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Seth Powers, Ted Kaniuka, Brian Phillips, and Beverlyn Cain

Abstract

This study examined the impact of a teacher-lead professional development program based on the Instructional Talk-Through (ITT) model, created to address the unique needs of high-performing veteran teachers. Focusing on the professional development of veteran teachers is not a regular occurrence in schools and it is our opinion that these teachers possess a wealth of knowledge that heretofore has not been utilized to improve their overall skill set. The program was designed to capitalize on peer coaching, professional learning communities, classroom observation, and experiential knowledge while incorporating the unique strengths and abilities of these teachers in a collaborative environment.

Keywords: veteran teachers, professional learning communities, peer coaching

Introduction

Teacher efficacy has been linked to student performance in several disciplines as well as other tasks related to teaching (e.g., Caprara, Barbaranelli, Steca, & Malone, 2006; Guo, Connor, Yang, Roehrig, & Morrison, 2012; Lumpe, Czerniak, Haney, & Beltyukova, 2012). Yet, researchers have indicated there is significant room for improvement in the area of providing training to teachers in the United States (Archibald, Cogshall, Croft, & Goe, 2011), as the U.S. is much more limited than other high-achieving nations in offering high-quality professional development that produces improved student outcomes and increased teacher effectiveness (Darling-Hammond et al., 2009). Possible solutions for the problems associated with teacher effectiveness and professional development involve the concepts of teacher efficacy and peer coaching as models or enhancement to teacher training. A 2010 nationally representative survey of 890 teachers revealed that most believed improving professional development would be "very effective" or "somewhat effective" in improving teacher effectiveness (Coggshall & Ott, 2010). In addition, the peer coaching model of professional development has been shown to improve student achievement and teacher self-efficacy (Fine, Zygouris-Coe, Senokossoff, & Fang, 2013; Lumpe, Czerniak, Haney, & Beltyukova, 2012).

This study examined the impact of a teacher-lead professional development program based on the Instructional Talk-Through (ITT) model, created to address the unique needs of high-performing veteran teachers. Focusing on the professional development of veteran teachers is not a regular occurrence in schools and it is our opinion that these teachers possess a wealth of knowledge that heretofore has not been utilized to improve their overall skill set. The program was designed to capitalize on peer coaching, professional learning communities, classroom

observation, and experiential knowledge while incorporating the unique strengths and abilities of these teachers in a collaborative environment.

Research Questions

Consistent with the intent of the program the following questions guided this study:

1. Was there a change in teacher-self efficacy after participating in the Instructional Talk-Through (ITT) model of professional development program?
2. Compared to similar teachers, did the ITT participants report higher levels of self-efficacy?
3. What were the perceptions of the participating teachers of the ITT program?

Literature Review

Teacher efficacy and coaching have been studied extensively and there is a wide body of research that linking them with improving teacher practice and student achievement (Armor et al., 1976; Ashton & Webb, 1986; Galbraith & Anstrom, 1995; Joyce & Showers, 1980; Moore & Esselman, 1992; Robbins & Roberts, 1990; Ross, 1992; Showers, 1983, 1984, 1985; Sparks, 1983). This review begins with an examination of peer coaching and then moves to teacher efficacy.

Peer Coaching

Peer coaching is a concept that has been utilized in business, medicine, and education disciplines as a way to effectively convey and support adult learning (McLymont & da Costa, 1998; Thorn, McLeod, & Goldsmith, 2007). Peer coaching as it relates to education has been defined in literature and research in a number of ways but with the overarching theme involving two or more colleagues discussing and reflecting together around a specific purpose in order to improve performance (Becker, 1996; Reynolds, 2007; Robbins, 2001). Reynolds (2007) described peer coaching as "education professionals talking and reflecting on their practice in a purposeful way" (p. 2). Reynolds noted that coaches "serve as supportive listeners, who observe, ask questions, and share ideas" (2007, p. 2). Showers and Joyce (1980; in Joyce & Showers, 1996) defined a coaching relationship as one in which two or more teachers share aspects of teaching, plan together, and pool their experiences. Showers (1985) also described peer coaching as "a cyclical process designed as an extension of training" (p. 19). It is a collaborative process where teachers work together to learn from one another about a predetermined focus area both inside and outside of actual classroom teaching.

Although modeling and classroom observation are an important part of peer coaching, collaboration and discussion through planning and reflection are also vital. Coaching is not to be confused with mentoring, as a mentor relationship involves an expert working with a novice. Instead, peer coaching involves professionals of similar position working with one another with the goal of improving practice (Reynolds, 2007). Peer coaching is not intended to be used as an evaluation tool, is not a competition between teachers, and should not be viewed as strategy to "fix" teachers (Robbins, 2001; Thorn et al., 2007).

From these definitions, it becomes clear what peer coaching is and what it should look like when implemented within a school. Showers (1985) described the types of coaching-associated behaviors and outcomes that build and refine teacher skills. First, Showers asserted that coaching builds communities of teachers who consistently work together to improve their teaching practice. By building community around the work of teaching, relationships are

developed that promote continued collaboration and positive interaction. Second, coaching helps teachers to develop a common language and understanding of teaching necessary for continued growth through the acquisition of new skills and knowledge. Thus, teachers understand that continuous improvement is challenging work and that the support of colleagues is the most effective means to achieve success. Third, coaching provides the framework for follow up to training that is vitally important for the transfer of new teaching skills to the classroom. This aligns with research showing the most effective forms of professional development related to changing teacher behaviors devote more time to training and provide necessary follow-up after initial training (Yoon et al., 2007).

A number of benefits associated with the use of peer coaching models have been identified through research. Robbins and Roberts (1990) identified positive outcomes including (1) improved understanding of pedagogy and improved instructional performance, (2) improved self-awareness and increased sense of efficacy, (3) improved sense of teaching skills and desire for improvement, (4) increased teacher collaboration and mutual respect, and (5) increased student academic growth. And since Little's (1982) seminal work, a vast amount of research has been conducted on the effect of collegiality in schools with many studies specifically addressing peer coaching's effect on collegial relationships. Zwart, Wubbles, Bolhuis, and Bergen (2008) alluded to the positive effect of the work-based learning environment of peer coaching on supporting teachers' professional growth around day-to-day teaching issues as well as stimulating professional collaboration among teachers. In a later study focusing on peer coaching, Zwart et al. (2009) found intrinsic motivation to participate in professional development, experimentation with the new instructional methods, and the opportunity to discuss experiences with peers in a constructive but trusting atmosphere to be important factors in producing teacher learning. Positive influences on collegiality as a result of peer coaching were also found through a case study conducted by Arnau, Kahrs, and Kruskamp (2004) in a Georgia high school to increase conversations about teaching and learning among teachers. Participation by teachers in a peer coaching program in the school tripled over five years and five implications for peer coaching resulted from the study: (1) meaningful feedback, (2) self-directed learning, (3) trust among peer coaches, (4) increased moral among peer coaches, and (5) a feeling of self-worth from being involved in peer coaching.

Russo (2004) acknowledged a close alignment with the characteristics of coaching. Peer coaching, as an element of professional development, has been shown to produce significant changes in teacher behavior related to the transfer of learning from training to use in the classroom (Joyce & Showers, 1980; Phillips & Glickman, 1991; Slater & Simmons, 2001). Studies have also indicated that peer coaching in a supportive whole school environment can lead to the development of positive, trusting, collaborative relationships among teachers (Forbes, 2004; Showers, 1985; Zwart et al., 2008, 2009). These findings indicate peer coaching should continue to be studied to further verify which of its forms and processes are most effective and if other unknown benefits, such as a relationship to increased teacher efficacy, might also exist.

Teacher Efficacy

Teacher efficacy is a future-oriented motivational construct focused on teachers' beliefs about their competence in producing student outcomes through their teaching (Fives, 2003). Teachers' beliefs in their ability to perform teaching tasks have been linked to a number of vital areas of schooling, including student achievement (Armor et al. 1976; Ashton & Webb, 1986; Moore & Esselman, 1992; Ross 1992), motivation (Midgley Feldlaufer, & Eccles, 1989),

classroom management skills, and teacher stress (Woolfolk, Rosoff, & Hoy, 1990). Studies have shown a number of positive attributes associated with teachers who have a high sense of efficacy. Ashton (1985) found teachers with higher efficacy find their job more rewarding, have higher expectations for students, assess themselves when students fail, set goals and develop strategies for meeting those goals, have a positive attitude, and feel in control. Allinder (1995) reported teachers with a high sense of efficacy tend to do a better job with planning and organization and have a greater enthusiasm for teaching.

These findings show the potential for the continued study of teacher efficacy to impact education; however, even with these positive results the meaning and measure of teacher efficacy are still difficult to understand and this can be considered an elusive concept (Tschannen-Moran & Hoy, 2001). Hoy (2000) stated that general teaching efficacy appears to reflect the general beliefs of teachers regarding the power of teaching to reach difficult students. Personal teaching efficacy refers to the confidence a teacher displays in his or her ability to put strategies in place to overcome obstacles to student learning. It is more independent and focuses on what an individual teacher can accomplish rather than what teachers in general can do (Tschannen-Moran & Hoy, 2001).

Although elements of Rotter's (1966) social learning theory were behind the initial development of teacher efficacy, a second strand of study emerged based on Bandura's social cognitive theory and construct of self-efficacy (Tschannen-Moran & Hoy, 2001). Bandura (1977) introduced the concept of self-efficacy as the primary motivational force behind an individual's actions. Bandura originally defined self-efficacy as "the conviction that one can successfully execute the behavior required to produce outcomes" (p. 193) and later clarified the concept as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (1995, p. 2). Self-efficacy is the judgment of one's ability to implement what is necessary to attain designated types of performance (Bandura, 1986, 1997). In addition to teacher efficacy expectations, social cognitive theory emphasizes outcome expectancy, which is an individual's estimate of the likely outcome of performing a task at his or her perceived level of competence (Bandura, 1986). Outcome expectancies matter little in terms of the predictive power of efficacy measures unless they are in the form of physical or social rewards, recognitions, punishments, criticisms, or self-evaluations (Bandura, 1986, 1997).

Also important to the understanding of teacher efficacy is knowledge of how teacher efficacy is developed. Bandura (1977) proposed efficacy beliefs come from four sources: (1) mastery experiences, (2) vicarious experiences, (3) verbal persuasion, and (4) physiological arousal. Mastery experiences are those in which an individual actually performs the task in question. For teachers, this means teaching a classroom of students or working with students in small groups or individually. The degree of success or failure at these types of tasks is the basis on which teachers develop their efficacy beliefs (Fives, 2003). Mastery experiences are regarded as the most powerful influences on efficacy as they provide direct feedback on capabilities. However, mastery experiences do not always lead to increased efficacy as interpretations of the experience can vary, some outcomes may be valued more than others, and feedback may not always be processed and reflected upon (Henson, 2001).

Research Design

The most persuasive claims of causality by researchers studying the effects of professional development have come from experimental and quasi-experimental designs (Yoon et al., 2007). The difference between experimental and quasi-experimental research design lies in

how participants in the study are selected. In this study, participants were nominated and ultimately self-selected for participation, which seriously limited any casual claims the researchers could make and the threat to internal validity of selection bias exists. However, aspects of the design did provide opportunities to make strong inferences from the results about the relationship between participating in the ITT professional development program and teacher self-efficacy.

Participants

The two ITT treatment groups (n = 47) were comprised of principal nominated teachers employed in 24 schools across one county school district. A group of comparison teachers (n = 38) was developed after the establishment of the treatment groups using the same criteria for the creation of the treatment groups. Table 1 reports each group of teachers across gender, experience, and assignment.

Table 1.
Descriptives on ITT and comparison teachers

Group	Grade Level			Gender		Years of Experience	
	Elementary	Middle	High	Female	Male	Mean	SD
ITT Cohort I	12	6	2	20	0	12.75	5.7
ITT Cohort II	15	9	3	23	4	15.34	7.36
Comparison	20	13	5	37	1	13.0	7.23

Each principal of the 24 schools in the district was asked to select two teachers regarded as high performing for possible participation in the ITT model in Cohort I for the 2010-2011 school year and Cohort II for the 2011-2012 school year. The principals used their individual judgment or self-selected criteria to nominate possible participants at their discretion, and the selected teachers chose whether to participate or not voluntarily. There was no pre-defined or provided evaluation criteria by which principals selected potential participants. Fifty-one teachers from 18 different schools elected to participate in the ITT model development program in Cohorts I and II, with Cohort I participating in 2010-2011 and again in 2011-2012, and Cohort II participating for the first time in 2011-2012. Four teachers from three different schools dropped out during the course of the professional development, leaving this study to be based on the full participation of 47 teachers at 15 different schools.

To help determine the effect of the professional development program on the self-efficacy of participating teachers, a comparison group of teachers was selected using principal input consistent with the original process that selected the two training groups. This comparison group was developed after the end of Year One to provide the researchers with a group of similar teachers with which to compare the treatment teachers. This ex post facto approach was not optimal, as the presence of selection bias again existed for this group and treatment diffusion could be present as these teachers may have been exposed to the knowledge gained by treatment teachers via personal or professional contact. As a result of this sampling design, limitations were present as to the types of data analyses conducted, which will be discussed in the data analysis section.

Instrumentation

The Teachers' Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) was the teacher efficacy measure utilized in this study. The TSES offers a number of advantages over other teacher efficacy measures, with its most appealing feature being the ability to specifically measure multiple elements of teacher efficacy over a broad range of teaching tasks that can be compared across subjects, grade levels and schools. In their effort to develop an instrument that addressed teacher efficacy in correspondence with the actual varied tasks teachers encounter during the school day, Tschannen-Moran and Woolfolk Hoy (2001) took Bandura's 30-item, seven-subscale measure and developed their own items representative of frequent teaching activities (Henson, 2001). Continued refinement of the TSES yielded an 18-item instrument that measured teacher efficacy in efficacy in student engagement, efficacy in instructional practices, and efficacy in classroom management (Henson, 2001). Factor analysis used to test the instrument consistently revealed the three moderately correlated factors of efficacy in student engagement, efficacy in instructional practice, and efficacy in classroom management. The scoring of the TSES in determining subscale scores for these three factors of teacher efficacy is accomplished by computing the unweighted means of the items that load on each factor (Table 2, Woolfolk Hoy, n.d.).

Table 2.
TSES Factor Groupings

Short Form	
Efficacy in Student Engagement:	Items 2, 4, 7, 11
Efficacy in Instructional Strategies:	Items 5, 9, 10, 12
Efficacy in Classroom Management:	Items 1, 3, 6, 8

Validity and reliability. The TSES was initially tested in three separate studies to measure validity and reliability and further refine the tool (Tschannen-Moran & Woolfolk Hoy, 2001). Table 3 outlines the full reliability results from that study.

Table 3.
TSES Reliability Results

	Long Form			**Short Form**		
	Mean	SD	Alpha	Mean	SD	Alpha
TSES	7.1	.94	.94	7.1	.98	.90
Engagement	7.3	1.1	.87	7.2	1.2	.81
Instruction	7.3	1.1	.91	7.3	1.2	.86
Management	6.7	1.1	.90	6.7	1.2	.86

Tschannen-Moran and Woolfolk Hoy (2001) note that the total score seems to be the more valuable measure for pre-service teachers' efficacy as subscale scores may have little meaning for potential teachers with no real teaching experience.

The research of Tschannen-Moran and Woolfolk Hoy (2001) and Heneman, Kimball, and Milanowski (2006) indicated the TSES is a valid and reliable tool for the measurement of overall teacher efficacy as well as teacher efficacy in the three specific domains of engagement, instruction, and management.

Treatment

The Instructional Talk-Through Model (ITT) is a form of professional development for teachers that focuses on improving teacher practice through observation, peer coaching, discussion, and reflection. Kennedy (2010) developed the model during years of providing and leading professional development for teachers in schools and school districts across the country. The model is grounded in adult learning theory and evolved through years of action research based on the theories and findings of researchers Showers (1982, 1983, 1984, 1985) and Haycock (1998). The ITT model considers a number of adult learning theory aspects noted by Speck (1996) as important when designing professional development activities for educators: (1) goals and objectives must be considered realistic and important to the learner; (2) adults must be the origin of their own learning; (3) adults must see the relationship and relevance of learning to their daily activities; (4) adults need experiences in which they apply learning in real work; (5) peer support and reduced fear of judgment; (6) the presence of structured and helpful feedback; (7) the presence of small group activities to promote critical thinking; (8) accommodation of diversity experiences, knowledge, interests, and competencies; and (9) facilitated follow-up support to transfer learning into daily practice.

Participation in the ITT model was by invitation for schools and teachers, and participation was voluntary. Generally, six to seven schools formed a cohort, with each school having two participants. Each school hosted a half-day visit during the school year and a facilitator worked with the host principal to schedule the visit for the cohort of teachers. Classroom visits and follow-up conversations focused on a theme as host teachers pre-identified elements of learning and reflective questions to guide their peers' classroom visits. The facilitator sent the pre-identified areas of focus to the members of the cohort prior to the visit and then teachers visited the classrooms in their assigned groups. Students actively participated in the process through conversations about their learning with the visiting teachers. Immediately following the visit, teachers participated in a facilitated discussion focusing on the pre-identified elements of learning. During these conversations, teachers had opportunity to rotate through a series of facilitated conversations, resulting in the host teachers hearing from each participant. The teachers then provided written feedback to the principal to ensure the process was dynamic and evolving to meet the teachers' learning needs. Principals were asked to use this feedback to plan for the next ITT and instructional improvement.

The roles of the facilitator and teachers in the ITT process are very important and their responsibilities have been clearly defined (Appendix F). The facilitator is responsible for coordinating the meetings through scheduling, sending reminders to participants, arranging for lunch/snacks, and collecting and submitting any required paperwork/forms/invoices to the office of professional development. The facilitator coordinates the ITT process by making sure the teachers receiving visits upload the lesson focus to a shared folder and that the visiting teachers download the lesson focus. The facilitator also participates in the actual ITT meeting by sharing the lesson focus, serving as timekeeper, seeking input from all participants, determining if clarification is needed, and ensuring the ITT process is followed. Finally, the facilitator shares the meeting evaluation and feedback with the host principal making sure to keep confidential information within the team.

The teachers' responsibilities can be divided into two categories: preparation for the monthly visit and participation in the ITT process. In preparation for visits, teachers are expected to make monthly visits a priority, as attendance is crucial to the success of the team. Teachers must review the lesson focus prior to each visit and bring required materials and forms with

them, including their ITT notebooks. Teachers' responsibilities related to participation in the ITT process include being enthusiastic and committed to the team's purpose, being honest, keeping confidential information within the team, willingly sharing knowledge and expertise, respecting opinions and positions of others on the team, completing feedback forms at the end of each meeting, and practicing new learning.

Data Collection Analysis

Treatment teachers in Cohorts I and II completed the Teachers' Sense of Efficacy Scale (TSES) as a pre- and post-measure of their individual feelings of teacher efficacy with Cohort I completing it at the end of the 2010-11 school year and Cohort II at the end of the 2011-12 school year. The comparison teachers only completed the TSES as a one-time measure of self-efficacy at the end of the 2011-12 school year. Two additional open-ended questions related to the effect of the ITT process in building leadership skills were added to TSES post-test for treatment group participants. This was the result of the ongoing development of the program and a reflection by the researchers that having a comparison group formed after Year One, albeit resulting in a poorer research design, would provide some comparisons that may yield results to inform practice.

Quantitative Analysis

Given the nature of the response scales, a nonparametric approach to analysis was chosen. The Wilcoxon Signed Ranks Test was utilized to compare pre- and post-TSES results for teachers participating in the ITT model. The Mann-Whitney U Test was used to make comparisons between the treatment and control groups of teachers. This tool was also chosen for its wide applicability to compare the difference between two independent groups as well as its flexibility in accommodating both small and large sample populations (Black, 2003).

Qualitative Analysis

Grounded theory was utilized in this research to analyze responses to individual open-ended questions as a part of the post TSES. Coding as described by Corbin and Strauss (1990) was used to categorize differing elements of responses and determine how they may relate to the ITT process, teacher efficacy and student achievement. A small sample of ITT participants (two high school, two middle school, and two elementary school teachers) participated in a member checking session in which they were presented with the relevant themes determined from analyzing open-ended responses. This session ensured congruency of responses and interpretations.

Results

Based on the purpose of this study, two underlying goals were established to determine (1) the relationship between the ITT model of professional development and student achievement and (2) the relationship between the ITT model of professional development and teachers' sense of self-efficacy.

Results for Question One

The first research question to investigate was "What is the relationship between the ongoing teacher-based Instructional Talk-Through model of professional development and teachers' sense of efficacy as measured by questions from the Teachers' Sense of Efficacy Scale (TSES)?" To answer this research question, quantitative data were obtained from teachers who took part in the professional development model and from a control group of teachers who did not take part in the professional development model. Additionally, qualitative data were

collected from an open-ended question added to the end of the post-test TSES for ITT participants. The question probed for a possible link between ITT participation and the acquisition of leadership skills among teachers. Since data collected were both quantitative and qualitative, the results are presented accordingly.

Table 4.

Wilcoxon 2-Related Samples Test Results on ITT Teacher Initial and End of Training (EOT) Self-Efficacy Scores

Questions	Survey Administration			
	Mean Rank ITT Initial (N= 47)	Mean Rank ITT EOT (N=47)	z	p
1. How much can you do to control disruptive behavior in the classroom?	11.10	14.07	-3.157	0.002
2. How much can you do to motivate students who show low interest in school work?	14.60	18.71	-2.666	0.008
3. How much can you do to get students to believe they can do well in school work?	14.00	15.88	-3.216	0.001
4. How much can you do to help your students value learning?	14.00	15.88	-2.792	0.005
5. To what extent can you craft good questions for your students?	11.63	16.29	3.759	0.000
6. How much can you do to get children to follow classroom rules?	12.97	17.96	-2.196	0.028
7. How much can you do to calm a student who is disruptive or noisy?	15.50	16.20	-1.897	0.058
8. How well can you establish a classroom management system with each group of students?	11.18	16.65	-3.051	0.002
9. How much can you use a variety of assessment strategies?	12.00	15.18	-4.110	0.000
10. To what extent can you provide an alternative explanation or example when students are confused?	11.58	19.33	-4.084	0.000
11. How much can you assist families in helping their children do well in school?	17.63	18.75	-3.061	0.002
12. How well can you implement alternative strategies in your classroom?	17.44	16.33	-2.038	0.042

Table 4 shows the results of a Wilcoxon Ranked Sign Test on the survey results for the ITT teachers that compared their self-efficacy perceptions before and after participating in the training. The purpose of comparing the pre-test scores to the post-test scores for the ITT participants was to determine if their self-efficacy increased after taking part in the ITT professional development model.

The results of the tests revealed that for 11 of the 12 items, the mean rank scores on the pre-test and the post-test for the ITT teachers were significantly different. The mean rank for each item was higher on the post-test than on the pre-test for all items except question 7; however, for item 7, the difference in the pre-test and post-test scores was not significant with a p-value of 0.058, the post score mean was higher. Overall the conclusion that can be drawn is that the teachers who completed the Instructional Talk-Through model of professional development had higher self-efficacy about their abilities in the classroom as compared to before they began the model.

Results for Question Two

Next, the end of training self-efficacy scores of the ITT teachers and a group of non-participating teachers were compared using a Mann Whitney Independent Samples U Test (Table 5). The results show that the scores on items 2, 3, 4, and 5 were significantly different. Because the scores for the ITT group were higher on those items than for the control group, the tentative conclusion is that teachers in the ITT group may have had a higher level of self-efficacy than teachers in the control group who did not take part in the ITT model with regard to motivating students, getting students to believe in themselves, helping students value learning, and crafting good questions for students. For the other items, the conclusion presented is that the scores of the ITT group and the control group of teachers are statistically the same, meaning the Instructional Talk-Through model of professional development did not result in significantly higher self-efficacy in those areas related to controlling disruptive behavior in the classroom, getting children to follow classroom rules, calming disruptive or noisy students, establishing a classroom management system with students, using a variety of assessment strategies, providing alternative explanations to students who are confused, assisting families in helping their children do well in school, or implementing alternative strategies in the classroom.

From a broader perspective, it seems the teachers in the ITT group had higher self-efficacy than teachers in the control group concerning motivating their students and helping them see the value in learning; however, in terms of issues related to actual classroom management such as controlling disruptive students and working with families to help students improve performance in the classroom, ITT teachers' self-efficacy was not greater than other teachers. The conclusion that might be drawn is that the ITT model improves self-efficacy related to student engagement but, with the exception of improving questioning skills, does not improve efficacy directly related to instruction or management of students.

Table 5.

Mann Whitney Independent Samples U Test Results Comparing ITT and Control Teachers' Self-Efficacy Scores

Questions	Survey Administration			
	Mean Rank ITT (N= 47)	Mean Rank Control (N=38)	U (z)	p
1. How much can you do to control disruptive behavior in the classroom?	46.08	38.17	709.50 (-1.610)	0.107
2. How much can you do to motivate students who show low interest in school work?	49.47	35.00	589.00 (-2.799)	0.005
3. How much can you do to get students to believe they can do well in school work?	48.32	36.42	643.00 (-2.322)	0.020
4. How much can you do to help your students value learning?	49.18	35.36	602.50 (-2.651)	0.008
5. To what extent can you craft good questions for your students?	48.20	36.57	648.50 (-2.297)	0.022
6. How much can you do to get children to follow classroom rules?	44.09	41.66	842.00 (-0.479)	0.632
7. How much can you do to calm a student who is disruptive or noisy?	43.27	42.67	880.50 (-0.115)	0.908
8. How well can you establish a classroom management system with each group of students?	46.39	38.80	733.50 (-1.517)	0.129
9. How much can you use a variety of assessment strategies?	45.84	39.49	759.50 (-1.242)	0.214
10. To what extent can you provide an alternative explanation or example when students are confused?	44.21	41.50	836.00 (-0.533)	0.594
11. How much can you assist families in helping their children do well in school?	46.26	38.97	740.00 (-1.383)	0.167
12. How well can you implement alternative strategies in your classroom?	45.45	39.97	778.00 (-1.055)	0.291

A post-hoc power test was conducted to establish if the sample size used for the Mann Whitney was sufficiently large to provide the opportunity to find significant differences. The results from the power test using $\alpha = 0.05$, power of $1 - \alpha = 0.80$, an effect size of 0.5, for a two-tailed test revealed that the required sample size is 134, or 67 in each group. Using the study's sample size, it was found that the power of the test was only 0.59, indicating a high risk of

rejecting the alternate hypothesis when in fact it is true (the alternate is that there is a significant difference of the mean ranks). This implies the differences observed may be significant; however, due to the low sample size, the possibility was unlikely.

Results for Question Three

Strauss and Corbin's (1990) grounded theory approach was used to identify themes in the responses. Five themes were evident from analyzing the data: (1) sharing ideas with colleagues, (2) an expanded knowledge base of best teaching practices, (3) increased confidence, (4) relationship building/collegiality, and (5) increased leadership capacity within the classroom. Two of these themes, sharing ideas with colleagues and an expanded knowledge base of best teaching practices, were dominant as each showed up in over half of the teachers' responses. Twenty-five of 45 teachers who indicated a boost in their leadership skills after participating in the ITT model attributed this to sharing new learning with others, while 29 of 45 teachers credited an expanded knowledge base that included new strategies, innovative ideas, and best practices with their leadership growth. From the nature of the survey question, responses seem to indicate that leadership skills teachers acquired through the ITT process involve not only an expanded knowledge base but also sharing that new knowledge with others.

Simply learning new ideas does not equate to leadership development if done in isolation. In this sense, the two themes of an expanded knowledge base and sharing ideas with colleagues can be combined, yielding 37 of 45 responses that form one core theme of sharing new ideas, strategies, and practices with others. This core theme was evident as the primary basis for leadership skill development because of ITT participation. For example, one participant stated that the Instructional Talk-Through process helped in developing or improving leadership skills because of the ability to take back innovative techniques to other teachers in the department. Another teacher explained:

> The process as has also encouraged me to talk about these strategies with teachers at my school who could benefit from seeing other teachers.

Several teachers discussed feeling affirmed and more confident in the ability to share knowledge with other teachers in their schools.

One teacher stated:

> Watching other colleagues teach showed me that we are all basically in the same boat. This realization provides confidence to me because I know I can teach to kids and adults.
>
> Another teacher who completed the process explained that best practices for the

classroom have been learned, and the ITT process made it possible to take those practices back to new teachers. The teacher stated:

> We have observed the best practices in our schools and have the opportunity to take these back to our schools. I feel that a lot of the new teachers and beginning teachers need to see these practices.

One teacher participant actually planned to work with another teacher who completed the process to create a program in their classrooms. This teacher responded:

> I have come back to my school and shared with my colleagues the many new and innovative ideas I have seen in schools throughout the county. Also, another teacher in our cohort and me [sic] are going to meet during the summer to set up a program in my classroom and another teacher's classroom that teaches with me.

Summary

  Overall, it would seem that teachers who go through the ITT model of professional development not only have higher levels of self-efficacy but also expand their leadership abilities. These teachers tend to demonstrate leadership through desire and action in sharing the information and knowledge they gain with other teachers. They are motivated to help fellow teachers improve their own abilities in the classroom.

Discussion

  The results of this study seem to indicate significant differences in efficacy benefits for teachers taking part in the ITT process compared with a similar group of teachers who did not participate. As the differences in the mean ranks for Items 2, 3, and 4 from the TSES were found to be statistically significant for teachers participating in the ITT model, the conclusion may be drawn that, compared to high-performing teachers who did not participate in the ITT process, these teachers showed an improved sense of efficacy in areas connected to student engagement related to motivating students, helping students believe in themselves, and helping students value learning. Participation in the ITT model also seems to benefit teacher efficacy in instructional strategies through the increased ability to craft good questions for students, as indicated by the statistically significant result for Item 5. Significant benefits in other areas related to efficacy in instructional strategies and classroom management as compared to the control group were not supported by the study findings.

  There also appear to be increases in teacher efficacy for teachers who participate in the ITT model. This claim is supported by statistically significant differences in scores between pre- and post-TSES results for 11 of the 12 items. These results suggest teachers who are a part of the ITT process show significant efficacy growth in student engagement, instructional strategies, and classroom management. The lone area in which statistically significant growth was not indicated was for Item 7 relating to efficacy in classroom management, specifically, calming noisy or disruptive students. Although not significant, the end of training score was higher than the initial score.

  The qualitative data collected as a part of this research indicated the majority of teachers participating in the ITT model felt the experience enhanced their leadership abilities. They mainly attributed their leadership growth to the desire and confidence to share instructional strategies and ideas learned with other teachers at their schools. They found value in observing other high-performing teachers at work and benefitted from seeing new or unknown strategies, practices, and techniques in action. This finding is supported by other research indicating high-performing teachers often demonstrate leadership through collaboration and seek to share and learn from other teachers (Goe et al., 2008). Teachers did not indicate through the open-ended survey question that the opportunity to provide growth-evoking feedback contributed to their leadership skills. It could be that teachers view constructive feedback to other teachers as part of the administrative leadership role and not the role of a teacher-leader. It would be interesting to include questions specific to this phenomenon in future research.

Implications for Educational Leaders

  Educational leaders are continuously searching for ways to improve education. Past research indicates the most critical element related to student achievement is the quality of the teacher in the classroom (Goldhaber & Hannaway, 2009; Haycock, 1998; Sanders & Rivers, 1996). Some may argue improving teacher quality is the job of teacher education programs and

that the responsibility of developing better teachers lies with universities. The immediate solution is to better train the teachers that daily lead our classrooms through effective professional development.

It can be argued that any professional development for teachers should include a contingency for increasing teachers' self-efficacy, as the qualities that describe teachers with high self-efficacy are also qualities seen in successful, highly effective teachers (Chase, Germundson, Brownstein, & Distad, 2001; McEwan, 2002; Ross, 1994; Whitaker, 2004). Research indicates a link between teacher self-efficacy, high-quality teaching, and increased student achievement (Gibson & Dembo, 1984; Goodard et al., 2000; McEwan, 2002; Moore & Esselman, 1994; Ross, 1994; Stronge, 2002; Whitaker, 2004). Although teacher self-efficacy can be gained through mastery experiences, which involve gaining efficacy from actually performing the task of teaching, this study indicates efficacy can also be increased through vicarious experiences, observing other teachers, and being observed and receiving positive feedback (Bandura, 1977). All three efficacy-building experiences are a part of the ITT model of ongoing high-quality professional development activities aimed at actively involving teachers in the work at hand and utilizing a peer coaching model.

One of the largest studies that perhaps produced the most comprehensive understanding of the criteria for effective professional development was conducted by Garet et al. (1999), who determined that three specific structural (form, duration, and participation) and core (content, active learning, coherence) features are critical for professional development to be effective. The Instructional Talk-Through model of professional development includes each of these structural and core features in its design. In addition, the ITT design includes elements of peer-coaching, which has repeatedly demonstrated through research the ability to increase transfer of training back to the classroom and the development of positive and supportive relationships between teachers enhancing the refinement of teaching skills (Showers, 1985). These characteristics and the present research indicate the ITT model can be a highly effective form of professional development for improving quality of teaching.

Local school-based administrators need not wait for national, state, or local bureaucracies to provide effective professional development for teachers. The results of this study indicate the ITT model of professional development involving peer coaching is effective at increasing teacher efficacy, which can be related to improved teacher quality. Although the ITT process was initiated at the district level in this study, principals can easily adapt the model to their own schools by providing teachers with opportunities to observe and peer coach one another. To this end, Rutherford (2009) developed a process called Teaching Studies that allows teachers to accomplish this task during planning periods. During Teaching Studies a group of three teachers and an administrator observe another teacher for 15-20 minutes, focusing on aspects of the lesson and teacher behaviors that contribute to positive outcomes for students. Following the observation the observed teacher, the observing group, and the administrator sit down for a 20-minute facilitated peer-coaching conversation centered on the lesson. The administrator facilitates the conversation and actively participates as the discussion revolves around three questions: (1) What patterns of effective instruction did you observe? (2) What questions do you have for the teacher on the lesson, content, students, context, next steps, etc.? and (3) How might you apply any of the instructional patterns or practices in your own classroom (Rutherford, 2009)?

The entire Teaching Studies model takes about 45 minutes to complete with the goal being that through this condensed peer-coaching process teachers are affirmed in numerous areas

related to positive student outcomes, many of which they did not even realize they perform. In addition, observing teachers have the opportunity to glean strategies and best teaching practices, which they may take back and initiate in their own classrooms. The results of this study and the opportunities available for peer-coaching initiatives in schools are a call to action for school administrators to implement such programs in their schools to increase teacher efficacy and quality.

Another implication for educational leaders as a result of this study is to consider how the ITT model might be "flipped" and utilized with beginning or ineffective teachers as opposed to highly effective teachers. It could be argued that these teachers have a greater need and would benefit more from observing other teachers and receiving positive affirmation of aspects of their teaching than high-performing teachers. In a "flipped" scenario, an important consideration would be to understanding that beginning or ineffective teachers will not possess the repertoire of best instructional practices of highly effective teachers. This could mean teachers would be observing ineffective practices or worse, if not properly facilitated, affirming poor practices. In this sense it may be best to consider ITT cohorts that are a strategic mixture of highly effective and beginning or ineffective teacher to ensure that beginning or ineffective teachers can observe teaching and peer-coaching feedback from highly effective teachers. An example of this may be seen in the Teaching Studies model by placing a beginning or ineffective teacher with two highly effective teachers as observers of another highly effective teacher. This would provide the less effective teacher the benefit of observing best teaching practices and hearing the instructionally rooted peer-coaching feedback that effective teachers would generally provide.

The positive results of this study related to improved teacher efficacy suggest alternative applications of the ITT model involving heterogeneously talented teachers could assist in improving the effectiveness of lower-performing teachers and deserves deeper investigation. Since it could be theorized that lower-performing teachers might tend to observe shallow or surface aspects of teaching rather than deeper aspects related to pedagogy, observing high-performing teachers could enhance these teachers' observational skills. Grouping higher- and lower-performing teachers together may also promote improvement in lower-performing teachers without blatantly indicating they need to demonstrate improvement and placing strain on collegial relationships.

Implications for educational leadership can also be garnered from the qualitative data collected in this study. The qualitative analysis uncovered five themes describing how the ITT process contributed to the self-perceived leadership gains of participants: (1) sharing ideas with colleagues, (2) an expanded knowledge base of best teaching practices, (3) increased confidence, (4) relationship building/collegiality, and (5) increased leadership capacity within the classroom. In many education systems, teacher leadership is valued in the school, in the teaching profession, and in advocating for schools and students. For example, in North Carolina, in order to be a "distinguished" teacher in demonstrating leadership, a teacher must (1) collaborate with colleagues to improve the quality of learning in the school; (2) promote positive working relationships through professional growth activities and collaboration; (3) seek opportunities to lead professional growth activities; (4) participate in developing policies and practices to improve student learning; and (5) actively participate in, promote, and provide strong supporting evidence for implementation of initiatives to improve education.

Limitations

It should be noted there were limitations to this study that, if addressed in future research, might increase the validity of findings. Pre- and post-tests as well as treatment and control groups were used to control for such threats to internal validity as history, maturation, regression, and contamination. The most significant threat to external validity in this study came from selection, as participants were not randomly selected but instead came from pre-existing groups and principals were given complete autonomy in selecting both ITT teachers and the comparison group. Compounding this there was a one-year lag in selecting the comparison teachers which may reflect diffusion of the treatment effects on the principals if they had conversations with the original and current ITT teachers. This contact could have influenced their selection of the control teachers. The post hoc power analysis did reveal that the limited sample size may have contributed to the lack of significant findings. Using randomly selected participants, with the use of detailed and specific selection criteria in future studies, of adequate sizes, would help to account for risks associated with sampling bias and would allow for causal relationships to be more fully established.

Future Research

This study focused solely on the use of the Instructional Talk-Through Model of professional development in one school district. Certainly, there are other school districts that utilize similar models of professional development emphasizing peer coaching as a key component. In an effort to generalize these findings, this study should be replicated in other settings to determine if findings are similar in relation to gains in teacher self-efficacy.

A second consideration for future research would be to establish a link between the ITT and similar models of professional development with student achievement. One possible method would be the use of teacher value-added data to determine changes in teacher effectiveness. Teacher value-added data statistically determines if teachers met, exceeded, or failed to meet expected growth for their students during the school year. Value-added processes are designed to take into account individual student testing history over a pre-determined period in order to make a prediction of growth for the year.

A final consideration for future research is a more in-depth examination of the possible benefits of peer-coaching models of professional development in developing and improving teacher leadership abilities. This research minimally addressed this potential relationship and survey results indicate a possible positive connection that requires further study. Since peer coaching involves teachers providing constructive feedback to one another and teachers in this study did not express providing feedback to colleagues as an area in which they grew, it would be interesting to further explore teachers' outlooks toward critiquing the abilities of their colleagues.

The results of this study seem to suggest that the ITT model may be effective in significantly increasing the self-efficacy of participating teachers. The increases in self-efficacy are wide-ranging and include gains of efficacy in student engagement, instructional strategies and classroom management, and self-perceived gains in specific areas of leadership ability related to sharing ideas with colleagues; thus, teachers and school and district administrators could view the ITT model as an effective form of professional development for improving teacher effectiveness and leadership abilities. School administrators should work to implement models of professional development that emphasize a peer-coaching component, such as the ITT model, to support the continued development of teachers.

The model of professional development studied herein could provide teachers, school and central office administrators, and policy maker's insight into the effectiveness of the model and how it might be best utilized by individual schools and districts as a possible strategy for improving the effectiveness of already high-performing teachers. Also, viable information from the study may help develop interventions and training that could lead to increased student achievement and increased teacher leadership capacity.

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