The role of social motivation in designing peer-to-peer professional development.

Jean-Philippe Fontaine

Pepperdine University

Master of Arts in Learning Technology

Introduction

The entrance to the school is adorned with a living wall of plants and shrubberies. The water to help them survive is groundwater pumped up from the area below the garage that sits underneath the school. The re-design of the gateway to the school was developed as part of a school-wide greening initiative to reduce the school's carbon footprint and to help support efforts to conserve the environment. A second initiative was also being developing. This other initiative has been about making technology, like the living wall entrance, come alive in the classroom. The tech integration initiative is a large-scale endeavor that is focusing the school's efforts toward integrating the latest technologies into the curriculum and into the classroom. Teachers are, like groundwater for a living wall, at the heart of this plan and are the keys to its sustained survival.

According to Wells & Greene (2006), in the United States the national average of students to personal computers was 3.8 per 10 students. This constant evolution means that teachers must be prepared for teaching in technology-infused classrooms, "enabling students to learn subject matter more deeply and with more curiosity than without the technology" (Hughes, 2004). The meaningful integration of learning technologies into the classroom requires that teachers think creatively about potential ways technology can influence the teaching and learning processes, while adopting new pedagogical approaches where new learning tools allow. This includes staying up to date about the latest technologies and adopting new pedagogical approaches to engaging students. To do this, they will need to take advantage of the various forms of professional developments (PD) that are available to them (Foulger, Williams, & Wetzel, 2008).

Students at this school regularly score in the 90^{th} percentile on standardized tests, in virtually every category. This high level of achievement can be attributed in part to: the school's developmental philosophy, the incredible amount of resources the school has at its disposal, and the

way in which these resources are mobilized to invest in teachers. Once beyond the gate, a tour of the school would reveal that all classrooms are equipped with interactive whiteboards; students in lower elementary classrooms have access to iMacs and iPads; students in the upper elementary grades take computer classes; and the sixth graders enjoy one to one use of laptops computers. In addition, there is a full time technology curriculum coordinator available to all.

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. With this in mind 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. 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.

The problem that exists, for the most part, is that teachers work in isolation from each other. Community members are scattered and unable to interact with each other in meaningful ways to develop common practices or share ideals (Riel & Polin, 2004). 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 learning communities' impact a teacher's desire to share knowledge in peer-to-peer professional learning environments, i.e. a teacher's desire to collectively construct knowledge and share this knowledge with their colleagues? 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 (Hur and Brush, 2009).

For the purpose of this literature review, 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 is a teacher-centered PD model that sees teachers as the experts, sharing knowledge amongst each other. It stands in contrast with the sage on stage speaker-centered types.

Bridging the teaching gap through professional development. Borko (2004) presents research that suggests quality professional development can change teacher practice and positively impact student learning. According to Musanti and Pence (2010) this research is "grounded in the assumption that teacher growth does not happen in isolation, current professional development seeks to create learning communities where participants engage in meaningful activities collaborating with peers to co-construct knowledge about teaching and learning (p. 73)."

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).

Peer-to-peer professional development as a viable means to improve teacher practice.

Peer-to-peer professional development. Teachers tasked with working everyday in classrooms are the experts of their domain and are therefore our greatest source of knowledge about teaching practices. Many of them are life-long learners that purposefully develop their practice.

These teachers often know a great deal about what works (and what does not work) best for kids in the classroom. Working together they can positively improve their craft (thus having a positive impact on student learning) more effectively and efficiently than traditional professional development is capable of.

Knowledge sharing. Knowledge is a belief or an understanding of socially generated information. 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 have their ability to reach a common goal (John-Steiner, 2000). This suggests that teachers who engage with colleagues over pedagogy, reflect on practices and instruction, and bring their own individual experiences, knowledge, and perspectives to the group- will improve their own practice. Hence, this meaningful engagement out of the classroom requires time, commitment, and sustained will to learn together over time (Byrne, Brown, and Challen, 2010). This involves developing processes of learning together by being active participants in a collective group experience such as peer-to-peer professional learning communities (Feiman-Nemser, 2001). With support from their colleagues, the time and tools to learn and grow, teachers commit themselves to this process (Byrne, Brown, and Challen, 2010).

Why motivation plays a role in a teacher's decision to engage in professional development.

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 dynamic motivational factors of these working relationships dictate their success. Particularly, when colleagues working together, implicitly and at times explicitly, support and hold each other accountable to share their knowledge. 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.

Motivation also entails "emotion." Thus, emotion plays a role in a teacher's decision to participate in peer-to-peer learning communities and to share knowledge as well. 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, subjective experiences, physiological changes, and action tendencies (p. 282)."

This leads to questions of teacher identity, or how teachers see themselves in terms of their role as a member of a group of colleagues. 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. 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.

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).

In this same way, Beltman (2009) found that "individual motivational beliefs regarding activities are, for example, inseparable from and mutually shaped by the social context in which these activities are situated (p. 194)". Thusly, adult learning and motivation can also be regarded as social, situated and constructed and for the successful implementation of new professional

learning communities to occur, the teacher and the teaching and learning community (the context in which they exist professionally) must be considered (Beltman, 2009).

Designing learning communities that consider social motivation.

The development of the greatest ideas take place in groups (Riel & Polin, 2004). Regretfully, the more traditional models for professional development (coursework, conferences, sage-on-stage presentations, just-in-time and how to's) have a limited impact on improving teacher performance (Beltman, 2009). This is mainly because teachers lack the continual support required to put into practice what they learned (Riel & Polin, 2004). Beltman (2009) suggests that when teachers engage in organized learning communities that afford them the opportunity to work with and learn from each other in a supportive nurturing environment, it seems to have a positive impact on professional practice. On his website Etienne Wenger describes a community of practice as learning communities that offer members the ability to learn together as a collection of professionals with similar interest toward a mutually agreed upon desired outcome (Wenger, June 2006). An essential component of this is that members share responsibility for each other's success (Schieb & Karabenick, 2011). These peer-to-peer learning communities provide unique elements that help teacher practice and contribute to their professional learning community at large. Identifying this practical element, social motivation, is critical because it can provide new insight into creating opportunities for teachers that will meet their needs and offer them ways in which they can better learn from each other. Education professionals, in private and public K-12 education, may perceive this as an efficient and cost effective model to communicate about and support the exchange of best practices around integrating technology into the classroom.

Peer-to-peer professional development allows teachers to reflect individually on their own practice, in conjunction with other educators, and with the explicit intention of learning something

new. This has ramifications for what teachers should consider when examining professional development opportunities in terms of the content, i.e. what they will be learning, and the process of seeking knowledge, i.e. how they will be learning it (Hodkinson & Hodkinson, 2005).

This form of systems thinking is similar to that of design thinking which describes a creative, collaborative, action-oriented approach to solving problems that first considers the context of the problem. In this way, educators in professional learning communities can share insights, encourage the individual and collective efforts of all, and gain knowledge from one another as they engage in cooperative approach to curriculum development (Brown, 2009).

Hodkinson & Hodkinson (2005) also offer some basic principles for developing these 'expansive' learning environments; they state that practitioners should develop learning environments that create a close collaborative working environment (with an explicit focus on teacher learning, as a dimension of normal working practices) where teachers feel mutually supported to motivate each other to continue professional learning (p. 124).

> "The authors suggest that creating such environments would need schools to change their emphasis on individual teachers working within closed, isolated classrooms. Time would be needed for teachers to take part in activities outside their lessons and school, to reflect on these and to apply new learning in their practice." (Beltman, 2009 p. 196)

In the literature that Schieb & Karabenick (2011) reviewed, several other themes emerged when considering the design of professional development opportunities for teachers. Their review found the following trends (p. 19):

- Teacher Self-efficacy – beliefs about their own teaching capabilities and competencies in developing curricula

- Teacher Isolation – feeling distant from the greater community, either by proximity or by _____relationships____
- Alliances – collaborating with other educators (near or far), administrators, and researchers in developing learning communities
- Intrinsic Rewards – impact of self-image and self-efficacy
- Autonomy – allow teachers the ability to take chare of their own professional development and resolve their own problems by allowing them significant input on PD goals, design, planning and implementation
- Support from Administration – benefits from positive and supportive relationship with educational leaders increases teacher motivation and encourages engagement, reflection, evaluation and recognition
- Existing Beliefs – acknowledging and honoring existing beliefs and practices plays a pivotal role in facilitating systematic change
- Policy – the current state of school must be taken into consideration; this includes the cultural context of the community, its obligations, pressures, goals, philosophy and long term vision

Byrne, Brown and Challen (2010) propose that when teachers engaged in the peer development process they: build non-judgmental learning communities where colleagues are free to discuss issues about teaching and learning for their mutual professional development honestly and openly; prefer planned, rather than ad hoc, discussion; gain longer-term benefits for participants and opportunities for a shared understanding of problematic issues and possible solutions; find ways for improve and opportunities to evaluate progress; and create opportunities for colleagues to research and develop pedagogy (p. 218).

A learning communitiy based model toward integrating technology into the classroom.

Riel & Polin (2004) declare that in learning communities, "people co-construct knowledge by building on the ideas and practices of group members (p. 3)." They suggest that synthesizing shared knowledge deepens the learning of the individual and the group, therefore moving them from sharing and discussing ideas, to then creating a new collective knowledge. This diversity of thought leads to a dynamic discourse whereby the mixture of individuals and also the group will lead to solutions and "common, shared, systematic understandings (p 10)." The objective then is to gather a group of people with diverse ideas, perspectives, and knowledge about common issues (Riel & Polin, 2004).

The role of technology in facilitating peer-to-peer knowledge building communities.

The use of technology to deliver resources and share knowledge is rapidly expanding the way schools share best practices (Kim, Miller, Herbert, Pederson and Loving, 2012). 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 focus on how technologies can be used to support student learning and self-discovery (Riel & Polin, 2004).

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).

Emphasis on the knowledge product: creating the learning artifact.

At a macro level, these professional learning communities:

> focus on the evolution, preservation and reproduction of the common or shared understandings of the group beyond the current social grouping. Their contribution moves in a larger discourse where each contribution is to be examined, reviewed and analyzed for clues on how to take the next turn in the community discourse." (Riel & Polin, 2004 p. 19).

The community is "engaged in a process of" developing their individual expertise" and the expertise of the group, while focusing on a common objective.

"At a micro level (p. 6)", learning communities work together to solve problems. Through this process, the individuals create a knowledge product (a documented history of the group's progression, a collection of ideas, insights and recommendations, etc.). It is a reflection of the group's process and a manifestation of the knowledge they have gained with and through each other. 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 can take the form of a curated collection of their work, lesson plans, or published products such as a website or digital print publication. (Riel & Polin, 2004 p. 16)

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).

The end result of my action research cycles will be the design of a (and plan for) learning community based peer-to-peer professional development model that allows teachers to: collectively engage in learning together to create new knowledge, reflect on experiences, and finally to share the new knowledge they have acquired.