BEST PRACTICES OF EFFECTIVE PROFESSIONAL DEVELOPMENT TRAINING
FOR K-3 READING TEACHERS

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Abstract

Professional development has become the target for change in order to improve reading progress for students in a time of school accountability and researched-based reading instruction (Chard, 2004). It is evident that a change in professional development needs to occur, but how to make that change happen across the nation, and what exactly the change needs to entail is still unclear. In this paper, I review various studies to determine how to effectively improve the teaching of reading; and in turn, increase student achievement. The primary focus is on identifying forms and elements of professional development deemed effective in order to make recommendations for school improvement by way of professional development for reading teachers in order to improve instruction and student achievement.
Chapter I: Introduction

Illiteracy, or the inability to read, is a problem faced in many societies all over the world. According to the Central Intelligence Agency’s World Factbook (2009), the highest illiteracy rates are more commonly found in less developed nations of Sub-Saharan Africa, South and West Asia, and the Arab states. Lower illiteracy rates occur in more technologically advanced nations such as Europe and North America. The United States has an overall illiteracy rate of about 1% (CIA, 2009). However, disadvantaged areas such as the rural South contain a much higher percentage. Despite having lower illiteracy rates, the United States is not immune to illiteracy problems. In fact, the focus of making sure every child can read at grade level by third grade has been a priority of not only educational systems, but in recent years, government as well. President George W. Bush, during his first year in office, secured passage of the landmark No Child Left Behind Act of 2001 (NCLB). The law reflects a political consensus on how to improve the performance of America’s elementary and secondary schools while at the same time intending that no child is trapped in a failing school.

Research has shown that children unable to learn reading basics at an early age are unlikely to ever learn them at all (Juel, 1988; Torgesen et al., 1999a). Furthermore, any child with the inability to read well may not master other skills and knowledge, and is unlikely to ever succeed in school. Even more frightening is the fact that many children begin school each year already at risk for literacy failure (Juel, 1988; Schwartz, 2005; Stanovich, 1986; Taylor, 1992). With this critical concept in mind, helping disadvantaged children reach high standards is essential in American education (Munoz, 1999). The ideal solution would be to provide every at-risk child the opportunity at a young age to incorporate strategies that will make each child a successful reader.
Statement of the Problem

The good news is, many scientific studies have given educators insights as to how literacy develops, reasons why obtaining this knowledge is easier for some than others, and perhaps most importantly, instructional practices that best help students learn (Moats, 1999; NRP, 2000; Pikulski, 1994). In addition, researchers estimate that through the use of these proven practices, all but 2-5% of children can be taught to read (Clay, 1985; Moats, 1999). Yet, according to The U.S. Department of Education in their recent release of The Nation’s Report Card: Reading 2009, 34% of all fourth-graders have reading skills below basic level and are unable to read well enough to complete grade level assignments.

The most important purpose of schools is to teach children to read. Unfortunately, teachers are often not equipped with the knowledge necessary for effective reading instruction (NRP, 2000; Walsh, Glaser, & Wilcox, 2006). Moats (1999) explained that explicit instruction of print requires an intense disciplined study of the systems and forms of language, both spoken and written. Despite this knowledge, a single course in reading methods is often all that is offered in education programs for prospective teachers, making preparation for reading instruction grossly inadequate (Dowhower, 1999; Moats, 1999). A clear gap exists between the findings of research showing most children can be taught to read well and instruction in the classroom (NRP, 2000; Scanlon, Gelzheiser, Vellutino, Schatschneider, & Sweeney, 2008).

Chard (2004) noted professional development has become the target for change in order to improve reading progress for students in a time of school accountability and researched-based reading instruction. Quality professional development improves teaching (NRP, 2000). In fact, it is estimated that billions of dollars are spent by schools nationwide on professional development activities each year (Killeen, Monk, & Plecki, 2002). As stated earlier, it is also
known that effective reading instruction improves students’ ability to read. Therefore, the primary focus of school systems needs to be on implementing professional development that results in meaningful improvement of both teacher practices in reading instruction and student achievement in reading abilities.

Research Questions

In this paper I will attempt to answer the following two research questions:

1. How can we effectively improve teachers’ abilities to teach reading in a way that will increase student achievement?

2. What elements of quality professional development will contribute to improving both teacher practice and student achievement?

Definitions of Terms

Professional development – The opportunity, in the form of conferences, university coursework, or singular sessions, for a teacher to improve upon current skills and knowledge, in addition to becoming aware of new knowledge, theories, and methods in order to improve classroom instruction (Borko & Putnam, 1996; Grossman & Hirsch, 2009).

Teacher self-efficacy – Perceived capability of the teacher to impart knowledge; and that such ability affects students’ behavior, motivation, and ultimately their success or failure (Bandura, 1997; Guskey & Passaro, 1994).

Phonological awareness – The general awareness of the phonological (sound) structure of spoken words including rhymes, syllables, onset-rimes, and individual phonemes (Scarborough & Brady, 2002).
Chapter II: Review of Literature

In terms of professional development, it is essential to understand what is effective and what is ineffective. The following studies will focus on professional development strategies and how they impacted teacher practice and student achievement. Essentially, those that have a positive impact will be deemed effective, and those having little or no impact will be ineffective.

Professional Development and Teacher Self-efficacy

Lowden (2005) included 205 teachers representing 11 public schools in a study that determined the impact of professional development by using Guskey’s (2002) five critical levels of professional development evaluation and the model of teacher change. Initially, six hundred-fifty surveys were placed in teacher mailboxes with a self-addressed stamped envelope for return. Two-hundred five kindergarten through grade twelve certified classroom teachers in two public suburban school districts in the state of New York volunteered to complete the survey. The two school districts in this study had similar demographic characteristics.

Lowden (2005) used quantitative research methods to conduct her study. Two sections divided the survey. Section one focused on the professional development process, format, and content. Data in section two related to teacher perception and included participant reactions/satisfaction, participant learning, organizational support and change, participant implementation of new knowledge and skills, participant perceptions of student achievement, and finally, change in participants’ attitudes and beliefs. Based on teacher answers to section one’s questions on professional development, they were then divided into participants of effective professional development or ineffective professional development. Lowden defined effective professional development as being linked to district goals and school improvement; aligned with the teacher evaluation process; offered during the school day; is made up of
individual professional development plans, guided practice, reflection, mentoring, district curriculum development, peer study groups, inquiry and action research, and long term courses within the district with in-class support; and has its content determined by a combination of school community stakeholders. Ineffective professional development was characterized as being very much the opposite. Ineffective professional development is unfocused and scattered; does not relate to school improvement plans or the teacher evaluation process; is offered inconveniently after school, during the lunch hour, and/or on the weekends; presented as clinical classroom observations, presentations or demonstrations, training workshops, conferences, and/or attending expert lectures or motivational speeches; and the content is decided by the teachers only. Guskey’s (2002) five levels of professional development evaluation and change in attitudes and beliefs were then addressed between the now divided teacher groups.

Participants of effective professional development were divided once more into Group One (low level effective professional development) and Group Two (high level effective professional development). Data from the answers of the second part of the study were compared first between these two groups. The findings showed teachers in Group Two reported their experiences more positively than the teachers in Group One. Mean scores relating to the change in attitudes and beliefs of the participants indicated a significant difference ($t = 2.92, p < .05$). Teachers experiencing the highest level of effective professional development were more likely to strongly agree with statements that support a change in attitudes and beliefs about teaching and learning than teachers participating in a lower level of effective professional development. Most importantly, in the area of Student Learning Outcomes, teachers in Group 2 evaluated their experience in this area more positively with a significant mean difference in scores between the two groups ($t = 4.852, p < .05$).
Lowden (2005) then compared participants among the ineffective professional development group. Again, the participants were divided into two groups, Group 1 being those in lower end ineffective professional development (professional development that is most ineffective of all groups) and Group 2 being upper end ineffective professional development. Results among these two groups indicated a statistically significant difference in mean scores at each level of evaluation. These results lend to the conclusion that participants in the greatest degree of ineffective professional development had the least amount of positive impact from their professional development experience. This evidence was most clear in level 6: Change in Attitudes and Beliefs ($t = 2.251, p < .05$). In addition, the evaluation of level 5: Student Learning Outcomes showed that as professional development becomes more ineffective, teachers are less likely to believe that their training will have a positive impact on student achievement.

Lowden (2005) indicated effective professional development has a positive impact on teacher response. However, it is important to remember that this study was based only on the information and opinions of the teachers who completed the survey. Groups for effective and ineffective professional development were created based on teacher responses to questions regarding the professional development they have received. This method may have accurately placed the teachers into the four groups appropriately, but there is no way to know for sure. This study also indicated a correlation between effective professional development and improved student achievement. But again, this information was based on teacher opinion, not on data directly related to student achievement. Evaluations, as Champion (2003) suggested, need to be designed around what participants are actually learning and not just their impressions, reactions, and opinions in order to determine the impact on student achievement.
Lowden (2005) noted clear criteria of effective professional development programs and how following these criteria could have a possible positive effect on teacher practice and student learning. It is worth further investigation on the valid impact effective professional development has on both teachers and students.

Teacher self-efficacy plays an important role in the instructional process. Tschannen-Moran and McMaster (2009) examined the role of professional development and its impact on increasing teacher self-efficacy and implementing new instructional strategies. Five school districts and 93 primary grade and resource teachers were selected to participate based on willingness to include all primary teachers within the school building rather than only offering the workshop to volunteers. The nine schools represented all areas of socioeconomic statuses as well as context location with rural, suburban, and urban areas represented. Each of the nine schools received random assignment to one of the four treatment formats. Cluster sampling ensured all teachers at one school received the same treatment to avoid cross-contamination.

Tschannen-Moran and McMaster (2009) used a quasi-experimental quantitative design to examine the role that professional development format played in increasing self-efficacy and implementation of new instructional strategies for teachers. The four instructional treatments consisted of a gradual incline of services provided to the teachers within each group. Group 1 received the minimum amount of instruction and Group 4 received the maximum. The instructional strategy chosen to implement was The Tucker Signing Strategies for Reading. This strategy addresses a specific area of beginning reading by using hand signals as a conceptual bridge between written symbols and sounds (Tucker, 2001). Group 1 attended a 3-hour workshop where the 44 hand gestures used in the Tucker strategy were demonstrated in a lecture setting. Group 2 received the 3-hour workshop plus witnessed a demonstration of the Tucker
strategy implemented on struggling readers and viewed the reader’s success in decoding new words. Group 3 added to the experience by receiving a 1.5 hour practice session to master the newly taught skills. Teachers worked in groups discussing how the strategies could be implemented in the classroom and developed lesson plans to be used. Finally, Group 4 received continued coaching in addition to all services provided to Group 3. Coaching time included 30 minutes of small-group review, a 15 minute one-on-one coaching session between the presenter and the teacher, and a 30 minute coaching session with the presenter in the teacher’s classroom.

Results were based on comparison of initial and final outcomes of three separate surveys. These surveys measured teacher self-efficacy, teacher self-efficacy of reading instruction, and implementation of the strategy. Initial scores of teacher self-efficacy and teacher self-efficacy for reading were similar for all groups. Self-efficacy scores on a 1-9 scale ranged from 6.91-7.19 and self-efficacy for reading ranged from 6.96-7.2. Final results of the two surveys ranged from 7.24-7.69 for self-efficacy and 7.11-7.99 for self-efficacy in reading one month later. These results revealed a general, but not significant, increase in teachers’ self-efficacy; however, this increase was evident regardless of the treatment group. Further examination on the teacher self-efficacy for reading survey results showed that Groups 1 and 4, those receiving the least and most amount of instruction on the new strategy, had an increase in self-efficacy in reading. However, Groups 2 and 3 remained stagnant in their feelings of self-efficacy in reading after the workshop. Finally, implementation of the new strategy was explored for all four teacher groups. Tschannen-Moran and McMaster (2009) determined that Group 4 was the only group that showed a significant difference in implementation of the strategy, indicating the follow-up coaching, the only variable unique to this group, was the distinguishing factor for increasing implementation of a new strategy for teachers.
The findings of this study indicate the importance of the professional development format in impacting the likelihood of a newly taught instructional strategy being implemented into the classroom. This study shows that when follow-up coaching is included in professional development training, teachers are more likely to implement the newly taught strategy. In addition, a significant number of participants who did not receive follow-up coaching relayed a decrease in self-efficacy for reading instruction further emphasizing the need for this element in professional development formats. If teachers are not confident in their abilities to teach, student outcomes could suffer dramatically.

Content specific professional development models represent another way to increase teacher knowledge and efficacy. Brady, et al. (2009) evaluated a professional development program and the impact on the knowledge of first grade teachers in the area of phonological awareness and code concepts necessary in first grade literacy instruction. Initially, 42 schools received applications to participate in the study, of which 38 schools qualified. Qualification of a volunteering school required all first-grade teachers in the school to participate, administrative support, and that students from lower socioeconomic communities were served. In addition, participants agreed to random assignment and to partake in assessments for the research component of the study. The qualifying schools were placed into categories according to size and average poverty level of students. They were then randomly assigned to conditions within each category resulting in 65 teachers from 19 public elementary schools from nine different districts in Connecticut for the purposes of this study. Fifty-seven of the initial sixty-five teachers completed a demographic survey. Demographic results of the fifty-seven teachers indicated 54 were females, 48 were Caucasian, and 43 had attained a master’s degree. The mean
number of years taught was 10.42 with an average of 2.26 reading courses completed per teacher prior to this study.

Participants took part in a two-day summer institute where they were given an overview on research findings on reading development as well as an introduction to the professional development format they would be receiving. Following this institute, teachers attended monthly workshops that focused on each of the main content areas to be addressed during the year. Monthly workshops focused primarily on phonological awareness and phonics using PowerPoint presentations to address relevant research, instructional content, and application to the classroom for each topic. Training included methods for direct instruction, how to conduct and use assessments, ways to engage students, and how to differentiate instruction. Seven participating mentors supported all sixty-five teachers with weekly classroom visits. The mentors modeled lessons, co-planned with the teacher, and observed. Teachers were given time to discuss with mentors any concerns or questions. In addition, mentors helped teachers evaluate student assessment results and how to plan instruction accordingly.

Teachers completed a knowledge survey (TKS) and attitude survey (TAS) both before and after the training. The TKS had a maximum score of sixty points, 20 points addressed each phoneme awareness concepts and code concepts, 14 addressed vocabulary and oral language, and the final six addressed fluency. The TAS consisted of 59 five-point scale questions addressing self-efficacy on teaching reading, attitudes toward approaches to reading instruction, and finally attitudes on four different aspects of professional development.

The initial results of performance on the TKS showed a mean of only 42% accuracy. The end results were compared only to the subtests that were addressed during the professional development. Initial scores in these subtests showed an average of 42.6% correct and average
end scores of 74.1% correct. Assessment of teachers’ attitudes showed significant effects of time with higher scores at the end of the year for self-efficacy of teaching reading skills and for positive attitudes toward professional development. Assessment of the TAS indicated that positive feelings about professional development increased as well as personal commitment to participate. Teachers also demonstrated recognition of the need for time in order to learn instructional concepts and methods. There was no significant correlation between attitude ratings on the TAS and teacher performance on the knowledge survey in the initial assessment. However, end of the year assessments showed significant correlations between initial attitudes and year-end performance on the knowledge survey. An initial positive rating on self-efficacy to teach reading basics correlated with a higher score on the phoneme awareness section as well as the code concepts of the TKS ($r = .32, p < .05$).

Brady, et al. (2009) indicated how a well-planned professional development model can have positive impacts on teacher knowledge and efficacy. Increased teacher knowledge results in higher teacher-efficacy which in turn contributes to more effective teaching. It is unfortunate that effects of this study were not measured with student learning. What is the point of increasing effective teaching techniques if it is unknown how it affects the most important criteria, the pupils, in the learning process? Perhaps the strongest element of the professional development model in this study was the year-long mentor visits on a weekly basis. This element appeared to be the main contributor to teachers’ abilities to successfully implement new strategies in the classroom.

**Professional Development with Student Outcomes**

Kennedy and Shiel (2010) explored a progressive, collaborative professional development intervention used to respond to the literacy needs of students. One school in a
A high-poverty urban area participated in the study. Many social factors contributed to reading challenges for students in the school including high unemployment, low educational attainment, large numbers of single parents, and high drug use and crime. Despite the many challenges to overcome, teachers were willing to attempt a strategy for change. Four first-grade teachers and their 56 students took part. In addition, five full-time special education teachers also participated in the professional development to ensure consistency of instruction for students requiring additional help.

The professional development model was again based on Guskey’s (2002) change model, which incorporated five incremental phases over the course of two years. Initial, achievable goals were set and addressed. As goals were met, new goals were set to continue and strengthen the change process. Teachers took part in onsite professional development twice a month for two hours a time for duration of two years. In addition, several full and half-days were included for intensive work. In each session of professional development a new aspect of literacy was addressed. Teachers read and debated over professional research and readings, examined student work and test results, planned for implementing changes, and discussed successes and failures of new methods that were tried. Per the request of the teachers, a literacy coach would visit classrooms and demonstrate lessons with each new component. Coaches also observed teachers at three points throughout the intervention.

Assessment data consisted of a variety of measures for students. Daily collaborative and independent activity data on reading, writing, and word work were gathered on the students. Teachers used running records, checklists, observation, and conferences to verify that learning transferred to an independent level. Standardized tests given twice per year also assessed student knowledge. In addition, teachers and twenty randomly selected students of various achievement
levels participated in interviews three times throughout the year. Once in the year during focus groups, parents participated in interviews as well.

Through interviews at the end of the study, all participating teachers reported having higher expectations of their students. Nineteen of the twenty students interviewed, said they enjoyed reading and could name a favorite book. All students could name at least two strategies to use to help decode an unfamiliar word. Formal standardized student assessments indicated that average student scores in reading increased from 82 points in winter of first grade to 98 points in spring of second grade \( (t = 10.02, \text{df} = 52, p < .001) \) compared to a national average of 100 points. This increase resulted in only 11 percent of students performing below benchmark standards at the end of second grade. Spelling tests also rose from 94 points to 101 \( (t = 8.1, \text{df} = 53, p < .001) \). In addition, writing skills increased through informal measures. Initially, a majority of the students scored below level 1 on the writing scale criteria indicating writing abilities that were not decodable by an adult. By the end, the majority could write at the level of an average second grade student.

Kennedy and Shiel (2010) reported student gains in achievement and motivation. However, without data on instructional changes by teachers, it is impossible to know the contributing factors to success. Many changes took place through the five phases of change during the two years of instructional intervention. Teachers took on a new responsibility and autonomy for their students’ learning. Though teachers may use the same strategy, individual instruction techniques may vary widely. Exciting as it is, the cause of students’ increased achievement can only be inferred without data comparing teacher practice to student result.

**Professional Development with Teacher and Student Outcomes**
Podhajski, Mather, Nathan, and Sammons (2009) explored teacher knowledge of reading and its relationship to student outcomes. The volunteer teacher participants of the study were divided into an experimental group and a control group. Four first- and/or second-grade teachers formed the experimental group, while three first- and/or second-grade teachers formed the control group. All teachers were Caucasian females who taught in two Vermont schools. All seven teachers claimed they had taken at least four courses in teaching reading and felt adequately prepared to teach reading. Two of the teachers in the experimental group had attained master’s degrees. All of the experimental teachers were compensated for participating in the study through professional development, mentor visits, and instructional materials. Compensation for teachers in the control group included a gift certificate to a book store and the opportunity to participate in the course/mentorship program at no charge during the following year.

Student participants included 33 first-grade and 20 second-grade students in the experimental group. Three students in first-grade and one in second-grade were on 504 plans and three students from each grade had IEP’s. The control group was slightly smaller at 14 first-grade and 22 second-grade students. Of these, one second-grade student was on a 504 plan and another second-grade student had an IEP. Economic data indicates the mean family income and educational levels were significantly higher for the control group of students.

Podhajski, et al. (2009) compared pretest and posttest data of both student and teacher experimental and control groups. Data for the teacher groups were based on The Survey of Teacher Knowledge which contained 32 multiple choice questions on the sound and word levels of English language structure. The combination of three informative tests and reading inventories, the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) test, Texas Primary
Reading Inventory (TPRI), and Test of Word Reading Efficiency (TOWRE), contributed to the student data set. Good and Kaminski (2002) defined DIBLES as a standardized test that is individually administered to assess phonological awareness, letter recognition, and word retrieval. TPRI (Texas Education Agency and the University of Texas System, 2003) is used by teachers to match reading instruction with individual student needs. Finally TOWRE measured students’ individual abilities to sound out phonically regular nonsense words and to recognize real words accurately and quickly (Torgesen, Wagner, & Rashotte, 1999b). Project staff trained teachers in both the experimental and control groups to administer the pretests; however, project staff administered all posttests seven months later to prevent teacher bias.

Results of this study were separated into teacher, first-grade student, and second-grade student results, each comparing pretests and posttests. The experimental group of teachers had an initial mean score of 45% compared to the control group’s mean score of the same test at 69%. Seven months later, both groups took the posttest, and both the experimental group and control group of teachers’ mean test scores rose to 81%. This raise indicated significant gains for the experimental group of teachers ($t(3) = -13.28, p = .001$), but not significant for the teachers in the control group ($t(2) = -3.46, p = .074$). In addition, surveys analyzed satisfaction results of both teacher groups. Experimental teachers felt that their instruction methods changed as a result of their participation; however, they did not find the pretest results from the students to be helpful in adapting their instruction. In contrast, results of the satisfaction surveys indicated the control group of teachers found the student pretest data valuable for guiding instruction despite lack of participation in the professional development project. Administering these tests renewed familiarity with some of the practices and as a result teachers in the control group began using them in their instruction.
Student data with so many test results to analyze is a little more difficult to interpret. The experimental first grade students initially scored lower than the control group on the DIBLES test and the TPRI Oral Reading test, but not the Reading/Listening Comprehension test. In comparing pretest to posttest gains, the first grade experimental group made significant gains on all three parts of the DIBLES test including letter naming fluency, phoneme segmentation fluency, and nonsense word fluency and the TPRI Oral Reading test. First grade control group students also made significant gains on these tests except DIBLES phoneme segmentation fluency.

Among the first grade students, results indicated the experimental group made significantly greater gains in all tests except the Reading/Listening Comprehension test than the control group. In fact, by the time the posttests were given, results showed that as a whole, the experimental group had caught up to the control group in two areas of the DIBLES test and the TPRI test. In the area of Phoneme Segmentation Fluency, the experimental group outscoed the control group in posttest results ($t(45) = -3.00, p = .004$). There were no significant differences on the Reading/Listening Comprehension test ($t(44) = .96, p = .344$).

Results of the second grade groups showed less significant differences. The experimental group scored lower than the control group on the TOWRE test, TPRI Oral Reading test, and the Reading/Listening Comprehension test. There were no group differences on the DIBELS Phoneme Segmentation Fluency measure. Pretest to posttest comparisons showed the experimental group made gains on all tests except the TOWRE Sight Word Efficiency test. The control group showed significant gains on only the DIBLES Phonemic Segmentation Fluency ($t(19) = -9.12, p = .000$), the TPRI Oral Reading Fluency ($t(18) = -5.16, p = .000$), and the Reading/Listening Comprehension ($t(20) = -4.17, p = .001$). In second grade results, the
experimental group on average made greater gains than the control group on Phoneme Segmentation Fluency only. Differences between the two groups were found with the TOWRE Sight Word Efficiency test, and the TPRI Oral Reading test which showed the control group scoring higher than the experimental group.

Podhajski, et al. (2009) indicated the intervention was successful through significant gains in test scores for the experimental group of students, especially those in first grade. The experimental group of teachers also showed significant gains in pretest and posttest scores further indicating the success of the professional development program and its influence on both teacher and student success. The students in the experimental groups were from vastly different economic and educational backgrounds than those in the control group. Results of groups with similar demographics could be quite different than the results of this study. This study shows effective professional development with mentoring can have a positive effect on reading performance in young students, particularly those from a lower socioeconomic status.

Improving teacher knowledge through professional development is another way to improve teacher instruction and student achievement. McCutchen, et al. (2002) focused on whether effective professional development could improve teachers’ understanding and knowledge of the written language, if this knowledge would then change their instructional techniques, and if students receiving instruction from these teachers would acquire reading and writing skills at a quicker rate than their peers. Letters were sent to principals of 73 schools in a large metropolis area in western United States. Forty-four teachers from 40 schools responded to participate in the study. Twenty-four teachers who had taught for a mean of 13 years made up the experimental group. The remaining twenty teachers who also had taught for a mean of 13 years created the control group. Due to the additional support necessary to sustain teacher
change, schools that housed a team of teachers were given preference to the experimental group. Schools were paired based on socioeconomic status and each school in the pair was then assigned a condition. Experimental teachers taught at experimental schools to prevent contamination of the study. Test and observational data gathered over a year recorded the changes of 492 kindergarten and 287 first grade students in the 43 participating classrooms. The student population was 50% Caucasian, 20% Asian American, 20% African American, 5% Hispanic and 5% other.

McCutchen, et al. (2002) used the *Informal Survey of Linguistic Knowledge* to assess teacher knowledge of language structure. The experimental group completed different versions of this survey before and after the intervention representing pretests and posttests. Different versions of the knowledge survey were necessary to eliminate false score increases due to repeated exposure. The control group only took a pretest. Both groups of teachers also took a 40-question, multiple-choice test on cultural literacy to assess general knowledge. The later was a timed test in which teachers had 12 minutes to complete. Throughout the year, participating teachers were observed on their literacy instruction. Extensive field notes and coding taken by observers highlighted four main categories in teacher instruction. These categories are knowledge affordance, literacy activity, textual context, and group context. Codes were recorded and tallied each minute for a fifteen minute interval.

Students’ literacy development was assessed many times during the year on both the experimental and control groups. A battery of tests on phonological awareness, listening comprehension, and orthographic fluency assessed kindergarteners four different times. At the end of the year a fourth test on word reading was also administered. First grade students were
assessed three times across the year. First grade assessments included phonological awareness, reading comprehension, orthographic fluency, and composition.

Teachers in the experimental group participated in a two-week instructional institute during the summer prior to the classroom observations that focused on phonology, phonological awareness, and how to incorporate it into balanced literacy instruction. Control group teachers had the option to attend the institute in the year following the study. Mentors from the research team became regular visitors in both the experimental and control group classrooms and would share student assessment data. In addition, the experimental group met with the mentors three times throughout the year to discuss implementation, address issues, and review topics and questions addressed by the teachers.

McCutchen, et al. (2002) analyzed data of the teachers, kindergarten students, and first grade students for results. Teachers in both groups had comparable scores on the initial phonological and general knowledge pretests. An increased score in the experimental group’s phonological posttest showed the institute instruction helped strengthen the phonological knowledge of this group. In observation of teacher practice, data on the code tallies were compared between the two groups focusing on time allocated to explicit phonological, orthographic and comprehension activities. Results show that experimental group kindergarten teachers spent on average 4.5 more minutes on direct phonological awareness instruction per 15 minute interval than the kindergarten teachers in the control group. Differences in the first grade instruction between experimental and control groups as time spent on phonological awareness was much lower as a whole. However, first grade experimental group teachers spent on average 1.87 more minutes of time on explicit comprehension instruction than control group teachers.
Overall, observation revealed experimental group teachers had more explicit and targeted literacy instruction than the control group.

McCutchen, et al. (2002) analyzed student data on its own as well as using the teachers’ level of phonological instruction as a predictor of student growth and achievement. Students in the experimental group showed growth in phonological awareness and orthographic fluency. Furthermore, teachers’ explicit instruction time was significantly related to student growth in both phonological awareness ($t(19) = 4.13, p < .001$) and orthographic fluency ($t(19), = 2.60, p < .017$). The areas of phonological awareness, orthographic fluency, reading comprehension, reading vocabulary, spelling, and composition fluency using slope analysis comprised first-grade classroom data for comparison. In all areas, students in the experimental first-grade classrooms yielded 29% to 100% increases in slope growth exceeding the growth of the control group.

McCutchen, et al. (2002) added to the number of studies that documented a relationship between instruction and student learning. Teachers in this study were not given a curriculum to follow, but rather knowledge in the area of explicit phonics instruction to aide them in teaching their students more effectively. As a result, teachers who spent more time instructing students explicitly saw a greater increase in student achievement. Results of this study were based on pre and posttest scores of both the teachers and students lending to higher validity.

Effective intervention strategies taught through professional development can also have a positive impact on student reading achievement. Scanlon, Gelzheiser, Velluntino, Schatschneider, and Sweeney (2008) examined the effectiveness of professional development to prevent reading difficulties for kindergarten students. Through a quasi-experimental longitudinal study, three approaches were compared and measured by effectiveness of reducing the occurrence of reading difficulties for students who were already at risk of becoming struggling
readers. Three consecutive groups of kindergarten children were studied from the beginning of kindergarten through the beginning of their first grade year. Fifteen schools, including twenty-eight teachers and their at-risk students volunteered to participate in the study. All teachers participating in the study were Caucasian females, much like the teacher population in the surrounding area. Students participated through the approval of parents and as a result, in all but one school, over 90% of the students were able to participate. Students receiving free or reduced lunches among all three conditions averaged 33% of students in the baseline year, 31% in the implementation year, and 47% in the maintenance year. On average over all three years in all three conditions, Caucasian students represented 79% of the student population. Data from students who took assessments at all points in the study are the only measurements included in analysis.

Information collected over the course of three years was used to study the effects of three types of interventions on kindergarten struggling readers. These interventions included intervention (small group instruction) only (IO), professional development only (DO), and the combination of intervention and professional development (PDI). Students were assessed three times throughout the study, including the early fall and late spring of the kindergarten year, as well as at the beginning of first grade. Student assessment included rhyme awareness, beginning sound awareness, alphabet knowledge, letter-sound knowledge, and spelling accuracy using a standardized test of phonological awareness and literacy screening. Students’ kindergarten risk statuses were based on benchmark scores of 28 in the fall and 74 in the spring based on a total of 92 points. First grade scores were based on a 77-point maximum score measuring spelling and word recognition. In addition, scores from subtests of letter-word recognition and word attack derived a basic reading score.
A time-sampling teacher observation system conducted five times per year for each baseline, implementation and maintenance cohort formed data on instructional characteristics of teachers. This analysis involved a trained observer to record a running record of teacher-involved instruction time and then code 90-second slices for seven features of instruction. The codes were then consolidated into two main literacy goals of interactive strategies approach and professional development. Teachers assigned to schools of DO or PDI conditions participated in a three day workshop during the summer prior to the implementation year. These teachers also received a handbook and access to the website providing additional teaching ideas on the focus of interactive strategies. Teachers in these two conditions also received coaching five times during the implementation year. In addition, all kindergarten teachers, regardless of their condition assignment, collectively met with the literacy coaches once a month for 1 hour meetings. No additional professional development or coaching was provided during the maintenance year.

Student data results showed that children in the implementation and maintenance cohorts performed higher on test scores than the children in the baseline cohort. At-risk children showed a significantly greater change in scores during the implementation year than the baseline ($t(18) = -4.98, p < .0001$). The same group of students also showed significant change in scores for the maintenance year than the baseline ($t(18) = -6.62, p < .0001$). Children who were not among the at-risk groups demonstrated higher scores; however, there were no statistically significant differences between beginning and ending test scores between cohorts.

In terms of condition, tests scores at the beginning of first grade indicated that children in the PDI condition performed significantly better than those in the IO condition ($t(9) = -3.03, p +$
Professional development-only condition did not hold a significant difference from either intervention only or professional development plus intervention conditions.

Observation code data on teachers suggested that professional development had a moderate effect on the total amount of time spent on language arts instruction, as well as showing a significantly large effect on time devoted to students’ active participation in reading, writing, and other skill activities. Professional development also led to substantial increase in time devoted to small, ability-based group instruction led by the teacher. Students were coded as being engaged in listening, reading, thinking, and responding significantly more often during the maintenance year than the baseline.

Comparisons of condition indicate that times devoted to active reading, writing, and skills instruction were nearly 50% more with teachers in the PDI condition than the teachers in the IO condition. In addition, teachers in the PDI spent about five times more time with small group instruction than IO condition teachers. PDI condition teachers were also observed and coded as providing more scaffolding and modeling to engage students in questioning and explanation more often.

Scanlon, et al. (2008) intended to evaluate the effectiveness of three conditions through comparison. However, results of baseline cohorts indicated that despite similar level groupings, there were noticeable performance differences amongst the three groups after kindergarten instruction. This observation indicated pre-existing differences in teacher effectiveness before experimental differences were implemented. Due to this unforeseen variable, it is not possible to accurately determine which of the three conditions (IO, DO, or PDI) was more or less effective in improving at risk reading students’ outcomes. Nevertheless, the study supports the notion that
teachers who participated in the professional development program devoted significantly more
time to language arts instruction which resulted in higher student engagement of learning.

Like professional development with intervention, content focused professional
development has a greater impact on teacher practice and student results than the traditional one-
shot models. Garet, et al. (2008) examined the impact of professional development by improving
the knowledge and practice of teachers in addition to the reading achievement of their students in
second grade. Urban or sub-urban public elementary schools in which at least half of the
students qualified for free or reduced lunch and less than half were English language learners
participated in the study. In all, participants of the study included 90 schools, 270 teachers and
about 5,500 students. Schools were equally divided and randomly assigned to one of three
conditions.

The control group received only the usual professional development offered by the
district, while the institute and institute plus coaching groups received specialized professional
development that focused on topics relevant to second grade reading instruction. Both institute
groups participated in an eight day institute/seminar which focused on phonemic awareness,
phonics, fluency, comprehension, and vocabulary. Groups who received coaching in addition to
PD were provided with ongoing support for applying new knowledge and implementing new
strategies with an average of 60 hours of coaching per school year.

The use of the district’s regularly administered standardized tests for second grade for the
baseline, implementation, and follow-up years measured student achievement. A customized test
of early reading content and pedagogy completed teacher data. Different, but equivalent forms
of this test were administered at three points during the study to eliminate the possibility of
improved performance through repeated exposure. Teacher reading content and practice surveys
were given before professional development began, at the end of the professional development year, and in the subsequent year to measure sustained impact of professional development on teacher knowledge. Observations conducted three times during the study measured teacher practices as well. Trained observers who were unaware of the treatment condition of the teachers they observed, recorded and tallied teacher and student activities that occurred in three-minute intervals during an entire 90-minute instruction period.

The findings of Garet, et al. (2008) indicated 57% of institute-group teachers gave correct answers to a typical item on the test compared to 51% of the teachers in the control group, though this difference is not statistically significant. Institute plus coaching teachers also scored higher on the teacher knowledge test than the control group teachers; however, there was no significant difference in scores amongst the institute groups with or without coaching. Time spent on explicit instruction had significant increases between all three groups. Control, institute, and institute plus coaching teachers spent 42%, 51%, and 57% respectively on explicit instruction per three-minute observation interval.

Student achievement scores yielded no statistically significant differences between control, institute or institute plus coaching groups. As with teaching, the addition of coaching did not indicate significant effects over the institute alone with student achievement. In addition, scores of the year following professional development implementation still indicated no statistically significant impacts among student groups. However, results of effect size within individual groups indicated that students in the institute group showed 14% of the average annual growth and students in institute plus coaching schools showed 5% of the average annual growth for students in second grade.
Garet, et al. (2008) tested the theory that teachers’ participation in professional development leads to improved teacher knowledge, which in turn improves classroom instruction. The improved classroom instruction should then have a significant positive impact on student achievement. Unfortunately, the outcomes of student achievement did not provide this evidence. However, further investigation by Garet, et al. (2008), found that teacher knowledge and classroom instruction is at minimum associated with student achievement showing the theory tested in this study was appropriate; just not indicative of the expected outcomes. Like previous studies, this result could be due to pre-existing teacher knowledge and instruction variables. Also, the uses of different standardized tests for the student groups make accurate comparisons difficult. In addition, although it was indicated that entire schools were assigned a specific condition, cross-contamination among conditions could have occurred within the same school district.

Impacts of effective professional development go beyond just district and school improvement. Taylor, Pearson, Peterson, and Rodriguez (2005) studied the specific classroom and school-level factors that contributed towards increased student reading and writing achievement through the use of a specific framework for school reform and professional development at thirteen schools. All schools were considered high-poverty with a mean of 81% of students who qualified for lunch subsidies. Seven schools were located in large urban areas, while the remaining six equally represented sub-urban and rural areas. Seventy-five percent of the K-5 teachers per school volunteered to participate in the project. Of these teachers, two per grade were randomly selected for observation and interviews. These teachers were asked to divide their students into three groups according to reading ability, of which three students from each group were randomly selected to be assessed.
The reading reform for schools focused on professional development and school improvement. Involvement asked for large and small group reading reform activities to take place within each school. Staff or large group meetings were expected to meet once a month for an hour in addition to hour-long study groups three times a month. Large-group activities focused on school improvement, the school-wide reading program, and parent partnerships. Small-group activities focused on professional development in the area of reading instruction. Small groups were expected to meet regularly to improve reading instruction by examining aspects of reading instruction supported by research, and developing action plans. In addition, small groups were encouraged to discuss research-based articles, watch and discuss video clips, and share their own experiences of effective reading instruction. All schools had agreed to the conditions of the study, but effort in involvement varied considerably. Scales were produced to rate the reform involvement based on teacher interviews three times a year. Reform-effort scales ranged from 1.0 to 7.0 out of a possible score of 10. (M = 3.54, SD = 1.76). As a result of this evaluation, relationships between reform effort and student growth were able to be established.

Three different measures were used to assess student achievement in reading, comprehension, fluency, and writing. Students were assessed in all three areas in the fall through individually reading a graded passage one level below grade placement, completing a comprehension subtest, and responding to a writing prompt. In the spring, students were assessed on the same battery of tests; however, the fluency passage was now a grade-level text. Evaluation of teachers consisted of 30-minute individual interviews in the fall, winter, and spring. During these same three occasions, teachers were observed during reading instruction for an hour. Observations included five minutes of note-taking and then coding activities within the same five-minute time frame.
Hierarchical linear modeling analyzed the impact of school-level and classroom-level influences on students’ reading growth. In general, 24% of the variance existed between teachers, while 10% of the variance existed between schools. In student comprehension scores, for every one-point increase in the reform effort score, a school’s mean score increased by 1.35. At the student to classroom level, for every 10% increase in observation coding of comprehension, students’ mean scores decreased by 1.38. In addition, fluency scores increased by 4.87 for every one-point increase in reform-effort scores and increased by 1.75 for every 10% increase in coding of higher-level questioning at the classroom level. Finally, writing scores increased by 0.08 based on a four-point rubric for every 10% increase in coding of coaching at the classroom level.

In regards to changes in teaching practices, Taylor, et al. (2005) found that teachers in high reform effort schools were observed asking significantly more high-level questions during the second year of reform ($t(50) = 2.62, p = .01$) than teachers in low reform effort schools. High reform effort school teachers were also observed modeling significantly more often during the second year of the study than teachers in low reform effort schools ($t(50) = 3.54, p = .001$). Due to the small sample of teachers, this information is the result of a subset of teachers that were observed during both years.

Taylor, et al. (2005) examined the variables between school and classroom levels that contributed towards student growth in reading and writing. A positive impact on students’ reading comprehension and fluency as a result of reform efforts was found especially in increased efforts and increased time. Unfortunately, this study involved a small teacher sample that participated in the reform effort for two years, negating the ability to produce valid statistical comparisons of teacher instruction within reform effort. Statistical evaluations of a subset of
teachers participating both years revealed increase coaching use and high-level questions for the high reform effort teachers. In addition, because the design of the study left reform effort up to individual schools, about one third of the schools agreeing to participate to the conditions of the study did not follow through with their efforts. At minimum, this study emphasizes that school and classroom reform is a gradual process and requires a continuous, diligent effort among school leaders, teachers, and students.

Federally funded professional development programs can also have positive effects when implemented correctly. Hayes and Robnolt (2007) studied the effects of data-driven professional development on improving literacy instruction for kindergarten through third grade. The professional development was funded through a two-year federal grant known as The Reading Excellence Act (REA). Through REA, professional development on research-based literacy instruction was provided to teachers in schools with low literacy achievement and serviced a high percentage of students with a low socioeconomic status. Hayes and Robnolt focused particularly on the second year phase of a small mid-Atlantic city school. Although thirty-one members of the staff participated in the professional development, only twenty-one of these teachers had direct involvement with kindergarten through third grade students. Of these twenty-one teachers directly involved in the grant, only twelve agreed to complete the survey teacher assessment. Student data included approximately fifty students per grade in kindergarten through third grade. Student population was slightly higher in the male gender at fifty-two percent.

Part of the REA plan included professional development where teachers were involved in analyzing student data from assessments in order to plan classroom instruction appropriately. Teachers also participated in monthly grade-level meetings and were able to attend a graduate
level course through Title I funds. The reform efforts also included regular classroom observation and feedback. Professional development focused on guided practice, modeling, and think-alouds to aid children in learning text structure in order to better text comprehension and understanding.

Student data for kindergarten and first grade included standardized assessments of phonological awareness, letter name recognition, letter sound awareness, reading, and spelling. Second through fourth grade students were assessed on comprehension and fluency in addition to phonological awareness, reading, and spelling. Informal observations of teacher and student behavior and performance were taken throughout the year to help aid the direction of instructional needs and goals. As stated earlier, teacher data were derived from twelve participating teachers completing a survey. Using a Likert-scale of 1 (strongly disagree) to 5 (strongly agree) teachers addressed questions on phonemic awareness, phonics, fluency, comprehension, vocabulary, and reading motivation. Teacher opinions on the professional development model were also addressed in the survey.

Through initial analysis of student data in the fall, Hayes and Robnolt (2007) determined that there was a need for word knowledge instruction for the kindergarten and first grade groups. Fall scores indicated that benchmark goals were not met for 45% of first grade students in the area of word recognition and 33% did not meet benchmark goals in spelling. Professional development plans focused on these areas and as a result only 27% of first grade students did not meet the established goal in word recognition. However, spelling achievement dropped to 38%. Second through fourth grades indicated a need for improved instruction to increase fluency and comprehension achievement. Scores at the end of the first year of the REA grant showed 41% of second grade, 58% of third grade and an astounding 64% of fourth grade students were below
grade level benchmark standards. The following spring, after a year of professional
development, implementation scores for all three grade levels increased. As a result, 28% of
second grade, 43% of third grade, and a mere 21% of fourth grade students scored below
established goals per grade level. Independent t-tests indicated significant self-reported teacher
growth in six of the seven areas questioned on the teacher survey with assessment practices
($t(11) = -5.054, p < .05$), comprehension ($t(11) = -4.401, p < .05$), and phonemic awareness
($t(11) = -4.213, p < .05$) showing that greatest growth. Motivation was the only area in which
teachers did not report any growth over the course of two years.

Hayes and Robnolt (2007) showed data-driven professional development is effective in
providing improved reading instruction to improve student achievement. Teachers reported an
increase in knowledge among many components of literacy as a result of their involvement in the
professional development provided through the REA grant. Students also showed increased
achievement in the areas instruction was focused. The study reports dramatic changes in fourth
grade student performance, yet fourth grade teachers were not participants in the professional
development reform, nor did they complete the teacher survey. Therefore, it is extremely
unfortunate and unknown, what influences contributed to the success of these students and what
instructional strategies teachers used to promote student growth. Student results of this study are
indicative of the second year only.

This chapter has shown that there are many professional development models that are
effective in improving teacher practice. It is also evident that many of these professional
development models improve student achievement as well. Researchers that have found
improvement in teacher practice and student reading abilities should be further studied and
implemented into school districts. Without this step, there will be continued failure among
students in reading achievement and school district budgets will continue to be spent on ineffective professional development models.
Chapter III: Results and Analysis Relative to Problem

There is a clear problem: Many of the students in our school systems have been unable to acquire the skills necessary to become accomplished readers. The causes for literacy problems can be linked to environment and instruction (Velluntino, Scanlon, & Jaccard, 2003). Unfortunately little can be done to change the environment into which a child is born. Parents cannot be forced to purchase books and read to their children, nor can they be required to maintain a certain economic status or educational level despite the fact that the lack of all of these factors hinders a child’s ability to acquire reading skills quickly at a young age. The instruction of reading is the one variable that can be changed in order to make a difference in the lives of so many young children. However, in order to improve reading instruction, teachers need to be adequately prepared.

Researchers have made it quite clear that the whole school professional development in-service, also known as the one-shot model of professional development is not effective in improving teacher instruction or student achievement (Lowden, 2005; McCutchen, et al., 2002; Taylor, et al., 2004). Unfortunately, this model has been school districts’ most typical form of professional development for many years (Corcoran, 1995; Grossman & Hirsch, 2009). Despite the fact that in some cases mini-workshops are offered and teachers are able to choose a topic of interest, there is rarely any follow-up to the subject or incentive to implement new strategies (Corcoran, 1995; Grossman & Hirsch, 2009). In addition, subsequent in-services often address an entirely new topic, therefore lacking the follow-up needed to effectively implement new strategies.

Teacher preparation needs to begin at the pre-service level and be a continuous process which is tailored daily, monthly, and yearly to meet the ever changing needs of the students in the classroom. Ongoing professional development is a key component to improving teacher
instruction, but ideas on how this professional development should be implemented vary greatly. The works of Lowden (2005), Tschannen-Moran and McMaster (2009), and Brady, et al. (2009) focus on improving teacher self-efficacy through professional development. Professional development in the form of workshops with follow-up mentoring or coaching contributed to an increase in teacher self-efficacy, which then led to improved instruction. Tschannen-Moran and McMaster (2009) introduced a specific strategy to be used in reading instruction and showed teacher instruction can improve with follow-up coaching. Researched-based professional development stemmed from the needs of the students became the focus of Lowden (2005) and Brady, et al. (2009). Kennedy and Shiel (2010) showed that professional development focused on student needs improves student achievement, but their study did not show the impact on teacher practice. Finally, many studies indicated that effective professional development can improve both teacher practice and student achievement (Hayes & Robnolt, 2007; McCutchen, et al., 2010; Podhajsiki, et al., 2009; Scanlon, et al., 2008; Taylor, Pearson, Peterson, & Rodriguez, 2004). Unfortunately, even through the use of effective professional development models, the changes in student achievement may not always be significant (Garet, et al., 2009). This result emphasizes the need for further study.

Researchers have identified common elements of professional development that have positive effects on teacher practice and improve student achievement. Effective professional development is offered during the school day (Hayes & Robnolt, 2007; Kennedy & Shiel, 2010; Lowden, 2005). It is ongoing, allows teachers time to practice, modeling of instruction is offered, and feedback is given (Brady, et al., 2009; Garet, et al., 2009; Kennedy & Shiel, 2010; Lowden, 2005; McCutchen, et al., 2002; Scanlon, et al., 2008; Taylor, et al., 2005; Tschannen-Moran & McMaster, 2009). Effective professional development connects to school and district
goals to improve student learning (Garet, et al., 2009; Kennedy & Shiel, 2010; Lowden, 2005; Podhajski, et al., 2009; Scanlon, et al., 2009). While some professional development models focus on a specific agenda or strategy (Brady, et al., 2009; Tschannen-Moran & McMaster, 2009; Scanlon, et al., 2009), others focus purely on improving teacher knowledge and letting the teachers use that knowledge in an appropriate way to improve student learning (Lowden, 2005; Taylor, et al., 2005). Perhaps most importantly, student achievement data should be analyzed to determine the need for improved instruction (Hayes & Robnolt, 2007; Kennedy & Shiel, 2010; Tschannen-Moran & McMaster, 2009; Scanlon, et al., 2009; Taylor, et al. 2005). It is not just one element that is necessary in quality professional development, but the combination of all of these elements that makes professional development the most effective. Without further investigation, it is unknown which of these elements would have a greater or lesser impact on both teacher and student.

Instructional time became a key component in improving student achievement as well. Teachers who participated in effective professional development programs not only had more explicit and targeted literacy instruction (McCutchen, et al, 2002, Garet, et al., 2008); they devoted significantly more time to language arts instruction which resulted in higher student engagement of learning (Scanlon, 2008). McCutchen, et al. (2002) indicated more instructional time led to greater student achievement as students were recorded as being engaged in listening, reading, and thinking and responding significantly more often.

Recommended reading instruction also varied among researchers. Instructional methods used in the studies consisted of explicit phonics instruction (Garet, et al., 2009; Hayes & Robnolt, 2007; Podhajski, et al., 2009), direct instruction (Brady, et al., 2009), or a balanced
approach (Kennedy & Shiel, 2010; McCutchen, et al., 2002). It is beyond the scope of this paper, however, to indicate which of these instructional methods is better than the other.

It is evident that a change in professional development needs to occur, but how to make that change happen across the nation, and what exactly the change needs to entail is still unclear. Urgency in solving this matter is required in order to improve the reading instruction given to students today and to meet the guidelines and expectations that are now required by our government. Educating our young is the responsibility of our entire society, but left in the hands of teachers alone. It is time the techniques and resources necessary are made available in order to allow our teachers to accomplish this daunting task to the absolute best of their ability.
Chapter IV: Recommendations and Conclusions

Recommendation

Given that the national average indicates that 34% of fourth graders are unable to read well enough to complete grade-level assignments, it is highly unlikely that there is even a single school in this nation completely immune to having students with reading difficulties. Therefore, the need for improved action is necessary nationwide to help students acquire the skills they need to become accomplished readers. Taylor, et al. (2005) discovered that in general, 24% of the variance of impact on students’ reading growth existed between teachers, while 10% of the variance was between schools. The most important variables in the best way to achieve reading success are the individual classroom teachers who understand how children acquire literacy and the role they play in helping students achieve their potential. The solution comes from teachers who have a broad knowledge base of several methods of teaching and which ones work best for the students in their classroom. However, in order to provide every classroom with a highly qualified teacher, action needs to begin with educating teachers appropriately so that they may have the knowledge, skills, and information necessary to instruct students effectively. This process is continuous and ever-changing with the needs and the abilities of the students in the classroom. We cannot validly hold teachers accountable for the inability to teach all students to read if we have not provided them with the knowledge necessary to do so.

Many school districts must rethink and revamp their professional development methods. Professional development must give teachers the knowledge to adjust and change their instructional techniques in adaptation of students’ learning processes (Pinnell, 1987). This ongoing professional development must have topical continuity, practical application, opportunities for peer collaboration, and be linked to continuous in-class coaching or mentoring.
(Moats, 1999). Ideally, quality professional development programs would take place during the school day and include all the staff involved in the student learning process with high administrative support and involvement. In addition, professional development should be linked to student achievement data and school curricular goals and initiatives. Commitment to a long-range plan, adequate funding, and sufficient time for teachers to master new skills is required. Finally, professional development should be grounded in research based knowledge and offer intellectual, social, and emotional engagement in respect to teachers as professional adult learners.

**Areas for Further Research**

The National Reading Panel (2000) stated, “The primary purpose of teacher education research is to inform the effective practice of classroom teachers in order to improve student performance. Rigorous experimental and qualitative research that defines and characterizes effective teaching methodologies that demonstrate improved performance is limited” (p. 20). Applied efforts need to be made to address and answer the questions as to why this persistent gap still remains. It is essential that both short- and long-term student and teacher outcomes are measured in order for the study to have enough information to draw valid conclusions. While general results of such studies indicate that professional development does produce significantly higher student achievement, more research needs to be done to further emphasize the connection.

Further research on the effects of professional development on student reading outcomes would ideally contain all of the following: Student and teacher sample sizes should be of a reasonable size. Participants are randomly selected but are representative of a wide range of abilities, socioeconomic statuses, and school demographics. It is also important for the study to account for both teacher and student attrition throughout the study in order to accurately compare
results from beginning to end. Obviously, the best scenario would have the exact same students and teachers in the end of the study as the beginning, but the probability of that happening is highly unlikely. The study would take place during the course of a minimum of three years in order to have sufficient evidence of before, during and after time frames. The study needs to consist of control groups and experiment groups that are inclusive to the school and/or district in order to prevent cross-contamination. Although schools and teachers could volunteer to participate, those in the experiment group would have to agree to such conditions as full administrative support, availability of funds and materials, and teacher willingness in order for the result to be most accurate.

The experimental group of teachers should be exposed to a professional development format recommended previously. The professional development plan would allow teachers to be a part of the plan to evaluate student data, to review research-based instructional methods, and to apply the strategies they sit fit for the students within their classroom. Teachers would have ample opportunity to discuss methods and results among their peers, observe mentors implementing a new strategy, and be observed and offered suggestions while using a new strategy themselves.

Throughout the three years, both standardized and observational methods would be used to collect a wide range of data on both teachers and students. Teacher data would include a pre-and posttests of an attitude and knowledge survey, and observation data of classroom instruction 3 to 4 times a year over the course of three years. Student data would include standardized test results on many aspects of reading knowledge including phonemic awareness, comprehension, fluency, and grade level reading ability. Equal in design, but different in content, tests would be administered twice a year over the course of three years. Observational data of student
interaction and involvement during classroom reading instruction should also be included in the
data set at multiple times throughout the years. Results should be analyzed first within groups
within years. Then correlations should be made between teacher results and student results
within years. Finally, long-term correlations could be made between the beginning and the end
of the study between teacher and student outcomes.

**Summary and Conclusions**

The U.S. faces a serious problem in which 34% of all fourth-graders have reading skills
below basic level and are unable to read well enough to complete grade level assignments (US
Dept. of Ed., 2009). Despite the fact that many scientific studies have given educators insights as
to how literacy develops, reasons why obtaining this knowledge is easier for some than others,
and perhaps most importantly, instructional practices that best help students learn (Moats, 1999;
NRP, 2000; Pikulski, 1994); the high fourth-grade illiteracy levels have remained steady.
Researchers estimate that through the use of these proven practices, all but 2-5% of children can
be taught to read (Clay, 1985; Moats, 1999). The solution becomes finding a way to educate
teachers for improved instruction and therefore improved student achievement.

It is estimated that billions of dollars are spent by schools nationwide on professional
development activities each year (Killeen, Monk, & Plecki, 2002) on the premise that quality
professional development improves teaching (NRP, 2000). Unfortunately, school districts’ most
typical form of professional development for many years, (Corcoran, 1995; Grossman & Hirsch,
2009) known as the one-shot model of professional development, is not effective in improving
teacher instruction or student achievement (Lowden, 2005; McCutchen, et al., 2002; Taylor, et
al., 2004). Professional development must be delivered and received in ways meaningful and
relevant to teachers if it is to have any impact on instruction and student learning; as the
perspectives of teachers are vital to quality education, and teachers are the only individuals that can make any significant changes to instructional practice.
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