educators because of isolation, lack of funds and time to attend, disconnected content and inability to make a difference in the pedagogical approaches teachers use. The creation of online Personal Learning Networks (PLNs) has been suggested as an augment to or a replacement for traditional approaches. The purpose of this mixed methods study was three-fold: (a) to discover if international school educators are using social media for professional learning and if so, what tools they are choosing to use, (b) to discover if a relationship exists between the use of social media tools for informal professional learning and change in the pedagogical practices used by the teachers in international schools; and finally, (c) to describe how the use of social media may lead to a change in pedagogical practice. An explanatory sequential mixed method design was used to achieve this purpose, including 270 participants in the first phase and five in the second phase. Data collection included a quantitative online survey instrument and qualitative online interviews. Revealed in the findings was that international school teachers use various social media tools that meet specific needs, to build a PLN. Through intentional action international school educators supplemented professional development and changed their teaching practice creating an expanded and more authentic, constructivist learning environment. The PLNs in this study were able to reduce or remove the major concerns regarding professional development in international schools such as cost, contextual relevance, unvaried approaches and limited time.

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LIST OF ABBREVIATIONS

CoP   Communities of Practice

IB   International Baccalaureate®

PD   Professional Development

PLE   Personal Learning Environment

PLN   Personal Learning Network

RSS   Really Simple Syndication

TPD   Teacher Professional Development

SLT   Social Learning Technologies

CHAPTER 1

Introduction

Staying current in their respective fields is an important aspect to all professional

educators, including international school teachers (Black & Armstrong, 1995; Black,

Harvey, Hayden, & Thompson, 1994). There are many reasons for a shift towards better

performing teachers, including the appearance of new economies based on knowledge

(Dall'Alba & Sandberg, 2006), the adoption of new standards by educational institutions

(Moon, Passmore, Reiser, & Michaels, 2013; Desimone, Porter, Garet, Yoon, and

Birman, 2002) and general school reform instituted by mandated achievement goals from

governmental organizations or other educational boards (Dede, Ketelhut, Whitehouse,

Breit, & McCloskey, 2008). Also reported was pressure for teachers to be cutting-edge

which requires teachers to "not only be conversant with technology but to use it in their

teaching and in their communication to students" (Maguire, 2005, p. 6). All the above

reasons have led to a need for better professional development for teachers to create

change in pedagogy so they can provide better instruction, ultimately leading to increased

student achievement (Lawless & Pellegrino, 2007).

Effective teacher professional development (TPD) is the foundation for

sustainable and transformative change in teacher practice, which leads to better student

achievement (Holmes, Preston, Shaw, & Buchanan, 2013). Helleve (2010) suggests that

pre-service teacher education cannot prepare teachers for all the various complex

situations they will face in the teaching profession and suggest approaches including

mentoring and reflective practice to support TPD. Yoon, Duncan, Lee, Scarloss, & Shapley (2007) lay out three steps about how TPD influences student achievement. These steps begin with the improvement of knowledge and skills of the teacher, which in turn leads to better pedagogical approaches having a positive effect on student achievement. Lawless and Pellegrino (2007) argue that pedagogical change in teacher practice is the most important influence professional development (PD) should have, in regards to the teacher, as this shows a movement in pedagogical knowledge. This point of view is strengthened by Yoon, et al. (2007) who found that if the teachers had taken part in PD their students would have "increased their achievement by 21 percentile points" (p. 14). Per these findings for TPD to be effective it must influence teacher practice, which in turn affects student achievement.

Holmes, Preston, Shaw, and Buchanan (2013) advocate that the foundation to sustainable and transformative teacher practice is effective teacher professional development (TPD). There are many forms of traditional TPD, including face-to-face workshops, conferences, summer programs and district-initiated development opportunities (Holmes et al., 2013). The most typical form of TPD is the one-shot workshop (Parsad, Lewis & Farris, 2001). However, traditional workshops and conferences might not be the most effective form of TPD for several reasons. First, conferences allow professionals to meet and form connections to one another, but are expensive and require travel to participate (Sherer, Shea, & Kristensen, 2003). This cost could hinder participation if the teacher lacks the necessary funds to attend. Second, research has shown PD which is fragmented in nature, like one-shot workshops, do not meet the needs of teachers and is often disconnected from daily classroom practice

(Gross, Truesdale & Bielec, 2001). Third, typically workshops take a one-size-fits all approach. Butler and Sellbom (2002) when studying the barriers to technology adoption in the learning environment discovered that "classrooms are too different so faculty learning doesn't generalize" (p. 25). Fourth, typically workshops are short, lasting between one hour and one day (Parsad, Lewis & Farris, 2001). Sufficient time to effectively follow up or consolidate learning is not usually available during short-term forms of PD (Holmes et al., 2013). In fact, it has been suggested that PD is not enough on its own to promote change in teacher practice and that long-term support is needed (Cole et al, 2002; Holland, 2001). This raises questions regarding the effectiveness of typical workshops. It also raises the question if there is another approach that could be used in conjunction with traditional TPD to support educators in a more complete manner.

It has been suggested that for TPD to be effective it needs to be directed towards learning and teaching of specific content related to teacher practice and school initiatives, collaborative in nature, and an intense, continual process (Gutierrez & Bryan, 2010). In addition, successful TPD relies on continual support and interaction between educators (Hur & Brush, 2009). Swenson (2003) advocates for the creation of online networks of teachers, both formal and informal, as a place where transformational experiences can be shared, and that will assist teachers in improving their practice. Social media has been suggested as a possible place to create such a learning environment (Mazman & Usluel, 2010) especially for teachers who are isolated. This is particularly useful for international school-teachers who are distributed throughout the globe.

There are several reasons why social networks are suggested to support the professional development of international school teachers. First, social media are easy to

use and are ubiquitous so lack the need for training (Bexheti, Ismaili, & Cico, 2014; Srivastava, 2012). Second, social networks allow people to connect with others around similar interests, activities, backgrounds or face-to-face connections and provides a virtual space for learning (Srivastava, 2012). These learning environments provide an online outlet to support individualized, relevant, professional learning and offer access to resources without limitations of location or monetary constraints (Booth, 2012). Third, use of these tools can assist in helping educators feel less isolated (Flanigan, 2012; Hur & Brush, 2009; Visser, Evering, and Barret, 2014).

Swenson (2003) suggests that for TPD to influence school reform and student learning, PD needs to be available "at the point of need, and fully integrated into teachers' daily practice" (p. 317). Social media can help in the creation of a space to learn online, where the learner is in control of their own learning activities (Dabbagh & Kitsantas, 2012) and it has been noted that many teachers are already using social networks to create such learning spaces (Visser et al., 2014). Online communities provide a means of TPD that can be sustained for a longer period and enables participants to authentically apply what they learn in their own classroom (Gutierrez & Bryan, 2010). Trust (2012) has suggested that the development of Personal Learning Networks (PLNs) online have allowed many educators to increase their learning and that teachers' use PLNs to locate resources, connect with other like-minded professionals, gain ideas, share information and get feedback. These findings support the premise that PLNs could influence TPD by providing tools to help make TPD more long term in nature, connected to daily practice and customized to fit the needs of the teacher.

There are two kinds of PLNs as described by Trust (2012); the first involves a steady flow of information delivered to educators from multiple online sources using Really Simple Syndication (RSS). The second, involves social connections made by teachers to other like-minded educators through social media and other tools on the Internet. As stated by Dron & Anderson (2014b) the bulk of these tools "can be classified as social learning technologies" (p. 8). Both forms of PLNs are important to teachers to support continuous learning but it is the second type of PLN that could facilitate the creation of online teacher networks. These networks could provide the continual support needed to ensure effectiveness of TPD as suggested by the research.

This study focused on TPD within the international school and therefore, some contextual information will be covered. International schools have become increasingly important as the world becomes more globalized. Many multinational organizations require their employees to travel to different places for a short period, which has increased the need for such schools (Hayden & Thompson, 2008). International schools are unique institutions, many of which are in rural areas and are relatively small (Raven, 2011). There are typically two types of international schools. The traditional international school comprises diplomats, missionaries, military families and expatriates who need a school whose system is compatible with their home country. This type of international school provides educational service to a community made up of a transient population of students who attend the school for the length of their parents' contract and then it is off to another location to a different international school. The other type of international school is known as the English medium international school (Hayden & Thompson, 2008), and provides an alternative option of education for materially affluent locals who want their

children to develop an international mindset in preparation for life in a globalized world. Both types of schools have become centers of 'western' culture, education and thought in the countries in which they are located (Gerhard, 2010). For this current study however, an international school was defined as one that offers an international curriculum that differs from the national curriculum and therefore involved both kinds of international schools discussed above.

No matter the reason for the international school, the uniqueness of the international school and its context can raise some challenges related to induction, TPD, and evaluation (Hayden & Thompson, 2008). International schools offer several types of TPD that can include in house opportunities or offsite workshops and conferences, and university programs that offer higher qualifications including masters and doctoral degrees (Hayden & Thompson, 2008).

Statement of the Problem

Black and Armstrong, (1995) advocate that like most schools' international schools also require their teachers to remain up-to-date with developments in the educational field and current best practice. While international schools face the same problems national schools face regarding the development of a program for PD, including teacher time and finance, Black & Armstrong, (1995) suggest that these problems are magnified due to the isolation of most international schools. The time needed for teachers to attend off-site workshops and the amount of money needed for travel are usually greater. However, this isolation also increases the need for quality TPD because "it is this very physical isolation that increases the desire, and fuels the demand, for professional development" (Black, Harvey, Hayden, & Thompson, 1994).

Teachers in international schools are also faced with various cultural approaches to learning, which makes the need for skills related to best practice in these contexts even more critical (Black & Armstrong, 1995). The high cost related to sending teachers to workshops has motivated researchers to consider alternative routes for TPD. Black and Armstrong (1995) discovered international school teachers believe that internal faculty expertise should be used for TPD because this can assist new teachers coming into the school with learning about the methods used at the school. The opposite is also true, with new teachers adding fresh ideas to the school. It was also discovered that many international school teachers do not feel that "outside consultants give the best development courses" (p. 30). However, many times, experts from outside the school are brought in to provide PD sessions for the faculty, as this is a cost-effective way to provide TPD.

Another unique aspect of international schools regarding TPD is that international schools typically do not receive any large benefits to the PD of faculty due to the high turnover rate at most schools. However, TPD helps to improve the expertise in the stable "pool" of international educators from where international schools find and hire all their faculty, and thus, contributes to "the development of the profession as a whole" (Black & Armstrong, 1995 p. 33).

While it is apparent that international schools need quality TPD the most typical types of TPD, like national schools, are workshops (Burton, 2012). This creates a problem for international schools where the cost in both money and time might make it difficult for international school teachers to attend. Another issue with one-shot workshops is that they have been found to be ineffective as they are typically

disconnected contextually (Gross, Truesdale & Bielec, 2001), use a one-size-fits all approach (Butler & Sellbom, 2002) and are not long enough for teachers to consolidate learning (Holmes et al., 2013).

The main problem is that traditional forms of TPD may not be the most effective means of changing actual teacher practice. The potential of PLNs to act as a supplement to or as a replacement for traditional forms of TPD has been acknowledged in the literature. (Beach, 2013; Beglau et al. 2011; Burns, 2013; Cooke, 2012; Leiberman & Pointer Mace 2010; Nussbaum-Beach & Hall, 2012; Richardson & Mancabelli, 2011). According to Holmes (2013) these online communities can provide personalized, authentic learning, which can support continuous teacher professional development. In recent years, a growing number of studies have been conducted on informal online learning networks such as PLEs and PLNs in relation to professional use by educators (Anderson, 2015; Beach, 2012; Cooper & Johnson, 2013; Elliott, Craft & Feldon, 2010; Fucoloro, 2012; Holmes, 2013; Langran, 2010; Maloney, 2016; Ross, Maninger, LaPrairie, & Sullivan, 2015; Stewart, 2015; Tseng & Kuo, 2014). Several studies found that social media is considered a part of our modern society with widespread use in an educational context (Bexheti et al., 2014; Srivastava, 2012). Flanigan (2012) says of personal learning networks (PLNs), "such networks reduce isolation, promote autonomy, and provide inspiration by offering access to support and information not only within a school but also around the globe" (Flanigan, 2012, p. 42). The above-mentioned studies give some information regarding social media's use by educators for professional development reasons but none involve educators who work at international schools.

This current study was focused on how social media may offer a solution for sustainable and transformative teaching practice of international school educators by giving them a place to share information and resources informally with other professionals. Knowing more about the relationship between professional use of social media and change in teacher practice will give researchers more to build on when considering TPD reform for international school educators.

Purpose of the Study

The purpose of this mixed methods study was three-fold: (a) to discover if international school educators are using social media for professional learning and if so, what tools they are choosing to use, (b) to discover if a relationship exists between the use of social media tools for informal professional learning and change in the pedagogical practices used by the teachers in international schools; and finally, (c) to describe how the use of social media may lead to a change in pedagogical practice.

The first phase gathered data through an online survey collecting demographic data about the types of teachers who are using Web 2.0 tools for professional reasons and to help discover if international school teachers make use of social media both personally and as a means for professional development. The survey also assisted in discovering what types of Web 2.0 tools international school teachers use and if these educators reported a change in pedagogical practice because of this use.

The second phase of the study was designed to discover a greater contextual base of knowledge regarding how informal learning, occurring through these tools, was being utilized in the pedagogical practices of international school teacher participants. This was

accomplished through online interviews with participants purposefully sampled from the initial participants from the first phase.

Research Questions

To assist in addressing the gap in the literature, the quantitative phase of this study, answered the following questions.

1. What social media tools are international school educators using for personal reasons and for what purpose?

2. Are international school educators using social media for professional learning as a PLN?

3. What Web 2.0 tools are international school educators using for professional learning as a part of a PLN?

4. Is the use of social media as a PLN by teachers in international schools related to change in the pedagogical approaches used by teachers?

The qualitative phase of the study answered this research question.

5. How do international school educators use a PLN to change their pedagogical practice?

Knowing more about international school teacher professional use of social media as a PLN will give researchers and administrators direction when considering reform in TPD for international school teachers. To answer these questions, quantitative data was collected through an online survey and qualitative data was gathered through in-depth interviews.

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Theoretical Framework

The theoretical lens this study used for data analysis is a combination of Wenger's (1998) communities of practice (CoPs) theoretical framework and Morten Paulsen's (2003) concept of cooperative freedom discussed by Dron and Anderson (2014c). The CoP framework is supported by several emerging theories on learning including Distributed Cognition, Situated Cognition and Socially Shared Cognition.

The theoretical framework of CoPs has four foundational assumptions: 1) humans are social in nature, 2) knowledge deals with proficiency regarding a valuable undertaking, 3) meaning is the result of learning, 4) which is defined as a capacity to perceive our experiences and interactions with the world as meaningful. According to this theory cognition is situated, social and distributed. Contemplating these ideas, a CoP can be considered groups made up of participants who share a problem, passion or concern and through continual interaction deepen their level of understanding and competency around the topic, problem or passion (Wenger, McDermott, & Snyder, 2002). Barab, MaKinster, and Scheckler's (2003) definition of an online community as a "persistent, sustained social network of individuals who share and develop an overlapping knowledge base, sets of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise" (p. 238) connects online learning communities with the CoP theoretical framework. It has been suggested that these online CoPs can promote learning regardless of time and space (Booth, 2012) by providing users a place to connect with others around similar interests, activities, backgrounds or face-to-face connections and provides a virtual space for learning (Srivastava, 2012).

The effectiveness of CoPs relies on some degree of self-directed action taken by the learner to participate in these networks, which involves more than just choosing to participate. It involves making powerful learning choices that include independence, power and support (Candy, 1991). Self-directed learning has been shown to be very effective when connected to the ideas in a CoP where the action in learning is tied to something the participant perceives as valuable (Mazman & Usluel, 2010).

Several emerging learning theories give greater understanding to the CoP framework. Situated Cognition, Distributed Cognition and Socially-shared Cognition offer a greater understanding of CoPs because in a CoP, learning is situated in the community, is a social activity and is distributed across all participants (Hur & Brush, 2009).

The online learning community defined by Barab, MaKinster, and Scheckler (2003) are supported by several learning frameworks including: Laferrière et al., (2006), which uses various technologies to assist teachers in their continual process to improve their practice and Dabbagh and Kitsanta's (2012) Personal Learning Environment (PLE) framework which is a space where self-regulated learning is supported by social media use. These frameworks will be used to expand the lens through which data will be analyzed. Each of these frameworks are built around the use of various tools. The current study was not focused on a specific tool as in other studies it has been already discovered that teachers use a variety of tools based on their own contextual needs (Maloney, 2016). To better understand the use of social media by teachers in international schools this current study looked to discover the tools they find most useful.

Significance of the Study

Effective TPD is the foundation for sustainable and transformative change in teacher practice, which leads to better student achievement (Holmes, et al. 2013). Approaches to TPD should include mentoring, be reflective, (Helleve, 2010), directed towards learning and teaching of specific content, related to teacher practice and school initiatives, collaborative in nature and an intense, continual process (Gutierrez & Bryan, 2010)

The literature is full of suggested areas for future research regarding the use of social media as a form of TPD. Fucoloro (2012) proposes that social media use regarding TPD is still relatively new and therefore, requires additional research to expand the "understanding of these dynamic learning communities" (p.184) that is correlational in nature. She suggests that research be conducted to discover correlational data between the participation in PLNs and improved practice, decreased feelings of isolation and increased technology integration to name a few. This current study focused on these aspects in relation to international school teachers use of a PLN for professional purposes. Elliott et al., (2010) suggest that this type of community is valuable and calls for continued research to discover "how educational professionals use digital learning materials for self-directed learning" to give greater insights into best ways to use these tools, or even if we should use them to improve educators' proficiency. The current study as suggested by Maloney (2016) focused on the benefits of PLNs as a method to support greater learning and improved PD for international school teachers of all disciplines, not just those involved in technology use. This was to provide greater insight into what teachers in international schools, use Web 2.0 tools for regarding professional

development. This direction of research is in line with Anderson's (2015) suggestion that further research be conducted to add to the literature regarding the demographic makeup of educators who participate in PLNs. The addition of demographic data related to international school teachers who use PLNs therefore adds to this little-known area of literature.

Knowing what technology tools are used and to what degree international educators utilize social media to change their teaching practice adds literature to this minimally studied area and adds weight to the support of informal learning networks use for professional purposes. Understanding how informal learning through a PLN is utilized in pedagogical approaches the teacher applies in the classroom at international schools will help inform school directors, principals, technology directors, technology coaches, curriculum coordinators and other administrators responsible for planning professional development opportunities for faculty. This information could also be used to spark a dialog with administrators about reforming what PD looks like in the international school setting.

Definition of Terms

There are several key terms used throughout the study that need to be defined for clarity. The terms relate to a theoretical framework, curriculum framework or the tools used by educators as a part of a personal learning network (PLN) or a personal learning environment (PLE). Below are these key terms briefly defined.

Blogs: Shortened form of Web Log. A blog is a website which is usually frequently updated easily (Fucoloro, 2012).

Community of practice (CoP): a CoP is a theoretical framework proposed by Wenger (1998) that can be considered groups made up of participants who share a problem, passion or concern and through continual interaction deepen their level of understanding and competency around the particular topic, problem or passion (Wenger, McDermott, & Snyder, 2002)

International Baccalaureate® (IB): is defined by the IB as "a non-profit educational foundation offering four highly respected programmes of international education that develop the intellectual, personal, emotional and social skills needed to live, learn and work in a rapidly globalizing world. Schools must be authorized, by the IB organization, to offer any of the programmes. To learn about the authorization process, visit our Become an IB World School section" ("About the IB," 2016).

International Schools: For this study an international school will be defined as one that offers an international curriculum that differs from the national curriculum.

Personal Learning Environment (PLE): A PLE is defined as a learning framework and is considered a space where self-regulated learning is supported by social media use, and the use of social media is based upon the interactivity each tool provides (Dabbagh & Kitsantas, 2012).

Personal Learning Network (PLN): A PLN has been defined by Trust (2012) as a "system of interpersonal connections and resources which can be used for knowledge sharing, idea exchange, informal learning and collaboration (p. 133).

Teacher Professional Development (TPD): TPD is defined as actions taken by the teacher such as attending formal courses; workshops and conferences and participating in school initiated opportunities to update their knowledge and skills.

Really simple syndication (RSS): RSS has been defined as software which allows users to subscribe to different forms of information feeds from sources including blogs, social media and social bookmarking sites funneling them into one location, an RSS Reader (Fucoloro, 2012).

Social Learning Technologies (SLT): The terms social media and social networks as well as social software (the software which creates these services) could be used interchangeably in the context of this study. This is because the characteristics of each, for the purpose of this study, is similar enough to warrant this use. As stated by Dron & Anderson (2014b) the bulk of these tools "can be classified as social learning technologies" (p. 8)

Social Networks: have been defined by Boyd & Ellison, (2007), as a service on the Internet that has three main features which are used to make and maintain connections to other people either with whom they have a face-to-face relationship or with complete strangers. Facebook, Google Plus are examples of Social Networks.

Twitter: An information network made up of 140-character messages (including photos, videos and links) from all over the world ("The Twitter glossary," 2016)

Web 2.0: Web 2.0 has been defined as an iteration of the World Wide Web that is informal, collaborative, blended and grassroots controlled. Content on these websites are created by users or experts recognized by the community (Gunawardena et al., 2009)

Wikis: A website that any user can update by adding or editing its content (Fucoloro, 2012).

Assumptions, Limitations, and Delimitations

Assumptions

This current study assumed that participants were who they said they were. This has been reported as a disadvantage to conducting research online. Hesse-Biber and Griffin (2013) suggest communication issues are also a concern including lack of nonverbal cues which are present in offline situations and more importantly, the ability of the researcher to trust the identity of the respondent. Participants identities in the second phase of the study were cross referenced with other information provided about themselves through the survey, interviews and social media profiles as was done by Fucoloro (2012). However, any information gathered from profiles is dependent on the honesty of the respondents (Hesse-Biber & Griffin, 2013). Second it was assumed that the information provided by the participants in both the survey and the interview was the truth.

Limitations

The first limitation of this study was the sample population itself. Since the sample population was made up of teachers who work for international schools, and mostly from Asian countries (73%) the findings might not generalize for other internationals teacher populations. This limitation was created by the method employed by the researcher to request participation. His connection to the international school field is due to working in an international school located in China for 11 years. This connection created a bias towards Asia because one of the methods used to gather participants was to employ the assistance of the East Asia Regional Council of Schools (EARCOS) to send requests for participation to various heads of school who then shared

the request with their faculty. Naturally, this resulted in more participants from Asia. All the phase two participants were also currently employed at internationals school within Asia.

Another limitation to this study was the use of online tools to gather data. Many of the requests for participation were made on social networks and within special groups within these social networks made specifically for international school teachers. This limited participation to those who make use of online tools. The researcher employed the assistance of (EARCOS) to send requests for participation in an effort to gain participants who might not already be on social networks. However, the survey instrument was an online survey and might have impacted the kind of people who completed it.

Time was another aspect of this study, which needed a more fluid approach especially when related to data gathering occurring synchronously. Specifically, in the context of this study time difference between the researcher's time zone and the participants time zone made setting up interviews more difficult. The time difference between the researcher and the participants of the second phase was as much as 18 hours. The researcher had to request time off work to meet the scheduling needs of the participants or asked the participants to be more flexible.

Another limitation of this study was the reliability of data collected through the survey and the interviews. Since both methods employed collected self-reported data, it is difficult to consider data collected as 100% accurate. For the second phase of the study, which only had five participants, this limits generalization of data gathered but was used to help answer how social media use as a PLN has changed teaching practice for the participants.

Another limitation that arose is the fact that the researcher was himself an international school teacher who uses social media as a PLN. This could have led to bias in data collection and analysis. This was addressed by incorporating a review process where participants reviewed the data to ensure the researcher was being honest. Specifically, in the second phase, participants were asked to verify the transcripts of the interview to assist in creating reliability. The researcher while possibly biased was himself interested in finding out what other international school teachers were doing with PLNs and, therefore, kept his own biases in mind while collecting and analyzing data so that they would not influence the results. Bracketing is the practice of making known one's "personal experiences with a phenomenon" which can ultimately allow the researcher to bracket out their potential influences thus creating more objectivity (Creswell 2013 p. 79). The researcher used this process to limit the amount of influence his own personal experiences with PLN use had on the data gathering and analysis of this current study.

Delimitations

A broad definition of international school has been chosen even though there is no concrete definition of an international school (Bunnell, 2007) due to the huge diversity of international schools (Hayden & Thompson, 2008). This limited definition has been chosen to allow the collection of data from a larger number of international schools. If a more comprehensive definition were used it could hinder participation. The goal of this study is to discover how international school teachers are using social media for professional reasons therefore a broad definition allowed for more teachers to participate. The intended population of this study was teachers who work in international schools as

defined by the definition mentioned above. To allow for the most variety of responses data was gathered from all areas in the K-12 international school including classroom teachers, subject teachers, language teachers, specialist teachers, and any other area where teaching is involved. Administrators and other school staff were not included as this study. Since this study hoped to answer two different types of questions, one regarding the use of social media for professional reasons and the other for how this use has changed pedagogical practice a single methodology was not appropriate. Per Bryman's (2006) detailed list of 16 reasons to use mixed methods some reasons include that each method hopes to answer different questions as well as for illustration and enhancement to the findings. Mixed methods were specifically chosen for these reasons. Other frameworks are beyond the scope of this study.

Conclusion

Traditional TPD methods are not optimal for educators who work in international schools for many reasons including, isolation, lack of funds and time to attend, disconnected content and inability to make a difference in the pedagogical approaches teachers use. The creation of PLNs has been suggested to augment the formal learning occurring at workshops and conferences. Few studies focus on the professional use of PLNs by K-12 educators and no studies have been done explicitly related to the use of these tools by teachers in international schools. The studies that have been conducted give valuable information regarding teacher use of PLNs and can be used as a comparison for data gathered about teachers in international schools. A relationship between social media use as a PLN and certain aspects of teaching which indicate a change in practice was discovered. The results of this study will fill the gap present in the

literature and provide valuable information to policy makers, teachers and administrators for international schools. The next chapter will delve more deeply into the current literature related to this problem and other studies that have been conducted on the use of social media for informal professional learning.

CHAPTER 2

An important aspect to all professional educators, including teachers in international schools (Black & Armstrong, 1995; Black, Harvey, Hayden, & Thompson, 1994) is to stay up-to-date in their respective fields, therefore, educators must continually seek methods to maintain currency. Reasons for continual improvement include changes in society (Baker, 2014), pressures from the community (Maguire, 2005) and school reform movements (Dede, et al., 2008). It has been suggested that the foundation to sustainable and transformative teacher practice is effective teacher PD (Holmes, Preston, Shaw & Buchanan, 2013). However, Sherer, Shea, and Kristensen, (2003) suggest that because of an overload of information through the Internet, traditional forms of teacher professional development (TPD) are not enough for educators. It has been proposed that for TPD to be effective, it needs to be directed towards learning and teaching of specific content, related to teacher practice and school initiatives, collaborative in nature and an intense, continual process (Gutierrez & Bryan, 2010).

Hur & Brush (2009) found that continual support and interaction between educators is one aspect of making TPD successful. The use of the Internet and the tools available could be a solution to improving TPD specifically for isolated international school-teachers. The literature regarding Internet technology assisted TPD covers many options including online learning courses offered by universities (Bacow, Bowen, Guthrie, Lack, & Long, 2012), interactive websites (Allsopp, Hohlfeld, & Kemker, 2007), virtual worlds (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2008) and

online teacher networks (Holmes et al., 2013). Online Web 2.0 tools such as blogs, wikis, RSS (really simple syndication), social networks as a personal learning network, and social bookmarking tools have been suggested as a way of creating an online space where teachers can engage in self-regulated learning (Dabbagh & Kitsantas, 2012). This process involves three phases that include forethought, performance and finally self-reflection (Zimmerman, 2000).

This literature review is organized into three main themes: 1) professional development (PD), 2) the learning potential of the Internet, and 3) Personal Learning Networks (PLNs). In order to clarify the issues mentioned above and guide the discussion of a possible solution this literature review will introduce international school, discuss why TPD is needed generally and in the context of international schools, present reasons traditional approaches to TPD might not be enough for current educators including those who work at international schools, clarify what effective TPD looks like, introduce the capacity of the Internet for teaching and learning including theories of learning which support and guide these types of learning environments, and describe a possible solution to this problem.

The search strategy used in developing this literature review took a two-phase approach. First educational databases were accessed to search for relevant articles, books and dissertations. Second, Zotero, a research tool that allows content displayed in a browser window to be added to a database of articles, books, web pages and dissertations, was used for organizational purposes to arrange relevant articles into themes that guided this review of the literature. The primary source of literature came from peer reviewed scholarly articles. Other sources included, dissertations and books. The most frequently

used databases included: EbscoHost, ProQuest, ERIC, PAIS International, Sage Journals, Science Direct, Journal of Research in International Education, Taylor & Francis Online, ProQuest Dissertations and Theses and Google Scholar.

Keywords and phrases used in the search of literature included, but were not limited to, the following: Online learning community, teacher professional development, teacher professional development and international schools, international school professional development, personal learning networks, international schools and PLN, social media, communities of practice, online learning environments, international schools and online learning community, international schools and teacher professional development, social learning networks, social networks, twitter and teacher professional development, Facebook and teacher professional development, social media and professional development, professional learning communities, web 2.0 and informal learning. After reviewing hundreds of works, only the most pertinent were chosen for this literature review to help guide the direction of the current study regarding online informal learning with social media and its use by international school-teachers for professional development.

While there are a growing number of studies on the use of social media for professional development there is little to no research specifically about international school-teachers use of social media for professional development. This current study will partially fill this gap in the literature.

International Schools

International schools are unique institutions, which are setup for various reasons, many of which are located in rural areas and are relatively small in size (Raven, 2011).

According to Hayden & Thompson (2008) there are two types of international schools. The traditional international school serves diplomats, missionaries, military families and expatriates in need of a school whose system is compatible with their home country. This type of international school provides educational service to a community made up of a transient population of students who attend the school for the length of their parents' contract and then it is off to another location to a different international school. The other type of international school is known as the English medium international school (Hayden & Thompson, 2008). This type of school provides an alternative option of education for materially affluent locals who want their children to develop an international mindset in preparation for life in a globalized world. Both types of schools have become centers of 'western' culture, education, and thought in their respective countries (Gerhard, 2010). International schools are becoming increasingly important as the world becomes more globalized because many multinational organizations require their employees to travel to different places for a short period of time (Hayden & Thompson, 2008).

Gerhard (2010) defines international schools as K-12 private institutions situated outside their home country that are often staffed with 'Western' (i.e. North American, Canadian, Australian, French, etc…) teachers. However, the concept of an international school has yet to be concretely defined (Bunnell, 2007). Hayden & Thompson (2008) suggest that this is due to the huge diversity of international schools. This can become even more confusing because there are no concretely definable characteristics that all international schools follow to be labeled as such. In fact, there are no central institutions created to give or take away approval for schools or to develop a sense of the

characteristics such schools should have to be called "international". Hayden & Thompson (2008) offer some direction to a more concrete definition of an international school by providing areas where international schools have a distinct difference from national schools. The four main areas of difference include 1) curriculum, 2) students, 3) teachers and administrators, and 4) management, leadership and governance. First, the curriculum offered at international schools is not the same as the national curriculum. Second, the students of the international school are often not citizens of the country where the school is located. Third, administrators and faculty are most often made up of expatriates. Finally, because of the nature of the international school, issues in relation to management, leadership and governance arise. It is important to be aware of this special context and the specific challenges international schools face so a better understanding of the specific needs in regards to professional development can be had (Hayden & Thompson, 2008). For the purpose of this study an international school will be defined as one that offers an international curriculum that differs from the national curriculum. This limited definition will allow the collection of data from a larger number of schools. If a more comprehensive definition were used it could hinder participation. The goal of this study is to discover how international school-teachers are using social media for professional reasons therefore the proposed definition will allow for more teachers to participate.

The uniqueness of the international school and its context can raise some challenges, related to induction, TPD, and evaluation (Hayden & Thompson, 2008). Induction involves not only the introduction to the school's culture but also the external culture of the community and the diversity of the students. After induction, another

aspect needing special attention, if international school-teachers are to improve their teaching, is ongoing professional development. This can include in house TPD opportunities or workshops and conferences, which are sometimes offered by organizations who provide curriculum to international schools. Another area of TPD comes from university programs that offer higher qualifications including masters and doctoral degrees (Hayden & Thompson, 2008). Another unique aspect of international schools regarding TPD is that international schools typically do not receive any large benefits for their TPD investment due to the high turnover rate at most schools (Black & Armstrong, 1995). However, Black and Armstrong believe that TPD helps to improve the expertise in the "pool" of international educators from which international schools find and hire their faculty. According to Black and Armstrong this pool of educators is quite stable and therefore TPD contributes to "the development of the profession as a whole" (p. 33).

International schools also have systems in place to evaluate teaching staff performance. These systems can range from adopting a national system, building on a national system or creating one from scratch (Hayden & Thompson, 2008). Whatever system is chosen; most international schools have a teacher evaluation system in place. TPD in this evaluation system is often a crucial factor in the international school teacher's ability to renew their contract with the school. An example of this can be seen in the teacher contract from the American International school of Guangzhou, which states: "AISG expects all teachers to engage in regular professional development. Yearly, funds are specifically set aside for individual and group professional activities that keep teachers current with best practices and that align with school-wide and divisional goals,

personal growth and training that is necessary to teach school programs and initiatives as well as the IB program." ("American international school of Guangzhou full time overseas hired teacher contract," 2016 p. 7). As the reader will see later in this review providing effective TPD is a difficult task not only in national schools but also for international schools (Black & Armstrong, 1995). To orient the reader in reasons for choosing social media in relation to international school TPD, a general discussion about PD is addressed next with commentary related to international school weaved throughout.

Teacher Professional Development

Is teacher professional development important?

There are many reasons teachers need to continually improve. Some of these include the appearance of new economies based on knowledge (Dall'Alba & Sandberg, 2006), the adoption of new standards by educational institutions (Moon, et al., 2013; Desimone, et al., 2002), and general school reform instituted by mandated achievement goals from governmental organization or other educational boards (Dede, et al., 2008). Another reported reason for better TPD is pressure from the schools' community for teachers to be cutting-edge, which requires teachers to "not only be conversant with technology but to use it in their teaching and in their communication to students" (Maguire, 2005, p. 6).

There are also social changes in the world that have a role in the perceived need for better TPD. Coined by Baker (2014), this pervasive "education revolution" has caused two main shifts in society. The first, the ability to go to school has moved from a privileged few to compulsory for the masses and second, a culture based upon education has been formed and has had a massive impact on all areas of life (Baker, 2014).

It is now common for people to believe that formal education is the optimal means for the development of human capacities. This belief has spawned the idea of lifelong learning, which has made it normal for people to continue their education well into adulthood, making learning a lifelong process (Baker, 2014). All this change and focus on TPD has also increased the attention towards lifelong learning for teachers (Laferriere, Lamon, & Chan, 2006).

Lifelong learning is defined as the task of continually updating "knowledge and skills to face the challenges of daily life" (Ranieri, Manca, & Fini, 2012, p 756). These shifts have impacted all aspects of the work environment including schools. The impact on TPD can be seen in schools across the world. Black and Armstrong, (1995) advocate that like most schools international schools also require their teachers to remain up-to-date with developments in the educational field and current best practice. Therefore, K-12 international school teachers, are required to take formal courses; attend workshops and conferences and participate in school initiated PD opportunities to update their knowledge and skills. These actions are required to maintain currency and to renew their teaching licenses.

All the above reasons have led to a perceived need for better professional development to promote change in teachers so they can provide better instruction, ultimately leading to increased student achievement (Lawless & Pellegrino, 2007). Yoon, et al., (2007) lay out three steps about how TPD influences student achievement. These steps begin with the improvement of knowledge and skills of the teacher, which in turn leads to better pedagogical approaches creating a positive effect on student achievement. Lawless and Pellegrino (2007), when discussing TPD, argue that pedagogical change in

teacher practice is the most important influence professional development should have regarding the teacher as this shows a movement in pedagogical knowledge. This point of view is strengthened by Yoon, et al., (2007) who examined 1300 studies identified to address the effect TPD had on student achievement. The researchers dwindled these 1300 down to nine that met the stringent criteria set forth by the What Works Clearinghouse ("WWC | Find What Works!," n.d.). The researchers found that if the teacher of the average control group would have taken part in PD the students of that group would have "increased their achievement by 21 percentile points" (p. 14). According to these findings TPD is important because it is through TPD that the teacher increases their own knowledge, which, in turn leads to improved student achievement.

According to Darling-Hammond, Wei, and Andree (2010) countries who rank top in education do so because they place greater importance on TPD. Some of the support features provided by these top ranked countries include high quality teacher education programs paid for by the government, competitive salaries, teacher inclusiveness in the decision-making process for curriculum and assessment development and a plethora of opportunities for TPD that is ongoing, embedded and collaborative in nature (Darling-Hammond, Wei, & Andree, 2010).

For schools to do a better job at educating the coming generations, effective TPD that leads ultimately to a positive effect on student achievement is needed. However, are traditional approaches to TPD sufficient for the schooled society discussed by Baker (2014)? And are they enough to promote change in teachers so they can provide better instruction, ultimately leading to increased student achievement as suggested by Lawless & Pellegrino, (2007)?

<u>Is traditional TPD enough?</u>

There are many forms of traditional TPD, including face-to-face workshops, summer programs and district initiated development opportunities (Holmes et al., 2013). One study found the most typical type of PD for teachers are one-shot workshops where the participants spend a limited amount of time in the workshop (Parsad, Lewis & Farris, 2001). This is backed up by Burton, (2012) who conducted a qualitative research study to provide a description of the types of PD offered to teachers at an international school participating in an International Baccalaureate Primary Years Programme (IBPYP). It was discovered the type of PD most attended was also formal workshops conducted off-site. However, are workshops effective in changing teacher practice?

Traditional workshops might not be the most effective form of TPD for several reasons including cost, fragmentation and broad approach as well as length. Workshops allow professionals to meet and form connections to one another, but are expensive and require travel to participate (Sherer et al., 2003). This cost could hinder participation if the teacher lacks the necessary funds to attend. This is particularly a problem for international schools. Black & Armstrong (1995) suggest that these problems are magnified due to the isolation of most international schools. This is because both the time needed for teachers to attend off-site workshops and the amount of money needed for travel would be greater. This isolation also increases the need for quality TPD. Black, Harvey, Hayden, & Thompson, (1994) state, "It is this very physical isolation that increases the desire, and fuels the demand, for professional development." To discover if other forms of TPD might help alleviate the burden of sending teachers to off-site workshops, Black and Armstrong (1995) conducted a mixed methods study. Their study

looked at teacher perceptions regarding effective TPD related to teacher context and needs. Both quantitative and qualitative data was collected through interviews and questionnaires. One hundred questionnaires were distributed to teachers who were currently employed at an international school, 51 were returned answered. Black and Armstrong (1995) discovered most of the participants (96%) agree expertise of faculty should be used for TPD. However, these sessions also require time to conduct and may not be effective enough to change teacher practice. Another way international schools save money on TPD is to bring in an outside consultant. Black and Armstrong (1995) discovered however, that international school-teachers don't feel that bringing outside consultants in is the best approach to TPD. The authors suggest, however, that this may be seen as a cost-effective way to provide TPD at international schools.

Research has shown TPD, which is fragmented in nature like one-shot workshops, do not meet the needs of teachers and is often disconnected from daily classroom practice (Gross, Truesdale & Bielec, 2001). Laferrière, Lamon,and Chan (2006) suggest that deep learning does not come from workshops and conferences where often the content is not contextually specific.

Usually workshops take a one-size-fits all approach. Butler and Sellbom (2002) conducted a study on barriers to technology adoption in the learning environment and discovered that "classrooms are too different so faculty learning doesn't generalize" (p. 25). This finding supports the idea that one-size fits all approaches to TPD may not be effective for all involved.

Typically workshops are short, lasting between one hour and one day (Parsad, Lewis & Farris, 2001). Holmes et al., (2013) state that sufficient time to effectively

follow up or consolidate learning is not usually available at short face-to-face forms of TPD. This means that the teacher may not improve their pedagogical knowledge, which in turn would influence their ability to change pedagogical approaches. These issues with traditional forms of TPD raise questions regarding the effectiveness of typical workshops as well as what generally constitutes effective TPD. Research indicates that TPD is not enough on its own to promote change in teacher practice and that long-term support is needed (Cole et al, 2002; Holland, 2001).

<u>What is effective TPD?</u>

As Mashaw (2012) suggests measuring something as elusive as effectiveness is not a simple task. He outlines methods and constructs used by researchers for measuring effectiveness which include, satisfaction, interaction, performance based on indicators such as grades, perceptions on learning, active and cooperative learning and participation and suggests that this adds to the task. Lawless & Pellegrino (2007) suggest the main problem in deciding if TPD can be considered quality is that in the literature the judgment of the success of TPD has many times been measured by the self-reported satisfaction of the participants and teacher thoughts about usefulness regarding their practice. Smolin & Lawless (2011) also suggest that most evaluations of TPD have yet to discover what actually makes TPD effective. Hill (2013) suggests that because of the approach taken in current studies, if positive results occur, it is hard to determine what actually made the TPD successful. Difficulty in measuring the effectiveness of TPD makes it hard to understand how TPD is impacting change in pedagogy or student learning. What is apparent from the literature is that a clear definition of what makes TPD effective has yet been agreed upon.

While no single method or approach to measuring the effectiveness of TPD has been discovered, there are many studies that have offered suggestions into what makes TPD effective. Renyi (1996) propose variables that can help to define the quality of a TPD activity including, contact hours, follow-up, access to new technologies, active engagement, relevance to particular context, collaborative approaches and the clarity of expressing the goals for student achievement. Some of these including time, access, collaborative approaches and contextual connection will be discussed below.

The idea of time and access is reiterated by Wilson and Berne (1999) who suggest adequate follow-up time and support, inclusiveness, and easy accessibility are necessary characteristics for effective PD. Research indicates that long-term support is needed in order for TPD to promote change in teacher practice (Cole et al, 2002; Holland, 2001). Darling-Hammond et al., (2010) discovered through the analysis of data from the National Center for Education Statistics Schools and Staffing Survey (2003-04) with a sample of more than 130,000 teachers and the NSDC Standards Assessment Inventory (2007-08) sample size of 150,000 that well-designed, longer and more rigorous forms of PD are connected to gains in student achievement and change in teacher practice. This perspective is supported by Yoon et al., (2007), who found a positive and significant effect on student achievement when TPD was longer in nature (more than 14 hours). It is clear according to these results that TPD needs to be longer than the typical one-shot workshops discussed above. In fact, it was found that TPD that created longer term connections through online courses, provided teachers with extra support and in turn helped increase their comfort level and confidence, which ultimately had a long-term effect on teacher efficacy (Watson, 2006).

Change that goes beyond the classroom into the school can be prompted by TPD that is collaborative in nature (Darling-Hammond et al., 2010). This is supported by research, which has shown that successful teacher professional development relies on continual support and interaction between educators (Hur & Brush, 2009). In addition, Darling-Hammond et al., (2010) found that TPD was considered more effective when it was contextually specific. It was also found that it was useful when teachers participated in PD where they were studying the material they were planning on using with their students (Darling-Hammond et al., 2010; Desimone, et al, 2002). If it is useful for teachers to study the material they propose to use with their students in the classroom, it might be safe to assume that teacher choice in PD might lead to greater strides in having an impact on student achievement.

Since TPD is used to improve the teachers' knowledge it is pertinent to discuss what teachers think about what makes TPD effective for them. The Bill and Melinda Gates Foundation (2014) conducted a study in conjunction with The Boston Consulting Group to discover needs and areas for growth about TPD. This study contacted over 1300 participants which included teachers, leaders in professional development, administrators, thought leaders and providers of TPD. Using a combination of interviews and surveys researchers focused on the current needs, satisfaction and participation of TPD. They discovered that current practice in the delivery of TPD is "highly fragmented and characterized by key disconnects between what decision-makers intend and the professional learning teachers actually experience (Bill and Melinda Gates Foundation, 2014 p. 3). Specifically, the PD teachers were receiving, according to the participants, was not assisting them in preparing for the "changing nature of their jobs" (Bill and

Melinda Gates Foundation, 2014 p.3). According to the results of the study the ideal

professional development experience was described as interactive, hands-on, sustained

over time and relevant to the teachers' own context (Bill and Melinda Gates Foundation,

2014).

   To see how these themes are related to an international school specifically, an

empirical inquiry qualitative case study conducted by Burton, (2012) will be considered.

Burton's study provides a description of the types of PD teachers at an international

school which offer the International Baccalaureate Primary Years Programme (IBPYP)

participate in. The study was guided by two central research questions. The first was

centered on the types of PD regarding inquiry instruction the teachers were participating

in and the second dealt with the "site-embedded components" (p.6) of these PD offerings.

Various forms of data were gathered using interviews, archival district PD data, artifacts

from International Baccalaureate workshops, and surveys. The survey which was

connected to the central and supporting research questions had 29 items and was

conducted with 19 participants after being piloted at another IBPYP site. The types of

TPD offered to these international school-teachers included formal off-site and on-site

seminars, embedded on-site, informal on-site and online forms of PD. It was found that

the type of PD most participated in was formal workshops conducted off-site. These off-

site workshops consisted of a 2-3 day seminar with an average duration of 24 hours of

contact time. Ninety percent of the participants felt that this type of longer seminar had a

great to moderate impact on their instruction. While the study found that site-embedded

components were helpful in assisting teachers in their growth a recurring theme found

throughout the data was a need for more time to collaborate with peers. Time or lack

thereof was a common theme. This study is relevant as many international schools offer the IBPYP and have to follow certain regulations set forth by the IB for specific TPD related to teaching the IBPYP. This current study will also take place in international schools that offer the IBPYP.

From the above discussion, we can ascertain that for TPD to assist teachers in improving their instruction it needs to be directed towards learning and teaching of specific content, related to teacher practice and school initiatives, collaborative in nature and an intense, continual process (Gutierrez & Bryan, 2010). If traditional approaches to TPD have been shown to be ineffective, especially in an international school context, this raises questions regarding different approaches to TPD including those that might combine traditional and innovative methods. Technology enabled TPD might hold the key to making it more effective.

Learning and the Internet

Types of Technology Enabled PD: Affordance and Issues

To combat the issues of traditional forms of TPD outlined in this review it has been suggested that technology enabled forms of TPD, specifically online options, may be useful. The reasons to adopt an online approach are often supported by the literature. However, this is not always the case. A randomized experiment, which compared online and face-to-face forms of TPD was conducted to discover the difference in teacher and student learning (Fishman et al., 2013). This study had the following overarching guiding research question "How does online PD compare with face-to-face TPD in terms of effects on teachers and students when the PD content is held constant" (Fishman et al., 2013 p. 430)? The study also asked three sub questions that asked directly about whether

differences existed regarding teacher learning in terms of changes in beliefs and knowledge, classroom practice and student learning outcomes as a function of the TPD. Fishman et al., (2013) suggest that to ask whether online TPD is more or less effective than other methods doesn't really make sense, since the online forms are too vast. This is the reason they developed their study to discover if there was a difference in modality when all other aspects were the same. Forty-nine teachers, 24 in the face-to-face form and 25 in the online form of TPD participated in this study. Teacher beliefs and knowledge data was gathered through online surveys, and self-efficacy for teaching science was collected using a modified version of the Science Teacher Efficacy Belief Instrument from Riggs & Enochs (1990). The surveys were administered pre and post implementation of the TPD, and video recordings of a predetermined lesson were used to consider pedagogy within the classroom. A 29-item proximal posttest assessment with 125 students was used to measure student learning. The study found that there was no significant difference in regard to curriculum impact. However, it was found that online versions of TPD took less time than the face-to-face versions without having any impact on the outcome. According to Fishman et al., (2013) this represents an affordance of online TPD. It is not one-size-fits-all and teachers can spend only the time they need without affecting the quality of the TPD. This is good news for international school-teachers who are usually isolated enough to make travel to workshops a concern regarding the amount of time needed to attend. Another finding from this study suggests that online TPD is better for those who are geographically distributed and can be cheaper in these instances than sending teachers to workshops, which is another benefit for international school-teachers. Fishman et al., (2014) suggest the opportunities provided

by new technologies implemented into TPD support learning in more efficient and

effective ways.

Supporting the use of new technologies in TPD, Allsopp et al., (2007) suggest that

technology can be used to promote an educational experience that is active, collaborative,

intentional, contextual, conversational, complex and reflective. Below, various forms of

technology enabled TPD will be introduced and the benefits and challenges regarding

international school-teachers will be considered.

Technology Enabled TPD

The literature is full of various types of technology enabled TPD. To better

understand what is available to educators, several will be discussed below including:

formal online learning systems, matrices for self-directed learning and online virtual

worlds. While these allow teachers to learn, they may not provide the type of TPD which

will assist in changing pedagogy.

Bacow, Bowen, Guthrie, Lack, and Long (2012) outline the various types of

online learning universities may offer including: hybrid approaches with face-to-face

components as opposed to online only approaches; systems where students are following

a set timeline as opposed to a student-paced approach; isolated approaches where

individuals are the focus rather than a social approach; and finally the "Interactive

Learning Online (ILO) style" (p. 8) as opposed to systems that require instructor-to-

student interaction online. They suggest that many universities offer online programs of

study targeted directly at the international market. This is helpful for international school-

teachers who are not able to attend classes on campus. However, this same study also

found that the costs of these programs are usually higher than the face-to-face equivalent

(Bacow et al., 2012). This could possibly be a barrier for international school-teachers if they lack the income to attend university courses online. Studies also suggest that students who are motivated, organized and independent are highly successful in online courses and those who do not possess these characteristics might struggle (Bacow et al., 2012). This could be a barrier to some teachers who lack the drive to participate in such structured formal classes. These formal options also may not be contextually specific enough to create lasting change in the day-to-day practices of teachers in an international setting. It is important to remember that teachers in international schools are faced with various cultural approaches to learning that make the need for skills related to best practice in these contexts necessary (Black & Armstrong, 1995).

Expensive formal educational offerings are not the only online options available. The Florida Technology Integration Matrix (TIM) was created to serve as an assessment tool but also as a means for professional development (Allsopp, et al., 2007). It serves as a form of TPD because it affords teachers' the opportunity to observe lessons where technology integration is expertly occurring offering access to new technology, active engagement and relevance to particular context. The TIM was created to assist in this process by illustrating "how teachers can use technology to enhance learning for K-12 students" (Allsopp et al., 2007, p. 3). To do this the TIM is setup to support technology integration using two models based on social constructivism where interaction helps to construct learning. This is just one of the many routes to online TPD that could assist international school-teachers in their quest for improvement. This could be useful for the highly-motivated individual who enjoys interacting with an online matrix providing multimedia experiences to assist in gaining specific integration techniques.

Online virtual worlds such as Second Life have been the focus of some studies. Derby (2008) studied the use of Second Life by isolated rural teachers as a form of informal TPD. The virtual world was utilized to extend the boundaries of the rural school and allow teachers to connect with others outside their district. This could also be useful for international school-teachers who are also isolated and often the only teacher of their subject in the school. However, it was found that the learning curve for the virtual world was too great and therefore, had an impact on the perceived usefulness in the teachers using it. In other words, the teachers' perceptions of the virtual world were that it was too difficult to use and therefore, wasted time more than helping them develop professionally (Derby, 2008).

The above examples seem like good options when compared to typical workshops. Online university courses offer longer contact hours, follow-up, access to new technologies, active engagement, relevance to context and collaborative approaches. However, they are very expensive to attend and need students who are motivated, organized and independent to be successful. The Florida TIM offers access to new technology, active engagement and relevance to particular context but no collaborative approaches as the user is interacting with an online matrix, not other individuals. Online virtual worlds help to close the geographical gap but may be too time consuming to use effectively. There may be a possible better solution to TPD as discussed below. Before getting into the possible solution, it is pertinent for the reader to have a better understanding of the Internet and how it supports learning.

Online Learning Networks? Or Social Media Platforms?

The World Wide Web can be broken down into distinct iterations (Web 1.0 and Web 2.0) and have created various environments to support communication and learning (Gunawardena et al., 2009). The format of Web 1.0 supports learning environments that are more formal in nature. These environments are highly structured and top down controlled, where content is created in a central location and use is scheduled, planned and created by experts (Gunawardena et al. 2009). On the other hand, Web 2.0 takes a more informal, collaborative approach, which is blended and grassroots controlled. In this environment, content is created by users or experts recognized by the community (Gunawardena et al., 2009). Examples of Web 1.0 learning environments as discussed by Laferrière, Lamon and Chan (2006) include formal courses offered by universities and other online repositories of information, courses and programs, which provide learning opportunities for those who use them. One example of a Web 2.0 learning environment also discussed by Laferrière et al. (2006) include online learning networks and communities, that promote learning through sharing ideas and resources. Many times, these networks and communities are created on social media platforms (Trust, 2012). Social media platforms are examples of Web 2.0 technologies created on the Internet. They include tools such as blogs, social networking sites, microblogging sites, media sharing sites, wikis, RSS feeds, and podcasting tools. The one aspect shared by these tools is that they are social in nature and allow users to work together to build knowledge. In the educational context, these tools gain value when two or more people use them (Dron & Anderson, 2014b). Cooper & Johnson (2013) suggest that social networking sites and social bookmarking sites are some of the Web 2.0 tools teachers can use to have

access to resources, and participate in PD experiences and are directly connected to the work they are currently involved with thus having the potential to fit the needs of the learner.

There are several reasons why social networks are suggested to support the professional development of teachers in international schools. First, social media are easy to use and are ubiquitous so lack the need for training (Bexheti et al., 2014; Srivastava, 2012). Second, social networks allow people to connect with others around similar interests, activities, backgrounds or face-to-face connections and provide a virtual space for learning (Srivastava, 2012). These learning environments provide an online outlet to support individualized, relevant, professional learning and offer access to resources without limitations of location or monetary constraints (Booth, 2012). Third, use of these tools can assist in helping educators feel less isolated (Flanigan, 2012; Hur & Brush, 2009; Visser et al., 2014).

Swenson (2003) suggests that in order for TPD to have an effect on student learning, it needs to be available "at the point of need, and fully integrated into teachers' daily practice" (p. 317). Social media can help in the creation of a space to learn online, where the learner is in control of their own learning activities (Dabbagh & Kitsantas, 2012). Visser et al., (2014) conducted a mixed methods study with a sample of 542 participants and employed a survey that consisted of 32 items including 25 close-ended and seven open ended questions. The target population was educators, who were at the time of the study, using Twitter. The over-arching goal of the study was to discover how K-12 teachers were making use of Twitter. Out of the 542 participants only 324 were used as they had identified themselves as educators. Quantitative analysis focused on

cross-tabulation to explore relationships between the participant demographics and the characteristics of Twitter use uncovered during descriptive analysis. The two main characteristics related to the research question was frequency regarding personal and professional usage. Qualitative analysis focused on coding responses using inductive analysis to the question, "Describe some of the best things you have learned/experienced because of being involved in Twitter" (p.401). The results showed that 90% of the participants had set their security settings to public for the purpose of being able to connect to others more easily. More than half (55%) frequently posted their own messages rather than re-sharing others. In regard to professional usage many (41%) of the respondents stated they used Twitter more often than for personal reasons. The qualitative results, particularly regarding professional usage, illustrated how Twitter was used to personalize professional development. One response directly related to PD that is available when the teacher needs it was clearly seen in this statement, "I don't wait for PD to come via my school district, I can seek it out via Twitter" (p.404). Regarding teacher perceptions about benefits of using Twitter it was reported that the respondents learned about best practices, latest research and pedagogical practices and found resources, lesson plans and innovative ideas. These results show that many teachers are already using social networks to create learning spaces suggested by Dabbagh & Kitsantas, (2012). Trust (2012) has suggested that the development of PLNs online have allowed many educators to increase their learning. She states that teachers' mainly use PLNs to locate resources, connect with other like-minded professionals, gain ideas, share information and get feedback. Social media could have an effect on TPD by providing

tools to help make TPD more long term in nature, connected to daily practice and customized to fit the needs of the teacher.

Social Learning Technologies and Learning

In order to better understand how social media can support teaching and learning this section will first define social media and introduce its features. A discussion on the unique characteristics of social media and their relation to teaching and learning will follow. To further the understanding about how social media can support learning an overview of emerging learning theories and their implications for teaching and learning in relation to social media will be covered. Finally, this section will summarize issues and challenges in educational uses of social media.

Social Media Defined

For the purpose of this review of the literature, the terms social media and social networks as well as social software (the software which creates these services) could be used interchangeably. This is because the characteristics of each, for the purpose of the discussion that follows, is similar enough to warrant this use. As stated by Dron & Anderson (2014b) the bulk of these tools "can be classified as social learning technologies" (p. 8) therefore, for the remainder of this section the term social learning technologies (SLTs) will be used for clarity.

SLTs have been defined by Boyd & Ellison, (2007), as a service on the Internet which allows users to do three main things.

1. create a profile, publicly accessible or not

2. create a list of other users who they are connected to

3. browse their own and other's lists of connections

These main features are used to make and maintain connections to other people either with whom they have a face-to-face relationship or with complete strangers.

All SLTs provide features such as groups, or communities that assist users in finding others who share the same interests (Boyd & Ellison, 2007). These features can assist in creating connections with people who might not likely connect otherwise in a face-to-face environment. These connections are often between people who the user themselves has some offline connection (Boyd & Ellison, 2007).

Profiles are another tool SLTs provide to assist people in making connections. A profile gives the user the ability to share information about themselves related to their culture, hobbies and political affiliation (Ellison, Steinfield, & Lampe, 2011) and are also a part of the environment of SLTs and can assist in finding others to connect with. Profiles that include both professional, as well as personal information have been found to support trust building in communities built on SLTs (Booth, 2012).

Other tools that assist in finding possible connections with complete strangers include special interest groups, fan pages, social applications and games, friend networks and status updates (Ellison et al., 2011). By using these tools, the users of the SLT can find people who share common interests and then form a connection with them. It has been discovered that the ability to socialize virtually created by SLTs assist in strengthening connections originally made in person (Ellison, Steinfield, & Lampe, 2006). The opposite has also been found. One study on the use of Twitter for PD found that Twitter use enabled connections to others whom the participants might not have normally interacted with. Some participants even formed strong face-to-face relationship because of this connection, which increased the level of comfort and sharing that

occurred in the network (Visser et al., 2014). One thing is for certain concerning SLTs, they allow people to connect with others. It is suggested that the open nature of SLTs and the potential they create for sharing make them very useful in the area of education and learning (Dron & Anderson, 2014b). In addition, there is increasing evidence that SLTs support informal learning and that informal learning is becoming a crucial part of education for learners of all ages (Selwyn, 2007).

SLTs Affordances for Learning

SLTs have many affordances for learning. Dron and Anderson (2014b) outline two reasons to use SLTs to learn. The first, is the "adjacent possible," which according to Kauffman (2000), is the influence of change and progress. This influence is created through the connections made possible by the Internet and the ever-growing numbers of devices connected to it. These new devices connected through the Internet allow for sharing of knowledge, information, and ideas in multimodal fashions (Dron & Anderson, 2014b). The ever-growing numbers of connections is supported by a study conducted by Mao (2014) where it was discovered that students connect to the Internet in a variety of ways including computers at home, computers at school, cell phones and other devices including iPods, iPads or other tablets. The second, according to Dron and Anderson (2014b), is the opportunity the connections created offer, which is the potential to learn through the direct and indirect connection and interactions with others. This idea is also supported by Mao's (2014) study where there were positive perceptions about social media use in the educational environment specifically regarding how social media promotes sharing and interaction; helps users connect to the wider world and assists in expanding learning possibilities. It is suggested that the rise of cyberspace, defined as all

forms of digital platforms including networks cellular and other satellite communications and the Internet, allows for "dynamic collective knowledge generation" (Dron & Anderson 2014b, p. 7).

SLTs with their open nature and the sharing possibilities they create are particularly relevant in the educational arena. Especially because these types of software increase people's capacity to assist others, as well as themselves, to learn in ways which were not possible or hard to achieve in the past and have become one of the modes to enhance lifelong learning (Dron & Anderson 2014b). Booth (2012) suggests SLTs provide an online outlet to support individualized, relevant, professional learning and offer access to resources without limitations of location or monetary constraints. This is important because the information most people want to learn in order to solve problems is usually already available in the minds of others, which is why SLTs and these features that support connections are so useful in the process of learning (Dron & Anderson 2014b).

SLTs can assist in the process of connecting others to help people learn in two distinct ways. First, the ability SLTs provides for users to locate people or groups of people as well as the tools they need to learn (Dron & Anderson 2014b). This process is supported by the features mentioned above by Ellison et al., (2011), such as special interest groups, fan pages, social applications and games, friend networks and status updates. Second, the ability SLTs provides to "leverage the tacit knowledge" (Dron & Anderson, 2014b p. 10) either in the minds of others or in the other tools provided. SLTs help to accomplish this by facilitating multiple forms of interaction, including one-to-one (engagement with one other person), one-to-many (broadcasting from a single person or a

group to many others) and many-to-many (multitudinous interaction from many with many others). These interactions take on multiple forms as well, including asynchronous (at different times), synchronous (at the same time), and direct and indirect. What is most interesting is that social networking software supports all of these forms of interaction (Dron & Anderson, 2014b). Interaction is a key component to the social learning theories.

Examples of the types of learning these connections and interactions make can be seen in personal learning networks (PLNs). Visser, Evering and Barrett, (2014) suggest that many teachers are increasingly becoming involved with these PLN's created on SLTs. Trust (2012) has suggested that the development of PLNs online have allowed many educators to increase their learning. She found that teachers' mainly use PLNs to locate resources, connect with other like-minded professionals, gain ideas, share information and get feedback. Flanigan (2012) says of PLNs, "such networks reduce isolation, promote autonomy, and provide inspiration by offering access to support and information not only within a school but also around the globe" (Flanigan, 2012, p. 42). Networks such as these have the ability to assist learners in creating peer-to-peer, self-motivated learning and erase issues created by geographical distance (VanDoorn & Eklund, 2013). This is particularly relevant for isolated international school-teachers.

Other ways in which SLTs support learning suggested by Dron & Anderson (2014b) include the ability to assist in the acquisition of lifelong learning skills, which are applied after formal education has ended. This informal learning will and has been greater in terms of time and effort exuded and the amount of people engaged than has formal learning (Livingstone, 1999; Tough, 1979). Regarding informal learning, social software has the ability to support learners by enabling them to find resources, solve

problems, see different perspectives and make connections to existing knowledge and learn to work collaboratively (Dron & Anderson, 2014b). The affordances covered thus far are centered around the idea that learning takes place through SLTs by making connections with others and the Internet in general. Learning occurs through interactions between people and the technologies themselves. There are emerging theories of learning which support this view as discussed below.

Theoretical Foundations for Learning with Social Media

This section will consider learning theories and frameworks that support the types of learning that typically take place in the SLTs. The theories and frameworks discussed are considered a part of social learning theory. In social learning theory cognition is viewed in three distinct but connected ways, situated, social and distributed. The main theme that social learning theories follow is that learning is a social activity that requires a group of learners who participate in the process. It is suggested that learning is strengthened and energized through discussions with, reactions to and arguments with others. According to these theories, interaction is the only means through which interpretation, knowledge creation and validation can occur (Dron & Anderson, 2014c). SLT's can support the creation of a community that is social in nature, where information is distributed amongst the participants and situated in the context of the community. Cognition is situated, social and distributed as proposed by social learning theory and support the theoretical framework of communities of practice (CoPs) because learning in a CoP is a social activity that is situated in a community, where the knowledge is spread across all participants (Hur & Brush, 2009). This framework supports learning through social interaction and is important to the direction of this current study.

Communities of Practice

Connected to the idea that cognition is situated, social and distributed, Wenger proposed the theoretical framework of communities of practice (CoP) (Wenger, 1998). This theory's foundation is built upon four assumptions: The social nature of humans; that knowledge deals with proficiency regarding a valuable undertaking; that knowing comes from participation for the purpose of attaining that valuable undertaking; and that the production of learning is meaning, which is defined as a capacity to perceive our experiences and interactions with the world as meaningful.

Taking these assumptions into account, CoPs can be considered groups made up of participants who share a problem, passion or concern and through continual interaction deepen their level of understanding and competency around the particular topic, problem or passion (Wenger, McDermott, & Snyder, 2002). The framework of a CoP is connected to the idea of online learning by Barab, MaKinster, and Scheckler (2003) with their definition of an online community. According to this definition an online community is a "persistent, sustained social network of individuals who share and develop an overlapping knowledge base, sets of beliefs, values, history and experiences focused on a common practice and/or mutual enterprise" (Barab et al., p.238). Booth (2012) in relation to CoPs, suggests that the creation of online communities can help to promote learning amongst the members regardless of time and space. This is reiterated by Srivastava (2012) who connects this idea with the use of SLTs in education stating that SLTs allow people to connect with others around similar interests, activities, backgrounds or face-to-face connections and provides a virtual space for learning. The learning that occurs can have an impact that extends beyond the community itself. An example of this can be seen

in online teacher networks where the interaction around the valuable undertaking of

teaching had an impact not only on the teachers in the community but also in the wider

learning institution itself. Gutierrez and Bryan (2010) conducted a study where they

formed an online community of teachers for the purpose of enhancing the teachers'

mentoring skills. The community was created in Tapped In (www.tappedin.org) and

included a network of 30 schools with a total of 350 teachers. Through observations of

the activity within the community and through listening to the teachers who participated

in the study Gutierrez and Bryan found that the collaborative approaches used in an

online community had the ability to change the views of the participants who later took

on teacher leadership roles, thus impacting the entire school, not just the classroom.

In social learning theory cognition is viewed in three distinct but connected ways,

situated, social and distributed. Situated Cognition, Distributed Cognition and Socially-

shared Cognition offer a greater understanding of CoPs because in a CoP, learning is

situated in the community, is a social activity and is distributed across all participants

(Hur & Brush, 2009). A brief discussion of these three emerging theories to support the

CoP framework and learning through online communities will follow.

Distributed Cognition

Distributed Cognition is a student-centered approach to learning where the

learners participate in a learning environment that is systematically designed and supports

interaction amongst its participants. Knowledge construction, according to this theory, is

connected to the actions of the participants synergistically (Bell & Winn, 2000). In this

system, interaction takes place amongst the participants and is the integral component

where cognition takes place. Basically, the system, tools, group of people and artifacts

extend our intellectual power into the world and become an integral part of our process of thinking (Dron & Anderson, 2014c).

This same approach could be applied to learning through SLTs as a part of an online CoP were the members of a social network use the features such as a chat thread to offload some cognition into the group, obtain information previously offloaded into the network or get information from another participant. A specific example of this comes from Risser (2013) where the use of Twitter by a novice teacher was found to include a direct request for information, sharing of resources and responding to others.

Situated Cognition

In this learning theory, learning occurs when situated in connection to specific context. It also supports the idea of a CoP where active participation is a key component to the learning within the community. According to Wilson and Myers (2000) "knowing, learning and cognition are social constructions, expressed in actions of people interacting within communities" (Wilson & Myers, 2000, p. 59). It is this interaction with others, tools, or artifacts where the knowledge is considered to be located. Knowing comes about as the learners interact within a new situation (Wilson & Myers, 2000).

This theory is important as it gives direction on how online CoPs could be used as a means to get different perspectives and ideas for the possibilities within the learning environment. A study conducted on Twitter use by teachers for professional development found that through the use of Twitter teachers were exposed to things such as current best practice, innovative teaching methods, different pedagogical approaches and resources that helped to transform their own instructional practices (Visser, Evering, & Barrett, 2014). In this same study, it was found that the connections and interactions created

through the use of Twitter changed classroom practice. An example given states, "We have connected with other classes and shared photos and mutual assignments" (p. 405). Another example is through the use of #scistuchat where a teacher had her students debate and ask questions to "real live scientists" in the process of learning (Visser et al., 2014). These are examples of actions within and outside the community that help foster learning and expand possibilities.

Socially Shared Cognition

Much like the other emerging theories of learning discussed so far Socially-Shared Cognition is based on the idea that cognition happens through active participation (Bell & Winn, 2000). However, what makes this theory different is that the interaction and cognition is shared amongst the participants, the artifacts and tools they are using and the social environment where learning is happening (Brown & Cole, 2000). In this theory, while the learners are experiencing something, cognition is distributed between the participants of the community of learners (Bell & Winn, 2000). Learning is not just happening within one person, it is a community effort. This is important to understanding CoPs because in a CoP learning is a social activity and is distributed across all participants (Hur & Brush, 2009).

An example of this comes from Swenson (2003) where it was found that through the process of writing, reading and responding to others in the network, new and deeper understandings around topics were created. This new understanding didn't only affect the people who were engaged in the actual conversation, it also had an effect on others who read the conversation and learned from it. The cognition was shared amongst the

members of the online network through the interaction. The network served as the social

environment where the learning occurred.

    Cooperative Freedom

    To conclude this discussion on theories of learning that support the use of SLTs

for educational purposes, one more concept will be discussed. This is the idea that, in

order for learning to occur, there has to be some degree of self-directed action taken by

the learner to participate in these networks. This is discussed by Dron and Anderson

(2014c) as Morten Paulsen's (2003) concept of cooperative freedom. This is more than

just choosing to participate. Candy (1991) outlines three variables in order to make

powerful learning choices: 1) independence (contextually sensitive and situated), 2)

power (the potential to take action), and 3) support (the people and instruments needed to

initiate that action). This idea of self-directed learning has been shown to be very

effective when connected to the ideas in a CoP where the action in learning is tied to

something the participant perceives as valuable. Mazman and Usluel (2010) conducted a

study to discover the adoption of Facebook for educational purposes. The study measured

multiple variables related to adoption including usefulness, ease of use, social influence,

facilitating conditions and community identity. They also looked at why Facebook is

used considering social relations, work and daily personal activity. To gain a deeper

understanding regarding how a social network like Facebook is adopted for educational

purposes the study also had to consider how Facebook is used in an educational context,

therefore, areas including communication, collaboration and resource sharing were

considered. Data was collected through a four-section online survey and included

demographic data, the reasons for using Facebook, views on educational use of Facebook

and finally the participants' views on adopting Facebook for educational purposes. The survey collected 605 usable responses. In this study it was discovered that use of a new innovation first began in everyday personal use for various reasons and then as perceived usefulness and ease of use in regards to a particular purpose increased, adoption for that new purpose then began. In other words, if learners can choose the tool they find most useful it has a better chance of being repurposed for educational usage and to provide them the means to make powerful choices about their own learning. This viewpoint is supported by Maloney (2016) who found teachers who were already participating in an online CoP were using a variety of tools unique to their own learning preferences.

It is clear that in order for learning to occur, based on the theories supporting CoP, interaction with others is key. According to Swenson (2003) online networks allow for flexibility, give control to the participant and allow for learning to occur when it is most needed by the user. The learning environments proposed by these theories can be supported by SLTs because the features of the SLTs enable people to connect and interact. Specific learning frameworks which assist in the creation of these types of environments include: Laferrière, Lamon, and Chan (2006) framework, which uses various technologies to assist teachers in their continual process to improve their practice, and Dabbagh and Kitsanta's (2012) Personal Learning Environment (PLE) framework which is a space where self-regulated learning is supported by social media use, that is based upon the interactivity each tool provides. These will be discussed below.

Issues and Challenges of SLTs

SLTs have been introduced, their affordances in relation to teaching and learning have been discussed and learning theories that support SLTs have been described. Up

until now the focus of this paper has been positive in nature. In order to help the reader,

understand that no road, especially in relation to new technologies is perfectly smooth,

the discussion now moves to some of the issues and challenges in educational uses of

SLTs. Some of these are outlined by Dron and Anderson (2014a) and include things such

as "privacy, identity, safety, reliability, access and usability" (p. 275) to name a few.

Some of these are discussed below as they relate to teacher use of SLTs

Privacy and Safety

Privacy is a main concern in the use of SLTs for educational purposes (Bexheti,

Ismaili, & Cico, 2014, Dron & Anderson, 2014a; VanDoorn & Eklund, 2013). Privacy in

this context is related to personal disclosure by students and the fine line between the

formal relationship of teachers and students. This is a serious issue that warrants greater

awareness.

In regards to personal disclosure, many parents and teachers are concerned about

the open nature of SLTs and the ability for posts made to these services to publicly

broadcast to a global audience (Dron & Anderson, 2014a). Bexheti et al., (2014)

conducted a study at the South Eastern European University which looked at educators

use of social media to enhance teaching and learning. The study used multiple methods of

data including a survey conducted in 2011 and 2013, as well as a total of 118

observations. Full time academic and administrative staff made up 59% of the

participants in the survey. It was found that privacy was a big concern with over 60% of

the participants. This raises questions about what is appropriate to post; as what is posted

now could come back to haunt you later (Dron & Anderson, 2014a).

Regarding the relationship between teachers and students this concern has two sides. One regarding the amount of personal information shared by teachers and the consequences of too much sharing. The other is the desire of students to want to separate their personal lives from their academic ones. It has been found that sometimes teachers share too much information. An example of this comes from CBS News (2011) where a teacher posted an inappropriate picture of herself holding two cups of alcohol. This type of sharing can have various levels of consequences. According to Dron and Anderson (2014a) this behavior in "extreme cases, has led to teachers losing their jobs, or at least their credibility in the classroom" (p. 285). Students often don't want to mix their academic and private lives. A study was conducted to specifically look at student perceptions regarding computer mediated communication using Facebook chat. The researchers wanted to delve into observed social-interaction and any learning benefit from using this feature of Facebook. Twenty students participated in this study where they had to use the Facebook chat feature to communicate with their professor. The students who used the chat feature also took part in a survey. Quantitative and qualitative data was gathered through this survey. It was found that some students would "prefer to keep their private lives away from lecturers" (VanDoorn & Eklund, 2013 p. 8). In this same study one participant suggested that teachers should have a separate account for professional uses (VanDoorn & Eklund, 2013).

Access and Reliability

Access is also a concern (Dron & Anderson, 2014a). Scattered around the world, approximately 4.4 billion people remain without an Internet connection (Ferdman, 2014). According to Ferdman (2014) 25% of the world's unconnected numbers are in India,

while China has 730 million, Indonesia 210 million, 150 million in Bangladesh, and almost 100 million in Brazil. Even in countries with a stronger infrastructure, like the United States, statistics show that there are a large number of unconnected people, 50 million in the US alone. According to the Ferdman (2014) 64% of these unconnected people are living in rural areas where "poor infrastructure healthcare, education, and employment impede Internet adoption" (Ferdman, 2014 para. 5).

Poor infrastructure isn't always the culprit behind access issues. One issue is governmental blockage. Access to most SLTs including Twitter, Facebook, most blogs, and all of Google's services are blocked for people living in China. In order to access these SLTs users have to employ the use of a commercial Virtual Private Network (VPN) which mask their Internet Protocol making it appear that he was in another country. Many international schools in China use VPNs to maintain "normal" levels of connection to the Internet.

Commercial Aspects

One final area of concern deals with the nature of the SLTs that are available and the purpose for which they were created. According to Friesen & Lowe (2012) it is important to consider the commercial purpose for which SLTs have been created. They argue that this commercial purpose can have an impact on the tool that can "significantly detract from learner control and educational use" (p.184). This is because the companies that have created these tools have certain priorities that come before the educational user. This priority is towards profits and is largely controlled by monies collected through advertising dollars. These "advertisers' interests subtly but effectively shape online social context" (p. 190). They argue that the way the SLTs are setup to create connections they

effectively hinder disagreement which is just as important to learning as connection (Friesen & Lowe, 2012).

Based on the discussion above it is clear that there are many valid concerns with the educational use of SLTs. It is important that those who choose to make use of SLTs in an educational context be aware of these issues and challenges, because awareness can lead to greater mindfulness and care in such use (Dron & Anderson, 2014a). When SLTs are used in the proper manner they can provide benefits to the learners using them. Benefits for educators include increased professional knowledge, transformational change in teacher practice, feelings of encouragement and support as well as greater connection with others (Visser, et al., 2014). It is also important to consider that the ability to interact in a more frequent manner, made possible by SLTs, does not always equate with learning (Laferrière et al., 2006). It depends on the learner and how they "interpret the uses of tools and how they use them to transform the learning practices" (p. 85). It is important that the learners' beliefs and perceptions about the tool they are using for building their community are positive as this will make participation more effective. To conclude this literature review we now turn to a possible solution to the issues with traditional forms of TPD. It is this final section which gives this current study greater direction.

Personal Learning Environments as a Solution to the Problem.

Personal learning networks (PLN) leverage the use of SLTs for creating online communities of practice (Risser, 2013; Trust, 2012; Trust, 2013; Visser et al., 2014). A PLN has been defined by Trust (2012) as a "system of interpersonal connections and resources which can be used for knowledge sharing, idea exchange, informal learning and

collaboration (p. 133). Visser et, al. (2014) suggest that PLNs have grown in popularity as an alternative to traditional forms of TPD. The use of social media tools such as Twitter might elevate the chance of successful implementation of a PLN. This is because it is easy and free to use and can extend the reach of a traditional workshop (Ross, Maninger, LaPrairie, & Sullivan, 2015). Regarding isolated international schools who need various means to provide professional development other than sending teachers to workshops or bringing in specialists, social media tools could provide a route that is free and easy to use.

Laferrière et al. (2006) support the creation of online professional learning communities that give teachers' the chance to reflect and participate in collaborative processes and assist in sustainable growth in the context of their own locality. They suggest a framework that uses various technologies to assist teachers in their continual process to improve their practice. This "developmental pathway of teacher practice" (p. 85) begins with the use of the Internet to obtain access to information and then moves on to the examination of issues with pedagogy related to collaboration and reflection. The teacher then expands outwardly to participate in professional learning communities where they share their own experiences, knowledge and practice. In the final stage of this journey, the teacher has an increased sense of ownership and participates as "knowledge designers generating new knowledge with others in a knowledge building community" (p .85). Laferrière et al. (2006) believe that Internet-based technologies have the ability to support the connection of teachers where learning is distributed across the resources tools and people within the community. The opportunities created by these technologies allow teachers to participate in learning communities and give teachers the chance to reach

beyond the school walls out to other districts, or further, to other countries. This can assist in changing the pedagogical practices of teachers (Laferrière et al., 2006).

It is clear from discussions above that having international school teachers connect online could possibly serve as another more effective route to TPD, but connection alone is not enough. Just being in an online community does not always guarantee effectiveness. This is because the ability to interact in a more frequent manner, does not always equate with teacher learning (Laferrière et al., 2006). It depends on the teacher and how they "interpret the uses of tools and how they use them to transform the learning practices" (Laferrière et al., 2006 p. 85).

<u>Reflection and PLNs</u>

Helleve (2010) suggests components to effective TPD include a sense of professional identity and also that this identity is spurred by the "teachers' professional life phases" (p. 8). According to Helleve, (2010) a teacher's experience and level of education is not enough to guarantee professional development; reflection is also needed. This requires the teacher to be involved, taking an active role in participating in "reflective dialogues" (p. 9). The teacher must take this responsibility on themselves, it isn't up to others to develop the teacher. It appears educators also feel that PD is their responsibility (Fucoloro, 2012).

The reason reflection is critical for TPD is because it requires the teacher to develop an awareness of their own ideas on teaching and be open to changing these when it is a perceived need. According to Helleve (2010) reflection assists in improving TPD. Beach (2012) advocates that in order to gain professionally from the use of PLNs a teacher needs to actively reflect while they are implementing new teaching practices.

To assist in the process of developing reflective practice Helleve (2010) discusses the communities of practice and communities of learning in the educational context. Basically, practice regarding an educational community, implies ongoing learning for those involved in the learning. This process includes collaborative reflection on theory as well as experience. In the other instance the term community of learners implies connection to others outside the immediate community who can add external input to the reflective practice. What this means for online PLNs is that the community would need to have both components, connection and interaction with others where collaborative reflection took place as a part of their ongoing process of professional development. In this way, the interaction with other like-minded professionals provided in the PLN could add to the teacher's sense of professionalism as well as give them a chance to reflect on their practice. As mentioned above connection and interaction are a part of making this kind of TPD effective. However, another integral part also touched upon is the participants' interpretation, attitude and belief about this undertaking.

Teacher Interpretation, Attitudes and Beliefs and PLNs

As mentioned above the Laferrière et al. (2006) framework is useful when considering methods to improve TPD but the framework by itself is not enough. Just being in an online community does not always guarantee effectiveness. This is because ability to interact in a more frequent manner does not always equate with teacher learning (Laferrière et al., 2006). It depends on the teacher and how they "interpret the uses of tools and how they use them to transform the learning practices" (Laferrière et al., 2006 p. 85). Schlager & Fusco (2003) suggest that the responsibility for the success of TPD relies on the entire community. They also suggest that the tools used to support the

collaboration of teachers must be customizable by the teachers so they can adjust them to fit their own and the communities' needs. It is important that the teachers' beliefs and perceptions about the tools they are using to build their community are positive, as this will make participation more effective. In fact, attitudes and beliefs were rated as one of the most persuasive factors in the ability to integrate technology (Ertmer, et al., 2012). Based on these findings Ertmer, et al. (2012) suggest that TPD should focus on ways of changing teachers' attitudes and beliefs. Stewart (2015) suggests that since professional development implies a dichotomous situation, either developed or not it might be wise for practitioners to change their view of professional development to professional learning, which implies an ongoing process. In other words, for these types of online communities to be effective the participants' belief around TPD needs to change from a dichotomous one to one that embraces the ongoing intentional process discussed by Helleve (2010).

This is particularly relevant for teachers in international schools who work in diverse institutions. Because of the broad nature of international schools, due to the multinational makeup, those who work in this field are required to be eclectic (Black, Harvey, Hayden, & Thompson, 1994). This requires teachers to be current with developments in education from their home country as well as building an understanding of the host country's educational system. Since many teachers in international schools are isolated, online communication tools such as the SLTs discussed above could be a place for connections with others to occur and the ongoing process of TPD to continue. Drexler's (2014) review of literature found that synchronous online communication tools which include video conferencing and microblogging platforms such as Twitter provide means for connecting with experts in almost any area of learning. It is through these

collaborative online communities of teachers that might help to create change in the way teachers teach. It has been discovered that having teachers participate in collaborative practices in a professional community, as a part of their own professional development, can assist in changing how they approach teaching and learning in their daily practice. Becker and Riel (1999) found that teachers who have interactions with teachers from other schools tended to have pedagogical practices more in line with constructivist methods. They also found that collaborative teaching practices increased in the classroom when teachers participated in more collaborative practices outside the classroom. In fact, approximately 40% of the teachers who actively participated in communication with others outside their school used knowledge construction approaches in their classroom. Becker and Riel put it this way, "This form of professional exchange, more so than contact within the school seems to be correlated with constructivist approaches to teaching" (p.36). These studies suggest that continual and intentional interaction through online CoPs could assist teachers in creating a means to change their pedagogical practices. And moreover, the key to successfully accomplishing this change lies with the teacher.

Teacher motivation to participate in online CoPs must come from the teacher. Fucoloro (2012) conducted a study to discover the aspects that motivate educators to participate in a PLN. This study made use of an online survey and collected both quantitative and qualitative data. Demographic data as well as information regarding teacher use of PLNs was collected using Likert scale type questions. After sending an invitation out through three different channels, reaching a possible audience of 17,000, a total of 4950 unique visits to the survey over a period of 24 days resulted in a usable

sample size of 132. The participants of this study ranged in age between 22 and 69 with a mean age of 42.56. The participants came from various areas of education including classroom teachers, administrators, librarians and media specialists and instructional support positions. The study discovered 99% of the participants felt that continued professional development is the responsibility of the educator (Fucoloro, 2012).

Teacher ownership is of paramount importance in the process of teachers changing their pedagogical practices as reflective practice and in the context new technologies. Considering teacher-driven professional development a little deeper, Colbert et al., (2008) found that teacher autonomy regarding their own professional growth enhances a teacher's ability to improve the lives of their students because it increases their passion for teaching. This study shows that by empowering teachers to design, implement and assess their own professional development the TPD is more meaningful, impacts knowledge of content, pedagogical practice and ultimately student learning. Fortunately, there are customizable online tools that can assist teachers in developing a space to learn and might be a piece of the puzzle for improving TPD for international school teachers. Below we will look at these tools a little more in depth and a framework to build a completely web-based learning environment upon.

Using Web Based Tools to Create a Personal Learning Environment

In line with Laferrière et al. (2006) suggested framework, which uses various technologies to assist teachers in their continual process to improve their practice, Dabbagh and Kitsantas (2012) present a framework coined a personal learning environment (PLE). According to this framework a PLE is considered a space where self-regulated learning is supported by social media use, and the use of social media is based

upon the interactivity each tool provides. The levels of interactivity outlined by Dabbagh

and Reo (2010) are based upon Zimmerman's (2000) three phase cyclic model to self-

regulated learning. Zimmerman's (2000) cyclic model includes these three phases "1.

personal information management, 2. social interaction and collaboration, and 3.

information aggregation and management" (p. 6). According to Dabbagh and Reo (2010)

different tools are used at specific levels. For example, blogs are used in personal

information management for the creation of a personalized "private learning space"

(Dabbagh & Reo, 2010, p. 6). Social media is used for social interaction and

collaboration as a means to create informal learning communities much like the PLNs

discussed above. In the final level of information aggregation and management the

student uses social media to participate in self-reflection which ultimately is used to

inform changes to the learning process which are implemented in the next iteration of this

cyclical process. It is during this level where reflective learning would take place. As

mentioned above this reflective practice is an integral component to making this form of

TPD more effective.

      What makes the PLE most effective is that it is managed and modified by the

learner to fit their specific needs (Dabbagh & Kitsantas, 2012). It will be important that

autonomy is given and that teachers are free to choose the tools they are most familiar

with. This idea is supported by a study conducted by Mazman and Usluel (2010) who

discovered that use of a new innovation first began for everyday personal use for various

reasons and then as perceived usefulness and ease of use in regard to another purpose

increased, adoption for that new purpose then began. If teachers are free to choose the

tools they use for the development of their own PLE then they will perceive it as more

useful and therefore, it should be more effective. If teacher autonomy is not given and particular tools are imposed on the teacher the tools may not be used. Several studies found that one reason teachers did not participate in online PD was because the tool used required too much time or was perceived as not useful (Derby, 2008; Parr, 2006). Maloney (2016) conducted a qualitative embedded multiple two-case case study to understand, explore and describe how educators use their PLNs for professional development and to discover what components were of critical importance to their success. The study found participants from two online communities the Educators PLN and Classroom 2.0. In-depth interviews with the participants gave deep qualitative data. She found that in order to meet the various learning needs and preferences a variety of tools were used that were unique to each participant.

The online PLE is not only about the creation of a learning environment using technology. The tools available today, especially social networking platforms can assist in strengthening connections made at face-to-face workshops. Ellison, Steinfield, & Lampe (2006) discovered that the ability to socialize virtually created by social networking platforms assist in strengthening connections originally made in person. The opposite has also been found. One study on the use of Twitter for PD found that Twitter use enabled connection to others whom the participants might not have normally interacted with and some even formed strong face-to-face relationship because of this connection which increased the level of comfort and sharing that occurred in the network (Visser et al., 2014). Either way, it is clear that social networks allow teachers to make valuable connections with other like-minded professionals. It is through these

connections where meaningful discussions and reflection surrounding a context which is relevant to those participating may happen.

These PLEs could help to create an environment where professional learning is an embedded process. Dall'Alba & Sandberg (2006) believe that understanding is a "dynamic, intersubjective and embedded" (p. 389) process where "knowing, acting and being" (p. 389) all play important roles. In this view, over time the knowledge and skills learned by the professional are renewed and become a part of what it means to be that particular professional. Since people are different and approach new situations based on their previous understanding Dall'Alba & Sandberg (2006) suggest that novices participate in teams with other more advanced professionals who reflect on the understanding of practice to develop the "understanding of, and in practice" (p. 397). International school teachers whether novices or experienced professionals could benefit in this type of learning environment as they move to more innovative teaching practices.

PLEs could also serve as a space where the formal learning occurring at workshops and conferences are moved into the PLE in order to supply sufficient time to effectively follow up or consolidate learning, which is not usually available at short face-to-face forms of TPD. Stewart (2015) recommends to conference organizers that PLNs should be integrated within the conference so as to extend the professional learning beyond what is typically an isolated event. If international school teachers could use these online tools to build and manage a learning environment where they gain information from online sources, save important resources using social bookmarking tools, share ideas and resources through social media and have meaningful conversations with other

like-minded professionals in online forums, TPD could become more effective at changing their practice.

PLEs, PLNs and International School Teachers

In recent years a growing number of studies have been conducted on informal online learning networks such as PLEs and PLNs (Anderson, 2015; Beach, 2012; Cooper & Johnson, 2013; Elliott et al., 2010; Fucoloro, 2012; Holmes, 2013; Langran, 2010; Maloney, 2016; Ross, Maninger, LaPrairie, & Sullivan, 2015; Stewart, 2015; Tseng & Kuo, 2014). However, no studies currently exist in the context of international schools. Below some of the positive and negative aspects of PLN participation will be covered and discussed in relation to how PLNs could possibly assist international school teachers with their own professional development.

PLNs provide a space for educators to connect to others throughout the world in order to build a learning community where interpersonal connections are made, encouragement, support and feedback is given, where collaboration and brainstorming happens and ideas are generated, allowing educators to stay current with the latest practices and pedagogies (Beach, 2012; Cox, 2010; Dobler, 2012; Trust, 2012). This is backed up by a recent qualitative embedded multiple two-case case study conducted by Maloney (2016) where it was discovered that the participants used a diverse set of tools to create a PLE that allowed them to shape meaningful connections with others while gathering and sharing resources, engaging in discussions, collaborating, applying new learning, giving and receiving support and advancing their careers. Anderson (2015) also found teacher reported reasons for participation in a PLN included the ability to collaborate and share, to gain more knowledge and learn, to connect with others and

network, and gain motivation and inspiration, sharing and developing resources, obtaining feedback and sharing ideas. Knowing to what degree international educators utilize these online communities to change their teaching practice is an important contribution to this little-studied area and will add support to the use of informal learning networks for professional purposes.

When connecting these findings with the learning affordances of SLTs and the suggestions for making TPD more effective, it is clear how PLNs could be considered a possible way to improve effectiveness. However, one must also consider the quality of the resources being shared in these online learning environments. Elliott et al., (2010) conducted an analysis of Twitter posts and randomly selected the top 25 websites to discover if the information being shared through the Tweets were based on research or had any citations to back up what was being shared. They discovered that none of the linked websites were research backed. Elliott et al., suggest that this shows how important digital literacy skills are in our current society and suggest the ability to comb through large amounts of information and weigh the significance may be the most important. This can become overwhelming at times where the user becomes engulfed in a sea of information (Langran, 2010). Langran (2010) suggest that educators view PLNs more like a river which is constantly flowing and can be dipped into when the need arises or time permits. In this way anxiety is avoided and the PLN is no longer overwhelming. Elliott et al. (2010) suggest that the value of TPD using Web 2.0 tools may be in its ability to allow educators to connect to others throughout the world to build a learning community where interpersonal connections are made and encouragement, support and feedback is given and where brainstorming happens and ideas are generated. It is this

type of learning community which could be useful to international school teachers who are isolated from other teachers. Maloney (2016) suggests the PLNs could be beneficial to teachers who feel isolated either because they are the only teacher a subject in their school, teach in an international school or for other reasons. More than half of the participants in her study used their PLNs to reduce feelings of isolation. This is good news for international school educators who often work in environments that are very isolated, a "physical isolation that increases the desire, and fuels the demand, for professional development (Black, Harvey, Hayden, & Thompson, 1994)."

Another positive aspect regarding participation in a PLN is that membership increases prosocial attitudes which in turn raises levels of willingness to help others by solving problems or sharing resources, and has an indirect relationship on their level of collaborative actions within the community (Tseng & Kuo, 2014). In fact, it has been found that PLNs are a way to diminish barriers to collaboration (Anderson, 2015). Taking these findings into consideration, having international school teachers as active members of a PLN could assist in the level of collaboration with others in their face-to-face interactions as well. According to Darling-Hammond et al. (2010) change that goes beyond the classroom into the school can be prompted by TPD which is collaborative in nature. This is a positive outcome considering the high level of turnover at international schools (Black & Armstrong, 1995; Black, Harvey, Hayden, & Thompson, 1994). If international school teachers become accustomed to participating in online forms of collaboration they will be more likely to collaborate in their face-to-face interactions thus helping to create a more collaborative working environment at the schools they are working at.

The potential of PLNs to act as a supplement to or as a replacement for traditional forms of TPD have been acknowledged in the literature. (Beach, 2012; Beglau et al. 2011; Burns, 2013; Cooke, 2012; Leiberman and Pointer Mace 2010; Nussbaum-Beach and Hall, 2012; Richardson and Mancabelli, 2011). According to Holmes (2013) these online communities can provide personalized, authentic learning, which can support continuous teacher professional development. Teachers who already have developed a PLN believe that this method of TPD is more effective. Fucoloro (2012) findings indicated that the majority (96%) of the participants believed they learned more from their informal learning regarding effective technology integration than from formal TPD including, college and university courses, workshops and conference, and school initiated TPD opportunities. Most of the educators in this same study (97%) also believe that their participation in their PLNs has improved their practice. The perception regarding the ability for social media to increase access to information was very clear, with 100% of the participants reporting this outcome (Fucoloro, 2012). It is clear that the educators value this type of informal learning however, regarding support from administration connected to the use of informal networks for TPD only 36% of the participants reported such encouragement. Fucoloro (2012) suggests that educational leaders, administrators or those responsible for development of TPD should allow educator input regarding TPD offerings, employ a job embedded approach that is ongoing, encourage the use of online professional development networks in the development of PLNs and discover methods to provide support for such use. She also suggests that all educators take it upon themselves to develop professionally by modeling life-long learning, advocating informal innovative approaches to TPD and the legitimization and recognition of informal learning through

PLNs. She suggests all educators create their own PLN based on their own needs. She

sums up her suggestions this way; "Educators should be encouraged to move fluidly

between their traditional, physical and virtual networks to communicate and collaborate,

to share ideas, strategies, and information. They must be allowed to do so in a

transparent, newly legitimized manner--no longer underground or hidden-- in order to

improve and transform their practice and, ultimately increase student engagement and

learning" (p.194).

Conclusion

Our schooled society has increased the need for more effective means of

professional development. Traditional modalities may not provide the type of learning

needed to effectively enhance the pedagogical knowledge of the teacher thus impacting

their ability to affect student outcomes. Technology enabled PD could be part of the

answer for improving TPD. Technology could help by assisting in the creation of TPD

that is more long term in nature, connected to daily practice and customized to fit the

needs of the teacher.

Specifically, SLTs have many features that allow users to make connections.

These features include profiles, groups or communities, fan pages, social applications and

games, friend networks and status updates (Ellison et al., 2011). The connections made

through these features can help to create interaction with others in the SLTs that may

support learning. The learning, which happens through these interactions, are supported

by several social learning theories focused on interaction as the key component to

cognition. However, it is important that the learners feel the tools they are using provide

some benefit in order to be effective. Many challenges exist regarding the educational use

of SLTs, however, it is the author's opinion that the potential benefits out way the issues and challenges. Through more research and mindful practice in the educational use of SLTs greater strides can be made toward improving learning through these tools.

The PLE framework, which includes reflective collaboration within a PLN, offers valuable tools for self-designed learning. Autonomy to choose the specific tools used, as well as the choice about who to connect with should make it more relevant and therefore, more effective at affecting teacher practice. Based on the review of the literature it is believed that the PLE framework, combined with the teacher's desire to improve could create an effective form of informal TPD. This learning environment could be an alternative to traditional modalities of TPD, or a means to integrate the formal and informal learning occurring within the international educators' professional experiences.

CHAPTER 3

Introduction

The purpose of this study was 3-fold: (a) to discover if international school educators use social media for professional learning and if so, what tools they are choosing to use, (b) to discover if a relationship exists between the use of social media tool for informal professional learning and change in the pedagogical practices used by the teachers in international schools; and finally, (c) to describe how the use of social media may lead to a change in pedagogical practice. Chapter 3 introduces the specifics regarding the methodology chosen to answer the research questions. To ensure that the method is clear this chapter discusses main components of the research design including data collection strategies, data collection analysis, and the rationale for choosing this design. The specific research questions of the current study are also covered and connected to methods chosen to provide the best answers. The setting and sample are described and sampling strategies are introduced along with eligibility criteria.

Research Design

This proposed study followed a mixed methods design. Specifically, this study followed the explanatory sequential design proposed by Creswell & Plano Clark (2011). Based on the specific research questions of this study a mixed methods approach was used because the types of questions being asked required different methods. This is in line with Bryman's (2006) detailed list of 16 reasons to use mixed methods, particularly that each method hopes to answer different questions as well as for illustration and

enhancement of the findings. Another reason for choosing a mixed methods approach is one of development. Development is used when the researcher needs to use the results of one method to provide information or guide the development of the other (Creswell & Plano Clark, 2011). In the first phase, quantitative data was collected about international school teachers' use of social media as a PLN. Quantitative analysis was conducted on this data and was also used to discover the purposeful sample for the second phase. The quantitative data served two main purposes. First, answering questions 1-4 listed below and second purposefully selecting participants for the second qualitative phase outlined below. Therefore, this study followed the participant-selection variant of explanatory sequential design (Creswell & Plano Clark, 2011). A diagram of this process can be seen below (Figure 1).
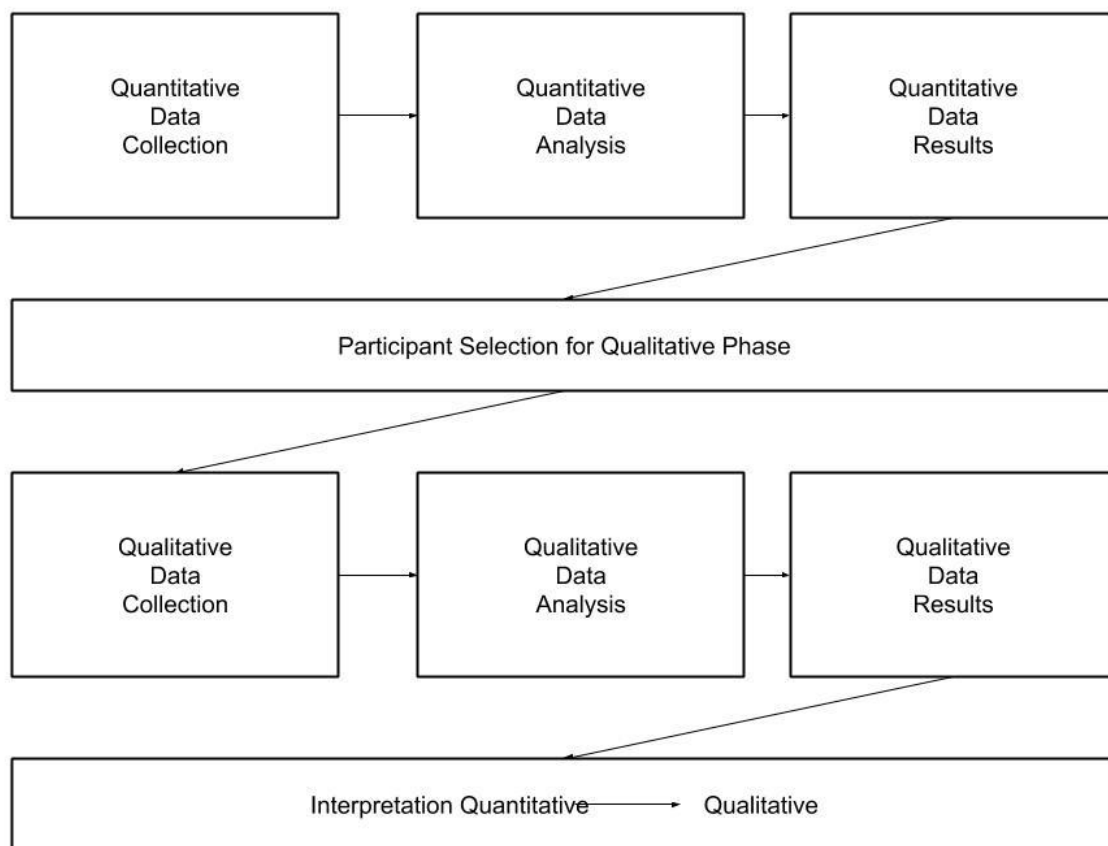
Figure 1.   **Research Design Diagram: This diagram shows the path the study took to answer the proposed questions.**

The research questions that guided the quantitative portion of this study are as follows:

1. What social media tools are international school educators using for personal reasons and for what purpose?

2. Are international school educators using social media for professional learning as a PLN?

3. What Web 2.0 tools are international school educators using for professional learning as a part of a PLN?

4. Is the use of social media as a PLN by teachers in international schools related to change in the pedagogical approaches used by teachers?

The second phase of the study, the qualitative portion, answered this research question:

5. How do international school educators use social media as a PLN to change their pedagogical practice?

Setting and Sample

The participants for this study were teachers working in international schools. The concept of an international school has yet to be concretely defined (Bunnell, 2007). For this current study however, an international school was defined as one that offers an international curriculum that differs from the national curriculum. This broad definition assisted in getting more participants.

There were two phases of data collection in this study. The first phase consisted of an online survey instrument and had a large enough sample size N=270 to reduce error variance. According to Creswell (2012), in a study like this, a sample size that is adequate is at least N=30. To ensure a large enough sample size a combination of convenience sampling and snowball sampling as described below was be used to find participants in the target population, specifically teachers in international schools.

The first part of this explanatory sequential mixed methods study used multiple avenues to attain a large enough population of participants. The East Asia Regional Council of Schools (EARCOS) was contacted and a request for research participation was submitted to invite potential participants (see Appendix A). This request for participation was a modified version from Maloney (2016), which was used in her own

study to gather participants. The gatekeepers of the American International School of Guangzhou, International School Bangkok, Shekou International School, Utahloy International School Zeng Cheng and Western Academy Beijing were contacted to gain entrance into these specific schools to present requests for participation (see Appendix A). The following is a list of individuals who served as gatekeepers.

Robert Bauer

IT Director

American International School of Guangzhou

Michael Boll

ES Technology and Learning Coach

International School Bangkok

Gaylene Livingston

Librarian

Shekou International School

Robin France,

Director of ICT

Utahloy International School ZengCheng

Philip Cowell

Tech Coach

Western Academy of Beijing

Requests for participation were also posted on various social media communities specifically created for teachers in international schools, including the LinkedIn International School Educators Group which had a current membership at the time of posting of 60,445 members, the Google Plus International Techies Community which had a current membership of 236, the Facebook International School Teachers group with a current membership of 8,234 and the International School Educators group with over 5,233 members. Certain Twitter chats such as #pypchat and #mypchat were also utilized to reach a wider possible audience of participants. Participants had to be educators who worked at an international school to be eligible for the first phase. Posts were also made on the researchers own social media networks including his LinkedIn, Twitter, Facebook and Google Plus networks.

The participants of this phase ranged in age from twenty five to sixty nine years of age. Well over half (66%) were female, 33.7% were male with 4% reported other with no explanation. The majority, of the participants have been educators for more than ten years. A little less than half have been international school educators for more than 10 years. A large number of the participants, 70% had advanced or specialized degrees, while 30% had a Bachelors or other degree. The participants of this phase came from 52 different countries. The majority, indicated they were from Asian countries with the remainder from North and South America, Europe, Africa, Australia and Oceania. The educators in this phase, worked in a variety of divisions including high school 43.7%, middle school 13.3%, primary or lower school 22.6%, preschool and kindergarten 7.8%

and other cross divisional roles 12.6%. They also worked in a variety of positions including classroom teachers 45.9%, specialist teachers 16.3%, library/media specialists 2.2%, instructional support specialists 16.7% and other roles including administrative and coordination roles 18.5%. The majority of the participants 69.5% worked in schools that were located in urban (within a city) areas, while 27% worked in suburban (immediately outside the city) areas and 7% worked in rural areas.

The data collected through the first phase assisted in the process of selecting participants for the second phase, which used purposeful sampling. To ensure that some generalizations could be made between the participants the researcher ensured teachers chosen for the second phase were representative of the particular phenomenon (Yin, 2009). Specifically, each teacher must have been an international school teacher who used social media as a PLN and indicated that through this use pedagogy had changed their classroom practice in some way. These teachers, who dramatically represented the central phenomenon, were selected because they have the potential to provide more information regarding the central phenomenon (Creswell, 2012) in this instance how participation in a PLN has changed their teaching practice.

The participants of the second phase of this study taught in three different countries including, China (Guangzhou and the Hong Kong Special Administrative Region) Singapore and Malaysia. Three were female and two were male. The youngest participant was 42 years old and the other participants were in their 50's. The participants taught in a variety of grades including grades one through twelve. Two of the participants were also technology integrationist who taught teachers as well as students. They held a

variety of degrees and professional certificates and have been teaching in international

school for various amounts of time from two years to twenty-two years.

Data Collection

After gaining IRB approval, data collection followed a two-phase structure,

outlined below. This two phase process and the mixing of methods helped to ensure that

enough and various forms of data were collected. Having various forms of data assists in

constructing validity of the research design (Yin, 2009). Specifically, this study collected

quantitative data through the use of a survey and qualitative data through follow up

online interviews. Since this study was one involving a relatively new technological

communication tool (social media), innovative data collection techniques (Creswell,

2013) such as online surveys and online interviews were utilized.

Phase 1 Quantitative

For the first phase of this study a data collection instrument (an online survey

using Qualtrix) was designed to gather demographic data and data regarding social media

use as a PLN for informal learning. This method was chosen because of convenience

since the target population was from international schools around the world. The

instrument was designed by modifying Fucoloro's (2012) data gathering instrument used

in her study to discover educators' perceptions and reported behaviors tied to

participation in informal learning networks online (See Appendix B). Fucoloro's survey

instrument went through a vetting process to ensure reliability where "three experts in the

fields of technology and survey development were contacted to establish face validity"

(Fucoloro, 2012, p.83). Relevant questions from Fucoloro's survey were used and

modified to fit the specific context of this study. The researcher also added questions

pertaining to the context of international schools. Fucoloro offered some suggestions to assist in creating a data gathering instrument specifically for those using online surveys and particularly how to improve her own survey. These recommendations included specifics about particular items on the survey and how they could be improved to provide more accurate data or improve efficiency. (Fucoloro, 2012). These recommendations were considered in the creation of the instrument for this study.

This survey provided questions regarding the following

- demographic data (age, gender)
- area of teaching expertise
- years of teaching experience in international schools
- familiarity with various tools used in a PLN such as social networks, social bookmarking tools and RSS
- personal use of social media
- how social media is being used for personal reasons
- professional use of social media (sharing resources, communicating, collaborating)
- how social media is being used professionally

Demographic data were collected to compare groups based on age gender and years of experience to discover relationships.

The instrument also provided the teachers with a list of various social media tools and a matrix type of question with choices ranging from currently use to don't plan to use (see figure 2).

Please indicate your professional usage level of the following social media platforms and content sharing tools.

	Currently use	Have used in the past	Plan to check it out	Don't plan to use
Facebook	◯	◯	◯	◯
Twitter	◯	◯	◯	◯
Google+	◯	◯	◯	◯
LinkedIn	◯	◯	◯	◯
Yammer	◯	◯	◯	◯
Social Bookmarking (Example: Diigo or Delicious)	◯	◯	◯	◯
Blogs (Wordpress, Blogger)	◯	◯	◯	◯
Wiki (Wikispaces, PBworks)	◯	◯	◯	◯
RSS (Feedly, Netvibes)	◯	◯	◯	◯
NING (Educators PLN)	◯	◯	◯	◯
Cloud Storage & Sharing (Google Apps, Office 365)	◯	◯	◯	◯

Figure 2.   Example matrix question used to gather data on familiarity with various social media tools.

More questions regarding how international school teachers actually use the social media followed, giving international educators a chance to pick from a list including, whether or not they use social media for professional reasons and if they do, how they actually use it. These questions included uses such as sharing information, gaining ideas and having meaningful conversations to name a few. The measure of change in teaching practice would consist of a question regarding teachers changing or trying something new in their classroom because of knowledge, resources or ideas gained as a result of using their PLN (see Appendix B). Many of these questions used a four or five-point Likert scale. This data was used to discover if a relationship between social media use as a PLN and change in teacher practice exists for international educators. Teachers who filled out the survey and reported a change in pedagogy were asked for their email address. Email addresses were only used by the researcher to contact participants chosen for the second phase of the study. The survey was open for one month. During this month, several posts were made on social media to gain participation. No reminders were sent out to participants who began the survey but didn't complete it. It was made clear that the participants could choose to not answer any of the questions posed and stop participation if needed.

Phase 2 Qualitative

The second phase of the study, focused on discovering a greater contextual knowledge base regarding how informal learning, occurring through these tools, was being utilized in the pedagogical practices of international school teachers. This phase would best be described as qualitative follow up interviews. The procedure used to

collect data was repeated with multiple teachers to gather enough data regarding the use of social media as a PLN to change teacher practice.

In the second phase, 5 individual teachers who used social media for informal professional development were interviewed. As mentioned above, they needed to be an active participant in a PLN and also self-reported that this use had an effect on their pedagogical approaches. For this qualitative phase of the study an interview protocol was adapted and modified from Maloney's (2016) interview protocol in her study titled *Leveraging the Potential of Personal Learning Networks for Teacher Professional Development* (See Appendix C).

In the interview the researcher asked specifically, how the teacher learned about the use of the social media as a PLN, the reasons they wanted to develop a PLN and the primary purpose of their PLN. He also asked specifics regarding what was the most affirming aspects of their PLN. Finally, the questions delved into how the use of the PLN made the educator a better teacher and a pedagogical approach that was changed because of this use. The interviews took place through Skype as all the participants lived in another country than the researcher. The Skype interview was audio recorded, using Hi-Q MP3 Recorder that uploaded the finished recordings to a specified folder on the researchers Google Drive. The audio files were tagged with a code that was used to ensure the safety of the participant's identity. The audio portion was transcribed for later analysis by a transcription service. This was a change in the initial plan presented to the IRB and the IRB application was updated and approved prior to implementation of this change. The transcriptions were checked by the researcher for accuracy and then sent to the participants for validation purposes. It was made clear to the participant that they

could at any moment choose to stop participating in the interview or decide not to answer any question they felt uncomfortable answering.

Data Analysis

Phase 1: Quantitative

The first phase of this explanatory mixed-method study discovered the extent of covariance between the variable of using social media for informal professional development as a PLN and other variables related to change in teacher practice. Data was uploaded to SPSS software version 24 for analysis using descriptive statistics such as frequencies and cross tabulations. Specific questions on the survey dealt with variables related to change in teacher practice and used a Likert type scale to produce ordinal data. SPSS software was used to create a scatterplot matrix to visually represent the direction of the correlation between variables connected to use of social media as a PLN and other variables connected to change in teacher practice. Spearman's correlation coefficient statistical test was used to determine the strength of the relationship between the variables, which showed a monotonic relationship. The researcher chose Spearman rank-order correlation because according to Hatcher (2013), the Spearman correlation coefficient is used to show correlation between variables with ranked values and is often used when both variables are on an ordinal scale. It was predicted that a positive correlation existed showing a positive linear relationship. In this case Spearman's correlation coefficient was used to measure and describe the relationship between the variables that showed a monotonic relationship. This phase of the study also served as the sampling method for finding the participants for phase 2.

<u>Phase 2 Qualitative</u>

After data collection was completed and before analysis occurred, the data was imported into qualitative analysis software NVivo. This software was used to code text in the data and assist in conducting searches to find specific terms. Coding according to Creswell (2013) is the process of "reducing the data into meaningful segments and assigning names for the segments" (p.148). The in-depth coding for analysis included several steps discussed by Saldaña (2013). Since the main purpose of coding in this qualitative study was to look for repeating patterns in the data gathered Saldaña (2013) suggests a 2-cycle coding process. This process not only assisted the researcher in discovering patterns, which led to themes, it also assisted in ensuring consistency of the findings. The first cycle of coding included two First Cycle coding methods including In Vivo Coding and Process Coding. In between first cycle and second cycle coding, the researcher used a diagramming technique known as operational diagramming (see figure 2) to supplement the coding process in a visual way. The operational diagramming helped to clarify thoughts regarding the data (Saldaña, 2013). Second cycle coding used pattern coding to arrive at the final themes used to help answer the research question.

In the first cycle of coding, In Vivo coding was used to discover words or phrases that were important and assisted in ensuring all significant data was included. Since Process Coding helps to focus on both observable and conceptual activity (Saldaña, 2013) it was chosen to help code the data to bring the action within the PLN use to light. To ensure that the first cycle of coding was comprehensive the transcripts were read multiple times for each coding method (Saldaña, 2013). Using software like NVivo allowed the researcher to query and compare the coded data in multiple ways (Saldaña,

2013). The above coding methods were chosen because they assisted the researcher in constructing new discoveries, insights, and connections about the participants of the study and their use of social media as a PLN for changing teacher practice.

The Second Cycle of coding consisted of a method that assisted in the reanalysis of data coded in the first cycle to help discover broad categories, themes and concepts about how the participants were using social media as a PLN to change pedagogy. The specific coding method used for the second cycle was Pattern Coding. Pattern codes, that are explanatory in nature, were used to discover emerging themes or explanations about how teachers who work in international school use social media as a PLN to change their teaching practice (Saldaña, 2013). The findings as a result of the two-cycle coding process are reported in Chapter 4 in the qualitative analysis section of this report. This section, offers an in-depth description of the use of social media as a PLN for changing teacher practice. The report uses description and figures (Creswell, 2013) depicting how international school teachers' pedagogical approaches were affected by participation in the PLN.

A general summary in the conclusions section of Chapter 5, connects the results in both phases. The summary also includes the author's personal reflections and comparison with previous studies of this nature. By using both forms of data a greater understanding about how international school educators use social media as a PLN was gained. The combination of data from the quantitative survey and qualitative interviews offers greater validity for this study.

CHAPTER 4

Results and Findings

The main purposes of this mixed methods study were: (a) to discover if international school educators are using social media for professional learning and if so, what tools they are choosing to use, (b) to discover if a relationship exists between the use of social media tool for informal professional learning and change in the pedagogical practices used by the teachers in international schools; and finally, (c) to describe how the use of social media may lead to a change in pedagogical practice. To fulfill these purposes, the following questions were used to guide the collection of data and later, the quantitative analysis of that data:

1. What social media tools are international school educators using for personal reasons and for what purpose? (RQ1)

2. Are international school educators using social media for professional learning as a PLN? (RQ2)

3. What Web 2.0 tools are international school educators using for professional learning as a part of a PLN? (RQ3)

4. Is the use of social media as a PLN by teachers in international schools related to change in the pedagogical approaches used by teachers? (RQ4)

The main question answered through qualitative analysis was:

5. How do international school educators use social media as a PLN to change their pedagogical practice? (RQ5)

This chapter will report the findings and results of data collection and analysis to help answer the questions presented above. This study followed a mixed methods design and included the collection of both quantitative and qualitative data.

Phase 1 Quantitative Analysis

In the first phase of this study quantitative data were collected through the use of an online survey instrument (see Appendix B). Data collected through this phase had two main functions, first, to answer questions 1-4 and second to find the participants for the second phase.

In the first phase 395 participants started the survey (See Appendix B). However, not all the participants who began the survey completed it. Frequency statistics discovered 97 (24.6%) of the participants did not complete the survey. Further study of the data revealed four other participants failed to complete the survey. These four participants began the survey and went all the way through the survey but did not answer any of the questions. These participants were removed from the data to be analyzed. Those who did not complete the survey were excluded from analysis because an incomplete survey did not result in useful data in regards to answering the questions of the study. Of the participants who finished the survey, 24 of them were not currently working in an international school. After excluding the above mentioned participants, the data set included 270 usable survey entries for analysis.

Age and Gender

Participants of this study ranged in age from twenty five to sixty nine years of age with a mean age of 44.5. Sixty six percent of participants were female, 33.7% were male and 4% reported other with no explanation.

Experience and Education Level

The majority, of the participants have been educators for more than ten years. A little less than half have been international school educators for more than 10 years (see table 1). A large number of the participants, 70% had advanced or specialized degrees, while 30% had a Bachelors or other degree.

Table 1:   Years of experience in education and international education

Years' Experience	As an Educator	As an International Educator
More than ten years	76%	47%
Ten years or less	24%	53%

Location and Job

The participants of this study come from 52 different countries. The majority, indicated they were from Asian countries, 73% (see Figure 3). The remainder of the participants come from North and South America, Europe, Africa, Australia and Oceania (for a complete list of countries please see Appendix G).
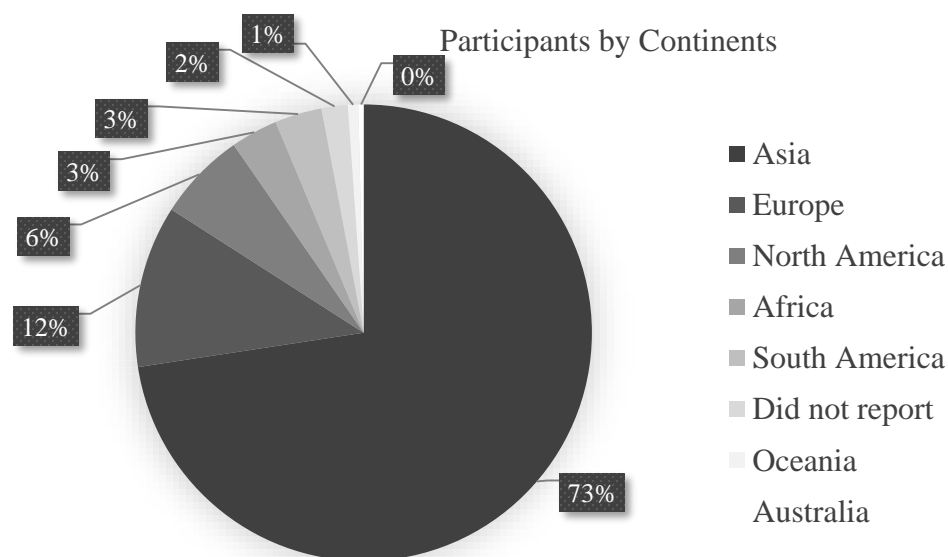
Figure 3:   Phase 1 participants by continents

The educators in this study, worked in a variety of divisions including high school 43.7%, middle school 13.3%, primary or lower school 22.6%, preschool and kindergarten 7.8% and other cross divisional roles 12.6%. They also worked in a variety of positions including classroom teachers 45.9%, specialist teachers 16.3%, library/media specialists 2.2%, instructional support specialists 16.7% and other roles including administrative and coordination roles 18.5%. The majority of the participants 69.5% worked in schools that were located in urban (within a city) areas, while 27% worked in suburban (immediately outside the city) areas and 7% worked in rural areas.

Research Question and Survey Question Alignment

So that the reader has a clearer picture as to what survey questions were used to help answer the research questions listed above, the following outline is presented to promote clarity. Please refer to Appendix B to see the questions used in the survey instrument.

1. What social media tools are international school educators using for personal reasons and for what purpose? (RQ1)
   a. Question 12: Please indicate your PERSONAL usage level of the following social media platforms and content sharing tools.
   b. Question 14: Please indicate for what purpose you currently use social media in your PERSONAL life.

2. Are international school educators using social media for professional learning as a PLN? (RQ2)
   a. Question 18: How many hours do you spend on average on social media sites for PROFESSIONAL use?

b. Question 19: I use social media for informal (self-initiated not directed by your school) professional development.

c. Question 20: Please indicate how you currently use social media platforms and content sharing tools PROFESSIONALLY.

3. What Web 2.0 tools are international school educators using for professional learning as a part of a PLN? (RQ3)

a. Question 17: Please indicate your PROFESSIONAL usage level of the following social media platforms and content sharing tools.

4. Is the use of social media as a PLN by teachers in international schools related to change in the pedagogical approaches used by teachers? (RQ4)

a. Question 19: I use social media for informal (self-initiated not directed by your school) professional development.

b. Question 21: As an educator, social media as a professional learning network (PLN) has increased my access to information

c. Question 22: Social media as a PLN has helped me become a better educator.

d. Question 23: As an educator, social media as a PLN has helped me:

Quantitative Analysis Results

To best answer question 1-3 descriptive statistics were used to analyze the data collected through the survey instrument. To begin, frequency tables were created to get a better understanding of the initial responses of the participants in regards to the questions

being asked. Second, cross tabulation was used to compare responses by gender and experience level.

Personal Use of Social Media: Research Question 1 (RQ1)

The participants of the study were asked to indicate their personal usage level of the following social media platforms and content sharing tools: Facebook, Twitter, Google Plus, LinkedIn, Yammer, Pinterest, YouTube, Social Bookmarking, Blogs, Wikis, RSS, NING and Cloud storage and sharing applications. The participants were asked to mark whether they currently use, have used, plan to check it out or don't plan to use for each of the listed tools. In this section of the survey it was discovered that many participants when asked how they used certain social media tools, only answered when they currently used or had used in the past and skipped those they didn't use even though there were answer choices provided for these responses. The researcher saw this trend and decided that it would be best to mark these blank answers as a null response rather than excluding them from analysis. Having the respondents' results included in the analysis for every tool they currently used or had used in the past was thought to give a clearer picture of the tools international school educators are using. It was decided this would be better than to assume that the respondents missing response was to mean they didn't use the tool.

Descriptive statistics and cross tabulations were used to explore the data. The results indicate the tools *currently used* most for personal reasons by international school educators are YouTube, Facebook and cloud storage applications. Twitter and LinkedIn were also reported as *currently used* for personal reasons by more than half of the respondents. Pinterest, blogs and Google Plus were *currently used* by some of the

respondents and even less reported the use of wikis, RSS, social bookmarking, Yammer and NINGS (see table 2). Of all the tools reported males reported a higher level of usage for personal reasons than the females, except for Facebook, Yammer and Pinterest.

Table 2:   **Personal usage of social media tools by international school teachers.**

Tool	Percent of Males	Females	Total
YouTube	93.4	91	91.5
Facebook	86	93.8	91.1
Cloud Storage	86.8	84.3	84.8
LinkedIn	57.1	52.2	53.7
Twitter	56	50	51.9
Pinterest	21.3	50.6	41.1
Blogs	44	38.2	40
Google Plus	31.5	30.8	31.5
Wikis	15.4	15.7	15.6
RSS	16.5	9	11.5
Social Bookmarking	15.4	9	11.1
Yammer	5.5	7.9	7
NINGS	3.3	1.7	2.2

The survey question also had a spot for participants to add other tools they *currently use* for personal reasons. The results included Instagram with 25% of the participants reporting its use, WhatsApp with 8% currently using it for personal reasons, WeChat with 7% of the participants mentioning it, Snap Chat with 7% using it and other various messaging applications including Viber, Vine, KaKao Talk and Facebook Messenger. Other tools also *currently used* included various online video conferencing services such as Skype, Facetime and Google Hangouts.

The second part of RQ1 focused on discovering how international school teachers use social media for personal reasons. This question on the survey, was a checkbox type question where the participants were able to check any of the ways they use social media

for personal reasons. Descriptive statistics was used to analyze the data to discover how international school teachers reported they use social media for personal reasons.

According to the data more than half of the participants use social media in their personal lives to connect with family and friends, share information and pictures with others, communicate with family and friends, check the news and learn about personal interests (see table 3). Only 30.4% of the participants reported using social media for personal reasons to express opinions about current events.

Table 3:   Reported reasons for personal usage of social media tools by international school teachers.

Reason for Usage	Percent reported
Connect with friends	87.4
Connect with family	80
Communicate with friends	77
Communicate with family	72.6
Checking the news	68.5
Share pictures	65.5
Share information	53.3
Learn about interests	53
Express opinions about current events	30.4

Professional Use of Social Media: Research Question 2 (RQ2)

The second and third questions guiding this study dealt with the professional use of social media as a PLN. Research question 2 (RQ2) asked if international school educators are using social media for professional learning as a PLN. Descriptive statistics were used to analyze the responses of the participants and cross tabulations were used to compare responses by gender and years of experience.

When asked to indicate to what degree they agree or disagree with the following statement, "I use social media for informal (self-initiated not directed by your school) professional development." The participants had the following Likert scale to choose

from, strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree or

strongly disagree. A total of 88.2% of the participants responded either strongly agree or

somewhat agree with 58.9% strongly agreeing and 29.3% somewhat agreeing (see table

4).

Table 4:   **Reported Use of Social Media for informal PD**

			Frequency	Perc ent	Valid Percent
Vali d		Strongly agree	159	58.9	58.9
		Somewhat agree	79	29.3	29.3
		Neither agree nor disagree	17	6.3	6.3
		Somewhat disagree	8	3.0	3.0
		Strongly disagree	7	2.6	2.6
		Total	270	100. 0	100.0

A cross tabulation was conducted to compare the reported use of social media for

informal PD with the gender of the participants to get a clearer picture regarding how the

different genders reported their use of social media for professional reasons. The results

show that 85.7% of the male respondents and 89.9% of the female respondents either

strongly agree or somewhat agree that they use social media for informal PD.

Another cross tabulation was conducted to compare the reported use of social

media for informal PD with the years of experience at an international school to get a

clearer picture regarding how more or less experience affected the reported use of social

media for professional reasons (see table 5). The results indicated that those with less

experience at international schools reported a higher level of social media usage for

informal professional development. Those who had between 6-10 years and 11-20 or

more years' experience both reported about the same amount. A large amount (84%-

92%) of international educators reported they use social media for PD regardless of the

amount of years they have been in the international school field with all levels of

experience reporting over 80% that they use social media for informal PD.

Table 5:   Reported use of social media for informal professional development by years of experience.

Years' Experience	Reported percentage of agreement.
1-5	92.3
6-10	84.6
11-20 or more	87.8

Participants were also asked to indicate how many hours they spend on average

using social media sites for professional reasons. The results reveal (see table 6), that less

than half the respondents (42.4%) used social media for professional uses daily and a

little more than half (54.6%) used social media for professional reasons weekly. Men

respondents used social media weekly just slightly more than the women respondents.

The women respondents used social media daily slightly more than the men respondents

do. Three of the respondents chose the other option, one male and two female. Two

added greater amounts of time, one for the week and one for the daily amount spent on

social media (4-5 hours a week, 8 hours a day on weekends) while the other added a

smaller amount (less than an hour). Approximately two percent of the participants, all

female, reported that they don't spend any time using social media for professional

reasons.

Table 6: **Hours spent on social media for PROFESSIONAL use**

Hours spent on social media	Male Percentage	Female	Total
None	0	2.8	1.9
1-2 hours a week	22	23.7	23.0
3-4 hours a week	35.2	29.9	31.6
1-2 hours per day	28.6	28.8	29
3-4 hours per day	11	11.3	11.2
5-8 hours per day	2.2	2.3	2.2
Other	1.1	1.1	1.1

Participants were asked to indicate how they currently use social media platforms and content sharing tools for professional reasons and were given several options to choose from including get resources, share resources, save resources, connect with other like-minded people, have meaningful conversations around educational topics, gain new insights around teaching and learning related to your own context, share your own learning with others, share others learning, solve professional problems, learn about work related or professional seminars, webinars, courses and other. The participants were asked to choose from the following choices, currently use, have used in the past, plan to use or don't use. In this section of the survey it was also discovered that many participants when asked how they used certain social media tools only answered when they currently used or had used in the past and skipped those they didn't use even though there were answer choices provided for these responses. It was again decided to handle these missing values the same way they were handled before, therefore, there are a number of "null" responses. As this data is being used to answer whether or not teachers who work in international school use SM for professional learning as a PLN only the currently use data is shared.

Descriptive statistics were used to discover how international educators reported

their professional use of social media as a PLN (see table 7). According to the results

international school teachers used social media as a PLN the most to get, share and save

resources. Female respondents reported used social media as a PLN slightly more than

the male respondents to get and save resources, while the males reported slightly more

using it to share resources. Other highly reported uses were to connect with other like-

minded people, gain new insights related to their own context and learn about work

related professional seminars, webinars and courses. The female respondents reported

using their PLNs to gain new insights more than the male respondents. More than half the

respondents reported using social media as a PLN to share other people's learning

through the act of reposting content and by having meaningful conversations around

educational topics. Slightly more than half also reported using social media to solve

professional problems. The least reported reason for using social media as a PLN was to

share their own learning by creating original posts.

Table 7: **Reported reasons for using social media professionally as a PLN.**

Professional reason to use social media	Male percentage who *currently use*	Females	Total
Get resources	89	92.7	91.1
Share resources	84.6	82	82.6
Save resources	82.4	84.8	83.7
Connect with other like-minded people	78	83.7	81.5
Have meaningful conversations about education	60.4	59.6	59.6
Gain new insights related to own context	78	84.8	82.2
Learn about professional seminars, webinars and courses	63.7	77	72.2
Sharing other peoples' learning	58.2	63.5	61.5
Sharing their own learning	58.2	45.5	49.6
Solve professional problems	56	53.4	54.1

The survey had a place for educators to add other ways they are currently using SM for professional reasons. Thirty three of the participants responded. A complete list showing all of the ways reported can be found in Appendix H One use of social media which was widely reported amongst the 33 who responded was related to searching for job opportunities.

Web 2.0 Tools Used by International School Educators for Professional Learning as a Part of a PLN: Research question 3 (RQ3)

To answer RQ3 the survey asked respondents to indicate their professional usage level of various social media platforms and content sharing tools. The Web 2.0 tools included Facebook, Twitter, Google Plus, LinkedIn, Yammer, Pinterest, YouTube, Social Bookmarking, Blogs, Wikis, RSS, NING and Cloud storage and sharing applications. The participants were asked to mark whether they currently use, have used, plan to check it out or don't plan to use for each of the listed tools. This question was similar to the other question regarding the personal use of social media as some of the respondents only answered if they currently used or had used in the past leaving the other options blank. The missing data was handled in the same manner where a missing value was given a "Null" response. To answer this question frequency tables and cross tabulations were used.

The results indicated that cloud storage, YouTube and Facebook were *currently used* the most by international school educators for professional reasons. Other tools which were reported as *currently used* by a little less than half of the participants included Twitter, LinkedIn and blogs. A little less reported, but still greater than $1/4^{th}$ of the participants *currently using* Pinterest and Google Plus. The tools least reported as

currently used by international school teachers for professional reasons included wikis,

social bookmarking tools, RSS, Yammer and NINGs (See table 8). Female respondents

reported *currently using* Facebook and Pinterest more than the male respondents. The

male respondents reported *currently using* all of the other tools more than the female

respondents for professional reasons.

Table 8:   Professional usage of social media tools by international school teachers.

Tool	Percent of Males	Females	Total
Cloud Storage	82.4	82.6	82.6
YouTube	84.6	77	79.3
Facebook	49.5	55.6	53.3
Twitter	48.4	47.8	47.8
LinkedIn	48.4	47.8	44.8
Blogs	51.6	38.2	42.6
Pinterest	19.8	44.9	36.3
Google Plus	35.2	34.3	34.4
Wikis	19.8	19.1	19.3
Social Bookmarking	15.4	11.8	13
RSS	13.2	7.9	9.6
Yammer	6.6	5.6	5.9
NINGS	3.3	1.7	2.2

This question also had an option where participants could add other tools they

currently use professionally that were not listed above. Ninety-three of the participants

filled out this area of the survey. The following are the tools listed in this area. Learning

management systems such as Google Classroom, Schoology, Edmodo, Moodle,

Managebac, Firelfy and Seesaw; Chat apps including WeChat and WhatsApp; Forums

including the International Baccalaureate Online Curriculum Center and Waygook; Photo

sharing applications such as Instagram and Flickr; Curators including Scoopit, Pocket and

Storify; Reading sites such as Sribd and Academia; Online Courses such as Coursera;

professional organizations such as the Educational Collaborative of International Schools.

Podcasts were also mentioned three times.

Relationship Between Use of PLN and Change in Teacher Practice: Research Question 4

(Rq4)

The 4th question to be answered by quantitative analysis was whether or not the

use of social media as a PLN by teachers in international schools is related to change in

the pedagogical approaches used by teachers? (RQ4). To answer this question several

things were considered. First, did teachers report a change in their own ability because of

their use of social media as a PLN. Specifically the participants were asked as an

educator if social media as a PLN has helped them improve their ability to plan innovate

lessons/projects, teach more effectively using technology, become more confident to try

something new, add value to the conferences they attend, make professional connections

that would not have been possible without social media and finally changed the way they

teach. The participants were also asked to indicate to what degree they agreed or

disagreed that social media as a PLN has increased their access to information and helped

them become a better educator. Descriptive statistics were used to discover teachers self-

reported beliefs regarding the above questions.

The results indicate that the majority of the participants believed that their

participation in their PLN had a positive impact on their professional life. The areas that

were reported as most impacted by the use of social media as a PLN were; increased

access to information; improved ability to plan innovative lessons and projects; becoming

a better educator; teaching more effectively with technology; increased confidence to try

new things and the ability to make professional connections, that would not have been

possible without social media. A little over three fourths of the participants also believe

that their participations in their PLN has led to a change in the way they teach. It was also

widely reported that social media as a PLN has added value to the conferences the

participants attend by allowing sharing, questioning, and dialogue between presenters and

attendees.

Table 9:   Reported change because of social media use as a PLN

Area of change	Percentage reporting *strongly agree or somewhat agree*
Increased access to information	92.2
Improved ability to plan innovative lessons and projects	88.9
Helped them become a better educator	85.9
Effectiveness using technology	84.8
Increased confidence to try something new	83.7
Make professional connections, not possible without SM	83.3
Changed the way they taught	77.4
Added value to conferences they attend	75.9

The second area considered to answer this question was the use of statistical tests

to discover if a relationship exists between any of the variables mentioned above.

Specifically, the researcher wanted to test two variables including when the participants

were asked to indicate to what degree they agree or disagree with the following

statement, "I use social media for informal (self-initiated not directed by your school)

professional development." and reported change in pedagogical practice. Since other

areas including all the variables in Table 9 are all things which could impact a teacher's

decisions and might lead to a change in pedagogical approaches, statistical analysis

including frequency tables, cross tabulations and Spearman Correlation was also

conducted on these variables. To measure the possible relationship and the strength of the

relationship, several statistical tests including scatter plots and Spearman rank-order correlation were used.

First, descriptive statistical tests were run including frequency tables and cross tabulations. The frequency table showed that 88.2% of the respondents use social media for informal (self-initiated not directed by your school) professional development (See table 4 above) with 159 strongly agreeing and 79 somewhat agreeing. The researcher wanted to see if there was a relationship between this variable and one where the participants were asked to indicate to what degree they agreed or disagreed that social media as a PLN has changed the way they taught.

A cross tabulation was also conducted to see how the two variables, use of SM for informal PD and the reported change in teaching practice were related. According to the result 80.7% of the respondents that reported use of social media for informal professional development also reported that this use has changed the way they teach. Approximately 92% of the respondents that reported a change in the way they teach also reported using social media for informal professional development. A little over 71% of the respondents reported a change in teaching and reported the use of social media for informal professional development.

Second, since all of the variables being compared were ordinal in nature, the researcher chose a statistical test that would help to measure the significance of any relationships discovered. The researcher chose Spearman rank-order correlation. According to Hatcher (2013), the Spearman correlation coefficient is used to show correlation between variables with ranked values and is often used when both variables are on an ordinal scale.

To begin the process of measuring the relationship between the variables SPSS software was used to create a scatter plot matrix (see Figure 4) to determine where monotonic relationships might exist between the various variables being compared. After initial analysis it was determined the following variables had monotonic relationships as assessed by visual inspection of a scatterplot matrix. Use of SM for informal PD and becoming a better educator, increased access to information, teach more effectively using technology, improve innovative lessons and projects, and becoming more confident in trying new things.
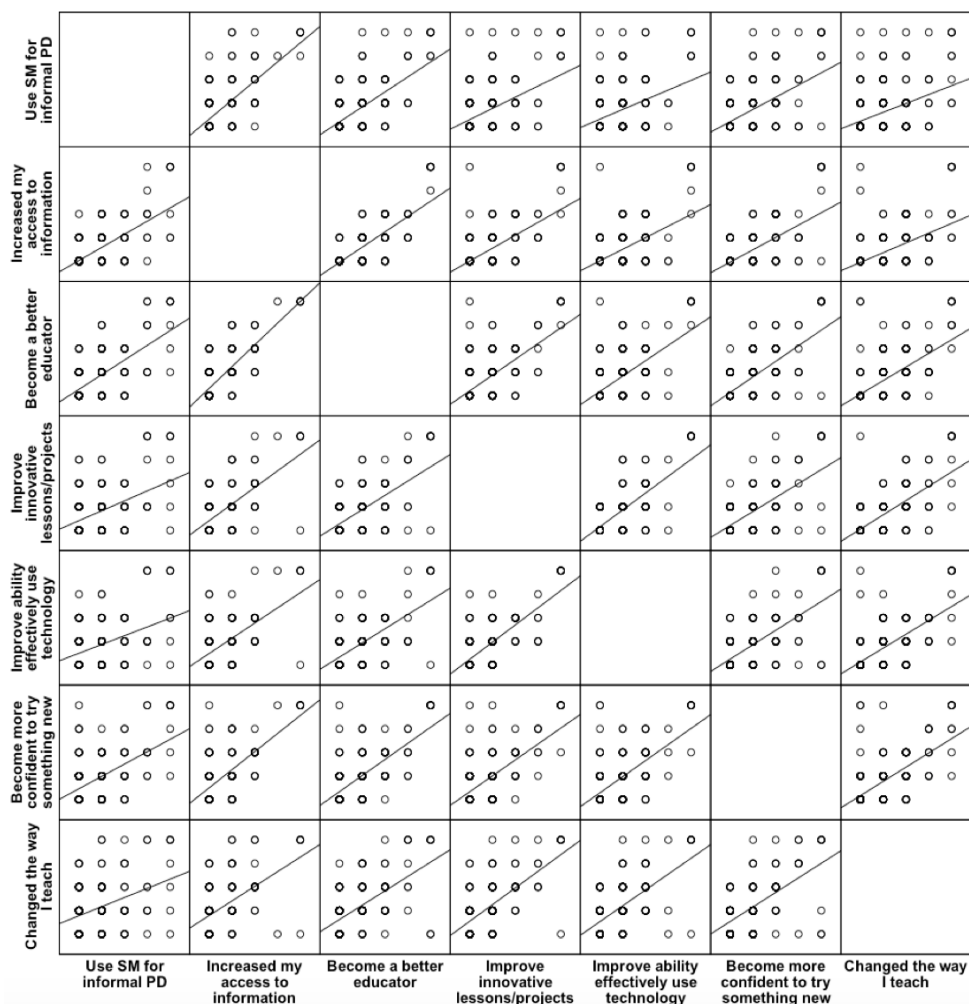
Figure 4: **Scatterplot matrix used to assess monotonic relationships between various variables which could have an effect on a teacher's' practice.**

Initial analysis of the data showed no correlation between the use of social media for informal PD and a reported change in teaching practice as assessed by a visual inspection of a scatterplot. The researcher therefore, ran Spearman's rank order correlation statistical analysis on the variables which showed monotonic relationships in order to test the significance of the perceived relationship.

A Spearman's rank-order correlation was run to assess the relationship between use of social media for PD and the following variables (see table 10).

- Reported becoming a better educator

- Reported improved ability to plan innovative lessons and projects

- Reported increased access to information

- Reported improved ability effectively use technology

- Reported becoming more confident to try something new

Preliminary analysis of these variables showed the relationship to be monotonic, as assessed by visual inspection of a scatterplot matrix. Analysis indicated a positive correlation between the use of social media for PD and teacher perceptions of improvement in teaching, $r_s(268) = .480$, $p < .001$. There was also a positive correlation between the use of social media for PD and a reported increase in the access to information, $r_s(268) = .533$, $p < .001$. There was a slight positive correlation between the use of social media for PD and the reported improved ability to plan innovative lessons and projects, $r_s(268) = .235$, $p < .001$. There was also a slight positive correlation between the use of social media for PD and a reported improved ability to effectively use technology, $r_s(268) = .228$, $p < .001$. There was a positive correlation between the use of

social media for PD and the reported increased feelings of confidence to try something

new, rs(268) = .370, p < .001.

Table 10:   Correlation coefficient between SM for informal PD and other variables about teaching practice.

			Use SM for informal PD
Spearman's rho	Use SM for informal PD		1.000
		N	270
	Become a better educator		.480**
	Increased my access to information		.533**
	Improve innovative lessons/projects		.235**
	Improve ability effectively use technology		.228**
	Become more confident to try something new		.370**

**. Correlation is significant at the 0.01 level (2-tailed).

Phase 2: Qualitative analysis

To find participants for phase two, the researcher had to discover who met the

requirements. The survey asked if the participant believed that social media as a

professional learning network (PLN) had made an impact on their teaching, if so, would

they be willing to participate in the second phase of this study, and to please give their

name and email address. Descriptive statistics were used to discover how many

participants agreed to participate in the second phase. It was discovered that 159 cases

out of 270 (58.8%) of the participants felt that using social media as a PLN impacted

their teaching. However, to ensure that some generalizations could be made between the

participants the researcher used methods to verify that teachers chosen for the second

phase were representative of the particular phenomenon (Yin, 2009). Specifically, each

teacher must be an international school educator who uses social media as a PLN and has

indicated that through this use pedagogy has changed in their classroom practice in some

way.

Since it was important to select teachers, who dramatically represent the central phenomenon, because they would provide more information regarding the central phenomenon (Creswell, 2012), in this instance how participation in a PLN has changed their teaching practice, it was decided to filter the 159 cases in the following ways. First, since the purpose of phase two was to delve into the phenomenon of how international school educators use social media as a PLN to change their pedagogical practice, those international school educators who were currently not in a classroom role were removed from the pool of participants for selection. This left 138 participants in the population who met this first criteria. Second, since it was important that the chosen participants radically represented the central phenomenon each participant would have to have answered strongly agree for the following areas.

- Use of social media (SM) as a PLN has improved their ability to plan innovate lessons/projects
- Use of SM as a PLN allowed them to become more confident in trying something new
- Use of SM as a PLN has made them a better educator
- Use of SM as a PLN changed their pedagogy.

The SPSS case selection tool was used to filter cases to fit the above criteria and then descriptive statistics were used to find out how many participants fit the criteria for participation in phase 2. It was discovered that 41 (15.1%) cases out of the 270 original participants fit all the criteria listed above. The SPSS case selection tool was used to randomly select five cases from the 41 eligible participants to send invitations to for phase two of the study. These five cases were sent email invites to participate in the

second phase (See Appendix F). Four out of the five responded, three accepted the request for interview and one declined. The SPSS case selection tool was used once again to select participants to replace the one who declined and one for the case that didn't respond. An email was sent to request participation. These participants responded positively and an interview was planned and conducted with a total of five participants.

Demographics

The participants of the second phase of this study taught in three different countries including, China (Guangzhou and the Hong Kong Special Administrative Region) Singapore and Malaysia. Three female and two male participants participated in online interviews and answered the questions found on the interview protocol (see Appendix E). The youngest participant was 42 years old and the other participants were in their 50's.

Participant 1

Participant 1 (P1) taught 7th and 8th grade math in China, and held a master's degree and a Professional Clear Level teaching credential from the State of California. She was 54 years old and had been teaching at international schools for 22 years.

Participant 2

Participant 2 (P2) taught grade three in Malaysia, and held a Bachelor's degree and a Maryland Advanced Professional Certificate which qualified her to teach grades one-six. She was 54 years old and had been teaching at international schools on and off since 1990.

Participant 3

Participant 3 (P3) was a digital literacy coach working in an international school in Singapore, and held a Bachelor's degree in Primary School Education from the University of Victoria Canada. He was 42 years old and had been teaching at international schools for 14 years.

Participant 4

Participant 4 (P4) was a IB Middle Years Programme Science teacher working in an international school in Hong Kong. She taught grade seven and nine Science and grade 11 and 12 Psychology. She held a Ph.D. and a Postgraduate Certificate in Education. She was 53 years old and had been teaching at international schools for two years.

Participant 5

Participant 5 (P5) was a technology integration specialist in an elementary international school located in Malaysia. He held a California teaching credential, a master's in multicultural education and a master's in technology integration. He was 54 years old and had been teaching in international schools since 1999.

Qualitative Data Analysis Results

Qualitative data was gathered using interviews conducted over Skype. Each interview was recorded to help with accuracy. The recordings were then sent to a transcription service to be transcribed. The researcher reviewed the transcripts against the recorded interview to ensure accuracy and then sent them to the participants for review. After all transcripts were reviewed by the participants and sent back to the researcher, qualitative analysis began.

The researcher used a 2-cycle coding process to assist in answering the research question RQ5 as proposed by Saldaña (2013). First cycle coding was conducted using In Vivo coding and Process coding. In between first cycle and second cycle coding, the researcher used operational diagramming (See Figure 5) to supplement the coding process in a visual way, which helped to clarify thoughts regarding the data (Saldaña, 2013). The resulting visual assisted the researcher in the second cycle of coding by giving basic direction to the pattern followed by the participants to use social media as a PLN to change their teaching practice. This basic path can be seen by following the Roman numerals in the Figure 5. The visual helped to guide the researcher in the final coding process that used pattern coding and resulted in the final themes used to answer research question 5.
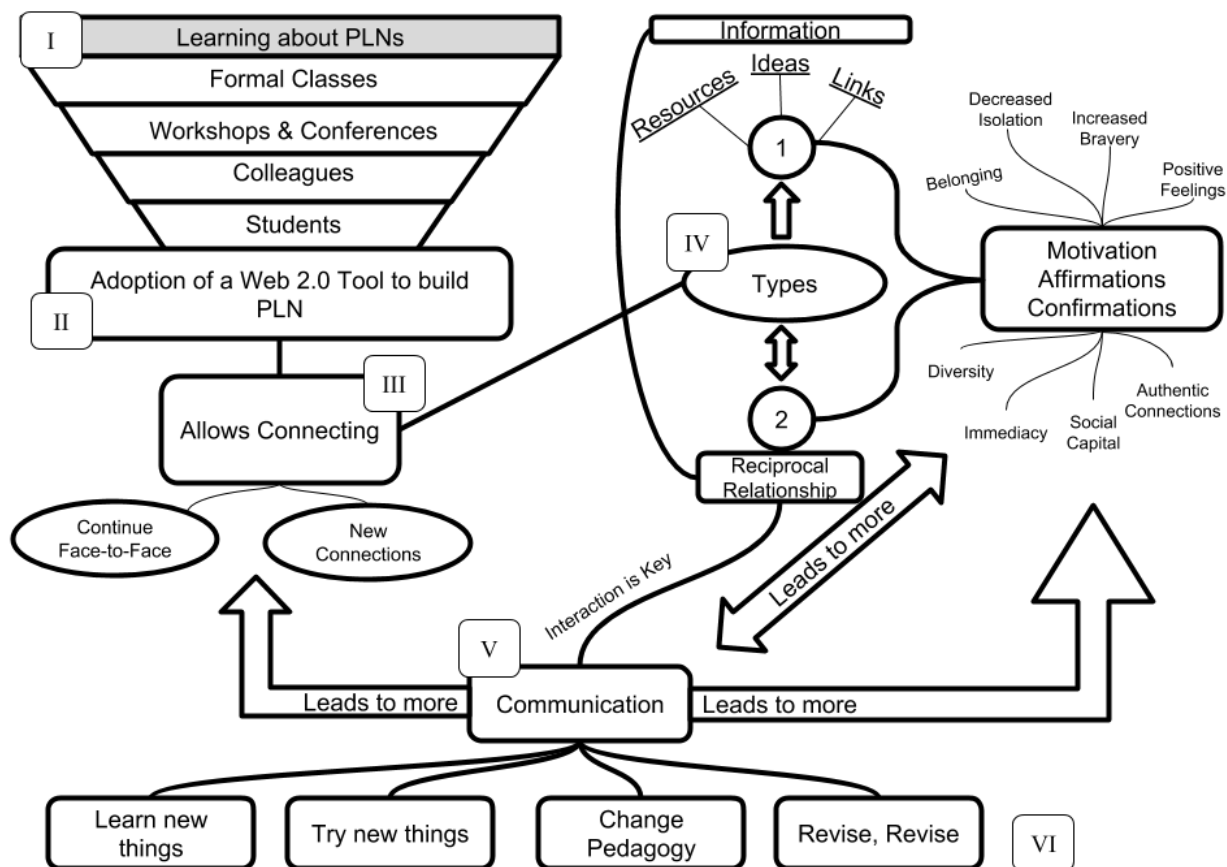
Figure 5: **Operational diagram showing the path international school educators follow in using PLNs to change their pedagogical practice.**

How International School Educators use PLNs to Change Their Pedagogical Practice

(RQ5)

      Qualitative coding, ending with pattern coding, resulted in the following

categories that outline the steps taken by international school educators to use social

media as a PLN to change their pedagogical practice. First, international school educators

learned about PLNs potential to assist them professionally. Second, they chose a tool or

tools to build a PLN on. Third, they made connections with resources or other people

which assisted them by giving them information and support. This then led to interacting

within the network and learning new things. Eventually the educators began

implementing the new things learned in their educational environments thus changing the way they taught. Below, greater detail about each step will be covered.

Learning About PLNs and the Tools to Build a PLN With.

The first step in using a PLN to change pedagogical practice is to learn about using social media as a means for informal professional development. The process of finding out about PLNs and the capacity they have to help teachers with informal PD can happen in a number of ways. Some of the participants learned about PLNs as a part of formal classes taken at a university. Others went to conferences and workshops and learned about PLNs. Some learned about them through colleagues at work or students who suggested certain tools. No matter how the participants learned about PLNs, something about them ignited a desire to continue to learn more and develop their own. For some, this motivation could be the gains made by actual use of a tool as a part of a formal class that showed how powerful a PLN could be. For others, it was the demonstration by someone already using a PLN that motivated participation. One of the participants saw in a presentation the potential possibilities a PLN would have for him and then decided to build one for himself. P5 said of this, "I actually saw it in action at a presentation and I was pretty inspired with them." For others, it was the feeling that they needed to build a PLN to stay current and up-to-date. P1 mentioned, "...realizing how much of a tech person that I need to be in order to be updated and keep up with the terms and keep up with the kids…" This motivation to build a PLN leads to the next step, choosing a tool to build a PLN with.

<u>Choosing the Tool that Fits Specific Needs.</u>

After the teacher has decided to build a PLN, they then choose a tool or several tools to use to support the creation of this network. The participants used a variety of tools to support the growth and maintenance of their PLN. Choice of the tool was important and when discussing the use of various tools, P3 was talking about advice he got from his connections regarding tools and their abilities, basically they told him, "You know, dude, make it what you want it to be." International school teachers can use the tool in a way that will fit their needs and support them in their process of learning. P4, when discussing tools mentioned that as an IB teacher, the IB requests that teachers use a specific community created by the IB as a space to interact with other IB teachers. However, she said "it's just rubbish. It's really hard to navigate it, so Facebook is just easier more immediate." For P4 Facebook was an easier to use platform that helped her successfully implement her PLN. Other tools mentioned by the participants were Twitter, Edmodo, Pinterest, Voxer, Edshelf, Blogs, Teachers Pay Teachers and the Internet in general. All of these were used by the participants to assist them in building the connection needed to create a PLN. Many of these tools when used by the teacher facilitates the growth and development of a PLN. P5 mentioned, "I started following a few people that I knew who were sort of uhm big in the tech -- tech integration world and education, and then from there, you know, I'd get suggestions on who else to follow and became pretty easy to make further connections from within Twitter. And my network just sort of kept growing and growing."

Making Connections

Connecting to others was a large part of what the participants did with their PLN. This connection was as wide as the entire world and more specific including professionals outside the classroom such as authors and other educators with whom they had a reason to connect. Connections were made because they provided something to the educators, either through a mutual relationship or as someone to learn from through the feed within the SM. Interest was also a part of this connection. If there was a perceived interest and or perceived value with the connection a connection was made. P5 said when discussing the makeup of his own PLN, "So I've got lots of tech integration specialist, tech coordinators, but I also have administrators, teachers that are involved in tech or have an interest in tech. But I've gone beyond that too. There are artists, musicians, even, celebrities that sort of struck an interest in me that I thought would have relevant input to me in what I do." Choice of who to connect with was mentioned as an integral part of building a useful PLN. P3 stated, "I just, you know, like you just decide what you want to follow and what you don't want to follow." He continued stating, "...sometimes I get followed by photographers then I'll follow them back because I'm interested. If it's an advertising company or it's like, you know, we will increase your Twitter or whatever it is, I'm not interested."

Types of connections

Data analysis revealed there are two different types of connections that can be made in a PLN. The first connection is made by following or connecting to another individual. This type of connection is one way. It enables participants to learn from someone that they consider relevant to their specific needs. This person may not ever

reciprocate the connection to learn from the follower but this does not negate the possibilities of learning from them. The other type of connection described by the participants was a mutual connection where they followed and the other person followed them back. This type of connection, according to the participants, is one that is stronger and more meaningful. In this type of connection there is a reciprocal relationship, they connected to others they already had a face-to-face connection with or made new connections with people they hadn't met in person. P3 stated, "I'd go to a conference and it's a great way to keep connected with people." P4, when talking about how her PLN facilitates connections mentioned that she was able to form offline connection because of her PLN, "I met people who are local as well, you know, through it. So that's been really useful too for that." This allowed, according to the participants, connections that would not have been possible without the PLN. These connections expanded the user's world and introduced other tools that expanded the learning that was occurring. According to the participants' interaction is key. This type of connection allows for many affirmations including not feeling alone, a sense of belonging, a feeling of bravery to try new things, confirmations, positive feelings when others comment or like a post of theirs and authentic connections to other people.

One way

Twitter was also a tool that was used by many of the participants to form both connections spoken about. The first type of connection that was formed was a one-way connection. In Twitter this is called following. By following a person, you can learn from them by reading their tweets, clicking on links they share and gain resources from them. As P2 put it "...one thing I love about Twitter is that they can be my PLN but I'm not

necessarily in their PLN so they don't know that I'm learning from them necessarily..."

This type of connection allows the teacher to learn new things and gain new ideas but the

connection is not reciprocal. It is also the way many of the participants started their use of

social media as a PLN. P5 mentioned when discussing why he uses Twitter, "Well at first

it was pretty selfish. I was getting a lot of PD from all these contacts so I was learning a

lot..." however, he continued saying, "I sort of realized well, I've got some stuff to offer

too and I would post things..."

<p style="text-align:center;">*Two way (reciprocal, interaction is the key)*</p>

The second type of connection made in the international educators PLNs was one

where there was a reciprocal relationship and included more give and take. This give and

take was mentioned by many of the participants. P5 mentioned "So yeah it's sort of a

give and take although I still feel like I'm getting quite a bit more than I give." P2 said,

"...for the most part I would say my PLN is the people that there's a back and forth so

that we are interacting with each other more than me just has been reading their stuff."

When discussing how he uses Twitter P3 mentioned "It's not that I'm watching the

stream go by, it's keeping connected with people is the power and yeah, being able to

connect [to] people that I wouldn't have otherwise connected with."

It was also discovered that for the participants, this type of relationship was far

more rewarding for learning, improving their professional lives, and impacting their

approaches to teaching and learning in their own classes. When discussing the type of

connection where there was active engagement with other people P2 said, "Teachers who

aren't using it are literally missing out. They really are...I mean, because it's a totally

different thing to passively go on Pinterest or whatever and collect stuff than actively

engaging with people." When discussing a connection with an author P2 stated, "it's a lot of back and forth. Like she asked me recently to contribute to her blog, because she wants to know what, in this case, what nonfiction books teachers are excited to be bringing into their class this year. And so, it's definitely a give and take. We feed off each other." P3 also discussed this type of connection and described how he could use his PLN to have meaningful conversations with others to answer specific questions he had pertaining to what he was doing. He talked about how he could contact a specific person to ask a specific question. This connection would be able to either help him or possibly connect him to someone else who could. He ended this discussion with the following statement, "I connect to her, she connects me to other people. That's the power." He also mentioned when discussing his primary purpose for using his PLN: "Connection. I mean, I can be connected to so many people and I can put a question out there and I can get resources. It's connecting with people." P1 when discussing her reason for wanting to develop a PLN stated, "As an international teacher a lot of times and being middle school Math and Science I'm alone in my, um, the classes that I teach and so it made me want to reach out to other people who teach the same thing because at my immediate schools there were very few people or anyone else to actually have a conversation." It was a reciprocal relationship that she was looking for.

<u>What International School Educators Get from Connection in Their PLN</u>

The participants talked about the many aspects of their connections that enabled them to gain things from their interactions with their PLNs. Both types of connections allowed the participants the opportunity to get information (i.e. resources, ideas, links, and lesson plans). However, in the connection where reciprocity existed the participants

mentioned things more supportive in nature such as motivation, affirmations, positive feelings, confirmations, decreased sense of isolation and a sense of belonging.

Information (Resources, Ideas, Links, Lesson plans)

There are many web 2.0 tools that enable teachers to connect to other people, thoughts, ideas, resources and examples of teaching. The tools mentioned by the participants included Pinterest, Edshelf, Twitter, Facebook, blogs and websites like Teachers Pay Teachers. These tools enable teachers to form a one-way connection to get information to assist them in their teaching efforts. P1 mentioned for example, "Edshelf allows me to find different apps and different websites that I can use in my class for my students..." she continued, saying she uses "Teachers Pay Teachers, to gather lessons, lesson ideas. I also use Pinterest for ideas and then go in further to different blogs and find different lessons and ideas for my classes, for my students." Twitter was also mentioned by the participants as a place to get information. P2, said when talking about her Twitter use, "I heard of so many different things that I wouldn't have known of before because of Twitter, I got confirmation, I got links, I got websites, I got people." P5 said of his PLN, "I can check my Twitter feed almost daily and pick up new strategies…" P4 stated her primary reason for using Facebook as a PLN was, "...finding out new resources. So, people post a lot of good useful things that I can use, and also to ask questions."

Another aspect of international school educators PLNs served a supportive role providing the participants motivation including positive feelings when others commented or liked a post they made and increased bravery to try new things; affirmations including decreased sense of isolation, a sense of belonging, immediacy of answers to question,

trust and diversity of the connections made; confirmations about their own teaching practice, and authentic connections to other meaningful people.

Motivation

One of the participants, P5, spoke about how interaction with his own tweets by others in his network provided him with motivation to continue to participate in his PLN. He said, "If I post a picture or a tweet about something I'm doing that had, maybe I'm wondering about or excited about and then I get some positive feedback; people liking it and retweeting it that – that feels pretty good…" He continued stating, "…if my post is interesting enough I sometimes pick up a follower or two and that's even more boosting than just a like or retweet." Other motivational aspects of international school educators PLNs were the ability to increase the educator's level of bravery to try new things. P1 specifically stated, "I think having an international PLN has made me braver. I really do because I'm not just thinking my district. I'm searching online. I'm searching from friends who teach at other schools. Hey, what do you got? What do you have? Which websites do you use? What blogs do you pay attention to? Who's got some great ideas? And I think that for me too is, I've been braver." When P3 when discussing how his PLN has made him a better educator spoke about how he could connect with another educator and learn from them, he thought this ability was amazing and "It has made me um, want to try things…"

Affirmation and Support

The participants also discussed how participation in their PLN had the conceptual action of affirming the educator in many ways. Several teachers discussed how participation enabled them to feel less isolated. Their PLN helped them realize that they

were not alone and that there were others out there in the same situation as them. Examples of this included P1 who said, "so much of international is I'm alone and I'm really not alone." and then P2 who said, "I was really, really surprised to find out I wasn't the only one who... and that was reassuring but also encouraging because it meant that there were other people I could ask questions and bounce ideas off of and get more ideas from."

Participation in their PLN confirmed what they were doing and helped them to feel like they weren't alone, that they belonged to a larger group of educators who are connecting to improve their craft. For example, P2 stated, "I can get confirmation of things that I wonder." In another instance she stated, "I'm not the first person to ever do X, Y or Z so I might as well learn from other people." P1 stated, "There are other people in the world who are also trying to find better things for their students and they also need to use the internet because the majority of them are international teachers."

Another aspect of affirmation comes from the feeling that their PLN makes things possible that would not be without it. P3 discussed how the PLN enabled him to connect to people he would not have been able to connect to without it. This led to a discussion about how these diverse connections enabled authentic experiences such as personal responses from actual authors which had a huge impact on his students.

P4 discussed the connections and the things that she gains from participation in her PLN. Her PLN offers immediacy so she doesn't have to wait for somebody official to give her the answers. This provided a wider range of possible responses, which the educator can choose from, that best fits their particular need. Over time, this kind of learning environment allows educators to discover certain people they can trust.

Still another educator takes this further and suggests that the conversations you have within the PLN, being able to ask questions and get answers, these resources (the people and the connection to them) has made him a better educator. For example, P3 said, "I can say, how do you this? What did you do? Where did you go? Having those resources has made me a better educator."

Interaction

Interaction with other connections was an important part of assisting international school teachers in their learning process within their PLN. A big part of this interaction involved communicating with other people in their PLN as well as other teachers whom they met in face-to-face forums because of their PLN. It also included communications which happened with other professionals outside the classroom who had an impact on student learning. P1 when talking about how interaction with others in her PLN helped her stated, "I learned that I can think about things and I can learn about things and so knowing that the things that I'm trying, the things that I'm reaching out to my fellow teachers about the things that I'm getting from them are working for my students and that's the best thing ever." P2 also discussed how this connection and interaction has had a positive effect on her students, "...it's made me expand my classrooms a bit. It's not just my classroom. It's the world and I know that's very cliché and la la la but uhm they – the kids honestly feel like they can connect with who they need to connect with."

Through communicating with others, the participants could ask questions, get questions answered, and help answer other people's questions. Both P3 and P4 spoke directly about being able to ask questions. P3 said, "I've put questions out there. Hey, what are you using? What do you find? And getting that stuff back and digesting that

myself, or with the team, has been super useful." P4, when speaking about how she uses her PLN mentions, "So people post a lot of good useful things that I can use, um, and also to ask questions." Interaction is not the only way for international school teachers using PLNs to change their teaching practice, it also involves helping others. P3 spoke directly about being available to help others, "I can be able to – and support somebody, right? Like if somebody needs something from me, I'm there. I'm happy to answer and do whatever I can and share."

Another part of communicating and interacting with others was being able to share things with their community. When discussing how he uses his PLN, P5 began learning from others by picking up things from his connections posts. However, as time went on he realized that he could add things to the network himself. "I've got some stuff to offer too and I would post things and uhm realize that I got—I got -- was getting just as much as sort of positive feedback from my posting as I was uhm getting from their-- their post." Another positive result of interactions with others was the ability to assist the participants to grow their PLN by facilitating new connections and introducing new tools and learning opportunities to use in their own process of learning. P2 specifically spoke about what interacting with her PLN had enabled her to do, "...it allowed me to connect with more people via Skype and Google Hangout and so it helped me to spread in other ways too." She continued saying, "I hear about workshops because of people on Twitter I -- uhm use Voxer because of people on Twitter and it's all a big massive fun." When asked specifically if interaction made her PLN better she said, "Way, way, way stronger just because I mean, you feed off of each other's ideas and you say one thing and they say oh yeah, we could – it just builds."

<u>Implementation</u>

Internationals school educators, like all educators are in the process of learning new things and trying new things to help them improve their craft. P2, when discussing her primary reason for having a PLN stated, "To be a better teacher. Well, I mean it is my primary purpose and to me that's the best part of being teacher is every year you're going to do over... my hope is that every year a little bit better and not starting brand new every year but trying to refine, refine, refine." It is this desire to improve that motivates educators to try new things in their classrooms.

Every participant discussed various things they learned from their PLN that they were then able to implement into their learning environment. These included things like, learn by doing, mentor sentences, author Skypes and exploratory learning. In fact, many felt that they wouldn't have heard about these things if it weren't for their PLN. P2 stated, "...it's just something that I never would have come across I think if not for my PLN and doing that has definitely positively affected the kids." These new approaches had, according to the educators, a positive effect on student learning.

Two of the participants discussed being able to have authentic connections with real authors. P3 when discussing a time when he was still a classroom teacher mentioned, "We are reading um Sharon Creech's Walk Two Moons, she's one of my favorite authors and we got a class Twitter account and we tweeted something, you know, that we just finished the book and how we had loved it and 10 minutes later we get a reply from her." He continued, "...you know, we could have written letters to her and all these things we would never even know if it got there but here we are. We got our personal response ten minutes after we wrote it from the author and that...you know, to be able to connect with

people like that, that's huge, huge." P2, when talking about an authentic experience with an author talked about a girl who connected with the author of a book she was reading and how it made this girl so much more engaged with the content. This authentic experience according to P2 motivated the student to do better, "…it's this continuous cycle because this girl feels empowered to contact this author then she's excited to read more and that helps her be a better learner, and I mean she's brand new to English last spring so all of this is exciting to her but that's one tiny example."

Other examples of new learning include new pedagogical approaches used to change how things were done. These approaches were more student centered, focusing on student action to learn rather than being receptacles for information. P4, spoke about an approach to learning the basics of research. In this approach, the students were asked to do their own research before learning the basics. She said, "of course it's going to be full of holes, full of problems but then you introduce the terms in relation to the things that they did and that worked so well." She continued, "So, when you bring in that information and it's so much more relevant." The other pedagogy discussed which had a positive effect on student learning was an exploratory approach. In this approach, the teacher would give groups of students a challenge to complete with an app on an iPad. The students would then work to figure out how to complete the challenge and then share with the other groups what they learned. P3, when discussing this approach said, "...that has been a huge change for me, but also my teachers because my teachers then are less threatened by new things."

These are just a few examples spoken about by the participants. Every participant learned something new and then tried it out with their students. It is this open mindedness

and desire to improve that has helped them take what they have learned and applied it to their own context. The positive connections made by these educators has given them a strong sense of efficacy and therefore, they feel supported to try these new things. They aren't alone, they aren't the only ones doing this, they can learn from others in their network and if they run into problems they have a place to go to ask questions and get direction from others. As P2 put it while discussing trying something new in her class, "... we're getting better and better at it because there are people in my PLN and our PLN that we can ask questions to, that we can see examples from, that we can uhm just get ideas from…"

Another aspect that allows international school teachers the ability to try new things is the open nature of international schools, the abundance of technology available and the support from others in that school to help build a PLN. P1 mentioned, "I also have the freedom in many ways to try new things whereas in the States, you know, either you kind of locked in a little bit more. Whereas I go to a new school every three to five or six years and I can try something new." She also talked about the availability of tools and the support the IT department gave to her when she wanted support with tools she used to create her PLN, "...having tech available at a school that the tech people encouraged it, um, were willing answer questions and also just investigating things on my own."

<u>Making a Difference</u>

So far, how international school educators use their PLNs and what they get from this use has been discussed. A clear path has been laid out

1. Learning about PLNs
2. Choosing a tool or tools to build a PLN

3. Making connections with resources or other people

4. Interacting within the network

5. Learning new things

6. Implementation

The PLN, as discussed above has enabled the connections which assisted in the learning process and has also given motivation, affirmations and confirmations to assist the educators in building their desire to want to implement new learning. Each of these steps required action on the part of the educator. They first had to participate in the learning process, they had to make a choice based on their own needs, they then had to work at building connections, and finally spend more energy to interact with their networks in order to learn. The final step, implementation, also requires action. The researcher, after looking at the data multiple times came up with this visual to show the cyclical process taken by international school educators to ensure continual improvement (see Figure 6). As clearly shown this process begins after the first two steps are made and continues in a cyclical pattern. Sometimes a new tool will be used based on what they learn in their interactions but in general it follows the steps shown in Figure 6.
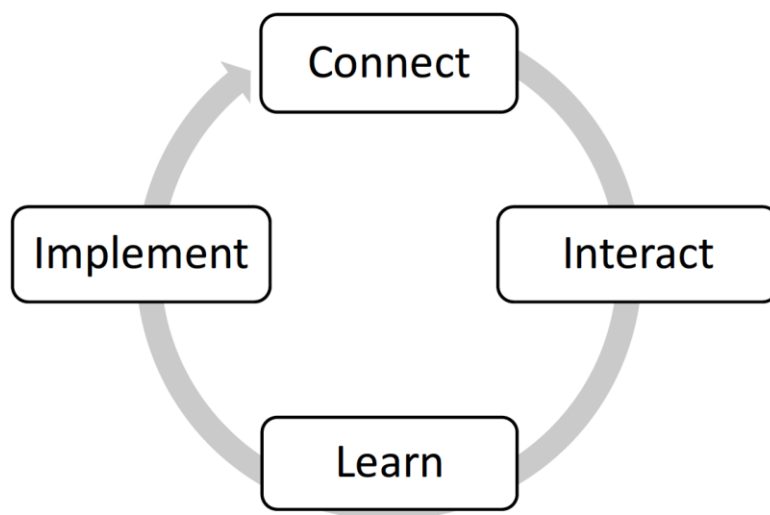
Figure 6:   **The cyclical process used by international school educators to help change their pedagogy using a PLN.**

Safety concerns were also mentioned. Not connecting to students etc…

The above path to change in pedagogy using an online PLN has been taken from qualitative data analysis through multiple coding steps. During the coding process, other things were discovered. One that was deemed important to mention about the use of social media by educators was related to possible safety concerns. P3, discussed the need to be careful connecting to students and the need to report questionable use by students. While this was only mentioned by one of the participants the researcher deemed it important to include in the findings.

Summary

This study followed a mixed method design and included the collection of both quantitative and qualitative data. In the first phase of this study quantitative data were collected through the use of an online survey instrument. In the second phase, qualitative data was gathered through online interviews. The first phase had 270 participants and the second phase had five. Data analysis for quantitative data used descriptive and

correlational statistics to answer 4 of the research questions. Data analysis for the qualitative phase included a 2-cycle coding process to assist in answering the final research question.

RQ1: What social media tools are international school educators using for personal reasons and for what purpose?

It was found that the international school teachers in this study make use of social media for personal reasons, they use a variety of social media platforms including but not limited to Facebook, YouTube, Twitter, LinkedIn and cloud storage services. The study found that they mainly use these platforms to connect with family and friends, share information and pictures with others, communicate with family and friends, check the news and learn about personal interests.

RQ2: Are international school educators using social media for professional learning as a PLN?

The study findings based on self-reported use discovered that a large portion of the participants (88.2%) used social media for professional learning as a PLN. Over 80% of both male and female participants reported that they used social media for professional learning as a PLN. Over 80% of the respondents, regardless of experience in international schools, also reported this use. It was found that male respondents spent slightly more time using social media for professional learning than the women in the study. However, this difference was not significant and gave no weight regarding the context of the study, which was to discover if international school teachers, regardless of gender made use of SM as a PLN.

RQ3: What social media tools are international school educators using for professional learning as a part of a PLN?

The study found that a variety of social media tools were being used by international school educators for professional learning as a part of a PLN. The results indicated that cloud storage, YouTube and Facebook were currently used the most by international school educators for professional reasons. Other tools that were reported included Twitter, LinkedIn, blogs Pinterest and Google Plus. Female respondents reported using Facebook and Pinterest more than the male respondents. The male respondents reported using all of the other tools more than the female respondents for professional reasons. Ninety-three (34%) of the participants felt it necessary to share tools not listed on the survey instrument adding to the variety of the tools being used.

RQ4: Is the use of social media by international school educators for professional learning in a PLN, related to change in the pedagogical approaches used by teachers?

The results of the study indicate that 80.7% of the participants that reported use of social media for informal professional development also reported that this use has changed the way they teach. It was also discovered there is a correlation between social media use as a PLN and certain aspects of teaching which indicate a change in practice. These include the use of social media for PD and teacher perceptions of improvement in teaching, a reported increase in the access to information, the reported improved ability to plan innovative lessons and projects, a reported improved ability to effectively use technology, and the reported increased feelings of confidence to try something new.

RQ5: How do international school educators use social media as a PLN to change their pedagogical practice?

The steps international school teachers in this study took to use social media as a PLN to change their pedagogical practice followed this path. First, they learned about PLNs, either through conferences and workshops, as a part of a formal class or through colleagues or students. After learning about the potential this use of social media could have on their professional lives they choose a tool or tools to build their PLN on. This choice was based on the teachers perceptions about the tool's usefulness to the teacher and ease of use. Next, they actively participated in their chosen tool to make connections with resources and other people. They then interacted with these connections within the network. This active participation lead to learning new ideas, strategies and pedagogical approaches, which were then implemented into their practice.

CHAPTER 5

Summary, Conclusions, and Implications

Effective teacher professional development (TPD) is the foundation for

sustainable and transformative change in teacher practice and leads to better student

achievement (Holmes, Preston, Shaw, & Buchanan, 2013). Swenson (2003) suggests that

for TPD to influence school reform and student learning, TPD needs to be available "at

the point of need, and fully integrated into teachers' daily practice" (p. 317). It has been

suggested that for TPD to be effective it needs to be directed towards learning and

teaching of specific content related to teacher practice and school initiatives,

collaborative in nature, and an intense, continual process (Gutierrez & Bryan, 2010). In

addition, successful TPD relies on continual support and interaction between educators

(Hur & Brush, 2009). Social media can help in the creation of a space to learn online,

where the learner is in control of their own learning activities (Dabbagh & Kitsantas,

2012) and it has been noted that many teachers are already using social networks to

create such learning spaces (Visser et al., 2014). Online communities provide a means of

TPD that can be sustained for a longer period and enables participants to authentically

apply what they learn in their own classroom (Gutierrez & Bryan, 2010). Swenson (2003)

advocates for the creation of online networks of teachers, both formal and informal, as a

place where transformational experiences can be shared, and that will assist teachers in

improving their practice. Social media has been suggested as a possible place to create

such a learning environment (Mazman & Usluel, 2010) especially for teachers who are

isolated. This is particularly useful for international school teachers who are distributed throughout the globe.

Traditional TPD methods are not optimal for educators who work in international schools for many reasons including, isolation, lack of funds and time to attend, disconnected content and inability to make a difference in the pedagogical approaches teachers use. The creation of online PLNs has been suggested to augment the formal learning occurring at workshops and conferences. Few studies focus on the professional use of PLNs by K-12 educators and no studies were found explicitly relating to the use of these tools by teachers in international schools.

This mixed methods study addressed this gap in the literature. The first phase of this study answered the following questions.

1. What social media tools are international school educators using for personal reasons and for what purpose?

2. Are international school educators using social media for professional learning as a PLN?

3. What social media tools are international school educators using for professional learning as a part of a PLN?

4. Is the use of social media by international school educators for professional learning in a PLN, related to change in the pedagogical approaches used by teachers?

The second phase of the study answered this research question:

5. How do international school educators use social media as a PLN to change their pedagogical practice?

Knowing more about international school teacher professional use of social media as a PLN will give researchers and administrators direction when considering reform in TPD for international school teachers.

Chapter five begins with conclusions reached about the use of PLNs by international school teachers related to the larger context of PLNs discussed in the literature review. Then, the implications for administrators and practitioners in the international school field are identified. Limitations of the study will then be revisited and the chapter will conclude with recommendations regarding possible future direction in related studies.

Conclusions

This mixed methods study has given greater insights into the nature of international school teacher use of social media as a PLN. The quantitative and qualitative data are like various media which combine and add to this emerging picture of informal professional development for teachers who work at international schools. Keeping the above findings in mind, the researcher has come to the following conclusions regarding this topic.

- International school teachers used web 2.0 tools for professional learning

- International school teacher PLNs model online communities of practice

- International school teacher PLNs are more effective when the teacher takes action

- Teacher choice is important to the effectiveness of the PLN

- PLNs supplement traditional forms of professional development for international school teachers

- PLNs reduce isolation, and give motivation, affirmations and confirmations to international school teachers

- Use of SM as a PLN has a positive impact on international school teacher attitudes and beliefs about their practice

International School Teachers Used Web 2.0 Tools for Professional Learning

When asked to indicate to what degree they agree or disagree with the following statement, "I use social media for informal (self-initiated not directed by your school) professional development." 88.2% of the participants responded either strongly agree or somewhat agree. The results show that 85.7% of the male respondents and 89.9% of the female respondents either strongly agree or somewhat agree that they use social media for informal professional development. Regardless of the amount of years the educators in this study had been in the international school field, all levels of experience reported over 80% that they use social media for informal PD. The results also indicated that international school teachers use social media for various amounts of time for professional learning with a little more than half of the respondents using it weekly and a little less than half using it daily. Less than two percent of the participants, all female, reported that they don't spend any time using social media for professional reasons. These results indicate that educators working in international school most likely use Web 2.0 tools for professional learning. Regarding isolated international schools who need various means to provide professional development other than sending teachers to workshops or bringing in specialists, social media tools are providing those who choose to use them for professional learning a route that is free and easy to use.

International School Teacher PLNs Model Online Communities of Practice

       The way in which international school educators in this study are using online PLNs built with web 2.0 tools is consistent with the idea of an online Community of Practice (CoP). A CoP can be considered groups made up of participants who share a problem, passion or concern and through continual interaction deepen their level of understanding and competency around the topic, problem or passion (Wenger, McDermott, & Snyder, 2002). It has been suggested that these online CoPs can promote learning regardless of time and space (Booth, 2012) by providing users a place to connect with others around similar interests, activities, backgrounds or face-to-face connections and provides a virtual space for learning (Srivastava, 2012). This has been referred to in the literature as a Personal or Professional Learning Network (PLN). A PLN has been defined by Trust (2012) as a "system of interpersonal connections and resources which can be used for knowledge sharing, idea exchange, informal learning and collaboration (p. 133).

       The path international school teachers in this study took to build and use their online PLN involved these steps. The teacher first learned about PLNs. Then they choose a tool or tools to build their PLN on. Next, they made connections with resources and other people. They then interacted with these connections within the network. This active participation lead to learning new ideas, strategies and pedagogical approaches, which were then implemented into their practice. This process afforded international school teachers the opportunity to reflect and participate in collaborative processes and assist in sustainable growth in the context of their own locality as suggested by Laferrière et al., (2006).

The process also followed the framework suggested by Laferrière et al., (2006) that uses various technologies to assist teachers in their continual process to improve their practice. This "developmental pathway of teacher practice" (p. 85) began with the use of the Internet to obtain access to information and then moved on to the examination of issues with pedagogy related to collaboration and reflection. The teacher then expanded outwardly to participate in professional learning communities where they shared their own experiences, knowledge and practice. In the final stage of this journey, the teacher increased their sense of ownership and participated as "knowledge designers generating new knowledge with others in a knowledge building community" (p .85).

This path was highlighted when P5 discussed his use of Twitter: "Well at first it was pretty selfish. I was getting a lot of PD from all these contacts so I was learning a lot..." however, he continued saying, "I sort of realized well, I've got some stuff to offer too and I would post things..." he began using Twitter to obtain access to information but then expanded to participate and share his own experiences. As the members of the PLN interacted they all participated in the learning process. P3 also discussed this type of learning when he discussed how he could use his PLN to have meaningful conversations with others to answer specific questions he had pertaining to what he was doing. He talked about how he could contact specific people to ask specific questions. This connection would be able to either help him or connect him to someone else who could. He ended this discussion with the following statement, "I connect to her, she connects me to other people. That's the power." In this type of learning environment cognition was situated, social and distributed amongst the members of the network.

International School Teacher PLNs are More Effective When the Teacher Takes Action.

The effectiveness of the PLN relied on self-directed action taken by the learner to participate in their networks. Self-directed learning has been shown to be very effective when connected to the ideas in a CoP where the action in learning is tied to something the participant perceives as valuable (Mazman & Usluel, 2010). Self-directed action was taken by the international educators in this study because they perceived it as a valuable undertaking. This action enabled connections, communication, sharing of ideas, and lead the educator to be able to learn something new and then implement their new knowledge into their teaching practice. Qualitative analysis uncovered that a PLN was more effective when a reciprocal connection was made, one where interaction between members of the network provided users what they needed to learn, ask and get questions answered and gain new insights. When discussing the type of connection where there was active engagement with other people P2 said, "Teachers who aren't using it are literally missing out. They really are...I mean, because it's a totally different thing to passively go on Pinterest or whatever and collect stuff than actively engaging with people." This self-directed action is connected to the choices international school teachers made in the process of building their PLNs.

Teacher Choice is Important to the Effectiveness Of The PLN

For teachers who work at internationals schools the choice of the tool and its perceived usefulness is important to the effectiveness of the PLN. This choice and perceived usefulness began with the personal usage of a tool that was then repurposed for professional reasons. Mazman and Usluel (2010) discovered that use of a new innovation first began in everyday personal use for various reasons and then as perceived usefulness

and ease of use in regards to a particular purpose increased, adoption for that new

purpose then began. The majority of participants in this study already used social media

and other Web 2.0 platforms for personal reasons. The most widely reported applications

used were Facebook (91.1%), YouTube (91.5%) and cloud storage (84.8%). The data

about tools used for professional reasons showed that Facebook (53.3%), YouTube

(79.3%) and cloud storage (82.6%) were also the most reported tools used reflecting

Mazman and Usluel (2010) findings. When international school educators chose the tool

they found most useful, it had a better chance of being repurposed for educational usage

and to provide them the means to make powerful choices about their own learning. This

viewpoint is supported by Maloney (2016) who found teachers who were already

participating in an online communities of practice were using a variety of tools unique to

their own learning preferences. This current study also indicated a variety of tools being

used by the participants for professional learning. In fact, ninety-three (34%) of the

participants felt it necessary to share tools not listed on the survey instrument showing

that their unique learning preferences and the perceived usefulness of the tools they

choose are important.

The importance of choice and perceived usefulness was also clearly shown

through qualitative analysis, when looking at how P4 began using social media and how

her use progressed. She began using Facebook for personal reasons, and then through a

formal class taken at a university learned about the potential Facebook had for supporting

her professional life. She then began using a Facebook group to connect with other IB

teachers. She directly spoke of the reason for using Facebook as opposed to the official

IB network when she mentioned that the official tool for IB teachers to use to connect

with others is rubbish and really hard to navigate. Her experience, if she were to continue to use the "official" IB community, might not be effective because just being in an online community does not always guarantee effectiveness. This is because the ability to interact in a more frequent manner, does not always equate with teacher learning (Laferrière et al., 2006). It depends on the teacher and how they "interpret the uses of tools and how they use them to transform the learning practices" (Laferrière et al., 2006 p. 85). P4 continued to use Facebook as a learning platform rather than the IB platform because it was easier to navigate and as she said, "just easier and more immediate". This was one way that shows a teacher will use a tool that they find most useful. Ross, Maninger, LaPrairie, & Sullivan, (2015) found the use of social media tools such as Twitter might elevate the chance of successful implementation of a PLN because it is easy and free to use. For P4, Facebook was her easier to use platform that was helping her successfully implement her PLN. Schlager & Fusco (2003) also suggest that the tools used to support the collaboration of teachers must be customizable by the teachers so they can adjust them to fit their own and the communities' needs. This was also highlighted when P3 discussed advice he got from his connections regarding tools and their abilities, basically they told him, "You know, dude, make it what you want it to be." International school teachers can use the tool in a way that will fit their needs and support them in their process of learning. This use can effectively help them to supplement their professional development.

PLNs Supplement Traditional Forms of Professional Development for International

School Teachers

International school educators who use SM as a PLN are using their PLNs to act

as a supplement to or as a replacement for traditional forms of teacher professional

development. This use has been acknowledged in the literature. (Beach, 2012; Beglau et

al. 2011; Burns, 2013; Cooke, 2012; Leiberman & Pointer Mace 2010; Nussbaum-Beach

& Hall, 2012; Richardson & Mancabelli, 2011). According to Holmes (2013) these

online communities can provide personalized, authentic learning, which can support

continuous teacher professional development.

International school teachers in this study were using social media tools to build

PLNs to assist them in their professional development. Trust (2012) found that teachers'

mainly use PLNs to locate resources, connect with other like-minded professionals, gain

ideas, share information and get feedback. International school teachers were using social

media as a PLN to get (91.1%), save (83.7%) and share (82.6%) resources; connect to

other like-minded people (81.5%); have meaningful conversations about education

(59.6%); gain new insights related to their own context (82.2%) and learn about other

professional development opportunities (72.2%).

Qualitative analysis also supported the use of PLNs to supplement professional

development. Participants discussed ways in which use of their PLN assisted them in

their quest to improve their practice. P5 said of his PLN, "I can check my Twitter feed

almost daily and pick up new strategies…" P4 stated her primary reason for using

Facebook as a PLN was, "...finding out new resources. So, people post a lot of good

useful things that I can use, and also to ask questions." P2, said when talking about her

Twitter use, "I heard of so many different things that I wouldn't have known of before because of Twitter, I got confirmation, I got links, I got websites, I got people." She continued saying, "I hear about workshops because of people on Twitter." This shows that she still values and participates in traditional forms of professional development such as workshops and that her PLN supplements this mode of learning. P1 discussed the fact that she no longer has a district and this has limited the amount of traditional form of professional development for her, "I use the internet a lot because of not having a district with which-- I mean, my district is the internet. Before I went overseas there were district conferences. There were conferences I went to. There were conferences that were offered in the immediate city. Not just, you know, another country. Whereas here it's like I have to either do stuff online or see if I can go to a conference." This clearly shows that she is using her PLN to supplement her professional development. PLN use is not just about getting resources and supporting traditional forms of teacher professional development, it is also about the deeper connections made and what these connections can do for the participants.

PLNs Reduce Isolation, and Give Motivation, Affirmations and Confirmations to International School Teachers.

Flanigan (2012) says of PLNs, "such networks reduce isolation, promote autonomy, and provide inspiration by offering access to support and information not only within a school but also around the globe" (Flanigan, 2012, p. 42). PLNs provide a space for educators to connect to others throughout the world in order to build a learning community where interpersonal connections are made, encouragement, support and feedback is given, where collaboration and brainstorming happens and ideas are

generated, allowing educators to stay current with the latest practices and pedagogies (Beach, 2012; Cox, 2010; Dobler, 2012; Trust, 2012).

Quantitative analysis discovered that PLNs were mainly used by international school educators for accessing information and connecting with other like-minded people. It is the interpersonal connections that provided the support and feedback needed to help reduce feelings of isolation and give affirmations. Several teachers discussed how participation enabled them to feel less isolated. Their PLN helped them realize that they were not alone and that there were others out there in the same situation as them. Examples of this included P1 who said, "so much of international is I'm alone and I'm really not alone." P2 said, "I was really, really surprised to find out I wasn't the only one who... and that was reassuring but also encouraging because it meant that there were other people I could ask questions and bounce ideas off of and get more ideas from." She continued discussing how her PLN also enabled her to confirm what she was doing, "I can get confirmation of things that I wonder." In another instance she stated, "I'm not the first person to ever do X, Y or Z so I might as well learn from other people." P1 stated, "There are other people in the world who are also trying to find better things for their students and they also need to use the internet because the majority of them are international teachers." This use is an example of what VanDoorn & Eklund, (2013) discovered about networks such as these, they have the ability to assist learners in creating peer-to-peer, self-motivated learning and erase issues created by geographical distance. The use and the support the international educators received from their PLNs had a positive impact on their teaching practice.

Use of SM as a PLN Has a Positive Impact on International School Teacher Attitudes and
Beliefs About Their Practice.

The areas that were reported as most impacted by the use of social media as a
PLN were increased access to information; improved ability to plan innovative lessons
and projects; becoming a better educator; teaching more effectively with technology;
increased confidence to try new things and the ability to make professional connections,
that would not have been possible without social media. Statistical analysis also indicated
a positive correlation between the use of social media for PD and teacher perceptions of
improvement in teaching, a reported increase in the access to information, the reported
improved ability to plan innovative lessons and projects, a reported improved ability to
effectively use technology, and the reported increased feelings of confidence to try
something new. Many of the participants (80.7%) also believe that their participations in
their PLN has led to a change in the way they teach. It was also widely reported that
social media as a PLN has added value to the conferences the participants attend by
allowing sharing, questioning, and dialogue between presenters and attendees. Qualitative
analysis also suggested that the conversations international school teachers have within
their PLN, the ability to ask questions and get answers, the resources gotten (the people
and the connection to them), has made them better educators. For example, P3 said, "I
can say, how do you do this? What did you do? Where did you go? Having those
resources has made me a better educator." These results show that the use of the PLN
positively impacted the teachers attitudes and beliefs about their practice and their own
professional development, which is what Ertmer, et al., (2012) suggested that teacher
professional development should focus on changing. This change in attitudes and beliefs,

along with the support they received from participation in their PLN influenced their teaching practice.

Communication and Collaboration in a PLN Assisted in Change in Teaching Practice

It has been discovered that having teachers participate in collaborative practices in a professional community, as a part of their own professional development, can assist in changing how they approach teaching and learning in their daily practice. Becker and Riel (1999) found that teachers who have interactions with teachers from other schools tended to have pedagogical practices more in line with constructivist methods. They also found that collaborative teaching practices increased in the classroom when teachers participated in more collaborative practices outside the classroom. Becker and Riel put it this way, "This form of professional exchange, more so than contact within the school seems to be correlated with constructivist approaches to teaching" (p.36). Quantitative analysis discovered that 83.7% of the participants believe that their PLN use increased their confidence to try new things and 77.4% thought it helped them changed the way they taught. Statistical tests also showed a significant positive correlation between the use of social media for PD and the reported increased feelings of confidence to try something new, rs(268) = .370, p < .001.

Qualitative analysis discovered that continual and intentional interaction through online PLNs assisted international school teachers in creating a means to change their pedagogical practices. When asked specifically if interaction made her PLN better P2 said, "Way, way, way stronger just because I mean, you feed off of each other's ideas and you say one thing and they say oh yeah, we could – it just builds." In fact, many of the participants believed that they wouldn't have heard about certain ideas, strategies and

approaches to learning if it weren't for their PLN. P2 stated, "...it's just something that I never would have come across I think if not for my PLN and doing that has definitely positively affected the kids." These new approaches had, according to the educators, a positive effect on student learning.

Examples of these changes included the implementation of more constructivist teaching methods and more authentic connections to real world experts outside the classroom. These approaches were student centered and focused on student action to learn rather than being receptacles for information. When P5 was discussing how his PLN has changed his practice he said it, "…inspired me to put a little more responsibility on the student, so it's changed a bit of my pedagogy rather than being the, you know, the lecturer in front of the room. I'm tending to let kids explore more and -- and uh, maybe fail more in their attempts to show them learning and things like that." P4, spoke about an approach to learning the basics of research. In this approach, the students were asked to do their own research before learning the basics. She said, "of course it's going to be full of holes, full of problems but then you introduce the terms in relation to the things that they did and that worked so well." She continued, "So, when you bring in that information and it's so much more relevant."

Another pedagogy discussed which had a positive effect on student learning was an exploratory approach used when students were learning about a new application on an iPad. In this approach, the teacher would give groups of students a challenge to complete with a specific app on an iPad. The students would then work to figure out how to complete the challenge and then share with the other groups what they learned. P3, when

discussing this approach said, "...that has been a huge change for me, but also my teachers because my teachers then are less threatened by new things."

Drexler's (2014) review of literature found that synchronous online communication tools, which include video conferencing and microblogging platforms such as Twitter, provide means for connecting with experts in almost any area of learning. International school teachers also mentioned this aspect when discussing how their teaching practice was changed using their PLNs. Specifically, this involved connecting with authors. P2 discussed author Skypes, where an author Skypes with a class and talks about a book they are currently reading. She stated, "…in a couple of weeks we have author Skype with Melissa Stewart who is an author of more than 180 books by now, but uhm she's someone I met in person because of a Twitter connection. We went to an EdCamp together, and now we Skype with her every year because she fits in perfectly with our third-grade literacy unit." In another instance she mentioned, "I met Victoria Coe two summers ago at a conference also because of all these connections and so she is really actively involved in answering questions back and forth from the kids and any time we tweet out anything, she's retweeting and commenting and yeah, it just makes it all work for the kids…" Her PLN brought real-world experts into her classroom that expands the walls of her students' learning environment. She continued speaking about the authentic connections her PLN enables and mentioned a specific incident where a girl connected with the author of a book she was reading and how it made this girl so much more engaged with the content. This authentic experience according to P2 motivated the student to do better, "…it's this continuous cycle because this girl feels empowered to contact this author then she's excited to read more and that helps her be a better learner,

and I mean she's brand new to English last spring so all of this is exciting to her but that's one tiny example."

P3 when discussing a time when he was still a classroom teacher talked about an authentic connection to an author, "We are reading um Sharon Creech's Walk Two Moons, she's one of my favorite authors and we got a class Twitter account and we tweeted something, you know, that we just finished the book and how we had loved it and 10 minutes later we get a reply from her." He continued, "...you know, we could have written letters to her and all these things we would never even know if it got there but here we are. We got our personal response ten minutes after we wrote it from the author and that...you know, to be able to connect with people like that, that's huge, huge."

This type of response from authors enabled the figurative breakdown of classroom walls. The world now becomes the classroom and all experts the teachers. It also allows students to see the power that connections within social media can have in regards to getting information from those experts. It shows the power of personal action taken by the teacher. When speaking of her PLN, P2 mentioned, "it's made me expand my classrooms a bit. It's not just my classroom. It's the world and I know that's very cliché and la la la but uhm they – the kids honestly feel like they can connect with who they need to connect with." The opportunities created by these technologies allow teachers to participate in learning communities and give teachers the chance to reach beyond the school walls out to other districts, or further, to other countries. This can assist in changing the pedagogical practices of teachers (Laferrière et al., 2006).

It is clear from the findings of this study that international school teachers in this study are already using various social media tools, chosen by them to fulfill their own

specific needs, in order to build a PLN. This PLN models the theoretical framework of a Community of Practice where cognition is situated, social and distributed amongst the members of the network. Through intentional action and choice regarding what tool to use and who to connect with, the PLN has enabled international school educators to supplement traditional forms of teacher professional development. This form of informal professional development enabled the educators who took part, to gain new insights, access resources and connections that assisted them in changing their teaching practices. This change ultimately had a positive effect on the learning taking place within their classrooms by creating an expanded and more authentic, constructivist learning environment. This change has certain implications for teachers and administrators in the international school field.

Implications and Recommendations

<u>Implications</u>

International schools, like most schools, require their teachers to remain up-to-date with developments in the educational field and current best practice (Black & Armstrong, 1995). International schools face the same problems that national schools face regarding the development of a program for teacher professional development (TPD), including teacher time and finance, however, Black & Armstrong, (1995) suggest that these problems are magnified due to the isolation of most international schools. According to Black, Harvey, Hayden, & Thompson, (1994) this isolation increases the need for quality TPD because "it is this very physical isolation that increases the desire, and fuels the demand, for professional development" In the unique environment of international schools' teachers are also faced with various cultural approaches to learning,

which makes the need for skills related to best practice in these contexts even more critical (Black & Armstrong, 1995).

The most typical types of TPD, like national schools, are workshops (Burton, 2012). This creates a problem for international schools where the cost in both money and time might make it difficult for international school teachers to attend. Another issue with workshops is that they have been found to be ineffective as they are typically disconnected contextually (Gross, Truesdale & Bielec, 2001), use a one-size-fits all approach (Butler & Sellbom, 2002) and are not long enough for teachers to consolidate learning (Holmes et al., 2013). The ineffectiveness of workshops and conferences to change teacher practice and the high cost related to sending teachers to workshops have motivated researchers to consider alternative routes for TPD.

The results of this study can give greater insights into how PLNs can act as a viable alternative or support for more traditional forms of TPD, specifically for globally distributed and isolated teachers who work at international schools. The PLNs in this study have been able to assist in reducing or removing the major concerns regarding TPD in international schools such as cost, contextual relevance, unvaried approaches and limited time. Other areas that PLNs have been shown to assist regarding TPD of international school teachers is their feelings of isolation and the effectiveness of the TPD they are participating in to actually have an effect on their pedagogical practices.

1. The first area PLNs address is cost. PLNs built with online Web 2.0 tools do not cost anything for teacher participation. There are no costs for travel, in paying for a substitute teacher or in time away from the classroom. This is inline with Fishman et al., (2013) who discovered

online TPD is better for those who are geographically distributed and can be cheaper in these instances than sending teachers to workshops.

2. Second, the teacher created PLN is contextually relevant to the teachers' needs and assists them in obtaining resources and connections that help them in their own process of learning. It has been proposed that for TPD to be effective, it needs to be directed towards learning and teaching of specific content, related to teacher practice and school initiatives, collaborative in nature and an intense, continual process (Gutierrez & Bryan, 2010).

3. Third, this contextually relevant form of informal learning is not one-size-fits all as it is created by the teacher. Colbert et al., (2008) found that teacher autonomy in regards to their own professional growth enhances a teacher's, ability to improve the lives of their students because it increases their passion for teaching.

4. Fourth, the type of learning environment created by the international school teachers PLNs is not limited by time. According to Holmes (2013) these online communities can provide personalized, authentic learning, which can support continuous teacher professional development. Wilson and Berne (1999) suggest adequate follow-up time and support, inclusiveness, and easy accessibility are necessary characteristics for effective PD.

The PLNs in this study provided these aspects for the educators who chose to actively participate in their community of learning. Swenson (2003) suggests that in order

for TPD to have an effect on student learning, it needs to be available "at the point of need, and fully integrated into teachers' daily practice" (p. 317). PLNS were used by the participants in this study when they needed it allowing them to get what they needed when they needed it.

According to the findings of this study PLNs provided a learning environment that as stated by Booth (2012) supported individualized, relevant, professional learning and offered access to resources without limitations of location or monetary constraints. Along with the findings of Beach, (2012); Cox, (2010); Dobler, (2012); Trust, (2012) This study also found that PLNs provided a space for educators to connect to others throughout the world in order to build a learning community where interpersonal connections were made, encouragement, support and feedback was given, where collaboration and brainstorming happened and ideas were generated, which allowed the international educators to stay current with the latest practices and pedagogies.

This study also found that international school teachers used their PLNs to feel less isolated. Examples of this included P1 who said, "so much of international is I'm alone and I'm really not alone." and then P2 who said, "I was really, really surprised to find out I wasn't the only one who... and that was reassuring but also encouraging because it meant that there were other people I could ask questions and bounce ideas off of and get more ideas from." This is in line with what Maloney (2016) suggested that PLNs could be beneficial to teachers who feel isolated either because they are the only teacher a subject in their school, teach in an international school or for other reasons.

Lawless and Pellegrino (2007) argue that pedagogical change in teacher practice is the most important influence professional development should have in regards to the

teacher as this shows a movement in pedagogical knowledge. This study found that, for the participants, the use of the PLN positively impacted their beliefs and attitudes about several key areas of the teaching profession. Statistical analysis showed a positive correlation between the use of social media for PD and teacher perceptions of improvement in teaching, a reported increase in the access to information, the reported improved ability to plan innovative lessons and projects, a reported improved ability to effectively use technology, and the reported increased feelings of confidence to try something new. Many of the participants (80.7%) also believed that their participations in their PLN had led to a change in the way they teach. All of these findings are related to a move in pedagogical knowledge. It is, therefore, clear that international school teachers are using their PLN to make changes in the approaches they are using in their classroom. Which assists in making the PD more effective as it ultimately effects student learning.

The findings of this study give a possible route to improve the TPD for the globally distributed and isolated teachers who work in international school. PLNs have been found to address all of the issues that international schools have with traditional forms of TPD. PLNs have been able to assist teachers in their ability to learn new approaches and strategies, gain new insights, increase their access to resources and ideas and help them form valuable connections with others to have conversations around improving their craft. The things the teachers in this study have learned was implemented into their classroom and changed the way students were learning in the classrooms. Ultimately the use of the PLN improved the teaching and learning in the classrooms of the teachers who took part in this informal learning. With the above implications in mind the researcher would like to make a few recommendations

<u>Recommendations</u>

Since the results of the study suggest that PLNs can act as a viable means to supplement traditional forms of TPD in internationals schools and also address many of the main concerns these typical form of TPD have for the field, the following recommendations are made. The recommendations will be broken into two areas for administrators and leader and the other for teachers. These recommendations if implemented would enable more teachers who work at internationals school to utilize PLNs as a form of professional development, one that could supplement or replace traditional forms of TPD.

<u>Administrative Recognition, Support and Time</u>

Educational leaders, administrators and those responsible for development of TPD for international schools should recognize the potential of online professional development networks to supplement traditional forms of TPD. After recognizing this potential, they should support the use of Web 2.0 tools to build professional development networks by employing a job embedded approach to this use. This would require that time be given specifically during the normal workday for teachers to participate in their PLNs. Another way support could be given is to provide training for all teachers regarding the professional use of Web 2.0 tools for building online networks for learning. Black and Armstrong (1995) discovered international school teachers believe that internal faculty expertise should be used for TPD. Administrators should take this idea and offer a TPD session that will utilize those educators who are already using PLNs for informal professional development to act as mentors for those who aren't yet using them. This type of support would assist international school teachers in beginning their process of

following the path discovered in this study starting with learning about PLNs then moving on to choosing a tool or tools to build a PLN. After initial support from faculty experts, teachers could then take individual initiative to follow the cyclical process to continue building their PLNs to assist them in their professional development. For international schools who don't yet have faculty currently using PLNs an outside consultant could be employed for this purpose.

<u>Teacher Action to Build a PLN</u>

This study also discovered that teacher action was important to the effectiveness of the PLN. With this in mind, the following recommendations are made for international school teachers. International school teachers should take it upon themselves to take the necessary action to build a PLN based on their context and needs. This will require them to choose the tools they want to use based on their learning goals. Since it has been found that a tool they currently use for personal reasons might make the professional use more effective, it is suggested that they consider what Web 2.0 tools they are currently using for personal reasons when choosing the right tool for their PLN. The teachers in this study who benefitted the most from their PLNs used them to create reciprocal relationships with other educators. It is suggested that international school teachers build the type of PLN where a reciprocal relationship amongst the members of the network exists. In this way, the PLN will serve a supportive role providing the participants motivation and increased bravery to try new things; affirmations including decreased sense of isolation, a sense of belonging, immediacy of answers to question, trust and diversity of the connections made; confirmations about their own teaching practice, and authentic connections to other meaningful people.

The next section will discuss recommendations for further study some of which address the limitations of this current study. These limitations include the sample population being comprised mostly from Asia, data gathering conducted solely online, time issues with collecting data synchronously, the reliability of self-reported data and researcher bias.

Recommendations for Future Study

Since the majority of the participants in this study were working in Asian international schools and this might make generalization to other internationals school populations difficult, it is suggested that studies such as this one be conducted in other areas of the globe. This would add more data specifically related to how teachers who work at internationals schools make use of social media as a PLN for informal professional development.

This study found that the use of social media as a PLN helped teachers who work in internationals schools to feel less isolated and a part of a larger group of teachers who are all trying to improve their craft. This finding was in line with Flanigan (2012) who found that PLNs help to reduce isolation, promote autonomy, and provide inspiration. Since isolation is a common thread in international schools, more studies conducted to measure the type of support provided by PLNs to internationals school teachers to reduce feelings of isolation could be done. It is suggested that this study focus mainly on isolation but that other areas of support such as motivation, confirmations, and affirmations could be included.

The findings of this current study suggest that for the teachers who used PLNs to create meaningful relationships with others, their use impacted the pedagogical practices

they employed in their classrooms, thus affecting student learning. The data gathered to arrive at this conclusion relied entirely on self-reported data gathered through interviews. To improve on this area of study, the researcher suggests a longitudinal study that follows a group of teachers who use social media as a form of TPD. The focus of which, would be to measure the types of pedagogical practices applied to the learning environment because of PLN use and the impact had on student learning.

Another area of continued study would help address the limitation of this current study that all data was gathered online. To alleviate this problem, a study where data was gathered at a large conference or at several international schools could be conducted. This type of data gathering might vary the type of participant to include teachers who are not as tech savvy. Having more data on those teachers who may not be using social media for professional learning could add to this limited area of study and give more information to those in charge of professional development at internationals schools.

One of the participants mentioned in their interview that the use of a class hashtag and the sharing of this hashtag with other teachers in the school had a positive effect on the other teachers of the same grade level. According to the interviewee seeing the great things happening in one classroom had motivated others in the grade level to try and do more. It also motivated others to begin using Twitter as a PLN. With this is mind, the researcher suggests a study that looks at the effect of many teachers in a school that use PLNs and the effects it has on the school collaborative culture.

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APPENDIX A

Invitation to Participant in Survey (Phase I)

Dear Fellow International School Educators:

My name is Shannon Heath Doak, I am a doctoral student at Boise State University.

My dissertation focuses on how international school educators are using social media as a personal learning network (PLN) for informal professional development purposes. I need your help. Please click on the following link if you are able to spare between 10-15 minutes of your time to complete a short survey containing 24 questions concerning your use of social media as a PLN for professional development purposes. The survey should take no longer than 15 minutes to complete and your responses will be confidential. At the end of the survey you will be asked whether you are willing to participate in the second phase of the study, which consists of Skype™ interviews with international school educators who are active and engaged PLN-users who have made changes to their teaching because of this use. Please provide me with your email address if you are willing to be interviewed. Thank you so much in advance for your consideration. I truly appreciate your time and hope that this study will provide valuable insights to leaders and practitioners concerning how to leverage the potential of PLNs as a form of teacher professional development for international school educators.

Sincerely,

Shannon H. Doak

APPENDIX B

Phase 1 Survey Questions

Dear Fellow International Educator:

My name is Shannon Heath Doak. I am a doctoral student at Boise State University (BSU) working under the supervision of Dr. Kerry Rice. You are being asked to participate in my dissertation research that will examine how international school teachers use social media as a Personal Learning Network (PLN) for professional development.

As a participant in the first phase of this study, you are asked to complete an online survey that consists of 29 questions and will take approximately 10-15 minutes to complete. You do not have to answer any question that you feel uncomfortable answering. You may choose not to participate in this research, and you have the right to withdraw consent at any time without consequence.

There are no known risks to completing this survey, nor are there are any direct benefits or compensation to participants. However, by participating in this study, you have the indirect benefit of helping leaders and practitioners learn more about the potential of informal learning through the use of social media as a PLN for professional development. Your responses will be analyzed and reported anonymously to protect your privacy. The results of this survey will be compiled so that no one is individually identifiable. The results may be published in scholarly journals, or presented at professional conferences. By continuing into this survey, you are acknowledging you understand what this study is for and are agreeing to participate.

If you have any questions or comments about this research study, please contact

Shannon Doak at shannondoak@u.boisestate.edu, (+1) 808-825-1791; you may

also contact my faculty supervisor, Dr. Kerry Rice at krice@boisestate.edu.

Research at Boise State University is conducted under the oversight of the BSU

Institutional Review Board. If you have questions about your rights as a research

participant, you may contact the Boise State University Institutional Review Board

(IRB), which is concerned with the protection of volunteers in research projects. You

may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by

calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research

Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138. You

may also email the BSU IRB office via email at humansubjects@boisestate.edu . Please

reference IRB #104-SB17-117.

Sincerely,

Shannon H Doak

1. Are you currently working at an international school? (if **YES** please
   continue, if **NO** I am sorry, you are not qualified to take this survey. I
   thank you for your time)
   Yes   No

2. Including this year, how many years have you been an educator?
   a. 1-5
   b. 6-10
   c. 11-20
   d. Other_____

3. Including this year, how many years have you been an INTERNATIONAL educator?
a. 1-5
b. 6-10
c. 11-20
d. Other_____

4. What is the highest degree you have earned?
a. Bachelor's Degree

b. Master's Degree

c. Specialist's Degree

d. Doctoral Degree

e. Other (please specify) _____

5. In which country are you currently teaching?
Text input box.

6. Please select the grade level that most closely matches your primary assignment.
a. Pre K-K
b. Grade 1-5
c. Grade 6-8
d. High School
e. Other

7. Please select the description that most closely matches your current primary assignment.
a. Classroom Teacher
b. Specialist (Art, Music, PE or Foreign Language)
c. Librarian/Media Specialist
d. Instructional Support (Educational Technology Coordinator/Coach/Specialist, Special Education, English Language Acquisition ELL, ESL, EFL Counselor)
e. Other

8. Please select all the subject areas that most closely identifies your current primary assignment.
a. Language Arts/Reading/Writing
b. Mathematics
c. English
d. Social Studies/History/Geography
e. Science
f. Elementary School Classroom Teacher (teach all of these)
g. Art
h. Music
i. P.E.
j. Library
k. Technology
l. Other

9. How would you describe your school setting?
a. Urban (within a city)
b. Suburban (immediately outside a city)
c. Rural (in the country or a small town)

10. Please indicate your age.
    Validated input box to only accept number responses.

11. Please indicate your gender.
    Male/Female/Other

12. Please indicate your **PERSONAL** usage level of the following social media platforms and content sharing tools.

	Currently Use	Have used in the past	Plan to check it out	Don't plan to use
Facebook				
Twitter				

Google Plus			
Linked In			
Yammer			
Pinterest			
YouTube			
Social Bookmarking (Example: Diigo or Delicious)			
Blogs (Wordpress, Blogger)			
Wiki (Wikispaces, PBworks)			
RSS (Feedly, Netvibes)			

NING				
Cloud Storage & Sharing (Google Apps, Office 365)				

Other social media platforms you use_____

13. How many hours do you spend on average on social media sites for PERSONAL use?
   a. None
   b. 2-4 hours per week
   c. 2-4 hours per day
   d. 5-8 hours per day
   e. Other

14. Please indicate for what purpose you currently use social media in your PERSONAL life.

Connect with family
Connect with friends
Share information about my life with others
Share pictures with others
Communicate with family
Communicate with friends
Check the news
Learn about my interests
Express my opinion about current events
Other_____

15. Does your school support the Professional use of social media as a PLN?

Yes / No / Not sure

16. Have you ever received any training or attended a tutorial on learning how to use social networking sites effectively?

Yes / No / No, but I would like to.

17. Please indicate your PROFESSIONAL usage level of the following social media platforms and content sharing tools.

	Currently Use	Have used in the past	Plan to check it out	Don't plan to use
Facebook				
Twitter				
Google Plus				
Linked In				
Yammer				
Pinterest				
YouTube				
Social Bookmarking (Example: Diigo or Delicious)				

Blogs (Wordpress, Blogger)				
Wiki (Wikispaces, PBworks)				
RSS (Feedly, Netvibes)				
NING				
Cloud Storage & Sharing (Google Apps, Office 365)				

Other social media platforms you use_____

18. How many hours do you spend on average on social media sites for PROFESSIONAL use?
   a. None
   b. 2-4 hours per week
   c. 2-4 hours per day
   d. 5-8 hours per day
   e. Other

19. I use social media for informal (self-initiated not directed by your
school) professional development.

Strongly Agree   Agree   Undecided   Disagree   Strongly Disagree

20. Please indicate how you currently use social media platforms and
content sharing tools PROFESSIONALLY.

	Currently Use	Have used in the past	Plan to use	Don't use
Get resources				
Share resources				
Save resources				
Connect with other like-minded people				
Have meaningful conversations around				

educational topics			
Gain new insights around teaching and learning related to your own context			
Share your own learning with others (post original content)			
Share others learning (repost others content)			
Solve professional problems			

Learn about work related or professional seminars, webinars, courses, etc.				

Other use_____

21. As an educator, social media as a professional learning network (PLN) has increased my access to information.

Strongly Agree   Agree Undecided   Disagree   Strongly Disagree

N/A

22. Social media as a PLN has helped me become a better educator.

Strongly Agree   Agree   Undecided   Disagree

Strongly Disagree

23. As an educator, social media as a PLN has helped me:

	St rongly Agree	gree	Und ecided	Di sagree	St rongly Disagree	N/A

Improve my ability to plan innovative lessons/projects					
Improve my ability to teach more effectively using technology					
Become more confident to try something new					
Add value to the conferences I attend by allowing sharing, questioning, and dialogue between presenters and attendees.					
Make professional connections that would not have been possible without social media					
Changed the way I teach					

Other _____

24. If you believe as an educator, social media as a professional learning network has made an impact on your teaching and would be willing to participate in the second phase of this study, please fill out the information below. (This information will only be used to contact participants in the second phase of this study no identifiable information will be shared in the reporting sections.)

First Name

Email Address

APPENDIX C.

Interview Questions and Interview Protocol

Consent Script.

Before we begin, I will read the following consent script and ask if you fully understand what your participation in this phase of my study will entail.

My name is Shannon Heath Doak. I am a doctoral student at Boise State University working under the supervision of Dr. Kerry Rice. You are being asked to participate in my dissertation research that is examining how international school teachers use social media as a Personal Learning Network for professional development.

As a participant in the second phase of this study, you are participating in an online interview. You do not have to answer any question that you feel uncomfortable answering. You may choose not to participate in this research, and you have the right to withdraw consent at any time without consequence.

There are no known risks to participating in this interview, nor are there are any direct benefits or compensation to participants. However, by participating in this study, you have the indirect benefit of helping leaders and practitioners learn how to more about the potential of informal learning through the use of social media as a PLN for professional development. Your responses will be analyzed and reported anonymously to protect your privacy. The results of this interview will be analyzed so that you are not individually identifiable. The results may be published in scholarly journals, or presented at professional conferences. By continuing into this interview, you are acknowledging you understand what this study is for and are agreeing to participate.

If you have any questions or comments about this research study, please contact me at shannondoak@u.boisestate.edu, or by phone at (+1) 808-825-1791; you may also contact my faculty supervisor, Dr. Kerry Rice at krice@boisestate.edu

Research at Boise State University is conducted under the oversight of the BSU Institutional Review Board. If you have questions about your rights as a research participant, you may contact the Boise State University Institutional Review Board (IRB), which is concerned with the protection of volunteers in research projects. You may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138. You may also email the BSU IRB office via email at humansubjects@boisestate.edu .

Do you fully understand what I have just read? Do you have any questions? Do you give consent to continue?

Participant's designated research code: _____

Introduction

I wanted to express my gratitude for agreeing to participate in this interview; your participation will assist me and my research. Do I have permission to audio record our conversation to ensure that I accurately interpret your responses?

I would like to start by confirming the demographic and career-related information that you provided about yourself in the survey and ask a little more information. You are not obligated to respond to any questions that you do not want to answer. You may discontinue the interview at any time. Please feel free to ask for clarification. Do you understand these guidelines?

Personal Information:

1. What is your age
2. What country are you currently employed in?
3. Highest level of education
   □ Bachelor's Degree □ Master's Degree □ Specialist's Degree □ Doctoral Degree

   □ Other (please specify) _____

Professional Information:

1. Please describe your current teaching position.
2. What teaching certification do you currently hold?
3. How long have you been working as an international school teacher?

Part I: Questions Concerning your Use of Social Media for Informal Learning As you are probably already aware, I am interested in understanding teachers' perceptions of using Social Media as a Personal Learning Network (PLN) for professional development purposes. The following questions are focused upon your participation in your PLN.

1. How did you first learn about PLNs?
2. Once you had learned about PLNs, what made you want to develop one for yourself and what made it possible for you to do so?
3. Describe your PLN. What – or whom – does it consist of?
4. What would you say is the primary purpose of your participation in your PLN?
5. What do you find to be the most affirming or helpful aspects of your PLN?
6. Describe how the use of your PLN has helped you become a better educator.
7. Describe three examples of things that you have learned from your PLN and been able to apply to your role as an educator.
8. Describe a pedagogical approach you have learned from participation in your PLN that has had a positive impact on your students.

That was our last interview item. I really appreciate you taking the time to talk with me. Do you have any questions?

Conclusion

I will be getting this interview transcribed, and forwarding the information to you for accuracy. You will be asked to verify information, initial, and return the summary with any changes. For your convenience, you may return the approved document to at shannondoak@u.boisestate.edu.

I will send you an invitation to edit the document. At the bottom of this document will be a place for you to type your initials. Please know that by typing your initials in this area of the document you are confirming the information contained in the document is a valid representation of what you said in our interview. I respectfully request that you review the document and return the initialed document within 7-10 days. Please feel free to contact me by phone or e-mail if you have any questions. Please remember you may

contact me by phone, e-mail, or written notification and withdraw from the study before,

during, or after data collection.

My contact information is:

Shannon Doak

65-1274 Kawaihae Rd

Kamuela HI 96743

USA

Phone: 1 (808) 825-1791

Email: shannondoak@u.boisestate.edu

APPENDIX D

Verification of Transcribed Skype Interview

Date:

Participant's assigned research code:

Dear Research Participant,

Below are the interview questions and your transcribed responses from our telephone interview on (date). Please review, make changes, and initial on the appropriate line. For your convenience, this form may be edited freely. If no changes are required, please initial on the appropriate line located at the end of the document. Please return the initialed document by (date). To ensure confidentiality your name has been removed from the transcription. For the purposes of confidentiality, your identity has been assigned a research code. To protect your identity, and the identity of others you may see the note name removed in the transcribed document. The results of the research study may be published, but your identity will remain confidential and your name (including your blog address, Twitter handle, etc.) will not be disclosed to any outside party. If you have any questions or would like to withdrawal from this study, please notify the researcher using the information below. You may return this form by e-mail, fax, or mail. Thank you for your time; your participation is greatly appreciated!

Sincerely,

Shannon H. Doak

Please initial and return the approved document by mail or e-mail to Shannon H. Doak

Researcher's contact information:

Shannon Doak

65-1274 Kawaihae Rd

Kamuela HI 96743

USA

Phone: 1 (808) 825-1791

Email: shannondoak@u.boisestate.edu

****

To the best of my knowledge, the information contained in this transcription accurately

reflects my online interview on (date) with the researcher, Shannon H. Doak.

Research participant's initials   Date

****

To the best of my knowledge, the information contained in this transcription with my

written changes accurately reflects my online interview on (date) with the researcher,

Shannon H. Doak.

Research participant's initials _____ Date _____

APPENDIX E

Sample Social Media Posts to Obtain Participants

Twitter: Twitter is special as it only allows users to post Tweets that are 140 characters in length. Users can also participate in something known as a Twitter Chat. To post to a specific chat you need to use hashtags. Below are some things I did while creating my Tweets.

- I have used a link shortener to shorten the links which is a typical practice on Twitter and other social media sites as the web address can sometimes be too long.

- On Twitter I will use various hashtags in my posts to reach different audiences for example to reach international school teachers who work in IB World Schools I will use the hashtags #pypchat and #mypchat.

- I will try to make the posts as short as possible to encourage others to retweet my posts. This will create the opportunity for more participation.

International School Educators, need help w/research. Please take my survey re SM & PD http://bit.ly/SMPLN #pypchat (119 characters)

International School Educators, need help w/dissertation. Please take my survey re SM & PD http://bit.ly/SMPLN #pypchat (113 characters)

Are you an International School Educator? Please take my survey re SM & PD http://bit.ly/SMPLN #pypchat (106 characters)

Do you work at an International School? Please take my survey re SM & PD http://bit.ly/SMPLN #pypchat (105 characters)

International School Educators, need help w/research. Please take my survey re SM & PD http://bit.ly/SMPLN #mypchat (119 characters)

International School Educators, need help w/dissertation. Please take my survey re SM & PD http://bit.ly/SMPLN #mypchat (113 characters)

Are you an International School Educator? Please take my survey re SM & PD http://bit.ly/SMPLN #mypchat (106 characters)

Do you work at an International School? Please take my survey re SM & PD
http://bit.ly/SMPLN #mypchat (105 characters)

LinkedIn, Google Plus and Facebook Communities: There are no restrictions to how long posts can be in these communities. Therefore, the posts will be more detailed. The specific communities where posts will be made include the LinkedIn International School Educators Group which has a current membership at the time if this writing of 60,445 members, the Google Plus International Techies Community which has a current membership of 236 and the Facebook International School Teachers group with a current membership of 8,234. Below is the post text I will use.

My name is Shannon Heath Doak, I am a doctoral student at Boise State University. My dissertation focuses on how international school educators are using social media as a personal learning network (PLN) for informal professional development purposes. I need your help. Please click on the following link if you can spare between 10-15 minutes of your time to complete a short survey containing 29 questions concerning your use of social media as a PLN for professional development purposes. Thank you so much in advance for your consideration. I truly appreciate your time and hope that this study will provide valuable insights to leaders and practitioners concerning how to leverage the potential of PLNs as a form of teacher professional development for international school educators. http://bit.ly/SMPLN

APPENDIX F

Sample Email Used for Phase 2 Invitation

Dear Participant,

First, I would like to thank you for participating in the first phase of my study. Your input has proven very insightful.

You indicated in the survey that your professional use of social media as a personal learning network has had an impact on your teaching. In fact, after quantitative analysis, you are one of the several participants that radically represent the central phenomenon of the qualitative portion of my study. It is because of this that I am contacting you.

This email serves as an invitation to participate in the second phase of my study. In this portion, I ask if I could set up a time to interview you. The interview will take approximately 30 mins and would be conducted through a video conference. I would prefer to use Skype but can use another tool if needed.

Please let me know when would be a good time to contact you. I will try my best to accommodate the time that works best for you.

I appreciate your participation and look forward to Skyping with you.

Thank you

APPENDIX G

List of Countries Represented in Phase 1 Data Collection

Countries	Participants
Argentina	2
Australia	1
Belgium	1
Brazil	2
Cambodia	3
Canada	4
Chile	1
China	57
Colombia	1
Czech Republic	1
Dominican Republic	1
Egypt	1
France	3
Germany	7
Ghana	1
Greece	3
India	16
Indonesia	17
Italy	4

Japan	3
Jordan	2
Kazakhstan	1
Korea	3
Latvia	1
Malaysia	21
Marshal islands	1
Mauritius	1
Mongolia	1
Morocco	1
Nepal	2
Pakistan	1
Papua New Guinea	1
Peru	2
Philippines	1
Poland	3
Portugal	2
Qatar	3
Romania	1
Saudi Arabia	2
Singapore	23
Spain	2
Sri Lanka	1

Sudan	1
Sweden	1
Tanzania	4
Thailand	30
Turkey	3
Turkmenistan	1
UAE	5
UK	2
Uruguay	1
USA	12

APPENDIX H

Other Uses of Social Media Reported by Participants

1	Celebrations, PR, Marketing
2	Check the international school job market
3	communicate to parent volunteers, promote and communicate the work / learning happening at our school through a twitter hashtag
4	COMMUNICATE WITH STUDENTS
5	Create content with others
6	Do planning with colleagues, have outside classroom conversations with students such as poetry writing, analysis, debate topics, share job posts and announcements
7	Explore opportunities for learning and for professional development. Look at job opportunities
8	find jobs, interview for jobs
9	Get new ideas and gain new perspectives and strategies on progressive use of technologies in education.
10	Having forums on teaching and learning
11	I also use it to scan for job opportunities and to hear from people who work in the various places I'm interested in.
12	I am filling in this survey because it came via my IB subject group
13	IB OCC
14	Is Email (Office 365) consider social media? if so I'm using it.
15	Job Search
16	Job search, surveys and questionnaires (quantitative research), content development, learning about new classroom tools.
17	Job searches, emotional support, brainstorming
18	Learn from experts (podcasts).
19	look for prospective jobs/networking
20	Managebac
21	Moodle
22	Moodle, IB OCC
23	OCC
24	Pedagogical connections for my students overseas and for feeding learning management systems with content for students
2	Pod casts from social media sites that I follow
25	Professional developments, attend conferences, live webcams, virtual fieldtrips,
26	Recruitment and marketing
27	Research into programs at other international schools.
28	Stay in contact with professional organizations
29	To direct discussions about the field around the world

30	To initiate global projects with other teachers (eg. engage my students with other students from other countries/schools)
31	Websites in general
32	wechat
33	write joint curriculum