# A Professional Development Model to Promote Internet Integration in P-12 Teaching Practices

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**Abstract:** This mixed-methods study examined effects of a staff development model on instructional practices and dispositions of P-12 teachers. The model design was guided by participants' varying developmental levels and their values and beliefs about teaching and learning. The study adds to our understanding of the need for teacher-centered professional development.

Teacher education staff development contributes to the ongoing professional development (PD) of classroom teachers and supports efforts to maintain currency in their knowledge and practice so that they may meet the needs of the students they serve. Although many models of staff development exist, typically, staff development is conducted for inservice teachers by non-practitioners and educational vendors in "one-shot" short term sessions that are perceived by the intended audience as ineffective and lacking continuity and adequate follow up (Fullan & Stiegelbauer, 1991; Lewis, Parsad, Carey, Bartfai, Farris, & Smerdon, 1999).

Recent research indicates that teachers who participate in staff development sessions for periods of eight hours or longer are more likely to report that the staff development experience improved their teaching considerably than those who participate in sessions scheduled for fewer than eight hours (Parsad, Lewis, & Westat, 2001). Additionally, teachers who felt the PD included necessary follow-up activities and was related to their classroom practice reported that the experience also considerably improved their teaching. This research validates the need to explore the effect of models of staff development that are longer in duration and relevant to classroom practice and contain follow-up.

## Purpose of the Study

The purpose of this study was to examine the effects, after a three year period, of a staff development model on the instructional practices and dispositions of P-12 classroom teachers. The specific model was comprised of 42 hours of instruction over an eight week period on infusing the Internet into teaching practices. Participants worked in teams of two throughout the course and engaged in a variety of large and small group and individual activities that addressed content, pedagogy, and individuals' beliefs about the teaching and learning process. The staff development participants were offered instruction in the use of the Internet as a teaching tool at a variety of levels to accommodate their existing knowledge base. The instruction also provided them the opportunity to consider the use of the Internet as a teaching resource as it related to their own instructional settings. Participants worked collaboratively, engaged in reflective practice, developed practical applications to promote P-12 students' critical thinking using the Internet, became trainers for other instructional staff at their own schools, and were mentored throughout the program.

## Theoretical Framework

The most recent literature on staff development indicates that effective staff development is ongoing and recognizes teachers as professionals and adult learners (Wilson & Berne, 1999), is related to teachers' beliefs (Borko & Putnam, 1995), is authentic and grounded in practice (Ball & Cohen, 1999), and is research-based (Ball & Cohen, 1999). Further, design principles for

effective PD must provide opportunities for educators to develop reflective capabilities, attend to motivational and developmental issues, and build on social relations in the school context (Ball & Cohen, 1999).

The literature on change theory suggests that change in a pattern or practice will occur only after individuals change their normative orientations associated with their old patterns or practices to new ones and develop a commitment to these. Such change involves not only the individuals' knowledge and behaviors but also attitudes, values, beliefs, and relationships that cannot occur in piecemeal fashion (Chin & Benne, 1984). Change in one's value system is a systemic change in which the individual takes an active role. True change in such a system cannot be imposed, but rather must come from within. Fenstermacher (1979) suggests that reflection plays an important role in the changing of teacher beliefs. Dwyer, Ringstaff, and Sandholtz (1991), however, maintain that first teachers must see and understand the connection between their beliefs and actions and be aware of alternative belief systems.

Implicit in staff development is the notion that teachers will modify their teaching practices and/or beliefs about teaching and learning. This sort of change, however, does not occur automatically or quickly. Rogers (1995) suggests five stages in the "innovation-decision process through which an individual passes from first knowledge of an innovation, to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision" (p. 163). The introduction of new a curriculum, strategy or method, or set of teaching materials may be considered an innovation. While teachers may be provided staff development in the use or application of the innovation, they actually may embrace the innovation at differing levels of acceptance or in stages.

Concerns theory, emerging from Fuller's work in the 1960s, assumes that change is a process that follows a seven-stage developmental sequence regarding teachers' concerns about a proposed innovation to be adopted. The development of the Concerns Based Adoption Model (CBAM) is based on this premise (Hall, George, & Rutherford, 1998). One element of the CBAM is the Stages of Concerns Questionnaire (SoCQ) to which teachers respond to statements that will provide information about teachers' levels of concern about the adoption of the innovation. The CBAM uses the term concerns to describe the perceptions, feelings, motivations, frustrations, satisfactions, and preoccupations about an innovation and the change process (Loucks-Horsley & Stiegelbauer, 1991).

Understandings about current teacher PD models, how and why teachers change their practice, and the manner in which they embrace innovative teaching practices suggest a need to research technology integration PD experiences. The following research questions were posed to examine changes that occurred in teachers' practices and dispositions toward the adoption of the Internet integration as a curriculum innovation and those practices and dispositions that are sustained over time during and following their participation in a staff development model:

1. Does the model of staff development produce change in teachers' practices and/or dispositions regarding the innovation and is the change sustained?
2. What factors contribute to teachers' willingness to adopt a change or institute an innovation?
3. How do teachers believe the training has influenced changes in their professional effectiveness?

## Method

A mixed methodological approach was used to confirm and triangulate data from multiple sources; data sources included both the SoCQ and interviews. The SoCQ was

administered to the participants prior to the beginning of the staff development, immediately following it, and as a follow-up survey again three years after participants completed the staff development. Additionally, semi-structured interviews conducted with a sample of the participants three years after the staff development experience provide further insights to better understand and expand the quantitative data collected from the SoCQ. The survey results provide information about participants' concern about using the Internet as a teaching tool (the innovation) and changes in the levels of concern over time. Interviewees were selected from a purposeful sample of those who returned the follow-up survey, representing teachers from a variety of grade levels, professional experiences, geographic locations, and sections of the courses in which they participated during the original staff development training. The results from the demographic portion of the survey and the interviews suggest factors that have contributed to the participants' levels of use of the innovation and perceptions about the staff development model.

The pre-, post-, and follow-up survey data were collected by means of the SoCQ. The pre-intervention survey included an additional section requesting demographic information about the participants and their access to technology and involvement in PD activities. The SoCQ is a 35-item 7-point Likert scale questionnaire (Hall, George, & Rutherford, 1998). Each item represents seven fundamental categories of concern as related to concerns theory: awareness, informational, personal, management, consequence, collaboration, and refocusing. These seven categories are further clustered into three areas: self, task and impact on students. The results of the SoCQ provide information about an individual's stage of concern regarding an innovation based on the seven categories and three clustered areas.

An interview guide was used to conduct the follow-up interviews. The interview guide items were informed by the results of the follow-up survey, addressed questions to reveal information about factors contributing to the individuals' stages as reported in the follow-up survey, and inquired about individuals' perceptions regarding the staff development model and its impact on the individual.

Data from the SoCQ questionnaires were analyzed to examine differences between the results of the pre- and post-surveys, post- and follow-up surveys, and pre- and follow-up surveys. Percentile scores were computed, noting the stage that received the highest score. The results of the three administrations of the survey were plotted and differences noted. Group data were aggregated to develop a profile as recommended by Hall et al. (1998) that presents the mean scores for each stage of the participating individuals. A paired samples *t*-test was conducted to evaluate whether differences in scores on a given scale between administrations of the survey were significant differences.

Interview data were analyzed and categorized to identify patterns and to establish dominant themes. Consistencies and discrepancies between the survey results and the themes that emerged from the interview data were reported.

## Results

The demographic data revealed that the participants represented all P-12 grade levels and taught all subjects/disciplines including the arts, computers, foreign language, and religion; teaching experience ranged from 2 to 48 years with approximately half of the participants reporting having been teaching for 11 or fewer years; a little more than one-third held a graduate degree. Nearly all participants reported attending PD sessions at least once a year; differences in their reasons for attending PD sessions were observed between the pre- and follow-up administrations of the survey.

The SoCQ results indicated a refocus from on one's self as indicated on the pre-test to a focus on the impact on students in both the posttest and the follow-up surveys. Both the posttest and follow-up results also indicated an increase in concerns about the task as compared to concerns about the task in the pretest. The posttest results indicated the participants' initial concerns about learning about the innovation and how it may impact their practice diminished; participants became more concerned about how they might collaborate with others in the use of the Internet in their teaching practices and how the integration of this innovation might impact their students.

Interview data suggests that participants believe the design of the PD experience in which they engaged had an impact on their current practice. They reported they continued to explore new ways to use the Internet as an instructional tool and designed collaborative activities for their students that involve the use of the Internet. A desire to work collaboratively with other faculty and a sense of leadership in sharing knowledge and expertise about new ways of approaching the curriculum were dominant themes. Interviewees were consistent in acknowledging the importance of institutional and parental support of the use of such technologies in the classroom. Specific characteristics of the PD experience that contributed to their embracing the use of the innovation include the length of the course, the depth of the content presented, opportunities to collaborate, and the authentic nature of the experiences that allowed them to immediately use what they had learned.

## Educational Importance of the Study

The results of the study have implications for the design of PD experiences for P-12 teachers. Teachers, given the opportunity, will revise or develop new attitudes, values, beliefs, and/or relationships about teaching and learning. PD experiences provide a vehicle for such changes to occur; therefore, to address the ongoing changes teachers face, PD experiences must consider teachers' values about their teaching and learning practices.

The well-designed staff development program provides support for the teacher throughout the learning process. The findings from the present study reveal that practitioners require adequate access to the resources that are the focus of the staff development. Those responsible for implementing the staff development must not only ensure availability of the specific curriculum resources and instructional materials but also of any necessary peripheral materials. If the support structure is missing from the PD program, behavioral changes in teacher practice may be stifled or completely extinguished. The decrease in the collaboration using the innovation among teachers in the present study paralleled the end of the formal structure that was in place to support collaborative efforts during the staff development training. With both resource and administrative support in place, teachers are encouraged to go beyond the superficial use of the innovation (Sergiovanni & Starratt, 2002) and are able to develop original applications for its use and routinely evaluate its efficacy for their practice and student learning. This kind of sustained use is the catalyst necessary for changing teacher practices and ultimately their values and beliefs. With proper support in place, teachers are able to make conscious decisions about the implementation of the innovation, (Rogers, 1995) and their regular use of it provides an opportunity for teaches to affirm its value in the classroom (Guskey, 2002).

### *Grounded in Practice*

The findings from the current study underscore the importance of grounding the staff development in teachers' practices. The focus of the training program ought to have relevance for the practitioners and their work with students. Once the connection is made, the effective staff development program will have integrated in its design opportunities for the teachers to

practice using their newly gained knowledge, skill, or pedagogy in the classroom. This element of authenticity establishes not only credibility with the teacher who is the learner in the staff development program, but also a climate and system in which the teacher can experiment to the extent he or she is comfortable with the new approach. While engaging in such practical trials with his or her own students, the teacher has an opportunity to assess the fit of the innovation for his or her own class, observing the impact of the new approach on students' learning. Student success with the new approach may be observed by the teacher (Guskey, 2002), dispelling any doubts the teacher may have regarding the innovation's use and influencing the teacher to pursue the approach in greater depth.

*Intellectually Stimulating*

The staff development program must be comprehensive enough so as to stimulate the learner to think about and to critically reflect on one's practice. It must extend beyond the traditional information-providing level of staff development in order for teachers to begin to think about how they might incorporate the new curriculum, strategy, or practice into their existing repertoire of teaching behaviors and beliefs about teaching. In addition to a program with depth, the staff development should have breadth, providing sufficient variations to accommodate the diverse teacher needs and interests and those of their students. The breadth and depth of the staff development model in this study was critical to the success of the program.

The effective staff development program will engage the participant as an adult learner, providing a variety of venues for learning. Of particular importance to participants in the present study were the opportunities for collaboration. Creating an environment where teacher teams or communities of learners were able exchange ideas and practices, support one another, and learn from one another helped to sustain active involvement of the participants in the staff development program and promote their own PD.

*Ongoing*

Engaging participants in an ongoing program of staff development is the optimal design. Since the well-designed staff development program encompasses more than just the acquisition of a technique, it cannot be a one-shot or one day affair. A staff development model that embeds opportunities for teachers to explore the efficacy of their newly gained knowledge with their students in their own classrooms contributes to the overall effectiveness of the program. Recognizing teachers' stages of development and building from the literature on teachers' adoption of innovations or innovative practice when designing the staff development program enhances the retention of teacher-learners at various stages in their careers and promotes their PD. The rich and developmentally diverse content and pedagogy embedded in the staff development model used in this study played a major role in the success of the program. Throughout the eight-week training period of the staff development, participants showed evidence of professional growth. Numerous participants remarked immediately afterwards and several three years after the training that they desired more and continuous PD opportunities of a similar nature. This is a testament to the fact that ongoing PD programs are not only effective, but also desired.

The teacher is the gatekeeper of change in the classroom and staff development designed to change teacher practice must be guided by and integrated with teachers' existing values, valences, knowledge, and behaviors. Changing values and beliefs along with well-established behaviors takes time. Staff development targeted at changing only teacher behavior is superficial and will not have sustained effects.

## References


Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond (Ed.), *Teaching as the learning profession: Handbook of policy and practice* (pp. 3-32). San Francisco: Jossey-Bass.

Borko, H., & Putnam, R. T. (1995). Expanding a teacher's knowledge base: A cognitive psychological perspective on professional development. In T. R. Guskey & M. Huberman (Eds.), *Professional development in education: New paradigms and practices* (pp. 35-66). New York: Teachers College Press.

Chin, R., & Benne, K. D. (1984). General strategies for effecting changes in human systems. In W. G. Bennis, K. D. Benne, & R. Chin (Eds.), *The planning of change* (4th ed., pp.22-45). Fort Worth, TX: Holt, Rinehart and Winston.

Dwyer, D., Ringstaff, C., & Sandholtz, J. H. (1991). Changes in teacher's beliefs and practices in technology-rich classrooms. *Educational Leadership, 48*(8), 45-52.

Fenstermacher, G. D. (1979). A philosophical consideration of recent research on teacher effectiveness. In L. S. Schulman (Vol. Ed.), *Review of research in education 1979*: *Vol. 6* (pp.157-185). Itasca, IL: Peacock.

Fullan, M., & Steigelbauer, S. (1991). *The new meaning of educational change* (2nd ed.). New York: Teachers College Press.

Fuller, F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal, 6*(2), 207-226.

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and teaching: Theory and practice, 8*(3/4), 381-391.

Hall, G. E., George, A. A., & Rutherford, W. L. (1998). *Measuring stages of concern: A manual for use of the SoC Questionnaire*. Austin, TX: Southwest Educational Development Laboratory.

Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., & Smerdon, B. (1999). *Teacher Quality: A report on the preparation and qualifications of public school teachers.* (DHHS Publication No. NCES 1999– 080). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Loucks-Horsley, S., & Steigelbauer, S. (1991). Using knowledge of change to guide staff development. In A. Lieberman & L. Miller (Eds.), *Staff development for Education in the 90's: New demands, new realities, new perspectives* (2nd ed., pp. 15-36). New York: Teachers College Press.

Parsad, B., Lewis, L., & Westat, E. F. (2001). *Teacher preparation and professional development: 2000* (Report No. NCES 2001–088). Washington, DC: U.S. Department of Education, National Center for Education Statistics. (ERIC Document Reproduction Service No. ED458204)

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Sergiovanni, T. J., & Starratt, R. J. (2002). *Supervision: A redefinition* (7th ed.). New York: McGraw Hill Higher Education.

Wilson, S. M., & Berne, J. (1999). Teacher learning and the acquisition of professional knowledge: An examination of research on contemporary professional development. In A. Iran-Nejad & P. D. Pearson (Vol. Eds.), *Review of research in education 1999: Vol. 24* (pp.173-209). Washington, DC: American Educational Research Association.