2024, This was created as a book chapter for a book being developed for K-12 educators. The main topic was examining the issues of K-12 teachers teaching online (way before COVID). The project was abandoned by the co-editors.

This chapter on teacher professional development may still have some use. If nothing else it should augment your understanding of K-12 teacher development.

Teaching Online: K-12 Professional Development - Rebecca Clemente

> *"Teachers of today and tomorrow need to do much more learning on the job, or in parallel with it - where they constantly can test out, refine, and get feedback on the improvements they make. They need access to other colleagues in order to learn from them" (Fullan, 2007b, p. 297).*
>
> *"I know of no improving school that doesn't have a principal who is good at leading improvement" (Fullan, 2007b, p. 160).*

Think about the following statements and consider which are true and which are false:

	T	F
1. Any regular classroom teacher is already qualified to teach online.	☐	☐
2. Any highly qualified face-to-face classroom teacher is ready to teach a quality online course that has previously been prepared or purchased.	☐	☐
3. Newly qualified teachers who learn about virtual schooling in their preservice programs will be ready to teach online when they graduate (Davis & Rose, 2007)	☐	☐

Perhaps surprising to some, all are false. Currently there is little preparation of preservice teachers to learn how to teach online (Lowes, 2007; Rice & Dawley, 2007) and other than three states[1] and a few virtual schools' collaborative partnerships that require preparation of their online teachers, practicing teachers need effective professional development in order to successfully teach online, develop fully online courses, or develop blended learning formats[2].

This chapter provides insights and guidance on effective professional development situated in professional learning in general and more specifically for the preparation of online teachers. To illustrate some of the historical roots that led to the current conception of professional development, a brief overview of the educational change process and of teacher learning are provided. Numerous change initiatives over the past fifty-years illuminate why institutionalization of educational efforts differ as well as show the intricacy and systemic

nature of the educational change process. The concept of professional learning is explored as a foundation on which support for teacher learning is situated. Finally professional development initiatives and design elements needed to develop effective professional development for online teaching are presented.

Brief Overview of Educational Change

Thomas Edison once said, "I have not failed, I've just found 10,000 ways that won't work" (Wikiquote, 2010). Examining the expansion of our understanding of educational change is much like this. It seems, at times, that unsuccessful educational change efforts overshadow or hide successful ones. Research into the educational change process illustrates the research community's endeavor to deepen and broaden an understanding of, effects of, orientation of, and factors related to educational change (Fullan, 2007b; Olson, 1985; Olson & Easton, 1987; Peterman & Anders, 1991; Richardson & Placier, 2001; Waugh & Punch, 1987). As a result, what has emerged is a clearer (and, yes, simultaneously exhilarating and confounding) understanding of the educational change process.

Figure 1 (see page 37) shows that the initial focus of educational change was on change agents (i.e., people who bring *new* ideas to a group), the change process, and on teachers. Studying teachers was a means to determine whether they were catalysts or inhibitors of new ideas as well as explore ways to educate teachers about innovations. Answers emerged about teachers' roles in educational change - yes, teachers are both catalysts and inhibitors and a few change initiatives were successful. This caused researchers to broaden and redirect their focus by examining things such as first-order changes (i.e., impact to individual teachers) and second-order changes[3] (i.e., affect to the school or district) (Blumberg, 1980; Cuban, 1989.)

Emerging out of five decades and countless efforts to comprehend educational change is a call to move away from solely studying discrete elements in the change process (e.g., teachers, the innovation) to the broader context of the school environment (Cohen & Hill, 2001; Levin, Glaze, Fullan, 2008; Lindstrom & Speck, 2004; Little, 2006; National Research, 1999, 2000). Understanding the social realities in schools and of teaching are central to nurturing cultures open to educational change. Olson (1985) and Olson & Easton (1987) described this as examining the ecological aspects of change. In examining ecological factors the context of the school environment and the relationship of teachers to the school environment are of interest. Cuban (2004) reminds us that

> reformers eager to change teachers' classroom practices and improve how students learn need to take seriously the classroom, school, and district contexts while keeping their eyes on the connection between their reform and how it fits or doesn't fit the larger context in which teachers must act daily. (p. 146)

It is the expansion of understanding from these studies that opened the way to view teachers as active, thoughtful professionals. Researchers also gained a clearer idea of the conditions needed to create and maintain change initiatives and the professional learning environments[4] that resulted (Cohen & Hill, 2001; Guskey, 2000; Horn & Little, 2010; Little, 1999; Porter, Garet, Desimone, Yoon, & Birman, 2000; Rosenholtz, 1989).

Professional Learning

Wenger (1999) reminds us that "learning entails both a process and a place...where new ways of knowing can be realized" (p. 215). Professional learning provides a context for professional community within the work setting (Lieberman, 1995; Fullan, 2001, 2008; Little,

1999; Nathan, 2008). This context makes it possible for teachers to explore and take action on issues generated by examining student achievement data (see Figure 2) (Croft et al., 2010; Fullan, 2001, 2008; Hirsh, 2009; Little, 1999; National Education, 2003; National Staff, 2010b). Key to understanding issues related to student learning is teachers determining and developing their learning experiences (Buchholz & List, 2009; Cochran-Smith & Lytle, 1999, 2001, 2009; Kieny, 2002) designed to provide insight and direction on the issues.

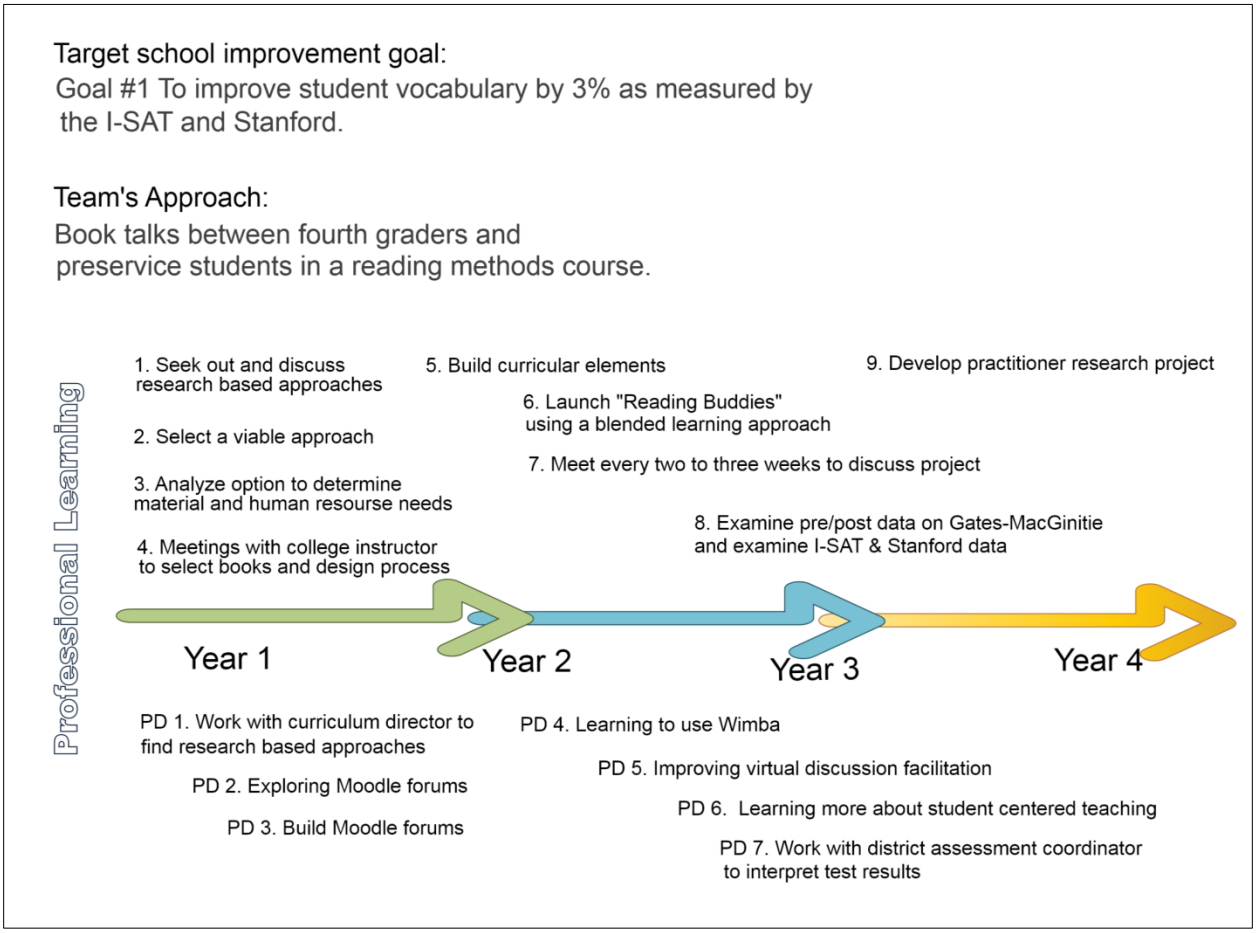

Figure 2. Example of professional learning and its professional development components.

There has been a recognition that for teacher learning to be the most effective it should occur in the day-to-day working environment of the school (Buchholz & List, 2009; Croft, Coggshall, Dolan, Powers, & Killion, 2010; Ertmer & Ottenbreit-Leftwich, 2010; Hodkinson

&Hodkinson, 2005; Little, 2006; Tienken & Stonaker, 2007). In order to shape an environment that supports this type of teacher learning, there would need to be an understanding of "shared goals, beliefs, and values" (Rosenholtz, 1989, p. 39) that emerge out of dialogue among the superintendent, principals, and teachers (Eubanks & Parish, 1987; Fullan, 2007a, 2007b). This develops the foundation on which teachers' opportunities to learn, teacher commitment, confidence in pedagogical approaches, and results as measured by student learning outcomes rest. As stated by Cole (2004)

> Professional learning can occur in many ways that are often not thought of as professional development. The emphasis on learning rather than development also enables one to open up discussions as to how learning takes place. How do students learn? How do we learn new knowledge and skills and how to apply them?" (p. 6)

Key to this is the skills, insights and knowledge of the principal[5] and her/his ability to effectively model, shape, and nurture a workplace embedded with professional learning practices[6] (Blaze & Blaze, 1999; Engles, Hotton, Devos, Bouckenooghe Aelterman, 2008; Helsing, Howell, Kegan, & Lahey, 2008; Lindstrom & Speck, 2004; Rosenholtz, 1989; Rosenholtz & Simpson, 1990; Youngs & King, 2002).

Another feature of the foundation for professional learning is addressing the type of knowledge conveyed in professional learning experiences and the possibility of these to influence teacher transfer of learning that ultimately could lead to changes in the teaching and learning environment. Cochran-Smith and Lytle (1999, 2001, 2009) discuss a knowledge framework[7] that distinguishes knowledge-for-practice[8], knowledge-in-practice, and knowledge-of-practice. Knowledge-for-practice is the content and theory base (i.e., content knowledge

and pedagogical knowledge) of teaching. This is characterized as teachers' use of the knowledge, skills, and pedagogy primarily created by others outside of the K-12 learning environment. Most professional development models are designed to improve teachers' knowledge-for-practice. Knowledge-in-practice focuses on the process of implementation of new ideas and strategies, which is important to assure continued use of new ideas and strategies by working through the uncertainty that occurs during implementation. This is characterized as teachers engaged in collegial conversations and reflection that critically examine pedagogical content knowledge. Knowledge-of-practice serves as a means to gain understanding of the impact on students because new ideas and strategies have been used in practice. This is characterized as teachers engaging in practitioner research. As articulated by Cochran-Smith and Lytle (2001),

> The knowledge teachers need to teach well is generated when teachers treat their own classrooms and schools as sites for intentional investigation at the same time they treat the knowledge and theory produced by others as generative material for interrogation and interpretation. (p. 48)

Each aspect of the knowledge framework is enhanced and deepened through reflection and collaboration with colleagues to facilitate connections among pedagogy, content knowledge, pedagogical content knowledge (and its companion technological pedagogical content knowledge[9]), student characteristics, the learning environment, and student learning. It is critical that the school environment be such that all aspects of the knowledge framework be attended to in order to realize and ensure teachers' transfer of learning, teacher creation of new knowledge, and changes in the teaching and learning environment.

Professional Development

The section above provided insight into the school context that is needed to invite, encourage, and set the stage for professional learning. Within the context of professional learning, previous forms of professional development may be selected as the medium for teacher learning[10] (National Staff, 2010a). To determine what professional development approach to use (e.g., peer coaching, workshop, professional learning community) selection would emerge from examining and analyzing student learning, the feedback from principal's evaluation of teaching efforts to improve student learning, and whether a particular model of professional development provides the best opportunity for teacher learning given the issues to be addressed.

In the evolution of offerings over the past decades, (see Figure 3) to develop teachers' knowledge, many terms have been used: inservice, staff development, and professional development (Richardson & Placier, 2001). While these terms have become synonymous, they actually represent an evolution of how new educational ideas are conveyed to teachers to broaden and deepen teacher understanding, to ensure transfer of learning, and convey respect to teachers as professionals and adult learners.

Term	Key features	Target group	Program/Experience Characteristics
Inservice	Meaning "activities designed to improve skills, knowledge, attitudes, or techniques relative to teachers' roles, predominantly that of 'instructor'" (Holly, 1989, p. 174). 1. Teachers can be trained in new methods of teaching (Cochran, 1975; Frechtling, 2001; Holly, 1989) 2. Typically aimed at the newest educational idea (Cochran,	Teachers as individuals	• Keynote speaker • One-day workshop or series of break-out sessions on a range of related or unrelated topics • Ideas presented may or may not be researched based

Term	Key features	Target group	Program/Experience Characteristics
	1975; Agne & Ducharme, 1978) 3. Topics typically determined by administration (Adams, 1971) 4. Typically a one-time presentation by an outside person (Adams, 1971; Agne & Ducharme, 1978).		
Staff Development	1. Focus on curriculum and teaching (Gull & Vojtek, 1994; Holly, 1989) 2. Conducted by an outside person (e.g., consultant) (Lieberman, 1995).	Teachers as part of a whole (Good & Brophy, 2008) possible to be comprised of "staff members, parents, community, and other educators" (Holly, 1989, p. 175)	• Clinical supervision • Peer Coaching • Mentoring • Longer-term training (a series) on a single topic
Professional Development[11]	1. Developmental process that spans the career of the teacher (Holly & McLoughlin, 1989) 2. Active teacher involvement (Holly, 1989; Guskey, 2000; Lieberman, 1995) 3. Movement away from using outside facilitators.	Teachers as individuals and part of a group	• Action Research • Graduate courses/degrees • Lesson Study • Professional Learning Communities • Teacher leadership

Figure 3. Overview of the evolution of teacher learning approaches.

As stated by Holly (1989), "training was based on eradicating the 'deficiencies' of inadequately prepared teachers [whereas] development signified (if only symbolically) the continuing nature of career and lifelong learning for the teacher" (p. 175). Tafel (2008) puts it succinctly by expressing this as moving from working on teachers to working with teachers. The idea of development of practicing teachers carries with it the notion that these experiences should provide for longer, more meaningful learning (Fenstermacher & Berliner, 1985, Richardson & Placier, 2001, Steiner, 2004).

Additionally, effective professional development is a movement toward "a collaborative learning process that nourishes adult-learner-centered growth in the context of job-embedded work that results in improved student learning" (Lindstrom & Speck, 2004, p. 27). Researchers

have articulated the importance of collegial relationships by noting that schools that improve also have viable professional communities (Hawley & Valley, 1999; Horn & Little, 2010; Levine & Marcus, 2010; Rosenholtz, 1989) embedded in the workplace. Research is providing insight into the key elements needed to develop, support, and sustain worthwhile professional learning[12] (Desimone, Porter, Garet, Yoon, & Birman, 2002; Horn & Little, 2009; Lindstrom & Speck, 2004; Mouza, 2009; National Center for Research, 1995; Snow-Renner & Lauer, 2005; Wells, 2007). This movement toward better designed and a broader conception of professional development is a positive generational step forward. That aims to move away from disjointed events to ones embedded in the everyday work of teachers and principals (Buchholz & List, 2009; Cochran-Smith & Little, 1999; Croft et al., 2010; Darling-Hammond & Richardson, 2009).

Impact on student learning

As professional development moves to being ongoing and embedded in the workplace it appreciably influences teaching and student learning (Lindstrom & Speck, 2004; National Center for Research, 1995; Snow-Renner & Lauer, 2005). High quality professional development[13] is linked to changes in teaching, student learning, and increases in student achievement (Berger, Bat-Sheva, & Bagno, 2008; Johnson & Fargo, 2010; Meiers & Ingvarson, 2005; Saxe, Gearhart, & Nasir, 2001; Scantlebury, 2008; Yoon, Dunkin, Lee, Scarloss, & Shapley, 2007; Wei et. al, 2009). Yoon et al.'s (2007) meta analysis on the impact of professional development on student achievement reported a positive impact on student achievement when professional development was focused on a single topic and lasted more than fourteen hours. Further, they found that "teachers who receive substantial professional development—an average of 49 hours in the nine studies—can boost their students' achievement by about 21 percentile

points" (p. iii)[14]. Additionally high quality professional development improves teachers content and pedagogical knowledge that leads to improvements in student understanding, improves teachers' sense of efficacy, and when standards based, can lead to student centered designs for instruction (Buczynski & Hansen, 2010; Herrington, Herrington, Hoban, & Reid, 2009; Watson, 2006).

Framework of Effective Professional Development

While professional development is a primary vehicle used to deliver educational change it has often resulted in a trail of unused or soon-to-be abandoned ideas (e.g., back to basics, whole language, DARE). A current snapshot of the state of professional development reveals that the quality of professional development continues to be inconsistent and of short duration (i.e., less than eight hours) consisting primarily of workshops, conferences, and training sessions (National Center for Education, 2006). While this seems grim and disheartening, research is providing insight into the conditions necessary for sound professional development.

Garet, Porter, Desimone, Birman, & Yoon (2001) articulated the characteristics and core features of effective professional development. They examined the "relationship between features of professional development that have been identified in the literature and self-reported change in teachers' knowledge and skills and classroom teaching practices" (p. 918). They studied professional development by exploring its form (i.e., reform or traditional[15]), duration (i.e., contact hours and time span), and degree of collective participation (i.e., teachers from the same school, department, grade level, or teachers from disparate schools). The core features examined were content focus, active learning, and coherence. Their findings support that professional development that is ongoing, embedded in the workplace, focused on

content, and involved active learning on the part of teachers is more effective in improving teachers' knowledge and skills. Little (2006) adds to and affirms these findings noting that professional development should be "content-focused, active, collective, coherent, and sustained" (p. 8)[16]. Rosenholtz (1989) states:

> Teachers' regard for their work - their sense of optimism, hope, and commitment - tends to reside in workplace conditions that enable them to feel professionally empowered and self-fulfilled, that keep them reaching for new teaching challenges, fresh opportunities, and ever-expanding technical knowledge. (p. 165)

Further, Whitehouse, Breit, McCloskey, Ketelhut, and Dede (2006) add that professional development should foster "inquiry-based, constructivist pedagogies with students" (p. 17), should help teacher develop "abilities to create communities of practice among students" (p. 18), and should advance the "intellectual development of teachers" (p. 20) to affect student learning.

Wells (2007) developed ten key design elements for effective professional development (i.e., evaluation driven, contextual, learner centered, duration of process, engagement, inquiry based, theory/research based, collaborative, support, sustainability) based on ten years of professional development research[17]. He used the ten design elements to develop and implement a project titled Trek21 that aimed to change and sustain changes to teaching practice. Wells wished to know which of the ten design elements actually contributed to the success of Trek 21. Trek 21 "promoted a shift in classroom practice and teaching centeredness (from teacher toward learner) among participants" (p. 113). Five of the ten elements were shown to have the greatest impact. These are duration of process, learner centered,

engagement, collaborative, and support[18]. These, and attending to the context for professional learning that addresses the knowledge framework (Cochran-Smith & Lytle, 1999, 2001, 2009), would represent the basic design elements to consider when selecting or developing professional development experiences.

Professional Development and Learning to Teach Online

"Online teaching shares much with face-to-face teaching, but it also has a unique set of skills and requirements if educators are to teach well online" (National Education, 2010, p. 1). Claims have been made that the communication needs in online environments necessitate a need for professional development that will assist teachers in learning how to communicate content, develop ideas, develop skills, and achieve learning standards while fostering student learning (Kearsley & Blomeyer, 2004; Lieberman & Mace, 2010; Vrasida & Glass, 2004). As several writers have stated, teaching in blended formats[19] or fully online is to immerse teachers and their students in interactivity, participation, interpersonal communication, and community building not often seen in face-to-face classes (Kearsley, 2000; Means, Toyama, Murphy, Bakia, & Jones, 2009; North American Council, 2006; White & Weight, 2000; Yang & Cornelious, 2005).

Deciding how to develop or select professional development experiences to prepare teachers to teach online should follow what is known about effective professional development (Wells, 2007) while addressing the needs of learning to teach online (Rice, Dawley, Gassell, & Florez, 2008). It is important that the decision to use blended or fully online structures be linked to further school districts' student learning outcomes (Croft et al., 2010; Fullan, 2001, 2008; Hirsh, 2009; Little, 1999; National Staff, 2010b).

Teachers and Technology Integration

There is little K-12 research on preparing teachers to teach online (Rice & Dawley, 2007). Colleges or departments of education have done little in the way of educating preservice teachers in this area. State departments of education, educational, and technological organizations have developed standards[20] and or endorsement to provide direction to the development of teachers' technology use. These principally define the knowledge and skills needed by teachers as they integrate technology of which teaching online is part. Research on integrating technology into the teaching and learning environment[21] helps to illustrate criteria for effective professional development and its impact on teaching and student learning.

Mouza's (2009) research examined the impact of professional development on the ability of teachers to integrate technology (i.e., transfer of learning, implementation). Using a case-based qualitative design she followed seven teachers from an urban elementary school over a two-year period. She hoped to find sustainable use and growth after teachers' initial involvement in one of two one-year professional development programs. Moving beyond just learning to use technology Mouza saw professional development as a means "to help teachers develop skills that enable them to continually explore new and unfamiliar tools [and] to help teachers continually reflect on their practice and apply methods and strategies that use technology to maximize student learning" (pp. 1199-1200). In examining sustainability, she looked to see if teachers maintained the skills they learned, used the skills, and expressed similar ideas related to the role of technology in the school that was congruent with their ideas at the end of the professional development program. Verification of transfer of learning was noted in three areas, through the number of new computer uses employed by teachers,

evidence of implementation of those uses in lessons, and whether there was a change in teachers' ideas related to the role of technology in the school.

Her findings were categorized in three areas: educational technology knowledge, application of technology, and beliefs about teaching with technology. Educational technology knowledge characterized teachers' ability to maintain and expand their use of software and the internet. Teachers also expanded their understanding of how to use technology effectively for student learning and this led to deepening their pedagogical content knowledge. Application of technology had an immediate impact on teachers' professional use of technology and all teachers integrated technology into the learning environment (e.g., use of word processing software, use of the internet for research). Teachers' beliefs focused in four areas. These were beliefs related to primary role of technology, suitable subject areas, and advantages of technology and disadvantages of technology. Some teacher beliefs stayed constant (e.g., "foster acquisition of computer skills" (p. 1225)) and others expanded and deepened (e.g., "improves student academic achievement and test scores" (p. 1225)).

She found that teachers engaged in a cycle of change that began with developing knowledge and skills (i.e., knowledge-for-practice), that then was applied to the teaching and learning environment (i.e., knowledge-in-practice), which affected student learning (knowledge-of-practice), and then altered teachers' beliefs. This iterative process occurred cyclically several times over time. Two of the seven teachers went beyond this process and radically expanded their technology use (e.g., web publishing, PowerPoint reports and original stories, use of Inspiration and TimeLiner). Mouza reported "that there were three factors that influenced teacher learning and change over time: (1) beliefs about student characteristics, (2)

availability of resources including technical and administrative support, and (3) collegial support" (p. 1230).

Needs of Online K-12 Teachers

In addressing the needs of online K-12 teachers, it is helpful to first present a profile of the online teacher as well as articulate areas online teachers want addressed in professional development programs.

Rice, Dawley, Gassell, & Florez (2008) surveyed 884 online teachers seeking to answer the question "What are the unique needs and challenges of K-12 online teachers?" (p.3) They describe online teachers as ones who had approximately fifteen years of teaching experience. Over half the teachers had master's degrees and three fourths indicated that they received over forty-five hours of professional development. Teachers reported that the most valuable professional development was not only ongoing but was a fully online-facilitated experience. There were four areas of professional development noted by teachers as the most important. These were "use of communication technologies (74%), time management strategies (62%), risk of academic dishonesty to learners (60%), and student internet safety (60%)" (p. 3). Sixty-one percent of the respondents expressed needs and challenges related to teaching online. These were "issues with time management...students taking responsibility for learning...communication...and [teachers'] ability to learn and use technologies" (p. 32). Needs and challenges that address the design of the online programs revealed concerns related to parent support (i.e., reported by teachers with 1-6+ years of teaching online), time management (i.e., reported by teachers with 1-6+ years of teaching online), feelings of isolation (i.e., reported by new online teachers), and workload (i.e., reported by all).

The National Education Association (NEA) (2010) lists the essential knowledge, skills, and dispositions of online teachers that principals should be looking for when selecting teachers to teach all or part of their teaching assignment online:

1. are prepared well to use modern information, communication, and learning tools
2. are motivated self-starters who work well without constant supervision
3. are student-centered and flexible, while maintaining high standards
4. are able to promote online dialogue to deepen the learning experience
5. foster community-building virtually and facilitate collaborative learning
6. are able to collaborate with students and student support staff/systems to further student participation and success in the online course
7. specify learning objectives, and design activities and authentic assessments to measure mastery of the stated objectives
8. are able to use adaptive technologies to meet individual student needs
9. possess a sense of humor and are able to "project" their personality through developing an "online voice"
10. exhibit mastery of the online environment(s) and the learning/content management system(s) to be used
11. are effective in written communications
12. have completed professional development specifically geared to teaching online (pp. 9-10)

Support for Online Teaching

What has emerged is a picture of a structure that supports the preparation of online teachers. This structure must address four components, (1) ongoing professional development that includes sufficient (2) release time, (3) mentoring and coaching, and (4) ongoing evaluation of teaching in the online environment (National Education Association, 2010).

Several key features have been noted in this structure and are divided into two parts, a model for professional development and the learning units that should be included in the professional development process. A model for professional development should include:

1. employing effective professional development practices
2. selecting and recruiting teachers who would be suitable to teach online
3. involving participant in a fully online environment for part of the professional development experience
4. crafting clear and measurable objectives to evaluate professional development courses/experiences
5. matching developing online teachers with mentors
6. establishing benchmarks for teacher mastery of the environment (e.g., "modifying lessons, facilitating discussions, and grading assignments" p. 11)
7. preparing new courses/experiences so that teachers may participate in continuous ongoing development

The content of this professional development should lead to learning units or experiences that address knowledge, skills, and application of:

1. learning how to communicate and develop their voice

2. developing understanding and routines to provide appropriate feedback to students
3. learning how to facilitate asynchronous and synchronous discussions
4. learning how to work with groups to further student learning as well as develop effective group work curricular structures
5. learning how to differentiate and adapt curricular materials
6. learning to use a full range of tools "including synchronous and asynchronous communication methods, text-based and multimedia-rich documents and simulations and hands-on laboratories" (p. 11)

Pulling it Together

Given this listing of information, knowledge of professional learning, and effective professional development you may well be asking yourself what is expected from your leadership as a principal. Figure 4 provides the major areas to be addressed in preparing teachers to teach online. It is not a checklist (although it could be used in this manner) since some aspects are developing processes for which a check off may take more than a year. A gentle reminder that bringing new teaching ideas (i.e., change initiatives, innovations) is a process not an event. Change initiatives take three to five years (and longer) because of the factors that need to be addressed, encouraged, and supported (Fullan, 2007; Rodgers, 1995). Figure 4 addresses environmental factors to support professional development and professional learning, the structure of professional development, selection of teacher, and evaluation of efforts. Figure 4 will be supported by three others (see Figures 5, 6, 7) as a means of pulling together the essential details and providing a holistic sense of all that is involved.

Broad Components	Specifics of the Component
Where	School environment to encourage and support 1. teacher professional learning 2. plan for addressing knowledge-for-practice, knowledge-in-practice, and knowledge-of-practice
What	Standards 1. Alignment or link to school improvement goals to the professional development effort Provisions for release time (see Yendol-Hoppey & Dana, 2010, part 1, chapter 3) Sustainability 1. Mentors 2. Resources (human, financial, and material) 3. Collaborative 4. Addressing ongoing professional development needs Developing teams of teachers 1. providing effective feedback on how teacher application of their learning impacts student learning (reaching school improvement goal)
Who	Selecting online teachers (see Figure 5)
How	Selecting Professional Development Approach (see Figure 6) 1. Duration (aim for twenty hours as a minimum) 2. Content (see Figure 7) 3. Support during the teacher learning process 4. Promotes active teacher learning
How Well	Evaluate 1. Professional development approach (Guskey, 2000) 2. Impact on student learning 3. Success of the professional development approach to met the standards

Figure 4. Essential areas to be addressed when preparing teacher to teach online.

Teacher Essential Qualities	Principal Initiation/Requests	Possible Working Partners
Use of 1. Modern Information retrieval 2. Communication 3. Learning Tools 4. Adaptive technologies	Administer a Needs/Skill Assessment on how well they use o Search engines o Advanced search strategies o e-mail and attachments o uploading/downloading files o creating PDF documents o synchronous communication o web 1.0 tools (e.g., static web pages, simulations, tutorials) o web 2.0 tools (e.g., social networking, wikis, TeacherTube) o use of adaptive technologies and accessible web pages	Principal and savvy technology teachers develop or seek out existing protocol
Personal qualities 1. Motivated self-starters 2. Student-centered 3. Promote online dialogue	1. Recommendations 2. Teacher provided evidence 3. Principal evaluation	Principal and effective teachers develop or seek out existing protocol

Teacher Essential Qualities	Principal Initiation/Requests	Possible Working Partners
4. Foster community building 5. Use of authentic assessment 6. Teaching affect 7. Use of online environments 8. Effective communicators 9. Existing online professional development		

Figure 5. Essential teaching qualities and possible approaches to evaluating these qualities.

Support Element for Professional Development	Things to Consider and Implement
Employ effective professional learning environment	1. Teacher evaluation of efforts 2. Evidence of job imbedded professional development
Selecting and recruiting teachers	1. Develop detailed job description 2. Develop selection protocol
Fully online experiences	1. Select, with the help of effective teachers, online professional development with these minimum characteristics 2. comprehensive set of objectives 3. linked to technology standards 4. duration of more than 20 hours (see Yendol-Hoppey & Dana, 2010, part 1, chapter 3) 5. provides for active teacher learning
Evaluate professional development	Develop or seek out existing protocol (see Buchholz & List; 2009; Guskey, 2000)
Provide mentors for new online teachers	1. Develop selection criteria or look for existing criteria 2. Monitor/assess mentoring efforts
Determine benchmarks for mastery	1. Examine state technology standards 2. Select from other technology standards (see International Society, 2014, 2008; iNACOL, 2011; or Southern Regional, 2009)
Provide for ongoing courses/experiences	Provide a process for teacher suggestions or development

Figure 6. Support element for teacher learning to teach online.

Course for Preparing Online Teachers - Content Elements	Sample Professional Development Approach
Communication	1. Course in online teaching/facilitation 2. Mentoring 3. Coaching
Providing effective feedback to students	1. Course in online teaching/facilitation 2. Mentoring 3. Coaching 4. Professional Learning Communities 5. Online video and audio resources
Facilitating asynchronous and synchronous discussions	1. Course in online teaching/facilitation 2. Coaching 3. Participation in interactive webinars
Student-centered learning o effective grouping o curricular differentiation/adaptation	1. Lesson study 2. Practitioner research 3. Course in Understanding by Design (see Wiggins & McTighe, 2005)

Course for Preparing Online Teachers - Content Elements	Sample Professional Development Approach
	4. Course in authentic assessment (see Mueller, 2010) 5. Professional Learning Communities 6. Book/Article study
Technology tools o communication 1. Asynchronous 2. Synchronous o text documents o multimedia 1. podcasts 2. video podcasts 3. simulations/hands-on laboratories	1. Speed Geeking (see http://www.kstoolkit.org/Speed+geeking) 2. Course in technology integration (see Borthwick & Pierson, 2008) 3. Course in online teaching/facilitation 4. Demonstration and work sessions developed and offered locally 5. Online video and audio resources

Figure 7. Essential content of professional development experiences to prepare teachers to teach online.

Conclusion

Learning to teach online opens teachers to honing existing skills and developing a broader set of content knowledge, pedagogy, and technical skills. Professional development provides a medium through which this is achieved. As stated by Stein, Ginns, and McDonald (2007)

> Providing professional development experiences which help teachers to engage in real and relevant learning for themselves, and opportunities to engage in discussions about complex issues that enable them to reflect on what counts as knowledge within a learning area such as technology, gives them a chance to develop the more sophisticated views of teaching that are necessary, if they are going to be able to provide their own students with learning opportunities which encourage deep learning, conceptual and procedural understanding and generative thinking (pp. 193).

The task for administrators is an interesting and exciting one. It is an opportunity to create and nurture a professional learning environment that encourages many efforts, tailored by teachers

to hone in on a particular issue, allows sufficient time, that ultimately provides evidence of improvement in teaching and in student learning. Fullan (2007b) reminds us that it is the collective learning of teachers and principals that matters and that "schools must combine individual development with the development of school-wide professional communities. Individual and collective development need to be twined" (p. 164). Well-designed professional development, that informs, educates, and is shaped by K-12 educators, can act as a catalyst for durable, long lasting, and valued development of teachers and their students (Fullan, 2008, Hodkinson & Hodkinson, 2005; Little, 2006; Wells, 2007).

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<table>
<tr><th>1960 Era of Adoption (Fullan, 2007b)</th><th colspan="2">1970 Era of Failure to Implement (Fullan, 2007b)
1980 Era of Modest Implementation Success (Fullan, 2007b)</th><th>1990 Era of Intensification vs. Restructuring (Fullan, 2007b)</th><th colspan="2">2000 Era of expanded understanding of the inter-relationship of student achievement, teachers, principals, districts, and policies</th></tr>
<tr><th>(1960 - 1970)</th><th colspan="2">(1971 - 1977)
(1978 - 1982)</th><th>(1983 - 1990)</th><th>(1990-2000)</th><th>(2000-2010)</th></tr>
<tr><td>Emphasis on "teacher proof" prescriptions</td><td colspan="2">Inquiry into "factors related to: political, economic, and organizational realities, constraints, and capabilities"(Waugh & Punch, 1987, p. 241)</td><td>Inquiry into how beliefs are altered throughout the change process (Richardson & Placier, 2001)</td><td colspan="2" rowspan="4">Inquiry into large system change (Cohen & Hill, 2001; Hawley & Valli, 1999; Wasser & McNamara, 1998)

Inquiry into the role of leadership's impact on change (Fullan, 2007b; Graham, 2007; Wasser & McNamara, 1998)

Inquiry into understanding adult learning and conditions of learning that affects the change process. (Davis & Rose, 2007; Graham, 2007; Wasser & McNamara, 1998)

Inquiry into how we learn (National Research, 1999, 2000) and its impact on teaching and learning strategies.

Inquiry into school policies (Cohen & Hill, 2001; Graham, 2007; Little, 1999; Wasser & McNamara, 1998)

Realization of the tight linkage between school improvement and professional development (Hawley & Valli, 1999).

Realization that the process of change is ongoing and evolving to professional learning situated in the setting. (Cochran-Smith & Lytle, 1999, 2009; Davis & Rose, 2007; Diaz-Maggioli, 2004; Fullan, 2007a,b, 2008; National Education Association, 2010)</td></tr>
<tr><td>Inquiry into reasons for resisting innovations</td><td colspan="2" rowspan="3">Inquiry into implementation process
Realization that
1. change is a process
2. change agents must be involved
3. all stakeholders should be involved
4. "material resources describing how to implement change are needed" (Waugh & Punch, 1987, p. 242)
Inquiry into:
1. Characteristics of innovations
A. Assumptions and beliefs within change initiatives
2. Characteristics of units of adoption
A. Culture of the school
B. The individual (e.g., teacher, principal)
1. basic attitudes in education
2. what role fear plays
3. complexity of the change
4. beliefs about the change
5. school support for the change
6. personal cost of involvement with the change (Waugh & Punch, 1987)

Realization that mutual adaptation occurs due to conflicts between intent of innovation and teachers' personal beliefs concerning their teaching practice.

Effective strategies for implementation</td><td>Inquiry into cognitive processes of teachers</td></tr>
<tr><td>Change Agent Studies</td><td>Inquiry into teachers as their own agents of change (Richardson & Placier, 2001)</td></tr>
<tr><td>Realization that the change process is more complex than originally thought</td><td></td></tr>
</table>

1960 Era of Adoption (Fullan, 2007b)	1970 Era of Failure to Implement (Fullan, 2007b)	1980 Era of Modest Implementation Success (Fullan, 2007b)	1990 Era of Intensification vs. Restructuring (Fullan, 2007b)	2000 Era of expanded understanding of the inter-relationship of student achievement, teachers, principals, districts, and policies
	(Strategies are more effective when employed together) "1. concrete, teacher-specific and extended training. 2. classroom assistance from local staff 3. teacher observation of similar projects in other classrooms, schools, or districts 4. regular project meetings that focused on practical issues 5. teacher participation in project decisions 6. local development of project materials 7. principals' participation in training" (McLaughlin, 1990, p. 12)			Realization that change is not situated in one stakeholder group but that several conditions and constituency needs to be present to support ongoing efforts. Realization that professional development must be linked to the goals for planned change and complementary to the changes to the school culture. This must be a cohesive initiative (Cohen & Hill, 2001; Fullan, 2007b; Hodkinson & Hodkinson, 2005; Wells, 2007).

Figure 1. Brief overview of the expansion of inquiry and ideas concerning the process of educational change (expanded from Clemente, 1992, pp. 25-26)

[1] To date (as of 2010) only three states have addressed the preparation of online teachers. Georgia developed and online teaching endorsement (http://rules.sos.state.ga.us/docs/505/3/85.pdf), Wisconsin (http://dpi.wi.gov/imt/pdf/online_course_pd.pdf) and Texas (http://www.statutes.legis.state.tx.us/SOTWDocs/ED/htm/ED.30A.htm) developed guidelines for professional development expectations of online teachers

[2] "The definition of blended learning is a combination—or blend—of different online learning modes, or of online and in-person learning" (Van Noord, Gutsche, Hillman, Kellison, Musselman, 2007, p. 1).

[3] First order changes have no effect on the structure of a system (i.e., individual school, school system, community). For example, a teacher may decide to use differentiated instruction. This may lead the teacher to change her/his teaching practices, yet, cause no changes outside of her/his classroom. Second order changes affect the status quo of a system and have the potential to bring about reform. For example, multiage grouping would alter curricular planning, teaching, student interactions, evaluations, and time structures within a school.

[4] Professional learning is also called workplace learning or job embedded learning. It represents a way to think about how to support teacher, principal, and superintendent's continuous learning, which is an aspect of being life-long learners.

[5] To read a case study of one principal's efforts with educational change see Sharratt and Fullan, 2009.

[6] To explore a range of these professional learning practices use this URL as a starting point http://www.nsdc.org/standfor/definition.cfm This site contain video podcasts that illustrate a range of types of professional learning. There are four video podcasts: Explanation of Proposed Definition, Study Elementary School: PD in Action, Ford Middle School: PD in Action, and John H. Reagan High School: PD in Action

[7] To delve more deeply into the knowledge framework and what Cochran-Smith and Lytle describe as *inquiry as stance* please read Cochran-Smith and Lytle 1999. To explore this concept in action please read Cochran-Smith and Lytle, 2009.

[8] A large percentage of existing professional development is aimed at knowledge-for-practice (Cochran-Smith & Lytle, 1999, 2001, 2009). By solely focusing in this one area of the knowledge framework teachers are not provided with the encouragement and support needed to deal with the challenges and joys of implementation and for examining evidence of the impact on student learning.

[9] For brief overview of technological pedagogical content knowledge (TPCK) see (1) http://www.tpck.org/tpck/index.php, (2) read Borthwick & Pierson (Eds.) (2008), *Transforming classroom practice: Professional development strategies in educational technology*, or (3) read Mishra & Koehler (2006), *Technological pedagogical content knowledge: A framework for teacher knowledge* for a more comprehensive handling of TPCK.

[10] Lindstrom and Speck (2004) developed a table titled "Merits of selected types of professional development" that cover eleven types of professional development and their cost effectiveness.

[11] A comprehensive list of professional development approaches can be found in Diaz-Maggioli, 2004; Lieberman, 1995; Yendol-Hoppey & Dana, 2010.

[12] Read Steiner. L. (2004). *Designing effective professional development experiences: What do we know?* for a comprehensive overview of the research to date.

[13] Lindstrom & Speck (2004) present a rubric on nine criteria needed in high quality professional development as a tool to develop, judge, or select professional development experiences.

[14] To examine how your state fares in the amount of time and duration as well as other qualities of professional development read Wei, Darling-Hammond, Andree, Richardson, & Orphanos (2009), *Professional learning in the learning profession*.

[15] Reform and traditional professional development activities are characterized this way: Traditional is typically comprised of speakers, workshops, graduate classes or attending conferences. Reform is comprised of experiences such as mentoring, professional learning communities, lesson study, and internships.

[16] For a school based example read Tienken & Stonaker, 2007, *When every day is professional development day*. A set of archival pages from the 2006 - 2007 academic year by Arapahoe High School in Centennial, Colorado provides their year-long professional development initiative titled Constructivist Teaching with Technology I (http://www.lps.k12.co.us/schools/arapahoe/21c/c2y1/) and Constructivist Teaching With Technology: Learning

With Laptops (http://www.lps.k12.co.us/schools/arapahoe/21c/necc2007.html) (This is the more comprehensive of the two). These illustrate the comprehensiveness and complexity of the components of their professional development efforts.

[17] His article contains three appendices. The first is a list of the ten studies and each of the characteristics and design principles from each study that influenced the development of his ten design principles.

[18] Wells (2007) defines each of these five factors this way: 1. "duration of process - participants' instructional and content contact time, in addition to the overall time span of PD process"; 2. "learner centered - designed around participant concerns, needs, and interests"; 3. "engagement- learner is actively experiencing innovation during the PD process"; 4. "collaborative - establish communities of practice based on collective reflection"; and 5. "support - long-term, continuous pedagogical, technical, social assistance" (p. 106)

[19] See Van Noord, R., Gutsche, B., Hillman, B., Kellison, E., & Musselman, D. (2007). *Blended Learning Guide*. This will provide a succinct overview of the scope of blended learning as well as share current Web 1.0 and 2.0 tools (uses, benefits and challenges) that may assist teachers in developing engaging learning structures for the online aspects of the blended approach.

[20] Several entities vie for our attention to consider the adoption of teacher technology standards (International Society, 2014, 2008; iNACOL, 2011; or Southern Regional, 2009) to guide the selection of or development of professional development. Several national groups (Davis & Rose, 2007; International Society, 2008) have developed standards that articulate the knowledge and skill base for K-12 teachers and in some organizations for administrators (International Society, 2014). Standards serve various functions:

- illustrates a frameworks of what teachers and administrators should know and be able to do
- defines the boundaries and limitations of what is to be learned and used
- articulates what is important and essential
- provides a heuristic for developing plans for professional development
- provides a framework to evaluate teaching with technology

To determine the relevant use of standards in your setting, it is important that teachers be part of the conversation in determining how a set of standards or aspects of standards may aid in meeting a district's student learning goals and direction for professional learning.

[21] See Gray, Thomas, & Lewis. (2010). Teachers' Use of Educational Technology in U.S. Public Schools: 2009.