

## Improving Instruction through Self-Directed Effective Professional Development

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### Abstract

*In response to the need to improve learner results on state standards and assessments, the project used a self-directed model of professional development to enhance effective teacher usage of instructional technology to teach content subject matter and to encourage on-site and distant professional collaboration through co-teaching and other cooperative instructional methods. Based on pretest and posttest results, the model improved teacher competency in using technology. Several recommendations to improve the model were presented.*

**Keywords:** Learning outcomes, instructional technology, teacher competency.

### Introduction

The development of learner standards and associated assessments are changing expectations for teachers. Individual excellence in instruction is no longer sufficient. Teachers must align their instruction and expectations to learner standards (Lipton, 1999). To improve learner results in identified standards, quality professional development is an essential activity. The focus of these professional development efforts should be centered on individual schools as basic units of reform (Ornstein, & Hunkins, 1998). Indicators of such quality staff professional development include:

1. Experiences based on learner needs and learner achievement,
2. Individual teacher responsibility for formulation of quality professional development experiences,
3. Shifting professional development resources to the school from the district level,
4. Embedding professional development experiences within job performances,
5. Teachers collaborate planning and facilitating experiences,
6. Experiences are results-driven,
7. Communication of clear and specific expectations that actual change in teacher behavior occurs with subsequent improvement in learner performance as a result of professional development experiences, and
8. Acknowledgement that professional development is essential and indispensable in improving learner performances (Goodwin, 1999; Haar, 2003; LaRock and Peralez, 1999; Sparks and Hirsh, 1997).

This represents a paradigm shift from traditional, externally directed, professional development to a self-directed concept of learning. Specifically, teachers view their experience as a rich resource for learning. Their readiness to learn develops from encountered problems, and motivation to learn is primarily driven by internal incentives and curiosity.

Self-directed type of professional development is illustrated through mutual planning of professional development experiences, applying new techniques in the classroom, and evaluating that application through peer review. Using principles of quality Table I summarizes five models, although not exhaustive, of professional development that emanate from this approach:

*Table I.* Self-directed Professional Development Models

Name of Professional Development Approach	Definition	Examples
Individually guided professional development	Teachers to plan and pursue activities to promote their own learning.	Reading professional journals, viewing video-taped journals, learning from a colleague, learning by contract, learner developed projects
Observation/assessment	Peer coaching or similar types of activities.	Clinical supervision.
Involvement in school development/improvement process	Teacher participation in school reform efforts.	North Central Association (NCA); Western Association of Schools and Colleges (WASC)
Action research	Teachers research and evaluate the effects of specific instructional procedures.	Trying specific software with individual learners, reviewing and implementing research on calculator use in the classroom then evaluating effects.
Teacher training	Teachers participating in long-term programs of professional development.	Taking coursework at a local teacher education facility.

(Adapted from Corcoran, 1995; Kraft, 1998; Kutner, Sherman, Tibbetts, and Condelli, 1997)

Rather than traditional isolated and detached in-service activities, this type of professional development requires planned and continuous improvement in teacher behavior. The teacher frequently interacts with one or more other teachers to help implement, refine, and master new instructional practices. High performance systems of professional development involve the added dimension of cross-functional teaming (Walters and Cordell, 1997). That is to say, teachers work with teachers from different grade levels or other disciplines. This promotes improvement in professional development processes and learner performance. Using this model, the goals of the project described here were to enhance effective teacher usage of instructional technology to

teach content subject matter, and to encourage on-site and distant professional collaboration through co-teaching and other cooperative instructional methods.

### **Method**

To investigate the effectiveness of a self-directed model of professional development, a large rural Wyoming school district was the research site. The district encompassed 4200 square miles. Within the district, there were four communities and eight schools.

In order to support teachers in their efforts to expand their knowledge in technical language, content knowledge, and/or learner development, the school district professional development process needs to support this. According to McKean and Nelson (1996), five essential characteristics of professional development respond to established education learner standards. Successful professional development should be well planned, have clear expectations, be high quality, be continuous, and include evaluation. For the purposes of this investigation, teachers, with the assistances of no more than two self-selected colleagues from multiple grade levels or other disciplines, guided their own learning.

Volunteer teachers utilized a seven-step process to organize their self-directed professional development and collaborative efforts:

- Step 1: Identified current levels of learner academic performances.
- Step 2: Delineated target learner standards for change.
- Step 3: Delineated target teacher behavior(s) for change that involved the use of technology to instruct learner standards.
- Step 4: Planned professional development activities to meet learner and teacher goals, including clearly defined timelines and agendas.
- Step 5: Provided evidence of teacher implementation of suggested instructional modifications based on new learning.
- Step 6: Evaluated professional development experiences.
- Step 7: Offered peers the opportunity to evaluate the experience.

To demonstrate proficiency changes in the use of technology, the survey was administered at the beginning and end of the teacher's participation. The teachers responded to a thirty question survey developed by McKenzie (1993) based on technology competencies developed by the National Council for the Accreditation of Teacher Education and the Association for Educational Communications and Technology.

## Results

Over the course of the three year project, there were fifty-five participants. Of those, most were female (84%; males = 16%) who taught at the elementary school level (71%; middle school level = 8%; high school level = 12%; and kindergarten through grade 12 = 9%). Most of the teachers taught ten or more years (59%; one to five years = 18%; five to ten years = 23%; ten to twenty years = 11%; twenty or more years = 48%). The number of hours teachers participated in the project over the course of the three year project was forty to ninety hours. All teachers held current teacher certification and taught in the areas to which they were assigned. Figure 1 graphically illustrates the change in proficiency:

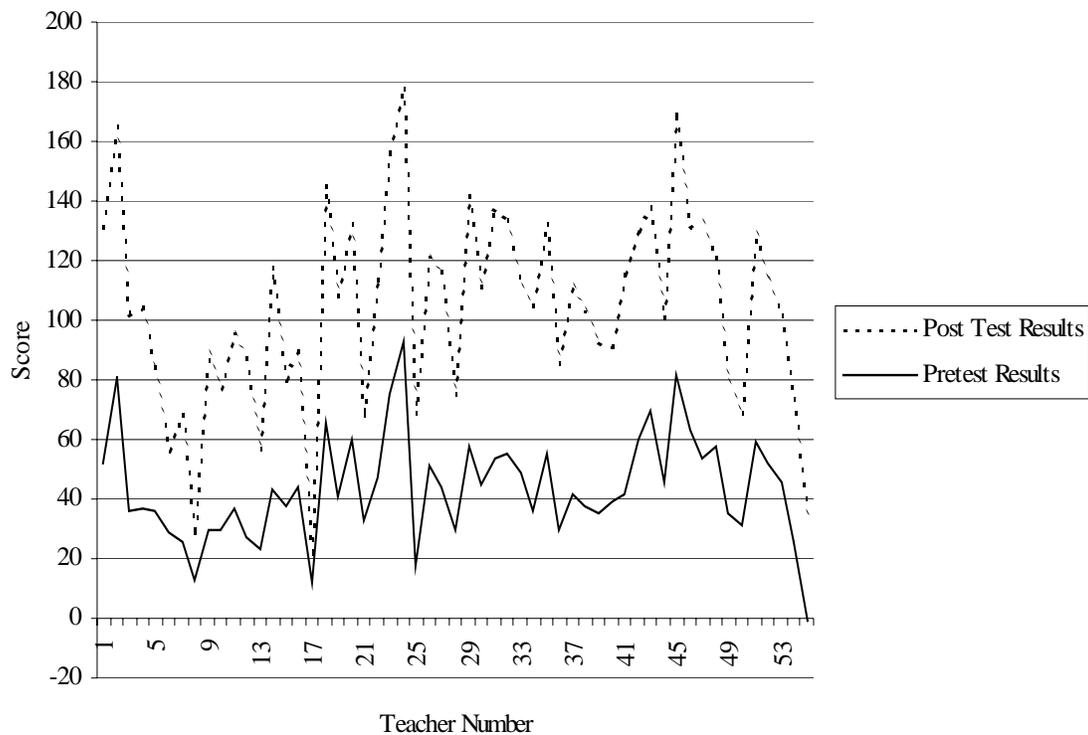


Figure 1. Train the Trainer - Post Test and Pretest Survey Results

The obtained means for the teachers were 43.84 for the pretest and 60.36 for the post test. The researchers hypothesized a self-directed model of professional development would significantly improve teacher competence in their use of instructional technology. The obtained values for a one-tailed  $t$ -test ( $t = -10.9$ ,  $df = 54$ ,  $r^2 = .64$ ) and the observed  $p$ -value ( $P = 1.715$ ) meets and somewhat exceeds the critical value ( $P = 1.70$ ). The result demonstrates significant change in perceived teacher behavior beyond the .05 level.

## Discussion

Although the technological infrastructure is accessible to teachers through many school districts, few avail themselves of the instructional capabilities of such systems, especially in the core content areas. This is true despite overwhelming evidence that educational technology has demonstrated capability of improving learner achievement (Bos and Vaughn, 1998). Prior to initiating change, teachers need an awareness of instructional support capabilities of multimedia. Effective use of instructional technology increases learner achievement. The seven-step self-directed, professional development process described here proved to be an effective means of improving teacher competency in the use of instructional technology.

Teachers had the opportunity to access a variety of professional development programs, including those listed above. For instance, they were given the choice to take a university class for course credit or work independently online. Teachers felt they benefited the most from being online and doing their own discovery and exploration.

Teachers in remote areas of the school district worked with other teachers on professional development endeavors through interactive video, teleconferencing, and online discussions. This allowed the teachers to connect; however, they were not able to participate in the most popular professional development paradigm.

A model often selected by the teachers was co-teaching. Co-teaching involves two or more professionals delivering substantive instruction to a diverse or blended group of learners in a classroom. Co-teaching involves teachers collaboratively assessing learner strengths and weaknesses, determining appropriate educational goals and outcome indicators, designing intervention strategies and planning for their implementations, and evaluating learner progress toward established standards. These collaborative efforts offer increased instructional options for all learners, improved program intensity and continuity in core content, and increased professional support for teachers (Cook and Friend, 1996). This approach included aspects of modeling, simulated practice using the target instructional procedures, actual teaching practice with instructional procedures, and feedback (Morgan, Whorton, and Gunzalus, 2000). Because of the mix of veteran teachers and new teachers, this presented optimal opportunities for teachers to expand their instructional repertoire.

One issue that hindered the project was the lack of opportunities for teachers to work together. Teachers reported they could have worked more often if there was the opportunity. It is often difficult for actively engaged teachers to find the time to collaborate. In financially strapped school districts, Templet, Squires, and Steckler (1999) offer several suggestions to enable teachers to meet, including Five Minutes, Twice a Day, The Substitute Sweep, Double Delight, Free Me Up, and Hospitality Meetings. They offered these in addition to natural opportunities for collaboration that include before school, during lunch, after school, during professional development periods, during the school day, before and after faculty meetings, and evenings and weekends.

In addition, teachers at the elementary school had difficulties accessing on-line resources because they were limited to a 56K-line. This is not a unique situation when teachers in small and

rural schools need to access the Internet. To effectively incorporate technology in instruction, teachers need access to both the software and hardware that enables them to incorporate use of the Internet to support their instructional efforts. It is difficult to bring into the classroom without managing the technology infrastructure, even if teachers maintain ownership and control of course content.

An advantage for this type of professional development is that it may be a component enabling experienced teachers, like many of those included in this project, the opportunity to become “highly qualified.” A key feature of both The No Child Left Behind Act of 2000 and The Individuals with Disabilities Education Improvement Act of 2004 is the expectation that all public school teachers of core academic subjects be highly qualified. Teachers not new to the field may demonstrate their content knowledge through a HOUSSE (High Objective Uniform State Standard of Evaluation) which is a checklist with points earned. High quality professional development, such as that described here is one option that a certified teacher may use to demonstrate content knowledge.

It should be noted that seventy-seven teachers initially voiced an interest in participating in the project. However, when they realized it involved a self-directed approach to professional development, they opted out of the project. It is worthy to note that poor teachers typically do not share collegial interest in motivation to participate in self-directed professional development that targets learner achievement. As a result, they tend to seek new places to work (Goodwin, 1999).

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