

An Examination of the Relationship between Select Implementation Strategies  
and Professional Development Program Success

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Doctor of Education

by

Jeff Feucht

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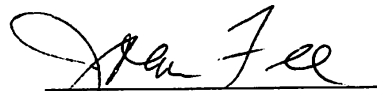
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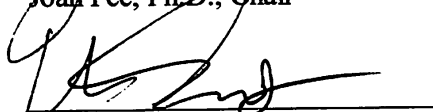
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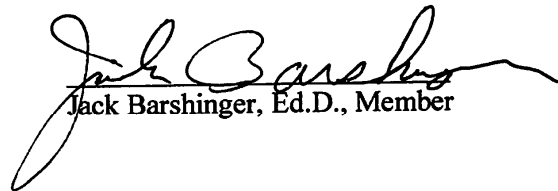
Doctoral Committee:



Joan Fee, Ph.D., Chair



Marvin Edwards, Ed.D., Member



Jack Barshinger, Ed.D., Member

April 18, 2011

Date

## ABSTRACT

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By

Jeff Feucht

Committee Members:

Dr. Joan Fee, Chair

Dr. Marvin Edwards

Dr. Jack Barshinger

A diverse national sample of professional development directors in public and private school districts ( $N = 123$ ) was surveyed to examine (a) the relation between implementation strategies and professional development program success, and (b) whether the strength and direction of this relation varied as a function of the scope of the teachers targeted, the type of training provided, or the presence of a mentor component. The four select implementation strategies, which were the focus of this study, included alignment, continuous improvement, coordination, and teacher involvement. Participants reported on the demographic characteristics of their districts, their perception of the success of the most recent professional development program they directed, the use of four select implementation strategies, and program characteristics. The results indicated that perceived program success was positively correlated with the implementation strategies of alignment and continuous improvement. Regression analyses that included all four implemental strategies as predictors of program success showed that continuous

improvement uniquely predicted program success. One interaction at the trend level emerged: Alignment was related to higher levels of program success for programs that used a subgroup cohort of teacher participants. Post-hoc analyses found that programs longer in duration were related to higher levels of program success and that teacher involvement was related to higher levels of program success when teacher participation was required in professional development programs. The implications of the findings for professional development programs and directions for future research are discussed.

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I would also like to thank my sister-in-law, Dr. Chrystyna Kouros, who gave me an awesome statistics refresher and invaluable feedback on several drafts.

## DEDICATION

This dissertation is dedicated to my late mother, Carolyn Feucht, who warned me about starting this program when I did, but then supported me as only she could. It is also dedicated to my daughter Evangeline, who was the reason Mom told me to wait. I promise I will exceed the number of hours spent alone in the library the last three years with playtime in the next 12 months. The person most deserving of my thanks, however, is my beautiful wife, Vicki Kouros, who supported me tirelessly with the love, support, and time without which I would not have achieved this goal.

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## CHAPTER 1: THE PROBLEM AND ITS BACKGROUND

### **Problem Statement**

Research has shown that teacher quality is a key controllable factor in student achievement (Rockoff, 2004). Policymakers also recognize the importance of teacher quality and have frequently turned to mandates for increased teacher professional development programs as a crucial component of efforts to improve teacher quality (Kent, 2004). Unfortunately, many professional development programs in schools are poorly implemented. Research has shown that many programs are self-contained “one-shot” workshops that do not focus on in-depth subject matter content or continuous improvement (Borman & Rachuba, 1999; Garet, Porter, Desimone, Birman, & Yoon, 2001). Schlechty and Whitford (1983) found that the planning of professional development often takes place in isolation from other district offices and reforms. The very activities that should be so vital to communicating a district’s priorities are too often on their own path.

Irrespective of the effectiveness of implementation, professional development programs continue to consume a significant portion of school district budgets every year, and are required by all mandated school improvement and restructuring plans in the State of Illinois (Illinois Accountability Plan, 2009). Many school districts subsequently spend significant time and resources on professional development programs that do not achieve their intended outcomes simply due to poor implementation (Desimone, Smith, & Ueno,

2006). Poorly implemented programs squander an opportunity to improve instruction in the classroom and to build the human capital of the school district. Successful implementation of these well-intentioned programs could be a boon to school improvement efforts.

### **Purpose of the Study**

The purpose of this study was to examine the relation between implementation strategies and professional development program success. Specifically, this study investigated the relation between four select implementation strategies implicated in high-quality professional development programs and the perceived success of the professional development programs, and whether any of these strategies is a stronger predictor of perceived success as compared to the others. A secondary goal was to investigate whether the relation between implementation strategies and professional development program success was moderated by the scope of teachers targeted (i.e., all teachers or subgroup cohort), type of training (i.e., "pull out" vs. "extra hours"), or whether the training program included a mentor component.

The four implementation strategies selected, which are central to this study, were alignment, continuous improvement, coordination, and teacher involvement. Whereas there are certainly other implementation strategies that impact the success of a professional development program, these four specific strategies were selected for this study based on their prominence in a review of related literature. The operational definitions of these variables are outlined in a subsequent section of this chapter.

## Research Questions

The goal of this research was to examine the relation between select implementation strategies and professional development program success. The specific research questions were as follows:

1. Do the implementation strategies of alignment, continuous improvement, coordination, and teacher involvement relate to the perceived success of professional development programs?
2. Which strategies, if any, are the strongest independent predictors of perceived program success as compared to the other implementation strategies?
3. Is the relation between the implementation strategy of alignment and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training ("pull out" vs. "extra hours"), or whether the program included a teacher mentor component?
4. Is the relation between the implementation strategy of continuous improvement and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training ("pull out" vs. "extra hours"), or whether the program included a teacher mentor component?
5. Is the relation between the implementation strategy of coordination and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training ("pull out" vs. "extra hours"), or whether the program included a teacher mentor component?
6. Is the relation between the implementation strategy of teacher involvement and perceived program success moderated by the scope of teachers targeted (all

teachers or subgroup cohort), type of training ("pull out" vs. "extra hours"), or whether the program included a teacher mentor component?

### **Definitions of Variables**

For the purposes of this study, *professional development program* refers to a training program that is implemented in order to improve teacher content knowledge or pedagogical skills to help teachers become more effective professional educators.

*Implementation strategies* were defined as selected management strategies that may impact the success of the program. For the purposes of the study, school administrators and teacher leaders involved in the direction of professional development programs were asked to report on the most recent program they directed by completing a 35 question survey. Participants provided information on their director role and district demographics (6 questions), the descriptive details of the reported professional development program (8 questions), the success of the program in reaching its stated goals (1 question), the emphasis placed on key implementation strategies (16 questions), and on 3 common characteristics of programs (4 questions).

The dependent variable in this study was *perceived program success* which was defined as satisfactory progress towards program goals as a result of the professional development program. Participants who were involved in the direction of a professional development program reported on their perception of program success on the survey on a single 6-point Likert scale item ranging from *not successful* (1) to *very successful* (6).

With regard to the first two research questions, there were four independent variables in this study. The independent variables are the implementation strategies

implicated in high-quality professional development programs, which included alignment, continuous improvement, coordination, and teacher involvement).

*Alignment* was defined as the degree to which professional development activities were aligned to both state and district standards and assessments. Alignment was reported on a single five-point Likert scale item that asked participants to report the extent to which the program was consistent with four key components of strategic planning, ranging from *not at all* (1) to *great extent* (5).

*Continuous improvement* was defined as the degree to which the program utilized performance indicators, needs assessments, evaluations, and revised guidance to improve the program and to support teacher participants in their growth throughout the implementation. Continuous improvement was measured through a composite variable constructed from eight survey questions. These questions asked about features of the program that are consistent with continuous improvement efforts.

*Coordination* was defined as the degree to which multiple district departments contributed to the planning, funding, and execution of the implementation of the professional development program. Coordination was measured through a composite variable constructed from four survey questions that asked participants about the number of different district departments and categories of staff involved in the implementation of the professional development program.

*Teacher involvement* was defined as the degree to which teachers were involved in the planning and implementation of the professional development activities, including the schedule of training, instructional models, and developing performance indicators. Teacher involvement was measured through a composite variable constructed from three



survey questions asked participants about the number of teachers involved in the planning and implementation of the professional development program, as well as the depth of their involvement in these processes.

There were three moderator variables in this study. They were used to investigate whether the relation between implementation strategies and perceived program success varied as a function of (a) the scope of teachers targeted (all teachers or subgroup cohort), (b) type of training ("pull out" vs. "extra hours"), or (c) whether the professional development program included a teacher mentor component. These are three characteristics of professional development programs that set them apart from one another and may contribute to an understanding of successful implementation.

The moderator variable *participation type* indicated whether the program on which participants reported targeted all teachers in a school or district or targeted a subgroup cohort of teachers based on content area, department representatives, or other distinction. This characteristic was determined by a single question on the survey that asked the respondents to categorize the types of teachers that were targeted in the program they were involved in directing.

The moderator variable *type of training* indicated whether teacher training occurred as a required pull-out during the normal day, with substitute teachers provided for the teachers' classes, or whether training occurred during time outside of the normal school day, in which teachers are paid for their participation. This characteristic was determined by two questions on the survey that asked the respondent to describe the model utilized in the program for structuring time for teachers to be involved in the training.

The moderator variable *mentor component* indicated whether the program included a mentoring component in its training plan that paired teachers who were more experienced with the topic to observe and coach more neophyte teachers. This characteristic was determined with a single question on the survey that asked the respondent whether or not such a component was a feature of the program on which they were reporting.

### **Significance of the Study**

There are two widespread limitations in the current literature on implementation of professional development programs: (1) most studies have examined a small number of school districts and (2) most studies have focused on exemplary programs, providing little research on programs that were not successful (Marsh, 2000). A large scale quantitative study (Desimone, Porter, Birman, Garet, & Yoon, 2002) identified important implementation strategies, but did not prioritize them in terms of effectiveness for program success.

There is a need to assess the relative impact each of these strategies plays on the success of implementation. This provides a challenge to practitioners who seek to design professional development programs, as there is a tendency to try to serve each of the demands equally by attempting to set a great vision, involve teachers meaningfully, provide coordination between departments, and use feedback to continuously improve the program. With limited resources available for professional development programs, this approach of trying to do everything right often results in professional development programs that are scattershot, inconsistent, and ineffective (Garet et al., 2001).

It would be useful to identify the factors that are most preeminent in their impact on the success or failure of a program, as time and money for professional development is limited. This would be a valuable contribution to scholarship surrounding the issue, allowing practitioners to prioritize their efforts in order to ensure that they at least dedicate resources and remain focused on the “make or break” components of implementation. Ideally, a program would be perfectly implemented in relation to all key strategies, but in an increasingly demanding education environment, it would be valuable to learn where implementation capital is most impactfully expended.

Additionally, the three moderator variables were used to investigate whether or not the relation between implementation strategies and professional development success varies as a function of (a) the scope of teachers targeted (all teachers or subgroup cohort), (b) type of training ("pull out" vs. "extra hours"), or (c) whether the professional development program included a teacher mentor component. These are three characteristics of programs that set them apart from one another and might contribute to an understanding of successful implementation. Investigating the impact these characteristics of professional development programs may or may not have on the relative success of implementation may be a useful contribution to scholarship and of utility to practitioners seeking to design successful program models.

### **Summary**

Many professional development programs in schools are poorly implemented. Research shows that many programs are inconsistent, do not focus on continuous improvement, and are not aligned with identified district priorities (Desimone et al., 2006; Little, 1993). Still, professional development programs are seen as an important

part of reform efforts, and school districts too often spend time and money on professional development programs that do not achieve their intended outcomes simply due to poor implementation. Scribner (1999) attributed much of the scattershot implementation to a desire on the part of administrators to serve the demands of all of their teachers equally. Desimone et al. (2006) lamented that these poorly implemented efforts are actually worse than no professional development at all and called for an end to poorly implemented programs in order to avoid wasting financial resources and time in the classroom with the children intended to benefit from the program.

The purpose of this study was to examine the relation between implementation strategies and professional development program success, as well as whether the relation between implementation strategies and professional development program success was moderated by three characteristics of programs. Increased understanding of these relations will help school administrators plan more effective implementation of professional development programs by increasing their level of confidence regarding which strategies of implementation they should take the most care to employ effectively.

## CHAPTER 2: REVIEW OF THE LITERATURE

The purpose of this chapter is to analyze the research surrounding implementation strategies for professional development programs. The review will examine the theoretical foundation for the study, the role of professional development, and implementation strategies that are implicated in successful programs.

### **Adult Learning Theory and Professional Development Programs**

The theoretical foundation for this study is andragogy, “the art and science of helping adults learn” (Knowles, Holton, & Swanson, 2005, p. 61). Andragogy, a concept introduced by Malcolm Knowles in *The Adult Learner* in 1973, is defined as “any intentional and professionally guided activity that aims at a change in adult persons” (Knowles et al., 2005, p. 60).

Knowles et al. (2005) identified six major principles of the andragogy theory that are important when considering the effective implementation of professional development programs. The first assumption of this theory is “Adults need to know why they need to learn something before they learn it,” which emphasizes the importance of aligning professional development programs with a clear vision that is tied to school or district goals (Knowles et al., 2005, p. 61). The second principle, that adults “need to be seen...and treated by others as being capable of self-direction” emphasizes the contrast to pedagogical practices for children, as adults are more self-directed and willing to work autonomously towards individual goals than children (Knowles et al., p. 62). The third

principle is that as adults mature into adulthood, they accumulate life experiences that contribute to their learning and that “the richest resources for learning reside in the adult learners themselves” (Knowles et al., p. 62). Each of these first three principles speak to the importance of adult teachers being involved in the planning and implementation of professional development programs in order to be able to more directly impact the design of their own learning.

The fourth principle is that adult learning readiness is closely tied to “moving from one developmental stage to another” and that adults have greater demands for the instructional program to meet their own personal needs than their younger counterparts who may be more willing to learn for learning’s sake (Knowles et al., 2005, p. 62). The fifth assumption simply holds that adult learners place a great emphasis on knowing how the learning will benefit them in that “Adults are motivated to learn to the extent that they perceive the learning will help them perform tasks or deal with problems that they confront in their life situations” (Knowles et al., p. 63). This principle also impacts the instructional practices that are most effective with adult learners as adults learn “most effectively when [new learnings] are presented in the context of application to real-life situations” (Knowles et al., p. 63). The sixth and final principle is that adults are more motivated to learn by internal, rather than external factors as “Adults are responsive to some external motivators...but the most potent motivators are internal pressures” (Knowles et al., p. 64). Merriam and Caffarella (1999) found that these internal factors included promise of increased job satisfaction, self-esteem, and quality of life.

It is important to consider the theory of andragogy during a review of the literature concerning implementation strategies for professional development programs,

as one would expect to find evidence supporting strategies that are learner focused, closely rooted in relevant learner goals, and applicable to improving the learner's practice in the classroom. Studies have similarly emphasized the importance of efficacy as a key component of learning for adults at the university level (Pew, 2007; Wolfgang & Dowling, 1981). This theoretical research on the different ways in which adults learn highlights the importance of involving teachers in the planning and progress monitoring of professional development programs, an issue examined in this literature review.

### **The Role of Professional Development**

Professional development in education refers to programmatic efforts to improve teacher quality by increasing teachers' knowledge of the subjects they teach and improving their pedagogical strategies and understanding (Darling-Hammond & Baratz-Snowden, 2007). Professional development programs are designed to address growth in three general categories: teacher learning, knowledge, and practice (Darling-Hammond & Bransford, 2005). The literature consistently supports the value of professional development programs that are well aligned, designed, and targeted (Fullan & Hargreaves, 2002). Whereas some studies suggest a direct link between individual professional development programs and student achievement (e.g. Lai, McNaughton, Amituanai-Tolosa, Turner, & Hsiao, 2009), most studies have not found support for such a relation. There is far more consensus in the literature on the important role teacher quality plays in student achievement (Wayne & Youngs, 2003). Research, therefore, provides evidence to support school administrators in the supposition that if their professional development programs are helping teachers grow, then students may ultimately benefit from such programs (Ingvarson, Meiers, & Beavis, 2005).

Effective professional development programs can originate from both top down and bottom up approaches. Fullan and Hargreaves (2002) studied centralized state mandated programs in Canada and found that they were effective in producing impactful professional development programs in individual schools that changed teacher practice. Other key studies have emphasized that local school districts play a primary role in providing professional development to teachers (Little, 1993). Identification of what professional development will be provided to teachers to support a given reform, as well as what the program will look like and how it will be implemented, has long been primarily determined by local school districts (Little et al., 1987). Contributing to this perspective are studies that have emphasized the importance of professional development that is based in individual schools and integrated into the day-to-day life of the teachers in their home schools (Loucks-Horsely, Hewson, Love, & Stiles, 1998).

Examined as a whole, both levels of the institution play an important role. Even when implementation models emphasize school-based design, district level decisions and support most often provide the overall architecture for its success (Elmore & Burney, 1996). The school district acts as an intermediary to explain state mandates and standards, provides funding, and aggregates data to support school level activities. Simultaneously, recent studies have found that once the district sets the vision and provides the basic parameters of the program, the operation of the most effective programs are embedded in local schools with the leadership of individual principals and teacher leaders (Welner & Oakes, 2008).

Levin (2009) emphasized the importance of quality needs assessments prior to implementing a program in this kind of distributed model. Such needs assessments



provide centralized school leaders the information they need to set a vision and fund the right priorities before stepping back and letting school leaders spearhead the implementation. There are several case studies in the literature of school districts effectively initiating professional development programs while providing the latitude to school leaders to make them successful. Spillane (1996) studied two districts in Michigan and described how they effectively provided professional development programs in their districts to meet new state program requirements. Elmore and Burney (1997) studied one New York district's successful efforts to provide an ambitious professional development program that specifically targeted key instructional practices.

Unfortunately, there is not consensus among district-level policymakers with regard to what implementation strategies have the greatest impact on the success of professional development programs, and many programs are inconsistently applied and ineffective (Corcoran, 1995). Corcoran (1995) identified three major teacher needs for professional development that were not being met: increased knowledge of effective instructional methods, feedback on their application of instructional frameworks, and time to discuss improvement with other teachers. The study also found that professional development programs were often defined by teacher perceptions of success, as opposed to evidence of increased student achievement. A review of the literature on district professional development programs conducted by Marsh (2000) found that most studies focused on district programs that are implemented to meet new state mandates, were qualitative, and focused primarily on programs that were deemed to be successful in meeting their goals. There appear to be two widespread limitations in the literature: (1)

most studies examine a small number of school districts and (2) most studies focus on exemplary programs, providing little research on programs that were not successful.

One seminal quantitative study (Desimone, Porter, Birman, Garet, & Yoon, 2002) aggregated national data from district professional development coordinators who received federal funding from the Eisenhower Professional Development Program. The study examined four management and implementation strategies that could be isolated from the evaluation tool used in the program. The specific district management and implementation strategies examined were “(1) the alignment of professional development activities with state and district standards and assessments; (2) coordination among multiple professional development programs; (3) “continuous improvement” efforts based on indicators, needs assessments, evaluation, and guidance; and (4) how districts involve teachers and other school staff in planning professional development activities” (Desimone et al., 2002, p.1269). The results of this study found that all four of these strategies were related to the quality of professional development programs; however, this study did not evaluate their relative importance.

### **Alignment**

Articulating a clear vision for reform in a school district, and then aligning professional development programs to this vision, has resulted in successful reforms (Borko, 2004; Borko & Elliot, 2002). Murphy and Hallinger (1988) conducted a study of 12 California school districts that had experienced successful reforms and found that each featured a superintendent with a clear vision of reform and professional development activities that consistently reinforced this vision. Professional development programs that are tightly aligned to standards and assessments more often result in activities that place

an emphasis on high expectations for student learning (Cohen & Hill, 2001). This alignment also contributes to the programs providing sustained support for long-term district improvement goals (Cohen & Hill, 2001).

This alignment must be real and substantive. The research describes alignment efforts of varying quality. A study of nine school districts found that alignment was largely superficial and not deep and substantive enough to result in measurable gains (Spillane & Thompson, 1997). Massell (2000), however, described one method of alignment which highlighted the importance of building consensus regarding curricular goals and philosophy of instruction. The process was effective at both vesting teachers in the program and providing a valuable conduit through which to communicate to teachers a common vision of appropriate instruction (Massell, 2000).

The effort spent aligning professional development programs to standards and assessments also pays off in teacher “buy-in” and the long-term efficacy of the program. When professional development programs are clearly aligned with the vision of reform the district has in place, teachers are more likely to respond positively to activities and work to modify their classroom instruction (Spillane & Jennings, 1997). Conversely, when professional development programs are not aligned to district goals, teachers recognize the dissonance and are less likely to modify their instructional practices (Grant, Peterson, & Shojgreen-Downer, 1996).

Previous research has identified the importance of consistent alignment of professional development activities with instructional goals and objectives over a prolonged period of time. Elmore and Burney (1996; 1999) conducted an in-depth study of New York City’s Community School District #2 that featured a professional

development process that was especially effective due to its constant revisiting of district instructional goals and objectives. Other studies have demonstrated the importance of prolonged touchbacks to align professional development activities to the district improvement plan as well as to standards and assessments (Sparks & Hirsh, 2000).

Administrative leaders in the school district are vital in the effort to convey state standards and reform initiatives to the school level (Fullan & Hargreaves, 2002). However, the research demonstrates that aligning professional development activities to these mandates is often a significant challenge (Massell, 1998; Spillane, 1996). The literature has identified the crucial role that administrators play in this process, as they act as key mediators to provide alignment to state and federal mandates while simultaneously working to connect professional development activities to district and school level curriculum and assessments in a meaningful way (Cohen & Hill, 2001; Radford, 1998).

### **Coordination**

Researchers have emphasized the importance of having a district-wide vision of professional development that coordinates multiple departments (Spillane, 1996). This common vision can be supported through the use of “cofunding” which is described as “the contribution of funds from two or more programs to support the same professional development activity” (Desimone et al., 2002, p.1271). Combining funds from federal programs and district budgets can bind otherwise disparate programs in support of a unified district vision of professional development. This is often a challenge, as many districts do not plan long-term professional development roadmaps that integrate the forward-looking approach cofunding would necessitate (Floden et al., 1988). Corcoran (1995) found that leveraging funds thusly from multiple sources can have a more

powerful impact on the success of the program than the sum of its parts when segregated in individual projects.

The lack of unified long-term planning for professional development, when combined with the daunting cost of sustained professional development programs, most often results in offerings to teachers that are self-contained “one-shot” workshops that do not focus on in-depth subject matter content or continuous improvement (Borman & Rachuba, 1999; Garet et al., 2001). Further, Schlechty and Whitford (1983) found that the planning of professional development often takes place in isolation from other district offices and reforms. This separation of professional development planning process from the strategic planning of a school system’s major initiatives could be an inefficient reform model.

Such problems highlight the advantages of models that focus on garnering multiple funding sources in support of a common professional development program, as some researchers have suggested. For example, Elmore and Burney (1996) describe “multi-pocket budgeting” wherein multiple funding sources within the same district commit parts of their budget to a common professional development program, thereby investing many interested parties in the program’s success. Stout (1996) described models that even go beyond the traditional institutional sources of funding in order to coordinate multiple funding sources in addition to just state and federal block grants. These models emphasize the importance of partnering with multiple school districts, colleges, universities, and even private organizations to fund a more “entrepreneurial” and sustained professional development plan.

## **Continuous Improvement**

Continuous improvement can be described as efforts to evaluate and improve the program on a regular basis through the use of performance indicators, needs assessments, evaluation, and guidance (Desimone et al., 2002). There is a consistent body of research supporting the importance of identifying clear expectations for implementing the learning outcomes of professional development activities in the classroom, and then providing opportunities for teachers to reflect on and provide feedback on the progress of their learning (e.g. Feinman-Nemser, 2001; Timperley, Wilson, Barrar, & Fung, 2007). Such goals not only chart the progress of the professional development programs, but also increase the likelihood that the new learning will be used with students in the classroom.

**The total quality movement and continuous improvement in education.** The focus on continuous improvement as a key implementation strategy for professional development programs ultimately stems from broader trends in education reform rooted in Deming's work on "process" management and "continual process improvement" as well as Drucker's "Management by Objective" that emphasized the constant evaluation of progress towards program results (Deming, 1986; 2000; Drucker, 1992). Indeed the antecedents of several major trends in education reform of the last 20 years from Understanding by Design (UbD) to Professional Learning Communities (PLCs) are found in these reforms' emphases on backward mapping, knowledge workers, and communities of learning. Ultimately, the "Total Quality Movement" Deming and Drucker are credited with founding emphasizes the importance of communities of workers constantly synthesizing data on the results of their work in order to improve their processes.

The important role that the Total Quality Movement and continuous improvement in general has played in education reform efforts in the United States has been highlighted by the rise to prominence of the Baldrige Award in Education in the late 1990s. The Malcolm Baldrige National Quality Award was established in 1987, named for Secretary of Commerce Malcolm Baldrige, purposed to (a) promote awareness of the importance of quality improvement to the national economy; (b) recognize organizations that have made substantial improvements in products, services, and overall competitive performance; and (c) foster sharing of best-practices information among U.S. organizations (Garvin, 1991). As a consequence of the positive impact the award process had in the business community, a strong interest developed between the education community and business leaders in developing a similar set of criteria to guide the reform efforts by educational institutions.

The goals of the ensuing Baldrige Education Criteria, which were pilot-tested in 1995 in parallel with the Baldrige Award for businesses, are (a) "delivery of ever-improving educational value to students, contributing to their overall development and well-being;" and (b) "Improvement of overall school effectiveness, use of resources, and capabilities" (Abdulla et al., 2006, p.1120). Three of the core values identified as criteria for the Baldrige award in education directly emphasize the vital role continuous improvement plays in any successful implementation plan. The list of core values that comprise the criteria for the award includes "Continuous improvement and organizational learning" embedded in the school's operation approach that should seek to engage students as full participants in and contributors to improvement processes, "faculty and staff participation and development" to invest in the development of faculty and staff

through ongoing education, and “results orientation” by which a school's performance system should focus on results, with special emphasis on student achievement and efficient use of resources (Abdulla et al., 2006, p.1120).

Loucks-Horsley et al. (1998) stressed the importance of developing performance indicators as part of a strategic plan to assess progress towards the goals set for the professional development program. They also called for teacher needs assessments to be used when developing program goals and for regular evaluations to summarize results. Guskey and Sparks (1996), however, found that during the evaluation process, most professional development programs rely too heavily on teacher perception. The study also found these teacher perception measures to be less useful than student outcomes, as teachers often emphasize individual rather than district goals.

Stiggins (1994) and educational leaders have suggested that it is crucially important to select clear goals for student learning, and then track student progress towards these goals in a formative way. Similarly, if professional development programs are founded with clear goals, it is possible to develop a culture in which teachers accept the accountability inherent in tracking progress towards goals if this process is an embedded part of their craft and tracked in a collaborative process (Bernauer, 1999). Continuous improvement can also be facilitated through the use of “school report cards” to track progress towards instructional goals and guide team discussions, albeit such monitoring would only be as valid as the “grades” reported on these “report cards” (Fredericksen & Collins, 1989).

An obstacle identified in the literature to continuous improvement seems to be the overuse of single-session workshops that represent a one-time, one-day experience to



introduce teachers to a topic without any intention to address in-depth subject matter or develop a long-term model (Borman & Rachuba, 1999; Garet et al., 2001). The popularity of this approach is not only due to its affordability (there is no need to provide for substitutes and release time periodically over a sustained period of time), but also a result of the pressure administrators feel to serve the needs of the wide diversity of teachers in their district by providing an unending series of introductory self-contained sessions (Scribner, 1999). Little (1993) also recognized the consciousness of this decision, demonstrating that administrators are generally aware that this approach is not the best to achieve sustained reform.

### **Teacher Involvement**

Research has shown that professional development programs are most effective when they are implemented in such a way so as to make them relevant to the classroom needs practices of teachers (Meiers & Ingvarson, 2005). A method for realizing this goal is to involve teachers in the planning of the professional development program. Desimone et al. (2002) found that teacher involvement in any level of planning is positively associated with positive aspects of professional development. Their large study found that teacher involvement in planning resulted in programs that provided content that was relevant to teacher needs across the district, thereby increasing the direct impact on classroom practice. Other studies have found that teacher involvement in planning ensures that the activities implemented will address teacher needs, subsequently resulting in an increasing likelihood that strategies studied will be implemented in actual classrooms (Clark, 1992; Loucks-Horsely et al., 1998). At the school level, teacher collaboration in the planning of programs can yield the powerful side-effect of aligning

high expectations for teaching and learning (O'Day & Smith, 1993). This body of evidence seems to contrast with Guskey and Sparks (1996), who tended to deemphasize the validity of teachers' perception of programmatic success.

To facilitate this teacher-involved planning, Liebermann (1994) described the importance of redefining the concept of leadership when planning professional development to include the important role of teachers as leaders. More recent research has affirmed the importance placed on the crucial role empowering teachers play in the implementation of a wide range of reform models (Usdan, McCloud, & Podmostko, 2001; Wynne, 2001). To this end, Bush (1999) emphasized the importance of developing this leadership capacity in teachers by providing time and training for them to develop the requisite knowledge and skills to provide effective leadership in the implementation process.

Another way to develop teacher leadership capacity in professional development activities is to follow the "peer coaching" (Foulger, 2005). Foulger (2005) described "communities of practice" wherein the learning is embraced by teachers as a social process; teachers have the opportunity to discuss and reflect on the activities addressed by professional development. Miller (1995) also provided evidence that teachers learn best not by listening to experts lecture, but rather by watching other teachers implement strategies, and then reflecting with them with regard to what was or was not effective.. Darling-Hammond and McLaughlin (1995) provided further emphasis that effective professional development must be a collaborative process that engages teachers in a sustained inquiry process to address specific instructional issues and is buttressed by vigorous modeling and peer coaching support.

Beyond the one-to-one relationships prescribed by various peer coaching models, other research supports the idea that professional development is best understood in the context of critical reflection that takes place within professional learning communities (Haar, 2003). Grounding professional development in the collaborative context of professional learning communities also provides the added advantage of retaining the focus of the activities on student learning, rather than teaching (Senge, 1995).

McLaughlin and Talbert (2001) provided extensive support for the possibilities availed by professional learning communities to make professional development an effective and sustainable process for teachers. Their five-year study of secondary schools found that strong professional communities provided a social network for teachers to grapple with the challenges they face when implementing new instructional strategies in their classrooms, thereby increasing their sense of solidarity and consequently their confidence and determination to sustain their efforts to improve. Caine and Caine (2000) also found that these same social networks can be key sources for developing the teacher leaders that are so important for successful implementation of professional development.

### **Summary**

Research on professional development implementation strategies has identified several prominent themes that emerge as key factors to consider when designing the implementation of professional development programs at the district level. Most prominent among these factors are alignment of professional development activities with standards and assessments, coordination among multiple programs, effective continuous improvement strategies, and teacher involvement in program development and leadership. This broad array of factors provides a challenge to practitioners who seek to

design professional development programs, as there is a tendency to try to serve each of these demands equally, often resulting in programs that are scattershot, inconsistent, and ineffective.

This study used the four strategies identified in the study by Desimone et al. (2002) as a framework through which to investigate the relative impact these four strategies have on the successful implementation of a professional development program. By surveying professional development directors regarding their experiences with the implementation of professional development programs, the current study builds upon this prior research. The current study aimed to provide evidence of the rank order priority these strategies hold in a successful implementation.

It is useful to identify the strategies that are most preeminent in their impact on the success or failure of a program, as time and money for professional development is limited. Determining the relative impact each of these strategies plays on the success of implementation could be a valuable contribution to scholarship surrounding the issue, as it could allow practitioners to prioritize their efforts in order to ensure that they at least dedicate resources and remain focused on the most vital components of implementation.

### CHAPTER 3: METHOD

This study examined the relation between implementation strategies and professional development program success. The research questions for the study were as follows:

1. Do the implementation strategies of alignment, continuous improvement, coordination, and teacher involvement relate to the perceived success of professional development programs?
2. What strategies, if any, are the strongest independent predictors of perceived program success as compared to the other implementation strategies?
3. Is the relation between alignment and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?
4. Is the relation between continuous improvement and perceived program Success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?
5. Is the relation between coordination and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training

(“pull out” vs. “extra hours”), or whether the program included a mentor component?

6. Is the relation between teacher involvement and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?

This quantitative study surveyed professional development directors ( $N = 123$ ) in public and private school districts who were involved in the direction of a recent professional development program in order to test the relation between specific implementation strategies and program success, and the moderating roles of (a) the scope of teachers targeted (all teachers or subgroup cohort), (b) type of training (“pull out” vs. “extra hours”), and (c) whether the training program included a mentor component. The survey used by Garet et al. (2001) was adapted with permission for the present study. The survey was piloted on a small sample of administrators to ensure the clarity of the questions and to test the reliability and validity of the measure.

Descriptive data are presented, including characteristics of the participants and their district, extent to which each implementation strategy was emphasized, means, standard variations, and correlations among the study variables. Zero-order correlations and ordinary least squares (OLS) linear multiple regression were used to address the research questions.

### **Procedures**

Participants were recruited at the annual conference of Learning Forward (formerly National Staff Development Council [NSDC] ) to complete a brief survey

(Appendix A) about the most recent professional development program they were involved in directing. I also conducted a session at the conference reviewing current research on the topic of implementation strategies for professional development programs taken from a review of the literature. I secured prior permission from the conference directors to host a booth at the exhibit hall at which to recruit participants for the survey. Participants were encouraged to take the time to respond to the survey and were compensated for their time with a \$5 Starbucks gift card. Participants completed a consent form before taking the survey, which took approximately 20 minutes to complete. The Aurora University IRB approved the study.

### **Participants**

The participants for this study were 123 school administrators or teacher leaders who managed the implementation of professional development programs for their districts and who attended the 2010 Learning Forward (formerly National Staff Development Council [NSDC] ) Conference held on December 4<sup>th</sup>-7<sup>th</sup>, 2010. This convenience sample was selected because it is the director of the professional development program who has the most access to the planning and management activities of the program (e.g. pre-implementation meetings, mid-program evaluation meetings, analysis of participant feedback on session evaluations), and it is the management of the professional development program that is the subject of this study. In order to access a sample of this targeted population, a convenience sample was employed at the largest annual conference of professional development directors.

A diverse group of professional development directors was sampled at the conference. On average, participants had held a position in which they were involved in

directing professional developmental programs for 9.45 years ( $SD = 8.00$ , range = 1-33). Participants came from 32 different U.S. states, as well as Canada ( $n = 4$ ) and Singapore ( $n = 1$ ). The majority of participants were from the Midwest ( $n = 37$ ) or the Southwest ( $n = 34$ ). During their careers, 31 % of participants indicated that they had spend 6 to 10 years in which the majority of their daily assignment (i.e., more than half the day) was spent as a classroom teacher ( $n = 38$ ), and 30 % indicated this number to be between 11-15 years ( $n = 37$ ), 24 % responded 16-45 years ( $n = 30$ ), roughly 10 % indicated 3-5 years ( $n = 12$ ), and 5 % indicated 0-3 years ( $n = 6$ ).

Approximately 39 % of participants' daily assignment was to a district-wide responsibility, 33 % were assigned to an individual school responsibility, 12.4 % were assigned to multi-state responsibility, 8.3 % were assigned to a state-wide responsibility, and the remaining 7.4 % were assigned to a county-wide responsibility. In their current daily assignment, the majority of participants ( $n = 97$ ; 78.9 %) were not assigned to teach a class during the day. Approximate 14 % of the sample reported spending 4 to 6 hours per day teaching a class, and the remaining 7.1 % reported spending 1 ( $n = 2$ ), 2 ( $n = 3$ ), or 3 ( $n = 2$ ) hours per day teaching a class. With regard to student enrollment in participants' district or agency, 1.6 % were between 1-500, 5.7 % were between 501-1,500, 15.4 % were in the 1,501-5,000 range, 9.8 % were in the 5,001-10,000 range, 18.7 % were in the 10,001 – 20,000 range, 10.6 % were in the 20,000 – 50,000 range, 24.4 % were in the 50,001-100,000 range, 6.5 % were in the 100,001 – 500,000 range, and 4.9 % indicated student enrollment was more than 500,000. Three participants did not answer this question.



## **Instrumentation**

The survey developed for this study was adapted with permission from the *Teacher Activity Study* developed by Garet et al. (2001). This instrument was designed to survey a nationally representative sample of teachers who had attended professional development activities sponsored by the federally funded Eisenhower Professional Development program. Their study drew upon a diverse national probability sample of teachers in districts receiving funding through the program. Teachers received and returned the survey by U.S. mail. Garet et al.'s (2001) survey produced a response rate of 72 %, representing 1027 teachers from 358 different school districts.

The *Teacher Activity Study* survey (Garet et al., 2001) asked teachers to provide detailed information about a specific professional development activity that was funded by the Eisenhower Professional Development program and in which they participated. The participants' responses on the survey were self-reports of teacher experiences and behaviors. The survey questions were designed to assess the relation between characteristics of professional development activities and teachers' self-reported change in knowledge, skills, and teaching practices. The study was not designed to assess the relation between professional development activities and student achievement.

For the purposes of this study, the *Teacher Activity Study* (Garet et al., 2001) was redacted in order to focus on key implementation strategies supported by the research. The questions were also rephrased in order to pose them from the perspective of the person directing the professional development activities, as opposed to the teacher experiencing the activities. This adaptation allowed the program directors to report their intentions in choosing implementation strategies and the results of those strategies. This

adaptation of the instrument therefore allowed an examination of selected characteristics of implementation that informed not only whether the characteristics were present in the program, but also whether they were intentionally designed and whether they were perceived to be effective.

### **Measures**

The survey for this study consisted of 35 items assessing characteristics of the participants and their districts, descriptive aspects of the professional development programs, the extent to which the four specific implementation strategies were used, the presence of the three moderator variables, and the perceived success of the professional development programs. Participants were asked to report on the most recent professional development program in their districts which they directed.

The survey asked participants to provide background on their director role and district demographics (6 questions), descriptive details of the program reported (8 questions), to assess the success of the program in reaching its stated goals (1 question), evaluate the emphasis placed on key implementation strategies (16 questions), and report on three common characteristics of programs (4 questions).

**Perceived program success.** The dependent variable in this study was perceived program success, which was defined as satisfactory progress towards program goals as a result of the professional development program. This progress towards program goals was assessed by the participants who were administrators and teacher leaders involved in the direction of the program. The dependent variable was reported on a single six-point Likert scale ranging from 1 (*not successful*) to 6 (*very successful*).

**Implementation strategies.** With regard to the first two research questions, there were four independent variables in this study. The independent variables were the implementation strategies implicated in high-quality professional development programs: alignment, continuous improvement, coordination, and teacher involvement.

*Alignment* was defined as the degree to which professional development activities were aligned to both state and district standards and assessments, and included 4 items. Participants reported on the extent to which the program was consistent with four key components of strategic planning, ranging from 1 (*not at all*) to 5 (*great extent*). Each of the four items correlated with at least one other item ( $r = .25-.69$ , all  $p < .05$ ); items were summed to create an alignment composite score, with higher scores reflecting greater level of alignment between the professional developmental program and state and district standards and assessments. The reliability of this composite was acceptable (Cronbach's alpha = .55).

*Continuous improvement* was defined as the degree to which the program utilized performance indicators, needs assessments, evaluations, and revised guidance to improve the program and support teacher participants in their growth throughout the implementation. Continuous improvement was measured through a composite variable constructed from eight survey questions probing design features of the program that are consistent with continuous improvement efforts. All items were correlated with at least one other item, and the majority of the items were correlated with at least 4 other items ( $r = .19-.59$ , all  $p < .05$ ). The inter-item reliability for the continuous improvement composite was acceptable (Cronbach's alpha = .58), and higher scores reflect higher levels of continuous improvement.

*Coordination* was defined as the degree to which multiple district departments contributed to the planning, funding, and execution of the implementation of the professional development program. Coordination was measured by four survey questions that asked information about the number of different district departments and categories of staff involved in the implementation of the professional development program. One item (“*Other than regular classroom teachers, did any of these types of staff participate in the activity?*”) was not significantly correlated with the other three items; therefore this item was not included in the composite score. The remaining three items were all significantly correlated with each other ( $r = .41-.71$ , all  $p < .05$ ) and were summed to create a coordination composite variable. Higher scores on this composite reflect a greater degree of coordination among multiple district departments. The reliability of this scale was good (Cronbach’s alpha = .77).

*Teacher involvement* was defined as the degree to which teachers were involved in the planning and implementation of the professional development activities, including schedule of training, instructional models, and developing performance indicators. Teacher involvement was measured by three survey questions that assessed the number of teachers involved in the planning and implementation of the professional development program, as well as the depth of their involvement in these processes. The three items were significantly correlated with each other ( $r = .21-.52$ , all  $p < .05$ ) and were summed to create a teacher involvement composite score. Higher scores reflect higher levels of teacher involvement in the professional developmental program. The reliability of this composite was acceptable (Cronbach’s alpha = .59).

**Moderators.** There were three moderator variables in this study, which tested whether or not the relation between implementation strategies and professional development success varied as a function of (a) the scope of teachers targeted (all teachers or subgroup cohort), (b) type of training ("pull out" vs. "extra hours"), or (c) whether the professional development program included a teacher mentor component. These are three characteristics of programs that set them apart from one another and may contribute to an understanding of successful implementation.

*Participation type* indicated whether the program on which participants reported targeted all teachers in a school or district or a subgroup cohort of teachers based on content area, department representatives, or other distinction. This characteristic was measured by a single question on the survey in which participants were asked to indicate the types of teachers that were targeted in the program they were involved in directing. Response options included (a) individual teachers as volunteers, (b) teachers as representatives of their departments, grade level, or school, (c) all teachers in department of grade-level groupings, (d) all teachers in a school or set of schools, and (e) other configuration (specify). Write in answers for option e "other configurations" were assessed and if the configuration specified was better represented by the other response options, and then this write in answer was reassigned. Response options a and b reflect a subgroup cohort was targeted and were coded as 0. Response options c and d reflect that all teachers were targeted and were coded as 1.

*Type of training* indicated whether teacher training occurred as a required pull-out during the normal day with substitute teachers provided for the teachers' classes, or during time outside of the normal school day where teachers are paid for their

participation. This characteristic was measured by one item on the survey asking the respondent to describe the model utilized in the program for structuring time for teachers to be involved in the training. Responses that indicated teacher training required a pull-out during the normal day were coded as 0 and responses that indicated sessions were during “extra hours” sessions were coded as 1.

*Mentor component* indicated whether the program included a mentor component in its training plan that paired teachers who were more experienced with the topic to observe and coach more neophyte teachers. This characteristic was measured with a single question on the survey that asked the respondent whether or not such a component was a feature of the program on which they are reporting. Programs that featured a mentor component were coded as 1; whereas programs that did not feature a mentor component were coded as 0.

### **Data Analysis**

Variables were first examined for potential outliers and normality. For example, the distribution of the dependent variable, program success, was examined using a Q-Q plot to ensure that it was normally distributed. Data points that fell on the diagonal of this graph indicated that the variable of interest was normally distributed. Next, descriptive statistics were calculated to assess characteristics of the sample. Means and standard deviations were reported, as well as correlations among variables.

The first research question was: Do the implementation strategies of alignment, continuous improvement, coordination, and teacher involvement relate to the perceived success of the professional development program? Bivariate correlations were run for

each of the implementation strategies to test each strategy's relation to the perceived success of the professional development program.

To test the second research question of which strategies, if any, are the strongest independent predictors of perceived success as compared to the other implementation strategies, an OLS multiple linear regression was run. Program success was regressed on alignment, continuous improvement, coordination, and teacher involvement. The four implementation strategies were entered simultaneously to test the relation between each strategy and program success, accounting for the other strategies. Positive regression coefficients would indicate that higher degrees of implementing these strategies were related to higher levels of program success.

Research questions three, four, five, and six focused on whether the relation between each implementation strategies and professional development success was moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training ("pull out" vs. "extra hours"), or whether the program included a mentor component. To test for moderation, interactions were tested in a linear regression. Given the relative small sample size, each moderator and implementation strategy were tested separately, resulting in a total of 12 regression analyses.

Responses for the moderator variables were recoded for these analyses. For the moderator *participation type*, "targeted" was coded as 1 and "all" was coded as 2. For the moderator variable *type of training*, "pull-out" was coded as 1 and "extra hours" was coded as 2. For the moderator variable *mentor component*, "non-mentoring" was coded as 1 and "mentoring" was be coded as 2.

The following is a sample moderator analysis where program success is regressed on alignment, type of training, and the interaction between alignment and type of training.

$$\text{Program Success} = \beta_0 + \beta_1(\text{alignment}) + \beta_2 (\text{type of training}) + \beta_3(\text{alignment} * \text{type of training})$$

If the coefficient  $\beta_3$  is significant, this would indicate that the relation between alignment and program success differs for "extra hours" vs. "pull out" programs.

### **Assumptions**

This study made three major assumptions. First, the study assumed that the administrators and teacher leaders who directed the professional development programs were in a good position to report on the success of the program as defined in the study. The study assumed that this perspective is valuable because these leaders' positions as directors of their programs made them privy to a comprehensive range of planning, implementation, and evaluation activities that were key components of these programs. Second, the study assumed participants were able to accurately self-report the level of programmatic success as defined by the study. Third, the study assumed participants were able to accurately report the role of implementation strategies in their program as defined by the study. These assumptions are reasonable considering the anonymity of the survey instrument and the primary focus of the study on successful implementation and management of professional development programs, rather than the content of the programs themselves.



**Limitations**

There are four notable limitations of the study design. First, implementation strategies and program success were based on self-reports from program directors; therefore no objective measures of how participant teachers or their students responded to the professional development program and the program success were collected. Additionally, any significant relation between implementation strategies and program success may have resulted from mono-reporter bias. Second, the study employed a convenience sample that, while successful in capturing a diverse sample, may not have produced a sufficiently representative sample of program types for the results to be generalized to other samples. Third, there may be other variables that predict program success, or that moderate the relation between implementation strategies and program success, that were not assessed in this study. Fourth, given the limited sample size, implementation strategies and moderator variables were tested separately; whereas with a larger sample size, the interaction between a specific strategy and moderator could have been tested controlling for the other study variables.

**Ethics**

Several provisions were put in place to ensure ethical standards of research were maintained. First, a proposal of the research was submitted to the Aurora University Institutional Review Board (IRB) prior to beginning the study. Second, consent was granted by NSDC before surveying participants at the conference. Thirdly, I received informed consent from all participants before asking them to complete the questionnaire. Fourth, all survey participants signed a consent form, the results of the survey remained anonymous, there were no known risks in participating in the study, and participants had

the right to refuse or discontinue the survey at anytime without penalty. Finally, data was kept in a locked and secure cabinet in a home office. These data will be kept for three years.

### **Summary**

This study collected self-report data using a survey to examine the relation between select implementation strategies and professional development program success. Program success was regressed on alignment, continuous improvement, coordination, and teacher involvement. The study also explored the moderating roles of the scope of teachers targeted, the type of training, and whether the program included a mentor component. To test for moderation, the interactions of each of these moderators with each implementation strategy in predicting program success were tested in 12 separate linear regressions. Specifically, for each regression, program success was regressed on an implementation strategy, a moderator, and the interaction between the implementation strategy and the moderator.

## CHAPTER 4: RESULTS

### Preliminary Analyses

**Description of the professional development programs reported: Descriptive statistics.** Participants described characteristics of the professional developmental program on which they were reporting on 8 survey questions (i.e., Section III: Description of the Program). In the first year of the professional developmental program, approximately 24 % of the programs had over 150 teachers participate. Of the remaining programs, 9 % had 1-10 teacher participants, 9.8 % had 11-20 teacher participants, 11.4 % had 21-30 teacher participants, 14.6 % had 31-50 teacher participants, 17.9 % had 51-75 teacher participants, 6.5 % had 76-100 and 101-150 teacher participants, respectively. Table 1 shows the period of time that the programs spanned, including the main activity and any formal preliminary or follow-up sessions. The majority of the programs (65.9%) were spread over a 1-12 month period, and 87 % of the programs continued beyond the first year.

Table 1

*Time Span of Professional Development Program from Beginning to End*

	<i>n</i>	%
<u>Period of Time</u>		
1 Day	2	1.6
1 Week	9	7.3
1-4 Weeks	9	7.3
1-3 Months	8	6.5
4-6 Months	13	10.6
7-12 Months	81	65.9
Did not answer	1	.8

*Note.*  $N = 123$

The majority of professional development programs (61.8 %) required participation in the program. Few programs (10.6 %) had a competitive application process for participation. Study participants were asked to indicate who led the activities during the professional development program; multiple responses were allowed (Table 2). Overall, programs appeared to be lead by district staff and outside experts or consultants. On average, programs had 11 sessions ( $SD = 11.61$ , range = 1-100) and participants were engaged in the program for an average of 42.82 hours ( $SD = 48.34$ , range = 1.5 – 280).

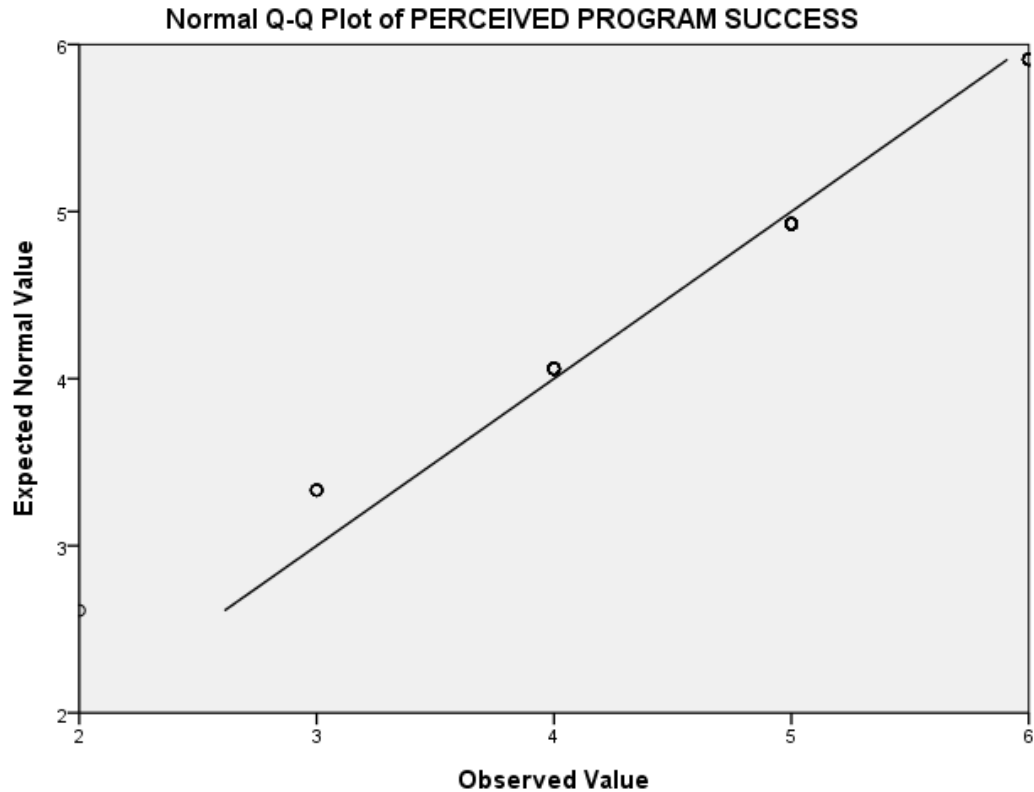
Table 2

*Distribution of Staff Who Led Professional Development Activities*

	Yes (%)	No (%)
Classroom Teacher	37.7	62.3
District Staff	62.3	37.3
State Staff	12.3	87.7
Outside Expert or Consultant	43.4	56.6
Other	15.6	84.4

*Note.*  $N = 123$ . Participants could indicate more than one response.

***Program success: Descriptive statistics.*** The dependent variable in this study was participants' perceived success of the program in reaching its identified goals. This variable was first examined for potential outliers (e.g., scores 3.29 standard deviations above or below the mean) and for normality. There were no outlier scores on this variable. The mean level of perceived program success was 4.82 out of a maximum possible score of 6 ( $SD = .86$ , range = 2-6). The kurtosis statistic (.28, standard error ( $SE$ ) = .43) was close to zero, and the estimate divided by its standard error was below 2 (statistic/ $SE = .65$ ), indicating that the shape of the distribution for program success was close to normal. Although the skewness statistic was not as close to zero (-.60,  $SE = .22$ ), a Q-Q plot of the data also supported that program success was close to normally distributed. Figure 1 below presents the Q-Q plot which shows that data points fell along the diagonal line, as would be expected with a variable that is normally distributed.



*Figure 1.* Q-Q plot of the dependent variable, Perceived Program Success

The relation between perceived program success and the demographic characteristics of the participants responding on the survey were examined; only one significant correlation was found. The longer participants were in a role in which they held a position involving the direction of professional development programs, the higher they rated their program success,  $r = .31, p < .01$ . A one-way analysis of variance (ANOVA) was conducted to examine whether the scope of participants' role (i.e., item 2 on the survey) was related to perceived program success (Table 3). A trend emerged ( $F = 2.30, p = .09$ ), and post-hoc pair-wise t-tests (using a Tukey correction to control for multiple tests) indicated that this difference was between participants whose daily assignment was to an individual school responsibility as compared to participants whose

daily assignment was a multi-state assignment. That is, participants whose daily responsibility was at the multi-state level reported significantly higher level of perceived success ( $M = 5.27$ ) compared to participants whose daily assignment was to an individual school responsibility ( $M = 4.60$ ) at the trend level ( $p = .07$ ).

Table 3

*Differences in Mean Level of Perceived Program Success by the Scope of Participants' Daily Assignment: Results from a One-way ANOVA*

	<i>n</i>	<i>M</i>	<i>SD</i>	F statistic	<i>p</i>
Individual School	40	4.60	.84	2.03	.095
District-wide	47	4.87	.85		
County-wide	9	4.67	1.00		
State-wide	10	5.00	.82		
Multi-state	15	5.27	.59		

*Note.*  $N = 121$ . 2 participants did not answer this question.

Bivariate correlations between characteristics of the professional development program with perceived program success were conducted. Professional development programs were rated as more successful when participation was not required ( $r = -.20, p < .05$ ) and when there was a competitive application process ( $r = .23, p < .05$ ). Perceived program success was also positively correlated with the number of hours participants spent on program activities at the trend level ( $r = .16, p = .07$ ).

***Independent variables: Descriptive statistics.*** The means, standard deviations and inter-correlations among the predictor variables are presented in Table 4. Approximately 50 % of programs targeted a specific cohort of teachers, and 41.5 % targeted all teachers. The remaining 8 % indicated a different configuration. A third of the programs were scheduled during “extra hours” (33 %), and the remaining programs were scheduled during the teachers’ contractual time. Roughly half the programs had a mentored component (51.2 %).

As shown in Table 4, several of the implementation strategies were significantly correlated with each other. Alignment of program goals with state and district standards and assessments was positively correlated with the use of continuous improvement strategies and marginally correlated with coordination strategies. Teacher involvement in professional development programs was positively correlated with continuous improvement and coordination. Additionally, programs that used teacher involvement were more likely to be programs that were scheduled during teachers’ contractual time. Programs that used continuous improvement also were more likely to be scheduled during teachers’ contractual time and to have a mentor component.



Table 4

*Means, Standard Deviations, and Inter-correlations among Independent Variables*

	1.	2.	3.	4.	5.	6.	7.
<u>Implementation Strategies</u>							
1. Alignment	--						
2. Continuous Improvement	.19*	--					
3. Coordination	.17 <sup>†</sup>	-.01	--				
4. Teacher Involvement	.14	.38**	.26**	--			
<u>Moderators</u>							
5. Participation Type	.06	.14	-.09	.03	--		
6. Type of Training	-.06	-.22*	-.07	-.25**	.04	--	
7. Mentor Component	.13	.37**	.01	.08	.06	.05	--
<i>M</i>	16.25	14.42	7.66	4.54	--	--	--
<i>SD</i>	2.55	4.83	3.89	3.39			

*Note.*  $N = 123$ . <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$

With regard to relations between characteristics of participants and the professional development programs and implementation strategies, participants who had been in their role as a director of professional developmental program longer indicated more use of alignment ( $r = .20, p < .05$ ), continuous improvement ( $r = .19, p < .05$ ), and coordination ( $r = .22, p < .05$ ) strategies. As would be expected, programs that used continuous improvement strategies spanned over a greater period of time ( $r = .27, p < .05$ ), had participants engaged in activities for more hours ( $r = .28, p < .01$ ), and

continued beyond one year ( $r = .19, p < .05$ ). Programs that required attendance used more continuous improvement ( $r = .19, p < .05$ ) and teacher involvement strategies ( $r = .25, p < .01$ ).

Programs that used classroom teachers or outside consultants to lead activities used higher levels of continuous improvement ( $r = .28$  and  $.19$ , respectively,  $p < .05$ ) and alignment ( $r = .30$  and  $.23$ , respectively,  $p < .01$ ) strategies. Using classroom teachers also related to increased use of teacher involvement strategies ( $r = .20, p < .05$ ). Higher levels of teacher involvement were related to programs in districts with lower levels of student enrollment ( $r = -.22, p < .01$ ) and greater number of hours in which participants were engaged in program activities ( $r = .18, p < .04$ ). Higher use of coordination was related to the use of state staff ( $r = .26, p < .01$ ) and outside consultants ( $r = .23, p < .05$ ), and had more teachers participate in the program ( $r = .18, p < .05$ ).

Programs that targeted all teachers spanned a longer period of time ( $r = .19, p < .05$ ), had more sessions ( $r = .19, p < .05$ ), required attendance ( $r = .32, p < .01$ ), did not include a competitive application process ( $r = -.26, p < .01$ ), and used classroom teachers to lead activities ( $r = .20, p < .05$ ). Programs that were conducted during teachers' contractual time were not required ( $r = -.31, p < .01$ ) and used district staff ( $r = .21, p < .05$ ) and did not use outside consultants or experts ( $r = -.19, p < .05$ ) to lead activities. Programs that had a mentor component had fewer teachers participate in the program ( $r = -.19, p < .05$ ).

**Research Question 1: Do the implementation strategies of alignment, continuous improvement, coordination, and teacher involvement relate to the perceived success of the professional development program?**

Bivariate correlations were run between perceived program success and the four implementation strategies (Table 5). Perceived program success was positively correlated with alignment ( $r = .20, p < .05$ ) and continuous improvement ( $r = .19, p < .05$ ), although these correlations were low.

Table 5

*Bivariate Correlation between Perceived Program Success and the Four Implementation Strategies*

	Perceive Program Success
	<i>r</i>
Alignment	.20*
Continuous Improvement	.19*
Coordination	.04
Teacher Involvement	.04

*Note.*  $N = 123$ . \* $p < .05$

**Research Question 2: What strategies, if any, are the strongest independent predictors of perceived program success as compared to the other implementation strategies?**

An ordinary least-squares (OLS) multiple regression was run to test research question 2. Perceived program success was regressed on the four implementation strategies. The four implementation strategies were entered simultaneously. This analysis, therefore, tested the relation between each implementation strategy and program success, accounting for the other strategies.

Results from this multiple regression analysis are presented in Table 6. Of the four implementation strategies, continuous improvement emerged as a significant predictor of perceived program success,  $b = .04$ ,  $SE = .02$ ,  $t = 2.01$ ,  $p < .05$ . That is, greater use of continuous improvement strategies uniquely predicted higher levels of perceived program success. Although a significant correlation between alignment and perceived program success was found, when accounting for the other implementation strategies, alignment predicted program success only at the trend level,  $b = .06$ ,  $SE = .03$ ,  $t = 1.84$ ,  $p = .07$ , suggesting it is not a unique predictor of program success. Neither coordination nor teacher involvement predicted program success.

Table 6

*Implementation Strategies as Predictors of Perceived Program Success: Results from Multiple Regression Analysis*

	Perceived Program Success				
	Unstandardized Estimate		Standardized Estimate	<i>t</i>	<i>p</i>
	B	<i>SE</i>	$\beta$		
Constant	3.44	.53		6.47	.00
Alignment	.06	.03	.17	1.84	.068
Continuous Improvement	<b>.04</b>	<b>.02</b>	<b>.20</b>	<b>2.01</b>	<b>.047</b>
Coordination or Multiple Depts.	.01	.02	.03	.31	.76
Teacher Involvement	-.02	.03	-.07	.68	.50

*Note.* *N* = 123

**Research Question 3: Is the relation between alignment and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?**

In order to test for moderation, interactions between alignment and each moderator variable were tested in a linear multiple regression. First, following guidelines by Aiken and West (1991), an interaction variable was created by multiplying alignment with the moderator variable, participation type. Second, a linear regression was run in which perceived program success was regressed on alignment, participation type, and the interaction variable created between alignment and participation type. A significant

interaction effect would indicate that the relation between alignment and perceived program success is different for programs that targeted all teachers as compared to programs that targeted a subgroup cohort.

The moderators of type of training and mentor component were tested in a similar fashion. Each moderator was tested in a separate regression equation, resulting in three regressions. The results from these three regressions are presented in Table 7.

Table 7

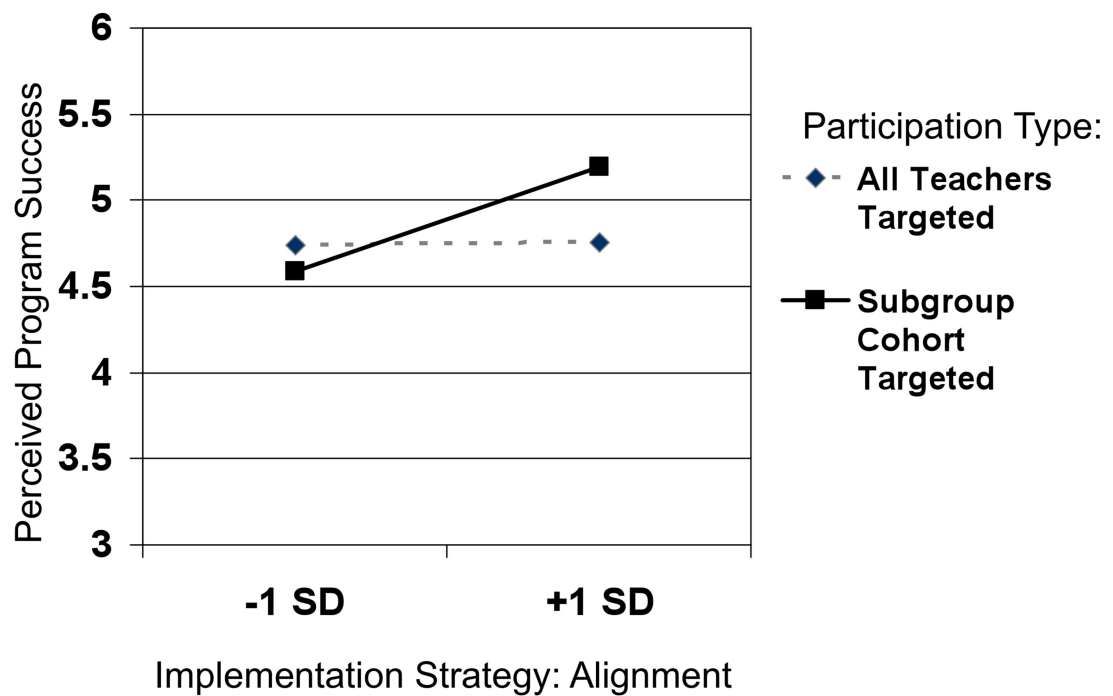
*Relation between Perceived Program Success and Alignment as Moderated by Participation Type, Type of Training, or Mentor Component*

	Dependent Variable: Perceived Program Success								
	Model 1: Participation Type as Moderator			Model 2: Type of Training as Moderator			Model 3: Mentor Component as Moderator		
	b	SE	t	b	SE	t	b	SE	t
Constant	2.96	.65	4.56**	3.54	.59	5.98**	3.02	.68	4.47**
Alignment	.12	.04	2.99**	.08	.04	2.17*	.10	.04	2.42*
Moderator	1.72	1.00	1.73 <sup>†</sup>	.56	1.14	.49	1.59	1.00	1.59
Alignment X Moderator Interaction	-.12	.06	1.91 <sup>†</sup>	-.04	.07	.49	-.008	.06	1.34

*Note.*  $N = 123$ . <sup>†</sup> $p < .10$ , \* $p < .05$ , \*\* $p < .01$

Across all models, there was a significant main effect for alignment, indicating that higher levels of alignment strategies are related to higher levels of program success. The relation between alignment and perceived program success did not vary as a function

of whether (a) training occurred during teachers' contractual time or during "extra hours" sessions or (b) there was a mentor component. However, there was a trend for an interaction between alignment and participation type. A graph of this interaction is presented in Figure 2. This trend suggests that the implementation strategy of alignment was related to higher levels of program success only for professional development programs that target a subgroup cohort.



*Figure 2.* Relation between Program Success and Alignment as Moderated by Participation Type

**Research Question 4: Is the relation between continuous improvement and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?**

To test for moderation, interactions between continuous improvement and each moderator variable were tested in a linear multiple regression. As before, first interaction variables were created between continuous improvement and each of the three moderator variables. Next, a multiple regression was run in which perceived program success was regressed onto continuous improvement, one of the moderator variables, and the interaction between continuous improvement and the moderator variable. Three separate regression equations were run to test each of the three moderator variables.

Results from the three multiple regressions testing participation type, type of training, and mentor component as moderators of the relation between continuous improvement and perceived program success are presented in Table 8. Overall, the results indicated a main effect for continuous improvement; that is, higher levels of continuous improvement strategies predicted higher levels of program success. This relation did not vary as a function of (a) whether all teachers or a subgroup cohort were targeted, (b) whether the program took place during teachers’ contractual time vs. in “extra hours” sessions, or (c) whether there was a mentor component to the professional developmental program.



Table 8

*Relation between Perceived Program Success and Continuous Improvement as Moderated by Participation Type, Type of Training, or Mentor Component*

	Dependent Variable: Perceived Program Success								
	Model 1: Participation Type as Moderator			Model 2: Type of Training as Moderator			Model 3: Mentor Component as Moderator		
	b	SE	t	b	SE	t	b	SE	t
Constant	4.32	.28	15.52**	4.16	.27	15.32**	4.42	.30	14.78**
Continuous Improvement Moderator	.05	.02	2.14*	.05	.02	2.56*	.02	.03	.77
Continuous Improvement X Moderator Interaction	.44	.47	.94	.61	.46	1.31	.13	.46	.29
Continuous Improvement X Moderator Interaction	-.05	.04	1.37	-.05	.04	1.19	.01	.04	.23

*Note.*  $N = 123$ . \* $p < .05$ , \*\* $p < .01$

**Research Question 5: Is the relation between coordination and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?**

Next, the interaction between coordination and each of the other three moderator variables was tested to examine whether the relation between this implementation strategy and perceived program success varied as a function of whether (a) all teachers vs. a subgroup cohort were targeted for participation, (b) the program was conducted during teachers’ contractual time or during “extra hours” session, or (c) there was a mentor component. First, interaction terms were created between coordination and each

moderator variable. Second, multiple regressions were run in which program success was regressed on coordination of multiple departments, one of the moderators, and the interaction variable between coordination and the moderator. Three separate regressions were run, one for each moderator. The results of these regression analyses are presented in Table 9. There were no significant main effects or interaction effects.

Table 9

*Relation between Perceived Program Success and Coordination as Moderated by Participation Type, Type of Training, or Mentor Component*

	Dependent Variable: Perceived Program Success								
	Model 1: Participation Type as Moderator			Model 2: Type of Training as Moderator			Model 3: Mentor Component as Moderator		
	b	SE	t	b	SE	t	b	SE	t
Constant	4.73	.25	19.27**	4.77	.22	21.71**	4.63	.26	17.51**
Coordination of Multiple Depts. Moderator	.01	.03	.53	.00	.03	.08	.00	.03	.02
Coordination of Multiple Depts. X Moderator Interaction	-.01	.04	.31	.00	.05	.09	.01	.04	.24

Note.  $N = 123$ . \*\* $p < .01$

**Research Question 6: Is the relation between teacher involvement and perceived program success moderated by the scope of teachers targeted (all teachers or subgroup cohort), type of training (“pull out” vs. “extra hours”), or whether the program included a mentor component?**

To test for moderation, interactions between teacher involvement and each of the moderator variables were tested in a linear multiple regression. As before, first interaction variables were created between teacher involvement and each of the three moderator variables. Next, a multiple regression was run in which perceived program success was regressed onto teacher involvement, one of the moderator variables, and the interaction between teacher involvement and the moderator variable. Three separate regression equations were run to test each of the three moderator variables.

Results from the three multiple regressions testing participation type, type of training, and mentor component as moderators of the relation between teacher involvement and program success are presented in Table 10. There were no significant main effects or interaction effects.

Table 10

*Relation between Perceived Program Success and Teacher Involvement as Moderated by Participation Type, Type of Training, or Mentor Component*

	Dependent Variable: Perceived Program Success								
	Model 1: Participation Type as Moderator			Model 2: Type of Training as Moderator			Model 3: Mentor Component as Moderator		
	b	SE	t	b	SE	t	b	SE	t
Constant	4.79	.18	26.65**	4.56	.19	24.66**	4.60	.20	22.83**
Teacher Involvement Moderator	.02	.03	.55	.05	.03	1.58	.01	.04	.20
Teacher Involvement X Moderator Interaction	-.01	.28	.04	.38	.28	1.38	.30	.27	1.12
Teacher Involvement X Moderator Interaction	.03	.05	.52	-.08	.05	-1.56	.00	.05	.04

Note.  $N = 123$ . \*\* $p < .01$

### Post-hoc Analyses

**Duration.** Given recent research on the importance of duration for professional development success, a composite variable was created to represent the duration of the program on which participants reported. Specifically, the following items were standardized and added to create a duration composite: length of time the program spanned, number of sessions during the first year of the program, number of hours program participants were engaged in the activity during the first year, and whether the program continued beyond the first year. This composite was significantly correlated with program success ( $r = .18, p < .05$ ).

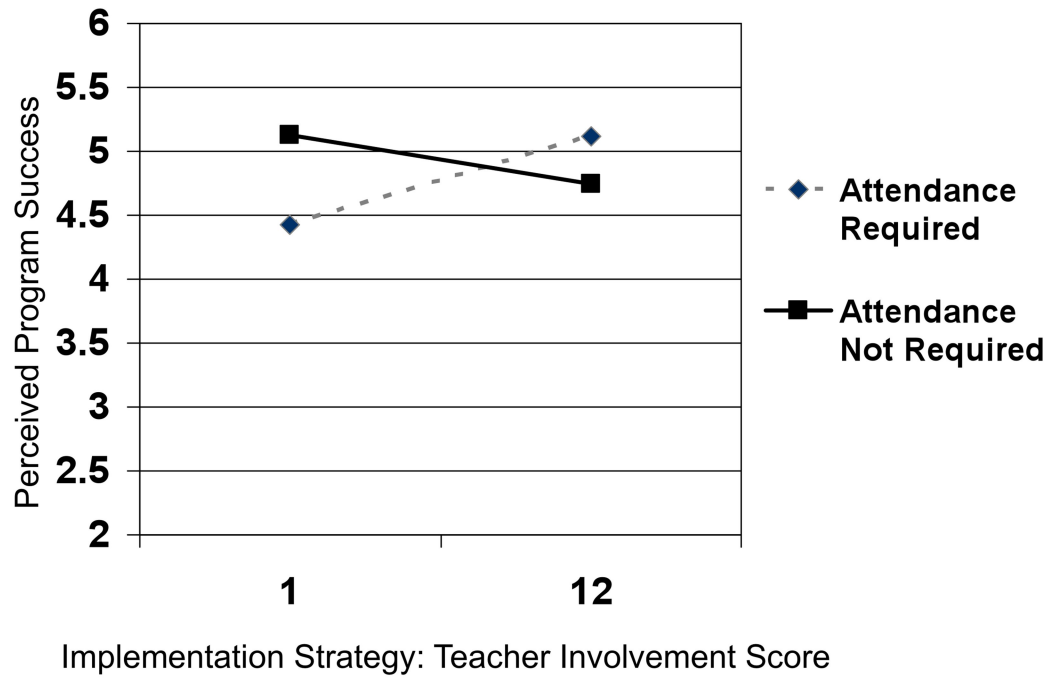
*Other program characteristics as moderators.* As reported earlier, two characteristics of the professional developmental programs were correlated with Program Success: whether participation was required and whether there was a competitive application processes. These two specific variables were tested as moderators of the association between the implementation strategies and perceived program success. The results testing required attendance as a moderator are presented in Table 11. A significant interaction emerged between teacher involvement and whether attendance was required in predicting perceived success. This interaction is plotted in Figure 3. Teacher involvement was positively related to program success when attendance was required. However, when program attendance *was not* required, then teacher involvement was negatively related to program success.

Table 11

*Required Attendance as a Moderator of the Relation between Perceived Program Success and Implementation Strategies*

	Dependent Variable: Perceived Program Success							
	Implementation Strategy Included in Model							
	Model 1: Alignment		Model 2: Continuous Improvement		Model 3: Coordination of Multiple Depts.		Model 4: Teacher Involvement	
	b (SE)	t	b (SE)	t	b (SE)	t	b (SE)	t
Constant	4.83 (.93)	5.20**	4.59 (.33)	13.72**	4.83 (.31)	15.82**	5.17 (.18)	28.34**
Implementation Strategy	.01 (.06)	.23	.04 (.03)	1.46	.02 (.03)	.77	-.04 (.04)	.91
Required Attendance	-1.62 (1.09)	1.48	-.46 (.43)	1.06	.04 (.42)	.10	-.81 (.26)	3.10**
Implementation Strategy X Required Attendance Interaction	.08 (.07)	1.15	.00 (.03)	.05	-.04 (.04)	1.07	<b>.10 (.05)</b>	<b>2.02*</b>

Note. N = 123. Required attendance was coded 0 = no, 1 = yes. \*p < .05, \*\*p < .01.



*Figure 3.* Relation between Teacher Involvement and Perceived Program Success as Moderated by whether Program Attendance was Required

## CHAPTER 5: DISCUSSION

### Summary of Findings

This study found that perceived program success was positively correlated with the implementation strategies of alignment and continuous improvement, although these correlations were low, bordering on negligible. In other words, this study found that the more program directors reported using these strategies, the higher they reported the perceived success of the professional development program directed.

However, when all four select implementation strategies were considered together, only continuous improvement continued to predict perceived program success. Therefore, this study found that there is something about the particular implementation strategy of continuous improvement that uniquely predicted success, even when the other select implementation strategies were accounted for. This result is tempered, however, by the very low strength of this relation found; one would expect the perceived program success rating to go up by only .04 points for every 1-unit change in continuous improvement.

This study did not find evidence that the relation between continuous improvement and perceived program success was moderated by three characteristics of professional development programs: a program's particular participation type, the type of training, or the presence of a mentor component. The findings suggest a main effect of continuous improvement on perceived program success, regardless of the characteristics



of the individual programs examined as moderator variables in this study. This study also found a trend that alignment predicted success for programs that targeted a subgroup cohort; however alignment was not related to program success for programs that targeted all teachers.

This study did not find support that the implementation strategies of coordination or teacher involvement predict perceived program success. Also, no interaction effects were found, demonstrating that these two implementation strategies also do not predict perceived program success in programs that feature a certain program characteristics. These strategies may predict success in programs that have characteristics other than those examined by this study. For example, post-hoc analyses found that the implementation strategy of teacher involvement did predict perceived program success, but only when teacher attendance at the program was required. When attendance was not required and the implementation strategy of teacher involvement was used, then perceived program success was lower.

The study also produced findings that are descriptive of the diverse group of participants that responded on the survey instrument ( $N = 123$ ). The majority of professional development programs reported continued beyond the first year and required teacher participation in the program. On average, programs had 11 sessions spanning 43 hours, and were most often led by district staff and outside experts or consultants.

When the demographics of the program directors themselves were analyzed, only one significant correlation was found with perceived program success; the longer participants were in a role in which they held a position directing professional development programs the higher they rated their perceived program success. A trend

emerged that participants whose daily responsibility was at the multi-state level reported significantly higher levels of perceived program success compared to participants whose daily assignment was to an individual school responsibility.

Given recent research on the importance of duration for professional development success, a post-hoc analysis including the creation of a composite variable to represent the duration of the program on which participants reported showed that duration was significantly correlated with program success.

### **Explanation of Findings**

This study did not identify strong correlations between the selected implementation strategies and perceived program success. The findings, therefore, do not yield a guaranteed formula that directors of professional development programs can apply in order to most efficiently prioritize time and resources during the planning and implementation of these programs.

This study did, however, identify a weak, but significant, relation between two of the implementation strategies (alignment and continuous improvement) and the perceived success of the program, as well as weak evidence that one of the implementation strategies (continuous improvement) uniquely related positively to the perceived success of the program.

Descriptive features of the programs participants reported on also were explored in post- hoc analyses. These analyses showed a relation between teacher involvement in the planning and implementation of the professional development program and the success of that program, provided teacher attendance in the program was required. Duration was also tested as a feature of professional development programs and was

found to have a significant relation with the perceived success of the program.

These results, however modest, that resulted from the post-hoc analyses can be explained as consistent with the weak but significant correlations that were identified between the implementation strategies of alignment and continuous improvement and perceived program success. Having teachers involved in the planning and implementation of a program that teaching staff are required to attend would logically benefit the alignment of the program with identified goals of the school or district. Also, a relatively high duration of the program would serve the purposes of continuous improvement efforts, the one implementation strategy that was found to be uniquely predictive of program success.

### **Findings as Related to Current Research**

The findings of this study, however limited in strength, are consistent with several components of coalescence in the literature on professional development. Recent scholarship has identified “a consensus on the main features of professional development that have been associated with changes in knowledge, practice, and, to a lesser extent, student achievement” (Desimone, 2011, p.68). Three of these five “consensus” features are active learning, coherence, and collective participation, and are synonymous with implementation strategies examined in this study.

*Active learning* was described as teachers having “opportunities to get involved, such as observing and receiving feedback, analyzing student work, or making presentations, as opposed to passively sitting through lectures” (Desimone, 2011, p.70). This is a definition directly consistent with the items used to assess the implementation strategy of continuous improvement in the present study. *Coherence* was described as

professional development programs that are “consistent with other professional development, with their knowledge and beliefs, and with school, district, and state reforms and policies” (Desimone, p.70). This is a definition that embodies the index compiled for the implementation strategy of alignment in the present study. *Collective participation* was described as reflective participation by teachers in “professional development activities together to build an interactive learning community” (Desimone, p.70). This definition closely parallels several survey items that made up the index for teacher involvement in the present study.

Additionally, this recent consensus in the literature emphasizes the importance of *duration*, which is described as professional development programs that are “spread over a semester and should include 20 hours or more of contact time” (Desimone, 2011, p.70). The identification of this specific definition of duration in the literature motivated the post-hoc analyses conducted by creating a composite variable to represent the duration of the program on which participants reported. This composite was significantly correlated with program success.

These results are consistent with other studies that have recently yielded stronger results in relation to this emphasis on duration as key component of program success. This group of recent studies includes Yoon, Duncan, Lee, Scarloss, and Shapley’s (2007) findings that programs with a minimum of 14 hours of professional development resulted in significant effects on student achievement, with an average effect size of .54. This growing consensus would also include other recent studies that showed significant student outcomes from programs that included 21 hours of professional development plus

three coaching visits (Davidson, Fields, & Yang, 2009) and 44 hours of programming conducted remotely via the internet (Jackson et al., 2006).

### **Implications for Theory**

The primary implication this study for theory lies in the one small brick it represents in a growing foundation for a mandate to school administrators and teacher leaders to heed the recent impressive work of John Hattie. Hattie (2009) compiled "a total of about 800 meta-analyses, which encompassed 52,637 studies, and provided 146,142 effect sizes [...] these studies are based on many millions of students" (Hattie, 2009, p.15). Hattie scoured this body of research in an attempt to determine the effect size of a litany of popular teaching methods and interventions. He then highlighted methods and interventions that can attain what he called "desired effects" with  $d = 0.40$  or higher and are therefore attributable to the specific interventions or methods being researched, not just the developmental progress of the child or typical teacher effects (Hattie, 2009). Hattie underscored the sobering reality that many of the methods and interventions that gain traction in education reform movements are not supported by an effect size strong enough to impact student learning beyond typical development or typical teacher effects.

The results of the present study, while weak, are supportive of Hattie's work and an increasing body of evidence in the literature that professional development programs fall prey to a similar fate as the instructional initiatives examined by Hattie. Directors of professional development programs should take the lesson from this growing body of research that indicates the best programs are aligned to focused goals, buttressed by continuous improvement efforts, and sustained over a relatively long duration. Programs that are not, too often fall into the effect size categories Hattie describes as

“developmental” or “teacher” effects; in other words they do not benefit students any more than if the professional development program never occurred.

Moreover, the worst programs can actually yield effect sizes below zero, meaning that the student achievement was negatively impacted by their implementation. This could occur because professional development programs most often result in teachers being taken out of the classroom to receive training. Therefore, there is an opportunity cost of having teachers out of their classrooms for the time of the training. If this opportunity cost is not recouped by powerful professional development that ultimately increases student achievement, the professional development program can actually yield a negative impact on student achievement.

Unfortunately, this scenario, however nightmarish, may not be uncommon. Kessen and Henderson (2010) noted “Staff development of teachers is more often like a fast-food cafeteria than a satisfying full course meal: offerings might include isolated curriculum initiatives, the latest teaching fad, or increasingly, how to interpret test scores and teach to the test.” The current study is supportive of a growing body of evidence that calls to inoculate our programs from this worst-case scenario by prescribing professional development implementation theories that emphasize alignment, continuous improvement, teacher involvement, and high duration.

### **Implications for Practice**

The results of this study do not conclusively identify a formula of implementation strategies for professional development that represents a guarantee of program success. However, the weak yet significant finding that continuous improvement efforts uniquely predicted perceived success of professional development programs adds to a larger body

of research that emphasizes the importance of mechanisms that require the director to track the impact of the program on teachers' actual instructional practices in the classroom.

The specific recommendations for practice can best be pulled from the survey items the participants responded to identifying the continuous improvements they made that were later correlated with professional development program success. Specifically, participants who scored highly in this index described professional development programs that asked teacher participants to participate in preliminary experiences in preparation for the professional development activity, such as reading materials or meeting to discuss learning needs prior to attending the program sessions. They also described programs that included components that gave participants the opportunity to try out what they learned in their classroom and obtain feedback or guidance, usually in the form of a lesson that was observed by another teacher in the training who then provided feedback. Participants who scored highly in this area also described professional development programs that asked the teachers being trained in the program to complete evaluations frequently over the course of the program and use the information from these evaluations to plan and revise subsequent sessions.

Program designs that are planned so that they emphasize teacher reflection and utilize teacher feedback to optimize the training may seem to be common sense, but as Schmoker (2006) succinctly summarized, current practice is too often one-way, pays little attention to continuous improvement, and has seemingly “struck a strange bargain: if [teachers] sit through our workshops, we promise not to make any real claims on [their] time or practice” (p. 26). If this study can contribute to an increasingly persuasive

argument to designers of professional development programs that their trainings must demand teacher implementation, self-reflection, and efforts to continually improve practice, it will have contributed value to scholarship on the subject.

### **Limitations of the Findings**

This study found that perceived program success was positively correlated with the implementation strategies of alignment and continuous improvement. However, these correlations were low, bordering on negligible (alignment:  $r = .20$ ; continuous improvement:  $r = .19$ ).

The limited strength of these findings may be a result of the relatively small number of participants ( $N = 123$ ). Also, the diversity of the data set, while valuable in identifying a broad range of descriptive characteristics of programs, may have been detrimental to the attempt to find strong correlations, as the diverse types of programs may have muted the results more than if directors of similar programs (similar size schools, number of participants, scope, and goals) were surveyed. In other words, the convenience sample that was employed to capture a diverse sample of participants also netted a diverse sample of programs.

Additionally, implementation strategies and program success were based on self-reports from program directors; therefore no objective measures of how participant teachers or their students responded to the professional development and the program success were collected. Also, any significant relations between implementation strategies and program success that were found may have resulted due to mono-reporter bias.



## **Recommendations for Future Research**

The limitations of the study provide guidelines for future directions. Future studies could seek to gather better evidence on the implementation of coordination and teacher involvement and design methodologies that attempt to isolate their impact on professional development program success. Prior studies have identified these two strategies as important in successful implementation for professional development programs but have failed to establish their importance relative to other implementation strategies. This study also failed to establish their place in this rank order.

Also, no interaction effects were found with regard to these two implementation strategies, demonstrating that they also do not predict perceived success in programs that feature a certain characteristics (e.g., scope of teachers targeted, type of training, and whether the professional development program included a teacher mentor component). These implementation strategies may predict success in programs that have characteristics other than those examined by this study. Future studies, therefore, should examine other program characteristics as moderator variables. Some potential components of successful programs that emerged in the post-hoc analyses and may be considered for future research would include duration of the professional development program, mandatory or voluntary attendance, and the use of a competitive application for participation. Most interestingly, perhaps, was the role of required teacher attendance. A significant interaction emerged wherein teacher involvement was positively related to program success when attendance was required. However, when program attendance *was not* required, teacher involvement was negatively related to Program Success. This result would seem to suggest that involving teachers in the planning of professional

development program is especially important when the program designed will feature required participation by the teachers in a given school. Additional research might further test this interaction and provide insight regarding the processes that account for this result.

Another opportunity for further research would lie in a study that controlled for program type. As implementation strategies were the focus of this study, controlling for program type would have been ideal, but proved impossible due to the sampling method. A future study that replicated this study but utilized a different sampling method that allowed for pre-screening of respondents in order to control for the type of professional development program reported on may yield more impactful results. An even more compelling opportunity would lie in a replication of this study with regard to the implementation strategies used by different program directors for the same “packaged” professional development program. Such a study would further control for variations of the type of professional development program in order to better learn about the prediction of various implementation strategies on the success of the same program content.

Finally, this study was limited by the fact that implementation strategies and program success were based on self-reports from program directors; therefore no objective measures of how participant teachers or their students responded to the professional development and the program success were collected. Prior research has demonstrated that developing objective measures to evaluate the effect of a given professional development program on student learning has proven to be a significant challenge. However, a study that found a way to make this link successfully and then analyzed the prediction of the implementation strategies used in the program studied

would provide a powerful step forward for the body of research on implementation strategies for professional development programs. Such findings could be invaluable to practitioners, as most select valuable professional development programs to implement, but struggle in the process of executing a program impactfully.

### **Summary**

Reeves (2008) compiled extensive research on whether the depth of the implementation of a given reform is correlated with indicators of student achievement. This study found that there was a correlation, but that it was not linear. In the discussion of the results, Reeves argues that one of the biggest challenges reformers face is "the myth of linearity," under which educators assume that there is a one-to-one correlation between how deeply an initiative is implemented and how much it impacts student results (Reeves, p.39). Reeves noted that school administrators too often fall prey to the assumption that minor implementation will equal minor achievement gains and moderate implementation will result in moderate achievement gains. Instead, the Reeves (2008) study indicated that the impact of implementation is nonlinear and that even moderate gains of student achievement are only realized once a reform has reached an extensive level of implementation. This counterintuitive finding further affirms research that demonstrates only deeply implemented programs are impactful and that brief seminars on important topics may be useless or even detrimental to efforts to increase student achievement.

Directors of professional development programs would benefit from disabusing themselves of Reeves' "myth of linearity" with regard to the implementation of professional development programs. Although the findings of the current study are not

strong enough to represent a clarion call to action regarding deep and strategic implementation, they do contribute to a growing body of evidence indicating that many professional development programs fail to be successful not because they were poor programs, but because they were poorly implemented.

Directors of professional development programs are entrusted with a sacred and vital role in the school change process: actual communication and implementation of the professional learning and subsequent change in pedagogy. This weighty responsibility demands that the administrators and teacher leaders in these roles invest even more effort into planning and executing effective implementation as they do in selecting the professional development program itself. This requires dedicating the time and resources necessary to involve teachers in the planning of programs that are sustained and well aligned to the goals of the initiative that they are designed to implement. This and other studies also demonstrated the crucial role that continuous improvement efforts play on the success of the program. The best professional development programs do not lose focus after selecting exciting topics for professional learning, but rather make this their base camp from which to launch themselves into a prolonged campaign to maintain an even greater emphasis on the evaluation, reflection, and improvement of a sustained implementation.

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## Appendix A

Data Collection Instrument

ID#

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### PROFESSIONAL DEVELOPMENT PROGRAM IMPLEMENTATION SURVEY

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**The survey you are about to complete is designed to provide a detailed description of the most recent professional development program you were involved in directing. Have you been involved in directing a professional development program in the last five years?**

***CHECK ONE BOX BELOW:***

- Yes  
 No. . . . Please do not complete the survey.

#### SECTION I: BACKGROUND

1. At the end of this school year, how many years will you have held a position in which you are involved in directing professional development programs?

***WRITE THE NUMBER OF YEARS IN THIS BLANK SPACE:***

---

2. Is your current daily assignment to an individual school, district-wide, county-wide, state-wide, or multi-state responsibility?

***CHECK ONE BOX BELOW***

- individual school  
 district-wide  
 county-wide  
 state-wide  
 multi-state

3. In what state is your institution located?

**WRITE THE NAME OF THE STATE IN THIS BLANK SPACE:**

\_\_\_\_\_

4. In your current daily assignment, how many hours per day are you assigned to teach a class?

**CHECK ONE BOX BELOW**

- 0
- 1
- 2
- 3
- 4-6

5. How many years during your career have you spent the majority of your daily assignment (more than half of your day) as a classroom teacher?

**CHECK ONE BOX BELOW**

- 0-2
- 3-5
- 6-10
- 11-15
- 16-45

6. What is your district or agency's student enrollment?

**CHECK ONE BOX BELOW**

- 1-500
- 501-1,500
- 1,501-5,000
- 5,001-10,000
- 10,001-20,000
- 20,001-50,000
- 50,001-100,000
- 100,001-500,000
- greater than 500,000

## SECTION II : SUCCESS OF THE PROGRAM

For the remaining questions, please respond with regard to the single most recent professional development program you were involved in directing.

7. How successful would you rate the progress of the program toward its identified goals?

**CIRCLE THE NUMBER BELOW THAT IS CLOSEST TO YOUR RATING**

Not Successful						Very Successful
1	2	3	4	5	6	

## SECTION III : DESCRIPTION OF THE PROGRAM

8. In the first year of the professional development program, how many teachers participated in the program?

**CHECK ONE BOX BELOW**

- 1-10
- 11-20
- 21-30
- 31-50
- 51-75
- 76-100
- 101-150
- greater than 150

9. Over what period of time was the program spread, including the main activity and any formal preliminary or follow-up sessions?

**CHECK ONE BOX BELOW**

- 1 Day
- 1 Week
- 1 – 4 Weeks
- 1 – 3 Months
- 4 – 6 Months
- 7 – 12 Months

10. In the first year of the professional development program, including the main activity and any preliminary activities or formal follow-up sessions, how many sessions were held as part of this professional development program?

**WRITE THE NUMBER OF SESSIONS IN THIS BLANK SPACE:**

\_\_\_\_\_

11. In the first year of the professional development program, including the main activity and any preliminary activities or formal follow-up sessions, approximately how many hours were participants engaged in this activity overall?

**WRITE THE APPROXIMATE NUMBER OF HOURS THIS BLANK SPACE:**

\_\_\_\_\_

12. Did this professional development program continue beyond the first year of implementation?

**CHECK ONE BOX BELOW**

- Yes  
 No

13. Were participants required to participate in the program?

**CHECK ONE BOX BELOW**

- Yes  
 No

14. Did participants go through a competitive application process to participate in this program?

**CHECK ONE BOX BELOW**

- Yes  
 No

15. Who led the activities?

**CHECK ALL BOXES BELOW THAT APPLY**

- Classroom teacher  
 District staff  
 State staff  
 Outside expert or consultant  
 Other: (please specify) \_\_\_\_\_

## SECTION IV: ALIGNMENT

16. To what extent was the professional development program:

**CIRCLE ONE NUMBER FOR EACH ITEM BELOW THAT IS CLOSEST TO YOUR RATING**

	<u>Not at all</u>				<u>Great Extent</u>
a. Consistent with your district or school's plan to change practice	1	2	3	4	5
b. Based explicitly on what participants learned in earlier professional development experiences	1	2	3	4	5
c. Designed to support state or district standards / curriculum frameworks	1	2	3	4	5
d. Designed to support state or district assessments	1	2	3	4	5

## SECTION V: CONTINUOUS IMPROVEMENT

17. Were participants asked to participate in any preliminary experiences to prepare for the activity?

**CHECK ONE BOX BELOW**

Yes

No



18. What did the preliminary experiences include?

**CHECK ALL BOXES BELOW THAT APPLY**

- Reading materials were assigned to be completed prior to the start of the activity
- Met in preliminary session(s) to help plan or shape the activity
- Attended lectures or discussions to learn about relevant underlying ideas
- Prepared materials from teacher's classroom to bring to the activity
- Met individually with staff to determine the appropriateness of the activity for their needs
- Other (specify) \_\_\_\_\_

19. As part of the professional development program, including any preliminary and follow-up sessions, did participants have the opportunity to try out what they learned in their classroom and obtain feedback or guidance?

**CHECK ONE BOX BELOW**

- Yes
- No

20. How did the professional development program help participants use new skills in their classroom?

**CHECK ALL BOXES BELOW THAT APPLY**

- Practiced under simulated conditions, with feedback
- Received coaching or mentoring in the classroom
- Met formally with other activity participants to discuss classroom implementation
- Participant's teaching was observed by the activity leader(s) and feedback was provided
- Participant's teaching was observed by other participants and feedback was provided
- Communicated with the leader(s) of the activity concerning classroom implementation
- Participant's students' work was reviewed by participants or the activity leader
- Met informally with other participants to discuss classroom implementation
- Developed curricula or lesson plans, which other participants or the activity leader reviewed
- Other (specify) \_\_\_\_\_

21. How was the program evaluated (if evaluated)?

**CHECK ALL BOXES BELOW THAT APPLY**

- Participants completed a survey
- Participants were interviewed to provide feedback
- The session was observed by an evaluator
- Participant's classroom was observed
- Student outcomes in participant's classroom were evaluated
- Some other form of evaluation took place

(specify) \_\_\_\_\_

- No discernible evaluation took place (Please skip to Question 24)

22. Were evaluations conducted at the end of each activity or at the end of the entire program only?

**CHECK ONE BOX BELOW**

- At the end of each activity
- At the end of the entire program only (Please skip to Question

24)

23. Was the data from the evaluations of individual activities used to plan or revise subsequent activities in the program?

**CHECK ONE BOX BELOW**

- Yes
- No

24. During the first school year of the professional development program, how many complete class periods or lessons were participants asked to observe other participant teachers to observe skills addressed by the program?

**CHECK ONE BOX BELOW**

- Not Part of Program
- 1
- 2
- 3
- 4-6
- 7 or more

## SECTION VI : COORDINATION OF MULTIPLE DEPARTMENTS

25. How many different school or district departments contributed staff to the planning of the professional development program?

**CHECK ONE BOX BELOW**

- 1
- 2
- 3
- 4
- 5 or more

26. How many different school or district departments contributed staff to implementation and management of the professional development program?

**CHECK ONE BOX BELOW**

- 1
- 2
- 3
- 4
- 5 or more

27. How many different school or district department budgets contributed funds to pay for the professional development program?

**CHECK ONE BOX BELOW**

- 1
- 2
- 3
- 4
- 5 or more

28. Other than regular classroom teachers, did any of these types of staff participate in this activity?

**CHECK ALL BOXES BELOW THAT APPLY**

- Resource teachers (including special education and Title I teachers)
- Paraprofessionals (e.g., teacher aides)
- Administrative school staff (e.g., principals, department chairs)
- Staff from the district and/or state
- Other (please specify) \_\_\_\_\_
- No staff other than classroom teachers

## SECTION VII: TEACHER INVOLVEMENT

29. During the first school year of the professional development program, did full-time classroom teachers participate in the planning of the professional development activity in any of the following ways?

**CHECK ALL BOXES BELOW THAT APPLY**

- Participated in a formal district wide planning committee
- Consulted informally on district wide professional development priorities
- Participated in a district wide needs assessment
- Participated in a formal school based planning committee
- Consulted informally on school based professional development priorities
- Participated in a school based needs assessment
- Other (specify) \_\_\_\_\_
- Did not participate in planning professional development

30. During the first school year of the professional development program, how many teachers participated in the planning of the program's activities?

**CHECK ONE BOX BELOW**

- Not Part of Planning
- 1
- 2
- 3
- 4-6
- 7 or more

31. Did the professional development program have, as part of its structure, a teacher participant "advisory" or "steering" committee to provide ongoing feedback throughout the program?

**CHECK ONE BOX BELOW**

- Yes
- No

## SECTION VIII: PARTICIPANTS TARGETED

32. Which of the following characterize the participants in this activity?

**CHECK ONE BOX BELOW**

- Individual teachers as volunteers
- Teachers as representatives of their departments, grade level, or school
- All teachers in department or grade-level groupings
- All teachers in a school or set of schools
- Other configurations (specify) \_\_\_\_\_

## SECTION IX: TRAINING TYPE

33. How was the training scheduled to allow for teacher participation?

**CHECK ONE BOX BELOW**

- A majority of the sessions were scheduled during the teacher's contractual time, with a substitute teaching their classes while they attended trainings
- A majority of the sessions were scheduled during "extra hours" outside of the contractual day (after school or on Saturdays)

34. For "extra hours" sessions, were teachers paid for their time in the form of an hourly rate or flat stipend?

**CHECK ONE BOX BELOW**

- Yes
- No

## SECTION X: MENTOR COMPONENT

35. Did the professional development program feature a component that paired less experienced teachers with more experienced teachers to receive mentoring, coaching, lead teaching, or observation, in a one-on-one situation, usually in the classroom?

**CHECK ONE BOX BELOW**

- Yes
- No