Jean-Philippe Fontaine
Master of Arts in Learning Technology
Pepperdine University
Graduate School of Education and Psychology

FINAL REPORT
June 2013

Disruptive PD: An Interconnected Collaborative Approach

The Problem

Did you know that almost half of teachers leave the field after just five years? When asked why, teachers point to poor working condition as the number one reason for this. They say that they are offered few resources and little support once they leave their credentialing programs to enter the classroom. In order to survive and thrive in their profession they need a systematic collaborative framework to support their professional growth. In fact, a job satisfaction poll distributed by The Gates foundation found that a majority of teachers reported that relevant professional development was even more important to them than higher salaries. These kinds of supports are not readily offered through traditional professional development models.

My action research argues that theories about the development and maintenance of social relationships provide a theoretical foundation for understanding the motivation to engage in professional development (Ma and Yuen, 2010). I chose to study teacher motivation as the main focus of my research because I believed that it will ultimately be the place where I am able to learn the most about how to support teachers in improving their practice and how my role as technology steward could help facilitate this. My hope is that educators, in private and public K-12 education, will use my research to develop efficient and inexpensive collaborative models toward professional development that afford teachers the opportunity to work with and learn from each other in supportive and nurturing environments.

For the purpose of this report, professional development (PD) will be defined as the organized manner by which educational pedagogy, teaching strategies, and available resources or tools are shared. Peer-to-peer professional development (P2P PD) is a cooperative teacher-centered PD model that sees teachers as the experts, sharing knowledge amongst each other and working together for their own professional growth.

Problem solving: A review of the literature

Peer-to-peer professional development can be a meaningful and productive means of integrating technology into their practice. Peer-to-peer professional development requires that teachers explore technologies together with their colleagues (Liu, 2009). Foulger, Williams, & Wetzel (2008) state that self-directed groups provide supportive environments for the creation of challenges unavailable in isolated learning situations, constructing new knowledge through experience in learning communities (p. 29).

Motivation.

Motivation as defined by psychologists is an energizing force that originates from both within the individual as well as from the external environment, that induces action and that has implications for individual behaviors (Liu, 2009). Beltman (2009) describes it as" an individual's engagement, participation and persistence in particular activities (p. 194)" and proposes that for individuals to continually seek opportunities to develop themselves professionally, the would need to be motivated to do so.

Individually Oriented Theories of Motivation. Behavioral, or individually oriented, theories of motivation focus on either the behavior or the cognition of individuals. Following the behaviorist teachings of B.F. Skinner (1904-1990), they describe motivation within the contexts of perceived patterns in behavior and the motivation provided in the subject's environment. That is, the behavior is precluded by some change and is followed by an experience, or consequence (Musanti and Pence, 2010). Thus, the behavior is the outcome of a set of rewards or punishments, which may serve to predict future outcomes.

Socio-cultural Theories of Motivation. An increased concern with socio-cultural contexts and their influence on motivation and learning reflects the influence of the Soviet theorist Lev Vygotsky (Vygotsky, 1978). He described social impact as the way in which humans develop and learn. This led him to argue that knowledge originates in a social context and is then learned through dynamic exchanges between humans. Further research by cognitive development theorist Jean Piaget in the 1970s supported this theory of motivation. It led to increased concern among motivation researchers who viewed learning as being inextricably tied to motivation (Hickey, n.d.).

Teacher decision-making and action are affected by motivation: the individual's perceived desire to participate in a particular activity (Musanti and Pence, 2010). The motivational factor of being accountable to your peers, explains the degree to which teachers will be motivated to engage and participate in peer-to-peer learning communities. The dynamic motivational factors of these working relationships may also dictate successful outcomes. Particularly, when colleagues working together, implicitly and at times explicitly, support and hold each other accountable to share their knowledge.

What adults can learn from kids. One well-known Vygotskian strand of motivational research involved studies of adaptive learning. McCaslin and colleagues

(McCaslin & Murdock, 1991; and McCaslin & Good, 1996) studied social and instructional environments found in the home and in the classroom. These studies provided detailed accounts of the way that students' regulation of their own thinking processes originated in the negotiation of goals and norms, of the group and spawned the theories of adaptive learning and co-regulated learning. They were significant because they identified the source of motivation as the relationships that students developed with each other (Hickey, n.d.). Situative theorists later suggested that knowledge primarily resides in these contexts as well, while at the same time assuming that knowledge originates in social interaction and cultural activity (Gee, 2004).

The role of technology in documenting facilitating the process.

The use of technology to deliver resources and share this knowledge is rapidly expanding the way schools share best practices (Kim, Miller, Herbert, Pederson and Loving, 2012). When examining the factors that influence K-5 technology integration efforts, Glazer, Hannafin, Polly & Rich (2009) found that 70% of interactions between teachers consisted of posing and responding to task-based questions, giving and seeking advice, and sharing ideas. All of these "interactions can be mediated" and documented through "technology, both as the tool of communication and as productivity tools for creating the shared artifact from their interactions with others, with objects of the effort, and from their own participation." (Riel & Polin, 2004, p. 16).

Online environments enable people to communicate at any time and Web 2.0 tools have been considered a useful in building these communities because of their ability to create knowledge repositories (Sigala, 2007). Reil & Polin (2004) suggest that collaboration over the internet makes it possible for each member of a learning community to be the collective 'one' as members actively "work on living documents or a database of ideas, which is a living, changing record of their shared mind (p. 28)." By doing this, they also focus on how technologies can be used to support student learning and self-discovery (Riel & Polin, 2004).

Conclusion.

Professional development is not a one-time event. It is a continuous effort toward life-time learning. "Today's teachers must transform their personal knowledge into a collectively built, widely shared, and cohesive professional knowledge base." (Fulton, Yoon, & Lee, 2005, p. 1) The research I reviewed suggests that teachers can benefit from learning experiences with their colleagues through peer-to-peer professional learning communities (Alajmi, 2011). Taking a position of cognition as situated in social dynamics, my action research will design professional communities of learning that consider the impact that the social-motivational aspects have on teacher willingness to engage in peer-to-peer professional development and knowledge sharing. This teacher-centered approach to professional development will empower teachers to take ownership for developing their technical expertise and in turn empower them to integrate educational technology and best practices into their classroom.

This thinking mimics the way in which some of the most progressive and innovative companies in the world have found success through utilizing design thinking and the design process to impact product development. These companies are changing the way they do things by taking an interdisciplinary approach to finding solutions to complex problems. This team approach puts skilled designers together to address problems that they would be otherwise unable to solve themselves individually (Brown, 2009). He suggest that it may be better to take an open-ended approach that is open-minded and iterative (Brown, 2009).

Nature of the Problem

The field of action is my workplace: a toddler through grade six (6) independent school community of educators focused on implementing technology into their classrooms. Elementary students at the school regularly score in the top 90th percentile on standardized tests, in virtually every category. They are among some of the highest in independent schools in Los Angeles. Many of their graduates go on to attend the finest, most academically competitive and rigorous middle schools in the city. This high level of achievement can be attributed in part to: the school's developmental philosophy, the enormous amount of resources it has at its disposal, and the way in which these resources are mobilized to invest in teachers.

The school allocates huge amounts of money and resources per year toward teacher professional development, some of which is available for technology related professional development opportunities. Yet, even with an abundance of resources, many teachers are unaware of the full impact the existing technologies at the school can have on their classrooms and on their students. The problem that exists, for the most part, is that community members are scattered and unable to interact with each other in meaningful ways to develop common practices or share ideals around integrating technology (Riel & Polin, 2004). Furthermore, there is no systematic framework for teachers to share the knowledge that they currently have and/or acquire during PDs with their colleagues.

I sit on the Professional Development Committee and Technology Taskforce. Both groups are tasked (by the Board of Directors and the Head of School) with the job of supporting the technology integration vision of the school and helping to support teachers in fulfilling that vision. My action research argues that theories regarding the development and maintenance of social relationships provide a theoretical foundation for understanding teacher motivation to engage in professional development in general, but more specifically, peer-to-peer professional development. The following research question guided my action research: *How do the social aspects of peer-to-peer professional development impact a teacher's motivation to share knowledge with colleagues and to collectively construct new knowledge?* Additionally, the purpose of this study is to understand reasons why K–6 teachers are reluctant to participate in self-generated peer-to-peer learning and knowledge sharing communities.

Action Research

Action research is a inquiry-based, practical experience and intellectual journey toward developing one's own professional practice. It involves an iterative process of researching, planning, and acting, collecting and analyzing data and reflecting. Understanding and utilizing action research methods provides a structure in which organizational professionals can systematically:

- Identify and examine relationships between the nature of the problem, the context in which it exists and the desired outcomes of an intervention.
- Gain a comprehensive understanding of research protocol such as: theoretical perspectives, analyzing and evaluating existing research, gathering and analyzing data, research project design, and conducting/implementing research.
- Increase their ability to think critically, particularly in evaluating information.
- Prepare themselves for meaningful careers and for living in a community while being of service to others.

Why carve out time, in an already over-loaded schedule, for another activity like Action Research? Because action research EXPANDS the kind of real world problems solving that happens in the workplace. Through action research, practitioners are encouraged to: experiment with a wide range of possible solutions to problems in the workplace; think broadly and deeply about how various relationships may impact intended outcomes; make connections between what they already know and their new discovery; consider varied forms of evidence; present their ideas with clarity and to answer challenging questions persuasively; and revise their thinking in the face of new evidence.

My Action Research Project

As an educator, I believe that teachers tasked with working everyday in classrooms are the experts of their domain and are therefore our greatest source of knowledge about teaching in practice. Many of them are life-long learners that purposefully develop their teaching craft. My belief is that when teachers share what they know about what works best for kids, it will impact student learning. My action research may serve to better understand and/or predict teacher behavior. Additionally, I wanted to document the impact that technology could have on this process. The thinking is that if I understand what motivates teachers to participate in professional development, more specifically peer-to-peer professional development supported by technology, I can design/replicate experiences that will afford them the greatest opportunity to positively impacting student learning.

In order to understand teacher motivation to participate in peer-to-peer professional development, I began my action research by studying teacher experiences as they collectively shared knowledge with their colleagues. In cycles one (1) and two (2), I organized and coordinated knowledge sharing efforts with teachers at my school that were attending professional development events. I developed, initiated and implemented

a plan whereby the knowledge gained by one teacher attending a PD could be exposed to the entire faculty at the school. I solicited their support, we planned and worked together to collectively build knowledge, and then I used standard research protocols to draw out their opinions, perceptions and personal accounts of their experiences. We used google apps, social media, digital audio and video to facilitate the learning and sharing. We then worked together to create narratives of their experiences and developed content for the school's professional development wiki.

The end result of my action research, cycle three (3), is the design of (and plan for implementing) a collaborative teacher professional development model at my current school. This initiative takes into account teacher motivation and uses technology tools to mediate and document the process. The plan design goes beyond developing individual expertise, as it focuses on developing the collective expertise of a community of learners. It reflects, for adults, an integrated constructivist approach to learning that I believe teachers and schools should be using to teach kids. An approach that is thoughtful, purposeful, meaningful and effective. My action research took the form of the following cycles.

Impacting organizational change through the design of a collaborative PD model.
Cycle 1 Question: Will working collaboratively with faculty in a peer to peer knowledge sharing community positively impact their motivation and improve the learning experience of teachers? What motivated teachers to participate?

Examining peer to peer professional development.
Cycle 2 Question: If I gather quantitative and qualitative data about teachers' perceptions/ opinions before and after a peer-to-peer professional development event, what insights will I gain into the reasons why teachers are motivated to engage and participate in peer-to-peer professional development?

Shaping a peer-to-peer knowledge sharing community and getting teacher buy-in.
Cycle 3 Question: If I design a technology integration plan based on current research about social motivational theory and teacher motivation to participate in professional development, how will teachers respond to it?

CYCLE 1 REPORT

Shaping a peer-to-peer knowledge sharing community and getting teacher buy-in.

CEE has a large budget for professional development that is coordinated via the PD Committee. When faculty request funding from the committee, they are expected to share what they learned with their colleagues. But, there is no systematic framework for teachers to document their experiences to share with their colleagues the knowledge they gain during these school funded professional development opportunities. Furthermore, there is no systematic means by which the Professional Development Committee is able to evaluate and or make formal recommendations about PD opportunities that teachers attend. I posed the following question to the Director of the Upper School (who heads the PD Committee): How can we create a system whereby the knowledge gained by one teacher can be exposed to the entire faculty at the school?

This cycle was designed to encourage teachers to collaborate and communicate toward a common goal: knowledge sharing. Three teachers were approved funding by the Professional Development Committee at the school to attend this year's Fall CUE (Computer-Using Educators) conference that was held October 26-27, 2012. CUE provides leadership and support to teachers and education professionals that are interested in harnessing the power of technology to impact student engagement and achievement. They are the west coast leaders for technology professional development for teachers.

I approached each teacher individually to discuss my action research and to see if they would be willing to participate. I also met separately with the Technology Curriculum Coordinator at the school to get his support and to share ideas about what this cycle might look like. We then met as a larger group to plan. The teachers used a web based social networking tool called Edmodo (which is similar to Facebook, but specifically created for use in schools) to communicate and collect information from the various workshops at the Fall CUE conference. While teachers were attending the conference, we (the Technology Curriculum Coordinator and I) acted as the social media artist, motivating teachers by soliciting information from them as they posted key takeaways and video reflections about what they learned each day.

Our next steps were to meet again after the conference for a final reflective meeting. During the meeting, I posed the following question to them (which is the main focus of my action research): How did the social motivational aspects of this experience contribute to your desire to participate in sharing knowledge with your colleagues? Finally, I worked with teachers to develop content for the school's professional development wiki. We created a chronological narrative detailing their learning at Fall CUE (including resources such as websites, apps, and inspirational quotes), compiled their video reflections, and gave teachers a broad overview of the conference experience in general.

Cycle 1 Question: Will working collaboratively with faculty in a peer to peer knowledge sharing community positively impact their motivation and improve the learning experience of teachers? What motivated teachers to participate?

The literature I reviewed describes knowledge as a belief or an understanding of socially generated information. It suggests that knowledge sharing as a form of collaborating lies within a teachers' aptitude for developing professional relationships. This ability to build trust and connect with colleagues involves complex emotions and can impact their ability to reach a common goal.

I expected that teachers would be excited about the opportunity to engage with their colleagues and would jump at the chance to participate in the project. When I originally approached them about participating in my project, they all seemed open to idea. At least, that was their initial response. But, soon after they became very reluctant. With the help of two (2) critical friends, I was successful in gaining their full support. We were able to help them see the value of the project for themselves (given the expectations from administration) and for their colleagues as they would share in the knowledge gained. I am grateful for their time and efforts. They all went above and beyond anything I requested or expected of them.

Cycle 1 evaluation.

I collected the following evidence during this cycle: field notes, a reflection journal (blog), and a video of our final meeting. Field notes were written immediately after planning meetings and one-to-one interactions with participants. They focused on in-person discussions between me and the participants. Journal reflections were posted to my action research blog throughout cycle one. Our final meeting was captured on video then transcribed by an independent transcription service.

The data was analyzed through an exploratory approach to qualitative analysis. This allowed me the opportunity to immerse myself in the context of the problem as I hoped to gain greater insight into the role that social motivation plays in a peer-to-peer professional knowledge sharing community. I analyzed the data in search of emerging trends. These trends were then organized into the following larger themes that focused on: teacher concerns about time and the lack of perceived benefits of knowledge sharing and the emotional support that a knowledge sharing community provides its members as they manage their identities within the community (e.g. being held accountable by their colleagues to collectively participate toward shared goals).

Time and perceived benefits. The first themes that emerged in the data were concerns about time and the perceived benefits to teachers. As documented through field notes and blog posts, my initial conversations with the three faculty members scheduled to attend the Computer-Using Educators Fall Conference produced mixed results. One (1) expressed excitement over the project and was eager to support the development of a knowledge sharing framework at the school. The other two (2) were somewhat interested, but voiced concerns about committing to anything that took their attention away from

their experience, learning and engagement at the conference. They were honest and straightforward about not being interested in doing any unnecessary extra work.

Unfortunately, the teacher that was very excited about the project could not attend our initial planning meeting because of an unexpected classroom issue. I was met with fierce opposition by the other two as there was confusion about the purpose of the project and whether it had real benefit for them or for the school. At one point, I recall feeling as if I was losing total control of the meeting and that my action research would be doomed from the very beginning.

Fortunately, I asked another colleague of mine to attend the meeting as well. This critical friend is a well-respected educator known for her leadership skills and innovate teaching abilities. We were able to explain the nature of action research, clarify the purpose of the project, and outline the benefits for them and the greater teaching community at the school. We continued by describing in greater detail the work they were being asked to do and how I would support their efforts and the project on the whole. I also reminded them of their responsibilities under school policy about sharing information from school sponsored professional development opportunities. Thankfully, the meeting ended well with both teachers pledging their full commitment to the endeavor. They were engaged, saw the value, and were excited to participate.

Emotional Support and Identity Management. The second theme that emerged was that of emotional support and identity management. The data shows that teachers had a positive experience engaging with their colleagues in knowledge sharing. All of them said that they enjoyed the experience and would do it again, despite the extra work.

All three (3) teachers attended the final meeting. The discussions were filled with laughs and illustrated the supportive nature of knowledge sharing communities. One teacher, who was particularly resistant to the project at the beginning, talked about how she received “a lot of support and encouragement” from the other teachers and how that allowed her the freedom to “just let go.” She described her interactions with her colleagues in this way:

> They were a great support because I'm not a social networker and it's not natural or normal for me. And, I felt very overwhelmed by it. I did not feel that I took as much as I could have from the conference because I was so anxious about putting out information… getting any bit of information to make you guys happy instead of just like listening to the conference and take it all in. I don't like to be videotaped. I don't like to have pictures taken. I'm a very, very private person. So, I hate pictures and I really don’t like to be on videotape. That made me a anxious… It's, it's hard to explain. It's uncomfortable, like it's your privacy. That's the part that bothers me, you know. And I have no problems speaking in front of groups or anything like that but it's just, I don't know. It's just putting it out there… It's just who I am as a person.

She also stayed behind after the meeting to continue the discussion with the Technology Curriculum Coordinator and me. The discussion centered on identity management. She reiterated that she did not like the idea of being videoed, being tracked on social media and/or sharing her unedited writing as well. But, she explained that with the emotional support of her colleagues (who were extremely active in Edmodo), she felt compelled to (as she described it) "put herself out there."

Cycle 1 reflection.

Participating in a peer-to-peer knowledge sharing community seems to have had a positive impact on teacher participation at the conference and engagement with each another. All of them said that they would do it again and there were also signs that they may have even had fun and enjoyed the process. But, getting buy in from busy teachers (stakeholders) was not an easy task. This cycle was particularly challenging at the beginning because some teachers were concerned, rightfully so, about the amount of time and attention that this would require of them.

I was met with a lot of resistance when I sat with teachers at our initial group discussion. The most important thing for me to remember is that if I am going to ask teachers to do extra work, they have to see the benefits right away. This was partly my fault because, while I presented a proposal to administration that detailed this cycle, I had not shared it with them. That was a mistake. I should have shared it with them as well. All I gave them (verbally) was a general overview of the project and their roles. That was not enough. I needed to provide them with written details of my plan as well. This may have made my ideas more tangible and helped the work seem more doable. I could have also taken into greater account their potential concerns and spent more time developing my internal dialogue so that I could have better articulated the plan and overall nature of action research more clearly and concisely.

The willingness of other colleagues to participate in knowledge sharing seemed to have a direct impact on the decisions of those teachers that were more resistant to it. The help of my critical friend was crucial in getting buy-in because she was supportive of the project and had done action research herself. Together, we were able to convince teachers that the project was worth pursuing. This is when the notion of teachers being held accountable by their colleagues first emerged. I was able to reflect upon my experience and see the value in the challenges of my initial first steps as it helped frame the broader obstacles to implementing plans for systemic change in any organization.

One thing I learned about myself as a researcher and project manager is that for me the idea generation piece comes easily. I am naturally creative and reflective, but I was reminded that I need to focus more energy on articulating my vision in the planning phase as this will help set a proper foundation for how the implementation will occur.

Ultimately, what I am studying is teacher motivation. In order for me to gain insight into understanding teacher motivation to engage in peer-to-peer professional development, it seemed only natural for me to develop a knowledge sharing community.

This would allow me to witness first hand the impact that social motivation had on all involved, including myself, before speculating on possible reasons. I describe the four stages of teacher engagement (for those teachers that were reluctant to participate initially) as U shaped bell curve with the following characteristics: from uncertain, to resistant, to trusting and accepting, to engaged. In the future, my plan is to help support teachers through the natural progression of these feelings.

CYCLE 2 REPORT

Examining peer to peer professional development.

Teacher peer-to-peer professional development is grounded in the belief that teachers working everyday in the classroom are the experts of their domain: the classroom. At the heart of it lies the assumption that when teachers (classroom experts) share what they know with each other they may increase their teaching knowledge, grow professionally and improve their practice. The ways in which teacher relationships with their peers impact their motivation has strong implications for how knowledge can be shared in schools amongst educational professionals. This social interaction leads to questions of identity, that is, how teachers see themselves in terms of their role as a member of a community of educators. Gee (2001) explained that knowledge and identity shaped through social experience, impact the ways we interpret ourselves. He describes identity as being developed through a connection to a particular community.

My action research proposes that when teachers view themselves as experts sharing knowledge with each other, they will be motivated to learn from and share what they know with each other. I designed cycle 2 to gain greater insight into teacher perception of peer-to-peer professional development as a means to understand how to design a teacher centered collaborative professional development program at my school. Teachers during this cycle attended a peer-to-peer "unconference". An unconference is a participant-driven peer-to-peer professional development event. The agenda is created by the attendees. Attendees propose sessions and gather according to their learning interest and/or area of expertise to learn from and with each other. An intended outcome of unconferences like Edcamp is that teachers collectively view themselves as a community of knowledge sharing experts invested in each other's success.

This unconference was being organized by EdcampLA. Edcamps are nationally coordinated locally organized peer-to-peer professional development opportunities that: promote organic, participant driven professional development for K-12 educators. There mission is to: reclaim professional development. Unconferences provide and open format for participants to engage with each other, rather than a "sage on the stage" traditional PD model. The agenda is created by the attendees. Attendees gather according to their learning interest and/or area of expertise. They then break out into organized groups.

The event was held on a Saturday. Ten (10) teachers from my school agreed to participate in this cycle. Attendance was completely voluntary, and there were no expectations from administrators at the school that teachers would share what they

learned following the conference. I attended as well. We collaborated via Twitter to document our learning and experiences (intellectual, social, and otherwise) at the conference. The tweets were then archived and distributed to the school via an online social media tool called Storify that was used to curate the tweets into stories outlining their day.

Cycle 2 Question: If I gather quantitative and qualitative data about teachers' perceptions/ opinions before and after a peer-to-peer professional development event, what insights will I gain into the reasons why teachers are motivated to engage and participate in peer-to-peer professional development?

Teachers and administrators that attended Edcamp a year prior (at a different school) raved about it. They enjoyed the experience so much that school officials offered to make the campus available to Edcamp organizers and host it for free this year. I expected that those teachers who attended this year's event would also have a positive and meaningful experience.

Cycle 2 evaluation.

Research suggests that teachers will commit themselves to the peer-to-peer professional development that considers social-motivational theory to positively impact their experience. It also suggests that this teacher-centered approach to professional development will empower teachers to take ownership for developing their technical expertise and in turn empower them to integrate educational technology and best practices into their classroom. The data and my analysis of it confirm this. Motivation entails "emotion." Hur & Brush (2009) argue that an individual's emotion plays a significant and meaningful role in the ways that the individual will then act and that "emotion includes several different components, including appraisal and subjective experiences… (p. 282)." Thus, emotion plays a role in a teacher's decision to participate in professional development and to share knowledge.

I collected the following evidence during this cycle: responses to pre and post conference questionnaires and a video of our final meeting. Teachers were completely unaware that the focus of my action research was the study of teacher motivation. This was disclosed to them at our subsequent follow up meeting after the event. The questionnaire data was analyzed by coding their responses. Our final meeting was captured on video then transcribed by an independent transcription service then analyzed through an exploratory approach to qualitative analysis. Teachers that participated in this cycle were completely unaware that I was studying teacher motivation.

Appraisal. In phase 1, teachers were asked to complete an initial questionnaire that was distributed before the event. The questionnaire was designed to help characterize participants' perception of peer-to-peer professional development and knowledge sharing to ascertain:

- The reasons they decided to attend the event

- Their perception of P2P PD
- The current degree to which they engage in knowledge sharing
- Their knowledge sharing expectations of themselves and of other attendees
- Their expected feelings about the process of sharing knowledge at the event
- Whether they felt that that they would use what they learned there

All 10 participants completed the initial questionnaire.

An analysis of the questionnaire data from phase one (1) shows that seventy percent (70%) of teachers decided to attend Edcamp mainly to learn new skills and adopt new approaches offered by other educators. Ninety percent (90%) saw value in learning from other educators. Respondents described peer to peer professional development as: an untapped resource; the best way to go; frequent one-on-one support and coaching; information sharing; interactive, mutually beneficial, informal and approachable; sharing experiences, stories, etc.; a wonderful way to acquire an understanding of new strategies; and authentic and valuable. Thirty percent (30%) of them had already attended an Edcamp prior to attending this one.

When asked how frequently participants engaged in knowledge sharing with educators outside of our school over the last three (3) months ten percent (10%) did so very frequently, ten percent (10%) did so frequently, sixty percent (60%) did so occasionally, and twenty percent (20%) did so rarely. The data also shows that fifty percent (50%) of participants believed that all of attendees would share their knowledge and the other fifty percent (50%) believed that many of them would. When asked to consider whether or not they intended to share knowledge with other attendees, seventy percent (70%) strongly agreed that they did and ninety percent (90%) strongly agreed with the fact that sharing knowledge with other educators would make them feel good about themselves. None of them felt that knowledge sharing would somehow be a disadvantage to them.

Ninety percent (90%) of respondents say they enjoy sharing knowledge with other educators. Most also agreed that the knowledge sharing would be expected of them and reciprocated. Eighty percent (80%) of respondents strongly agreed that they would learn new knowledge and skills if they shared their knowledge. A majority of them, sixty percent (60%), thought that other attendees would expect them to share what they know. When asked if they intended to use what they learned at Edcamp to develop their teaching practice, ninety percent (90%) strongly agreed.

Experiences. In phase 2, Six (6) teachers also agreed to meet after the event for a semi-structured interview and discussion. Open ended questions were asked to determine respondents' views about the peer-to-peer professional development and their perception about how the social aspects of the event contributed to their level of engagement, excitement and learning.

All of the feedback was positive. The teachers in attendance were enthusiastic and shared stories about the positive experiences they had. They taught teachers, teachers

taught them, and some even ran sessions themselves. They described how the social aspects, sharing knowledge at Edcamp, impacted their motivation to participate in and collaborate with their colleagues. One teacher's comment summarized the group's perspective when she described why she was compelled to attend:

> It was this 'unconference' so I knew I wasn't going to be sitting in one room all day- one person bestowing all of their knowledge upon us. Rather, it would be the vote with your feet kind of idea (where you are encouraged to move between sessions at any time) and that the sessions would be decided on the spot and you could really just go with what spoke to you. So, I think that really compelled me to participate in that. I knew that it was coming from us, you know, the teachers. It wasn't coming from, some higher power deciding what we should talk about.

A second questionnaire was also sent after the event to participants. (The questionnaire was completed before we spoke as a group.) The questions were designed to solicit a better understanding of the reasons why participants choose to engage in knowledge sharing with attendees at the event. To establish whether they would engage in peer-to-peer professional development in the future, teachers were asked to respond to questions regarding:

- Their overall experience at the unconference and what aspects were most appealing.
- Whether they generally shared knowledge with other attendees.
- How they felt if they did share knowledge.
- Whether other attendees generally shared knowledge with them.
- Whether they intended to use what they learn in their own practice.

Five participants completed the follow-up questionnaire, representing half of the original group.

An analysis of the questionnaire data from phase two (2) shows that all the teachers enjoyed Edcamp and found value in learning from educators at the event. All five (5) teachers said that they would recommend attending an unconference to their colleagues in the future. Four (4) teachers described their experience at Edcamp as: Exhilarating, amazing educators sharing what they know; lots of great ideas being shared and connections being made; wonderful, enjoyed the format immensely; an amazing experience. One teacher experienced some enjoyment, but generally enjoyed spending time with colleagues outside of work.

When asked to comment on what they saw as the most appealing aspects of peer-to-peer professional development at Edcamp, teachers responded:

- No put downs felt… accepting everyone's contributions and questions.
- The constant flow of ideas is energizing.
- Building a network of people interested in the same things.

- Discussions in sessions were rich… they did not have any boundaries and took a variety of directions.
- Hearing about applications and sharing ones they used.

All of the teachers shared their knowledge with others at the event, were pleased when they did and enjoyed it. Most felt a strong obligation to do so, but thought ultimately that it was a personal decision. None of them thought they were at a disadvantage because of it. Sixty percent (60%) agreed strongly that other educators reciprocated and shared knowledge with them, forty percent (40%) agreed somewhat. All of them strongly agreed that they would use what they learned at Edcamp in their own practice.

Cycle 2 reflection.

By all accounts, the event was a success. Teachers raved about it and were excited to have participated in this self-directed differentiated learning opportunity where their expertise was being utilized to support their colleagues. They had willingly sacrificed part of their weekend to attend, yet talked extensively about how much they enjoyed it. I was surprised by not only how much I learned from the unconference, but also how much everyone else did as well.

When discussing technology integration, a teacher at the event confessed that he "wanted to stop being a curator and wanted to be a creator instead." This quote became a topic of conversation at our follow up meeting with one of my colleagues elaborating on the point:

> I am tired of gathering information and people sending information on what to teach and how to teach. I want to use what I already have and start creating really great lessons with my colleagues. I mean there's like too much. I just want to do something, use my own creativity… like I just want to go through that process of creating and sharing with students or other teachers or whatever. And that's hard because I'm the kind of person that is always looking for a better way to do stuff and so its kinda hard for me to get past that and ignore that somebody out there online probably did it better than I would do it. But there's a lot of value in doing it yourself.

I agreed with his statements and added that:

> You end up learning a lot more through the process because, I think, for me it's not just about learning how to use a tool but it's learning, as you go through the process, you start to get inspired and you start to think of better and cooler ways to engage kids. That won't happen from just looking at somebody's lesson plan and redoing it.

As the meeting came to a close, another colleague stated that: This should be the model for professional development (at our school) absolutely, it makes such a difference and I mean I've been to almost 22 years of stuff here. In fact, it has. Their feedback was

so persuading and encouraging, that the two administrators who attended Edcamp sent emails out the following Monday asking teachers that attended to help organize a similarly structured format for our next staff meeting the same day. This new technology professional development format was well received by faculty and has since become the standard means for technology professional development at the school.

CYCLE 3 REPORT

Impacting organizational change through the design of a collaborative PD model.

Carr & Kemmis (1986) state that the introduction of the peer development process, the evaluation of its impact on colleagues taking part and subsequent reflection on how the new model could be improved, sit within the action research paradigm. To that extent, in cycle three (3), I designed a technology peer-to-peer professional development initiative for the school, based on what I learned, through a review of current research on social motivational theory and teacher motivation to participate in peer-to-peer professional development. A white paper was developed based on insights I gained from teachers in the previous two (2) cycles. There were absolutely no assumptions that the school would adopt the plan or any of its recommendations. Before presenting the white paper proposal to teachers for feedback, I solicited and incorporated feedback about it from my cadre mates, professor, and the Curriculum Technology Coordinator and Director of Technology and Information Systems at the school.

My primary concern was with how faculty would react to the plan: Would they be motivated to participate in a peer-to-peer professional development program like the one detailed in the white paper if it existed at the school? I distributed a copy of the plan to (1) teacher at every grade level (as well as an art and science specialist) for their review. I included my literature review and overviews of cycle one and two and then solicited feedback from them through a questionnaire and via a face- to-face focus group like meeting. Additionally, I solicited feedback from participants about how I could improve the plan.

Research indicates that providing continuous support and promoting interaction among teachers are keys to successful teacher professional development (Hiebert, et al, 2004). The plan outlined specific steps toward implementing a teacher centered collaborative approach to integrating technology. It outlines a structure that may allow a teacher the time and opportunity to be "engaged in a process of developing their individual expertise" and the expertise of the group as a whole, while focusing in on a common objective. It proposes a Learning Circle model for teacher professional development as a possible structure in which teachers could work together to achieve their goals. Riel (2013) describes them as collaborative project-based work environments that allow members to take individual ownership. Rather than assign some teachers as leaders, the white paper suggests grouping faculty into small learning circles with distributed leadership properties to accomplish specific goals. The result of their efforts is a technical product that represents their efforts and learning that can help support those that come after them. These may take any form teachers agree to including, but are not

limited to: a curated collection of their work, a narrative or other document, written reflections, lesson plans, and/or published products such as a website or digital print publication such as a list of apps, flow chart, info graphic, etc. (Riel & Polin, 2004 p. 16).

The role of the Technology Facilitator. The circle is guided by an experienced technology leader who guides the group, offers insights, advice, tools, and best practices. Riel states that, "The role of the technology facilitator person is not to lead the circle, but rather to serve as an information agent tracking and sharing expertise with circle members, facilitating the meeting and focusing members on collaboration." The Technology Facilitator's job is to work with the faculty on their self-identified curriculum goals, suggest tools and shorten the learning curve for teachers in the use of these tools. In addition, s/he is responsible for understanding the concerns, issues and challenges of each individual teacher in the adoption of technology and will tailor their feedback to address the individual needs of each classroom.

Cycle 3 Question: If I design a technology integration plan based on current research about social motivational theory and teacher motivation to participate in professional development, how will teachers respond to it?

The hope is that the plan will serve as a motivating, meaningful and productive means by which teachers at the school are able to integrate technology into their classrooms. As an educator, I expected that teachers would generally find it motivating.

Cycle 3 evaluation.

A quantitative questionnaire was distributed to thirteen (13) participants, ten (10) responded. Their responses were anonymous. I facilitated two (2) semi-structured discussions with some of them about how the plan could be improved. At these meetings, I once again submitted my overarching research question to the group. I then solicited general feedback about the concepts outlined and their sense of what they believed may and/or may not work for teachers given the everyday pressures that they deal with. I utilized quantitative research coding protocol to help uncover what aspects of the plan they felt might motivate them to participate. The coding helped me organize and analyze the data as means to interpret teacher feedback and to evaluate the plan's potential impact on their motivation.

My findings regarding the significant positive relation between peer-to-peer professional development and teacher motivation are consistent with the research. An analysis of the questionnaire data from cycle 3 shows that: All of them agreed that knowledge sharing with colleagues is a viable means of professional development. Almost all of the respondents agreed that they would participate in and would enjoy a program like this. Most also felt that this initiative will help teachers feel more connected to each other, that they would recommend it to other faculty, and that they thought other faculty would participate. This particular comment about the power of peer-to-peer professional development highlighted their reactions:

> I guess what I love, love, love, love is the idea that we're all experts here. We have some kind of specialty to share, and I do think presenting to your peers face to face is great. I think it could really spur a lot of inter-related curriculum ideas, even across grade levels. It could just help in communication between all of us as a community. Face to face experiences, like instead of having a speaker come. We're all the experts, and we have these little workshops, and then somebody can find something out about what you know, and it's something you've done, and relate it to something in their class, and maybe there's a connection, and so all of a sudden kindergarten and fifth grade are doing something together, right? We should be sharing what we know with each other or what we're passionate about and see what's born from that.

Cycle 3 reflection.

The data suggest that teachers saw value in the initiative. They all agreed that they would participate if it were implemented; however, they were unsure if the plan would achieve its expected outcomes. Most teachers reported that they felt the program would only partially meet their professional development needs and were unsure about whether the plan would provide long term support toward integrating technology into their classroom. They also felt it may only result in modest learning.

Teachers were asked and offered feedback on how the plan could be improved. The following themes emerged: the need for both traditional and collaborative professional development, providing necessary time to reflect, issues with product driven learning as accountability, addressing issue of entrenched interest against cultural change, and developing more creative ways to engage colleagues in online collaborative environments.

Traditional and Collaborative Professional Development. I asked teachers about whether they would prefer to have a speaker centered model or collaborative approach to PD. One stated that it depends on what you are learning. He continued, "I think it depends on what the topic is because if it is something that's more conceptual or a little abstract you need somebody to stand there and explain it to you, and it's not something you can do hands on. But if it's learning how to do something then that's more appropriate to actually meet … doing it hands on and working through it as you learn. So I mean like you said I think there are benefits to both it just depends on what the topic and objective is." Another teacher agreed, but added that she couldn't see every professional development being this way (as the white paper lays out).

Time to reflect. The process of reflection and the time to do it was important for teachers. Many spoke to the fact that it is an intrinsic part of their profession and why they chose this profession in the first place. This particular comments reflected their thinking:

> The one thing reading it and you did address at the end and I think is the age old problem for all of us is time for reflection or the time to actually, if we're learning this new technology or doing this, the actual time to absorb it, to try it, to think about it and to implement it, is huge. Before you forget, is huge and that time thing is through line here we don't have it. It is one obstacle I see. I don't know how to create it, but it is essential.

One more thing: Organizational culture, institutional change and *taking issue with product driven learning as accountability.* Organizational culture may play a large part in the decision making of teachers. School culture varies between educational institutions, each culture being influenced by the environment in which it exists and the people that inhabit that space. Within these cultures live the norms, belief systems, and ideologies of the institution. Impacting institutional change may be seen as one of the primary barriers to integrating technologies into the classroom.

> I think that you have to figure out how to make it not feel like one more thing. I think that there are a lot of wonderful educational ideas but as you present something like this to faculty, they should not be made to feel like, "Oh my God one more thing I have to do." I think that's where the culture of the institution has to be such that it's not one more thing… it has to be an integral part of how we do things.

> I think having the products is going to feel like another thing. I think for reflection and with collaboration there's not always a product sometimes it's just sitting and talking and get through anything and in different ways and it's not necessarily you know something at the end.

> It depends on culture of the learning institution because there are schools that build in that piece- the last Friday of every month is a half day, for our students. I think more and more schools are going to that. But then if you want to be inclusive of all community, what do you do with those with e children they're going to daycare. So it depends on the learning institute.

> The only thing, I think, is you mentioned it… the challenges, right? Challenges implementing a program like this is sort of a static culture or an attitude that certain teachers may have. It's always the same, always the same individuals who are resistant to change, and I think maybe say a little bit more about how strong that force could be if somebody's resistant to change. And, they maybe have the administration's support or the administration really values their opinion. That force can really be challenging, even if everybody else says they want it. It doesn't matter how many people over here want to do this, if one person really is resistant, and that person has the ear of the administration, that could make it really difficult.

Engagement in online dialogue. Teachers also voiced the necessity and difficulty in staying engaging in online dialogue with others. For authentic learning, mastery, and growth, teachers need to stay involved in the process and dialogue. After the actual PD or experience has passed, how does one continue to commit to the process of sharing with other colleagues online?

> The only problem I feel with a forum kind of think like Edmodo is that sometimes when you post your own thing, , then you're not apt to sign on again to look at other people's, so there needs to be some incentive. I think, for us to just keep going back, back, again and again to look and get ideas from other people. If it's immediate, and there's a set time, like at 9 o'clock we're going to sign on to chat about this, like twitter chats you know.

FINAL REFLECTION

Technology stewards are people who motivate others to achieve community objectives (Riel, 1998). Successful learning experiences involve facilitating the transmission of knowledge (information) and supporting the social context in which these transmissions are to occur. Wyman (2010) found or claimed that teachers are more likely to collaborate when there is an unselfish commitment to the success of all teachers and an attitude and willingness to learn (p. 2). So, as a steward of technology (a teacher of teachers), my focus is on not only the content, but the social-emotional psychological conditions as well.

Advocating for an all-of-the-above approach. My research interest is in how the social aspects of motivation impacts peer-to-peer professional development within a K-6 private school community of educators implementing technology into their classrooms. The large majority of teachers were motivated to participate in peer-to-peer professional development, but not all. The question then became: How do I motivate all teachers to integrate technology through professional development? I came to realize that teachers need a variety of ways to connect to new knowledge, not just those that position them to work with their colleagues. I realized that professional development, like all learning, needs to be responsive to the needs of the learner, particularly when it comes to learning technology. To that extent, I am advocating for an all of the above supportive approach to teacher PD that utilizes P2P PD as its foundation. This all of the above approach would consider the needs and experiences of individual teachers and tailor their professional development accordingly. It involves traditional and collaborative professional development models alike: peer-to-peer PD, just-in-time PD, trainings, conferences, coursework, mentorships, etc.

Personal and professional growth. With each new relationship comes opportunity (to learn, to share, to exchange ideas, and to experience each other) and challenge. As such, I am also focused on how my role as the technology steward impacts the motivation

of my colleagues. Doing action research has compelled me to reflect upon and/or ask myself questions about how I am impacting others in my professional environment, that is, how they react to me and how this lays a foundation for the type of professional relationships I hope to have with them.

Overall, the feedback about the coordination of the cycles were positive. Respondents said that the organization and execution of the cycles were well done and felt easy to do. One teacher said that she didn't feel like it put her out. Another said that it was nice knowing there was a core group that was going with a purpose in mind. When asked to comment on how my role impacted the process, the teachers agreed that the planning, coordination and set-up were all helpful. Toward the end of one of our final meetings, the connection was made back to the impact of knowledge sharing on the greater school community of educators.

REFERENCES

Alajmi, B. M. (2011). *The intention to share: professionals' knowledge sharing behaviors in online communities* (Unpublished doctoral dissertation). Rutgers University, New Brunswick, NJ.

Beltman, S. (2009). Educators' motivation for continuing professional learning. *Issues in Educational Research, 19*(3), 193-211.

Beltman, S. (2005). *Motivation of high-achieving athletes and musicians: A person-context perspective.* Unpublished Doctor of Philosophy, Murdoch University, Perth, Western Australia.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. Educational Researcher, 33(8), 3-15.

Brown, T. (2009). Change by design: How design thinking transforms organizations and inspires innovation. New York: Harper Business.

Byrne, J., Brown, H., & Challen, D. (2010). Peer development as an alternative to peer observation: A tool to enhance professional development. *International Journal for Academic Development, 15*(3), 215-228.

Carr, W., & Kemmis, S. (1986). Becoming critical. Education, knowledge and action research. Lewes, UK: Falmer.

Evan M. Glazer, Michael J. Hannafin, Drew Polly & Peter Rich (2009): Factors and Interactions Influencing Technology Integration During Situated Professional Development in an Elementary School, Computers in the Schools, 26(1), 21-39

Feiman-Nemser, S. (2001). From preparation to practice: Designing a continuum to strengthen and sustain teaching. Teachers College Record, 103(6), 1013–1055.

Foulger, T. S., Williams, M. K., & Wetzel, K. (2008). We innovate: The role of collaboration in exploring new technologies. *International Journal of Teaching and Learning in Higher Education, 20*(1), 28-38.

Fulton, K., Yoon, I., & Lee, C. (2005). Induction into learning communities. Washingdon, DC: National Commission on Teaching and America's Future.

Gee, J. P. (2001). Identity as an analytic lens for research in education. In W. G. Secada (Ed.), Review of research in education (Vol. 25, pp. 99-126). Washington, DC: American Educational Research Association.

Hiebert, J., Gallimore, R., & Stigler, J. W. (2002). A knowledge base for the teaching profession: What would it look like and how can we get one? Educational Researcher, 31(5), 3–15.

Hickey, D. (n.d.). Sociocultural Theories of Motivation. Retrieved November 23, 2012, from http://www.education.com/reference/article/sociocultural-theories-of-motivation/

Hodkinson, H., & Hodkinson, P. (2005). Improving schoolteachers' workplace learning. Research Papers in Education, 20(2), 109-131.

Hughes, J. (2004). Technology learning principles for pre-service and in-service teacher education. Contemporary Issues in Technology and Teacher Education, 4(3), 345-362.

Hur, J. W., & Brush, T. A. (2009). Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K-12 teachers? *Journal of Research on Technology in Education*, *41*(3), 279-303.

John-Steiner, V. (2000). Creative collaboration. New York: Oxford University Press.

Kim, Hye Jeong, Miller, Heather R., Herbert, Bruce, Pedersen, Susan, & Loving, Cathy (2012). Using a wiki in a scientist-teacher professional learning community: Impact on teacher perception changes. *Journal of Science Education and Technology*, *21*(4), 440-452.

Liu, Shuhua Monica (2009). *What shapes employees' decisions to share knowledge in real work practices---an exploration of knowledge sharing processes and factors shaping workers' knowledge sharing when performing a task* (Unpublished doctoral dissertation). University of Washington, Seattle, WA.

Ma, W. W.K., & Yuen, A. H.K. (2010). Understanding online knowledge sharing: An interpersonal relationship perspective. *Computers & Education*, *56*(11), 210-219.

McNiff, J., & Whitehead, J. (2010). You and your action research project (3rd ed.). New York, NY: Routledge**.**

Musanti, S. I., & Pence, L. P. (2010). Collaboration and teacher development: unpacking resistance, constructing knowledge, and navigating identities. Teacher Education Weekly, 37(1), 73-89.

Richardson, V. (2003). The dilemmas of professional development. Phi Delta Kappan, 84(5), 401-406.

Riel & Polin, M., and Polin, L (2004). Learning Communities: Common Ground and Critical Differences in Designing Technical Support. In S. Barab, R. Kling, & J. Gray (Eds.). Designing for Virtual Communities in the Service of Learning. Cambridge, MA: Cambridge University Press.

Riel & Polin, M. (1998). Education in the 21st century: just in time learning or learning communities. In Challenges of the Next Millennium: Education & Development of Human Resources (pp. 1-26). Abu Dhabi, The United Arab Emirates: Emirates Center for Strategic Studies and Research.

Schieb, L. J., & Karabenick, S. A. (2011). Teacher Motivation and Professional Development: A Guide to Resources. Math and Science Partnership – Motivation Assessment Program, University of Michigan, Ann Arbor, MI.

Sigala M (2007) Integrating web 2.0 in e-learning environments: a socio-technical approach. Int J Knowl Learn 3(6):628–648.

Sutton, R. E., & Wheatley, K. F. (2003). Teachers' emotions and teaching: Areview of the literature and directions for future research. Educational Psychology Review, 15(4), 327–358.

Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes. Cambridge MA: Harvard University Press.

Wells, J., Lewis, L., & Greene, B. (2006). Internet access in US public schools and classrooms: 1994-2005. *Highlights*. Washington, DC: U.S. Department of Education.

Wenger, E. (2006, June). Communities of practice: a brief introduction. Retrieved November 23, 2012, from http://www.ewenger.com/theory/

Wyman, K. A. (2010). *Teachers' perceptions of the effectiveness of peer-to-peer collaboration for professional development* (Unpublished doctoral dissertation). University of Wyoming, Laramie, WY.