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Effective professional development and social media technologies' potential for enhancement

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Effective professional development and social media technologies' potential for enhancement

Abstract

Effective professional development for technology integration in the classroom is essential. The purpose of this paper is to review literature regarding professional development models, identify essential elements for maximum effectiveness and examine social media technologies potential role. In this review, 32 journal articles and books written since 2000 are reviewed to identify essential elements for effective professional development, as well as social media technologies' potential in professional development. The results of this review could be used to design and implement effective professional development for integrating technology into elementary curriculum. Effectiveness of professional development can determine the level of student learning gained from the implementation of skills and knowledge by the teachers.

EFFECTIVE PROFESSIONAL DEVELOPMENT AND SOCIAL MEDIA
TECHNOLOGIES' POTENTIAL FOR ENHANCEMENT

A Graduate Review

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Introduction

Education is facing change and the public school systems in the United States are under tremendous pressure to increase student achievement. The requirements enacted by the federal government through the No Child Left Behind Act are causing schools to take drastic action to improve the performance of students. President Obama's Blueprint to Reform changes some of the requirements of NCLB, but still challenges schools that have achievement gaps that are failing to close or low student achievement to use data-driven, evidence based interventions. The plan also requires the lowest achieving schools to make even more dramatic changes (U.S. Department of Education, 2012).

A key element in a child's education is the teacher (Darling-Hammond & Bransford, 2005). Therefore, in order to implement these interventions and make the much needed drastic changes to effectively improve achievement in the classroom, we must begin with further educating the teachers and providing quality professional development. Evidence shows that student performance is influenced by teachers' high quality professional development so our institutions must provide the in-service training needed to improve our schools' learning environments (Darling-Hammond, 1999).

Professional development refers to the skills and knowledge attained for both personal and professional development provided by or through schools districts (National Commission on Teaching and America's Future, 1996). Effective professional development can transform schools into consistently evolving places in which teachers and students are deeply engaged in learning. Achieving this level of engagement requires schools to approach professional development differently than they have in the past. The purpose of this review is to examine professional development models, determine specific

strategies or modes for effective technology integration into elementary curriculum, and the effects of social technology on professional development by reviewing various literature sources.

Teachers have a tendency to be resistant to change. What professional development models are effective in helping teachers best learn and integrate technology into the classroom? Schools are using many different pieces of professional development models, but an overall quality program needs to be implemented for success in the classroom for teachers and students. It is imperative to identify effective models of professional development to help teachers to integrate technology effectively into existing curriculum and promote 21st century learners. In the age of social media, which is constantly evolving, it is necessary to look at how social technologies can be used to address the need for improved professional development.

Analyzing existing information is appropriate because by identifying effective professional development models we can better understand and design more productive learning environments for teachers. 21st century skills are becoming increasingly more important. Students are coming to school knowing how to use more modes of technology than most teachers do. These students require a different approach to curriculum and teachers need to have the ability to provide the differentiated instruction needed to foster skills and deeper learning for all students.

This review is primarily focused on professional development models and social media integration for elementary school teachers. The results of this review could be used to design and implement effective professional development for integrating technology into elementary curriculum. This review will answer the following questions:

1. What are the elements for effective professional development for elementary educators' integration of technology?
2. What factors affect motivation of elementary educators to integrate technology into their curriculum?
3. How can social technologies increase the effectiveness of professional development?

Methodology

The reviewer used a variety of online databases to locate traditional and online sources on professional development for technology integration. The primary sources to access the databases were through the University of Northern Iowa's Rod Library's *Panther Prowler* and Great Prairie Area Education Agency's Iowa AEA Online. The online databases used in locating sources include *ERIC* (Educational Resources Information Center), EBSCOhost Professional Development Collection, Education Full Text (Wilson Web), and GALE Academic OneFile. These online databases were useful in locating full text articles from established research journals and publications. The reviewer was most successful in finding pertinent information when using the following descriptors: *professional development models*, *technology use*, *social media*, and *elementary*.

An additional source of locating traditional references was by recommendations from faculty within the Educational Technology Division at the University of Northern Iowa. The researcher was able to review books from respected scholars in the fields of professional development and instructional technology. The final source used to locate applicable articles was the Advanced Scholar Search feature in *Google Scholar* was used to set specific criteria. The time period was limited from 2000 – 2012 to get the most current research articles.

Credibility, validity, and reliability were used to analyze and to evaluate the resources found. In searching all articles, peer reviewed journals and date of journal submission were used to analyze and to evaluate the articles. The initial resources were selected by reviewing the article abstracts and then determining if the contents were

relevant to the keywords. The evaluation of resources was based on: the quality of the content, the relevance to the topic, and the published year from the year 2000 to the most current year. The citation index searching technique was also used to examine the citation frequency of author's work in other publications.

Analysis and Discussion

Supporting student learning through technology is a skill that does not always come easily for teachers. It is imperative to identify elements of effective professional development and potential models that will be beneficial in helping teachers integrate technology in a way that fosters student learning. It is also important to examine why professional development has been unsuccessful to help in identifying future needs.

Jane Bozarth (2012) describes social learning as learning with and from others by moving within one's culture, workplace, and world and social media as the tools that enable social learning to happen on a large scale (p. 66). Due to the relationship between professional development and social learning, social technologies merit examination as to their influence on professional development.

Elements of Effective Professional Development

Joyce and Showers (2002) list four conditions that must be met for professional development to have a significant impact on student learning. This review of literature focuses on these elements as professional development models are identified and examined for usefulness in integrating technology in an elementary school setting. The essential elements in determining the effectiveness of professional development are:

- Community
- Content
- Processes
- Magnitude of change

Learning Communities

A community of professionals convene to study together, put into practice what they are learning, and share the results (Joyce and Showers, 2002). According to the social learning theory, learning is not an individual event or process, it is shaped by the interactions an individual has with others and the context in which the interactions take place (Henning, 2004). The National Staff Development Council (NSDC) has published a list of standards that also provide guidance for designing professional development programs in concordance with the four elements identified by Joyce and Showers.

The first set of standards listed by the NSDC are the context standards and they apply to building a learning community and emphasize the influence of a school's climate and culture on individual learning. According to the NSDC context standards, learning begins with a change in schools' climate and culture. Organizing teachers into learning communities whose goals are aligned with those of the school and district, skillfull school and district leaders to guide continuous instructional improvement and resources to support adult learning and collaboration are the context standards that must be met to improve the learning of all students. (National Staff Development Council, 2001). Building a community of motivated learners free to collaborate can be an important initiator of such change in building culture. The concept of a professional learning community is grounded in the assumption that knowledge is situated in the day-to-day experiences of teachers which is best understood by reflecting with others who share the same experiences and that actively engaging teachers in professional learning communities will increase their professional knowledge and ultimately enhance student learning (Vescio, Ross, & Adams, 2006).

In a multi-case study that explored the learning and collaboration of six high school career and technical teachers in a professional development settings, two different types of professional development experiences were provided during the four month investigation.

First, a course delivered by a master teacher on integrating reading, writing, and mathematics into the career and technical curricula which provided an environment that offered structured collaboration in-and-out of class as teachers developed their integrated lessons and applied what they had learned in their classroom. Second, a small teacher study group that met regularly for the purpose of improving teaching practice.

Results showed that while the integration course emphasized building knowledge and pedagogical expertise about integration, the study group focused on building professional knowledge and community through sharing and support. Both activities provided teachers with opportunities to collaborate and grow professionally. Teachers noted several positive outcomes. Some teachers felt the group collaboration helped them address problems with students and learn new instructional strategies and activities that could be used in the classroom and because they felt safe in the group environment, they could take risks and share lessons that didn't work well and seek suggestions from peers. After building the learning community throughout the study, teachers felt more comfortable with continued collaboration (Sturkin & Gregson, 2009).

Similar results were found in other studies. Quick, Holtzman, and Chaney (2009) described the school staffs' conceptions and professional development experiences of one hundred elementary teachers through a portion of a San Diego district reform effort looking to improve classroom instruction. The interviews revealed that when compared to

more traditional professional development, teacher collaboration, such as coaching and mentoring, resulted in more powerful learning experiences.

A more convincing finding is drawn from a larger scale study--Maryland Technology Academy Leadership Program. Nearly 460 participants composed of primarily teachers and media or technology specialists spanning all grade levels and subject areas represented all of Maryland's twenty-four school districts. The participating teachers collaborated with colleagues, developed authentic products, received systematic follow-up support, and engaged in reflection on the teaching.

The professional development experience began with a three-week summer institute which consisted of a rigorous schedule with high expectations. Considerable time was allocated for team building activities. This included building group identity, reflecting and sharing within teams, large group spirit building activities both during the program day and after hours recreational time. Constructing and sustaining the learning community was an important aspect of the program as the ultimate goal of the academy was to produce a networked community of technology leaders with technical, technology integration, and leadership skills capable of returning to their respective schools across the state to provide the support and professional development to other educators (McPherson, Wizer and Pierrel, 2006).

Outside the United States, in an effort to improve the educational achievement of students in mainstream public secondary schools, a New Zealand professional development project (Bishop, Berryman, Wearmouth, Peter, & Clapham, 2012), was implemented to support teachers and principals to work collaboratively and encouraged to develop of strong extended family approach to professional development activities by

building warm, supportive relationships of care and expectation with the group which should be characterized by strong support systems for those struggling to understand or participate. This provided opportunities to network with others from different backgrounds. After building these groups within the workshops, teachers went through a term-by-term cycle of four specific but interdependent activities consisting of individual in-class observations, teacher feedback, co-construction meetings for teachers to reflect, and targeted shadow-coaching sessions. Staff was also involved in professional development sessions run by school leaders on an as needed basis pertaining to knowledge, strategy or assessment. Bishop indicated these activities were all undertaken within the context of family-like relationships of interacting with emphasis on cultural values of commitment, responsibility, guidance and support. The evidence produced by the project has indicated changes in teacher practice and associated improvements in student outcomes as well as identified the main ingredient in ensuring sustainable school reform is through the strong community bonds built throughout the professional development project (Bishop, 2012).

Learning Content

The content of professional development is created around curricular and instructional strategies selected because they have a high probability of affecting student learning and students' ability to learn. According to NSDC, student learning outcomes define equitable expectations for all students to achieve at high levels and hold educators responsible for implementing appropriate strategies to support student learning (2001).

The selection of content for professional development is a critical decision in the school improvement process and must be aligned with current student achievement goals

(Joyce and Showers, 2002). The NSDC once again provides standards that focus on the content element of the training for professional development design (National Staff Development Council, 2001). These standards help provide focus on what information or strategies need to be provided as professional development activities are being designed.

Content Standards:

1. Equity: Prepares educators to understand and appreciate all students, create safe, orderly, and supportive learning environments, and hold high expectations for their academic achievement.
2. Quality teaching: Deepens educators' content knowledge, provides them with research-based instructional strategies to assist students in meeting rigorous academic standards, and prepares them to use various types of classroom assessment.
3. Family Involvement: Provides educators with the knowledge and skills to involve families and other stakeholders appropriately.

These standards can be applied to various professional development models and can provide guidance for designing meaningful learning experiences for teachers. For example, one professional development model suggests that technology professional development activities be shaped around a philosophy that emphasizes the alignment of instructional activities with standards, problems solving, technology integration, data collection and management, assessment, and decision-making in P-8 classrooms (Ireh, 2006).

Ireh Product-Based Technology PD Model Study

Madu Ireh (2006) examined the use of a product-based professional development model in a year-long training designed to instruct teachers to effectively use and integrate technology in their classrooms to improve student learning. A product-based model emphasizes ongoing, outcomes-based professional development that is field based and is built on the premise that faculty professional development should have specific outcomes tied to appropriate content. Teachers produce a product throughout the professional development activities that will be of authentic use to them in practice. The study was a part of a state-funded grant initiative aimed at improving performance of teachers drawn from two high-need school districts in North Carolina in support of the federal “No Child Left Behind” mandates. The model was used to train 18 elementary teachers in authentic teaching situations with authentic training experiences and modeling to effectively use and integrate technology in their classroom in ways that improve student learning. The product-based approach focused on allowing participants to create instructional resources to be made available to students on the Web.

Content for the training was selected based on a needs analysis conducted by project personnel prior to beginning the project to ensure participants gained technology integration skills that will assist them in becoming more effective at improving the academic performances of their students. Technology integration topics included creating multimedia presentations and instructional content, collecting, analyzing and communicating instructional data, assessing instruction, etc. and using the product-based model the project personnel were able to provide the participants with training in authentic teaching situations and with authentic training experiences and modeling.

Ireh (2006) found that the participants' ability to articulate curriculum and instruction requirements and relate them more clearly to performance objectives was enhanced. Following the training, teachers employed a wide range of instructional technology skills and viewed technology as an effective and powerful tool for enhancing learning. Ireh strongly recommends that attention be paid to different learning styles and through emphasis on job-embedded professional development, such as the product-based model, teachers have the opportunity to acquire and put into practice technology integration skills (2006).

Processes

The professional development process is just as important as the content of the program. The process of professional development must have clear, specific goals and objectives; engage teachers intellectually; actively involve participants; consist of multiple sessions over an extended period of time; allow teachers to learn with and from their colleagues; and provide the opportunity for educators to develop skills and strategies and implement what they are learning. Designing training involves identifying the desired outcomes and then selecting training strategies that will achieve those outcomes (Joyce & Showers, 2002).

The last set of standards provided by the NSDC is the process standards. Through these standards school and district leaders and professional developers must recognize that the process is as important as the content of the training (National Staff Development Council, 2001).

Process Standards: Professional Development that improves the learning of all students:

1. Data-driven: Uses disaggregated student data to determine adult learning priorities, monitor progress, and help sustain continuous improvement.
2. Evaluation: Uses multiple sources of information to guide improvement and demonstrate its impact.
3. Research-based: Prepares educators to apply research to decision making.
4. Design: Uses learning strategies appropriate to the intended goal.
5. Learning: Applies knowledge about human learning and change.
6. Collaboration: Provides educators with the knowledge and skills to collaborate.

Research on effective professional development suggests that participants be part of a network, have opportunities for observation and practice, and connect instructional approaches with assessment (Slavit, Sawyer, and Curley, 2003). Tremendous planning and organizing are necessary in order to provide for these components when designing professional development. Giving teachers the opportunity to have fun with learning and be active participants who take full advantage of learning activities is extremely important. Professional development models can be adapted to meet the process standards and individualized goals of schools. (Bradburn, 2004).

TPACK Case Study

Chrystalla Mouza (2011) conducted a study on professional development centered on case development using the TPACK framework. TPACK is a framework for teacher knowledge for technology integration which involves technological, pedagogical content knowledge (Koehler & Mishra, 2009). The program required teachers to attend a summer institute for one week during the month of June in which they experienced a variety of

technology tools which could be integrated into the various disciplines. They met daily for three hours which included an introduction and demonstration of a computer tool or application, a hands-on and collaboration session, and always concluded with a discussion of the implications on teaching and learning in the participants' classroom context. The goal of this process was to help teachers build their technology literacy and understanding of how tools can be linked to specific content and pedagogical strategies (p. 6).

The process continued through four stages beginning with identifying a pedagogical problem in their classroom and identifying technological tools that could offer possible solutions. During the second stage, teachers created a plan to address the problem identified consistent with the academic standards within their school. Enacting the plan within their own classrooms and collecting artifacts was the third stage and the final stage required the teachers to write a case based on the cycle of preparation, enactment, and reflection of the technology-integrated plan in their classroom (Mouza, 2011, p. 7).

Results demonstrated that case development enabled teachers to build connections among the components of TPACK, focus on authentic pedagogical issues that were directly related to their classroom, and reflect on the realities of teaching with technology and the complexity of classroom interactions and decisions. Mouza (2011) specifically noted that instead of issues related to technology dominating the case narratives, which is typical in traditional professional development opportunities on the use of technology, issues related to pedagogy in relation to content and technology were emphasized. The importance of documenting the ways in which teachers who engage in the kind of

practice-based professional development continue to learn from their own classroom teaching through the process of analysis and reflection.

Mississippi Department of Education Model

Mississippi Department of Education (2002) approved a new professional development model for the new millennium which takes into account the standards listed above and includes multiple forms of learning intended to be relevant for classroom teacher, as well as supportive of schools goals for improved student performance including achievement, behavior and attitude. The model is intensive, high quality and of a sufficient duration to have a positive impact on teaching and learning in the classroom. The Mississippi Department of Education (2002) outlines that professional development must be based on the following elements:

- Based on a shared vision and goals for improving student performance derived through a strategic planning process
- Advances individual growth and organizational improvement
- Involves institutional collaboration
- Provides for networking and collegiality
- Models constructivist teaching that builds knowledge
- Provides time and follow-up necessary for change in practice
- Is ongoing and job-embedded
- Addresses diversity of all learners

The process of professional development's design and implementation is equally important to the content being presented. The National Staff Development Council recommends that when choosing designs for professional learning, educators consider

multiple factors. The first is the intended outcome, drawn from analysis of student and educator learning needs. Second, choose learning designs that engage adult learners in applying the processes they are expected to use facilitate the learning of those behaviors by making them more explicit. Effective designs for professional learning assist educators in moving beyond comprehension of the surface features of a new idea or practice to developing a more complete understanding of its purposes, critical attributes, meaning, and connection to other approaches. Third, to increase student learning, educator learning provides many opportunities for educators to practice new learning with ongoing assessment, feedback, and coaching so the learning becomes fully integrated into routine behaviors (2001).

Motivation: Magnitude of Change

Considering the magnitude of change generated must be sufficient enough so that the students' gain in knowledge and skill is tangible, we must look at the motivation and attitudes of teachers in professional development. Teacher attitude and motivation can significantly affect the success of professional development implementation.

Recognizing the factors that can influence the way teachers view professional development and the integration of technology itself is also vital.

Joyce and Showers describe how what is taught, how it is taught, and the social climate of the school have to change to the degree that the increase in student ability to learn is manifest (2002). The effort to teach and support teachers to use technology requires a tremendous commitment of time for both the professional development provider and the teachers taking the training (Denton, 2004). Therefore, teachers must

have a vested interest in the desired goals and outcomes for a change in culture to begin to occur.

Robert Carneiro (2006) explains the teachers' motivational beliefs affecting achievement that remain under scrutiny including such topics as goal orientation, self-efficacy, perceptions of task difficulty, task value beliefs and personal interest in the task. In Carneiro's inquiry into what motivates teachers to learn, his research included customized surveys administered at three sequenced times to teachers enrolled in their first term of graduate studies. In-depth qualitative interviews and discussions were also conducted. Carneiro hypothesized that school teachers are proactive learners who require appropriate professional incentives to engage in demanding education processes and teacher advances in technology integration seem to proceed through a set of well-defined stages, where the highest stages require changes in attitude more than in skills.

Researchers have identified many factors that can create effective professional development environments. Training in which teachers have had input into the planning process, creates a sense of involvement where teacher interests or professional needs are met (Dunn and Dunn, 1998). Professional development that is a one size fits all design often disregards individual learning needs. Therefore, just as students in a classroom have different needs and require differentiated instruction, a teaching staff within a school requires differentiation also. Active learning environments where teachers receive more than just fragments of ideas on the latest topics and ample time to discuss with peers how to apply and implement strategies upon returning to their classrooms have a better result in a change in classroom practice (Peery, 2002).

The NSDC explains that if teachers are motivated to learn and active engagement in professional development is achieved it can result in change in educator practice and student learning. Active learning processes include discussion and dialogue, writing, demonstrations, inquiry, reflection, metacognition, co-construction of knowledge, practice with feedback, coaching, modeling, and problem solving. Through exploration of individual and collective experiences, learners actively construct, analyze, evaluate, and synthesize knowledge and practices (2009). One 21st century means for doing so is through social media technologies.

Professional Development through Social Media

People around the world are taking their education outside of school walls and into homes, libraries, internet cafes, and workplaces, where they can decide what they want to learn, when they want to learn it and how they want to learn (Collins & Halverson, 2009). Social media technologies can help achieve this for teachers. Jane Bozarth (2012) illustrates how we are working in a wonderful era of easy to use, readily available social media technologies ideally suited to learning and instruction.

Educators are actively finding professional development through social networking even without credit for their work, simply out of desire of adding to their skills and continue learning. Social media are the tools that enable social learning to happen on a large scale and are beneficial to professional development as they harness the power of thousands of teachers (Davis, 2011).

As we navigate through the 21st century, social media technologies can be used to facilitate two core activities that support collaboration: information exchange and communication. When social technologies are appropriately directed they hold potential

to enhance learning and development (Allen & Naughton, 2011). Online education communities will be further examined for usefulness in enhancing professional development.

Using Social Media to Create Online Education Communities

As researchers have identified the importance of building professional learning communities among educators, online education communities offer a new form of professional development for the 21st century. Online education communities make it possible for individuals to interact, learn and access knowledge and resources within a social space (Duncan-Howell, 2010, p. 325).

Duncan-Howell (2010) conducted a study of three online communities for teachers through surveys issued to 98 teachers from a variety of teaching backgrounds. The first online community examined was BECTA (British Educational Communications and Technology Agency) top teachers, which specializes in implementing and using ICT's in the classroom. The second community in the study, OZ-TeacherNet, is a general community list of pedagogical and professional issues affecting teachers. The final online community was specific to teachers of English named SSABSA (Senior Secondary Assessment Board of South Australia) English Teachers.

The survey explored the nature of online community membership and its potential as a source of professional development. Results indicated that typical professional learning activities included conferences, workshops and courses, however it showed that teachers who were members of an online education community were committing 1-3 hours per week in time to PD on their own. Duncan-Howell indicated positive benefits of online education communities as allowing members to move through periods of high or

low activity over extended periods of time, which is an attractive feature for busy teachers. The freshness and variety of knowledge that is maintained in the communities allows teachers a forum to discuss change, gather evidence of successfulness for improved student learning (p. 326).

Steve Hargadon, founder of the *Classroom 2.0* social network, which specializes in connecting teachers and other educators, believes that online education communities are a perfect environment for professional development to flourish. Hargadon's education network, *Classroom 2.0* has grown to more than 56,000 members since its creation in 2007 and he attributes the network's success to the meaningful opportunities it provides educators for sharing what they know and learning from others (Hargadon, 2010).

Social Media may not ever take the place of face-to-face professional development but the opportunities to enhance professional development are endless. Sheryl Nussbaum-Beach describes connected learners as taking responsibility for their own professional development. They figure out what they need to learn and then collaborate with others to construct the knowledge they need. Instead of waiting for professional learning to be organized and delivered to them, connected learners contribute, interact, share ideas, and reflect (2012. p.11).

Conclusions and Recommendations

This literature review was conducted in an attempt to address three questions:

1. What are the elements for effective professional development for elementary educators' integration of technology?
2. What factors affect motivation of elementary educators to integrate technology into their curriculum?
3. How can social technologies increase the effectiveness of professional development?

Teacher professional development is an essential component in preparing and supporting teachers by giving them the knowledge and skills needed to provide effective instruction for the highest level of student achievement. Effective professional development produces changes in teachers' practice which can be linked to improvement in student learning. Studies have found that when teachers receive high quality professional development with support in transferring new concepts and strategies to their daily classroom practice, student performance improves.

Integrating technology is essential in allowing students opportunities to develop 21st century skills. However, ensuring that teachers are capable and comfortable integrating technology is an obstacle many elementary schools are facing. Technology is a game changer and school culture has to change with the move forward. This can begin with teacher professional development. What are effective professional development models for integrating technology into the elementary classroom?

This examination revealed that there is not one professional development model that has been identified as being more effective than another. There are many resources

that establish ideas about effective professional development and there are reoccurring themes throughout the different models that relate to the standards established by the National Staff Development Council which also coincide with the essential elements outlined by Joyce and Showers (2002). One overall theme throughout many professional development models is building a learning community. Professional learning within communities requires continuous improvement, promotes collective responsibility and supports the alignment of individual, team, and school goals (National Staff Development Council, 2001). Learning communities allow teachers to be brought together to share and collaborate through learning. When teachers are given the opportunity to put the skills and knowledge obtained during professional development into practice, discuss and reflect with fellow teachers, enhanced understanding occurs.

A second theme illustrated throughout the literature was the focus on the content of professional development. In order to attain student achievement goals, professional development must be aligned with those goals and robust enough to elicit the change envisioned (Joyce & Showers, 2002). When making decisions about content centered on integrating technology, professional development must examine the relationship between technology and pedagogy. The ability to understand how technological tools can be combined with content and pedagogical strategies to produce meaning learning experiences for students (Mouza, p. 3)

The third important aspect identified in the literature is the process of the professional development. The process has to fit the staff and the desired outcomes for the professional development and allow for teachers to thoroughly develop the skill in order for effective implementation (Joyce and Showers, 2002). Allowing teachers to be a

part of the planning for professional development and knowing the needs of the staff are essential in effective professional development.

In reviewing literature around teacher motivation results showed that appropriate skills and knowledge for content that fit the goal of the staff is a colossal motivation factor in learning. Providing time for teachers to collaborate and put into practice what they are learning will help teachers to not feel overwhelmed. This may involve meeting time, observation, and support or feedback from peers and leaders in the content. Teachers have to feel completely supported in integrating technology and ensure that support is there with follow up is key.

When professional development includes the above elements, you can modify existing or new models and cater to the needs of the school. Teachers will feel a sense of ownership in the planning and will appreciate the consideration of time for developing and practicing the skills needed for implementation.

The literature reviewed provided several examples of how social media technologies are being used to enhance professional development. Online learning communities are one of the most effective ways teachers can use social media to increase knowledge and skills through various forms of collaboration. Social media provides a safe environment where teachers can feel comfortable sharing ideas, strategies, resources and even things that have not worked well for them. It can bring different perspectives and support for educators. Also, while using social media technologies, teachers can enhance their own use of technology, in turn helping them better integrate it into their classroom.

In summary, the literature reviewed reveals professional development must involve community, be chosen and designed for specific goals within each individual school and around teacher's needs to be effective in improving student outcomes. Teachers also benefit professionally from effective use of social media technologies to form learning communities reaching outside classroom and school walls, harnessing the knowledge and skillset of teachers around the world.

School leaders should use the information provided in the review to deliver the most effective professional development to their teachers. Professional development models can be tailored to include the elements and standards described to meet the needs of the teachers and address student learning goals. Teachers can also enhance professional development opportunities by actively participating in online learning communities either individually or as a school staff. Schools are obligated to provide the most effective professional development to ensure success for teachers and students.

Further research should be done to examine effects of using online learning communities for professional development on student achievement. Little information regarding this topic was found in the literature reviewed. A closer examination could also be taken at other forms of social media technologies that would benefit professional development.

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