Linking Transformational Leadership to Student Teachers’ Efficacy: Contributions of Mentor Teachers’ Leadership Behaviors

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1. Introduction

A literature review of student interns' (often referred to as student teachers or pre-service teachers) efficacy beliefs revealed that most studies have focused on the effects of teacher efficacy on teacher effectiveness and student achievement. However, the role that mentor teachers (often referred to as cooperating teachers or collaborating teachers) play in the growth of efficacy beliefs of student interns has received little attention, and the empirical evidence is insufficient. A teacher's sense of efficacy has been defined as “the teacher’s belief in his or her capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context” (Tschannen-Moran & Woolfolk Hoy, 1998, p. 233). Teacher efficacy has been correlated with education innovations (Cousins & Walker, 2000), classroom management (Woolfolk, Rosoff, & Hoy, 1990), teaching effort (Allinder, 1994), and commitment to teaching (Coladacci, 1992). According to Erdem & Demirel (2007), the teachers’ sense of efficacy is crucial to manage classroom, organize and teach courses, and motivate and communicate students for learning effectively. Teacher efficacy also has been linked to student motivations (Midgley, Feldlaufer, & Eccles, 1989), academic achievement (Ashton & Webb, 1986; Moore & Esselman, 1992; Ross, 1992; Muijs & Reynolds, 2002), and classroom behavior (Tschannen-Moran & Woolfolk Hoy, 2001).

The literature omits the central role that mentor teachers play in the development of efficacy beliefs of student teachers. Widen, Mayer-Smith, and Moon (1998) found that the role and effects of cooperating teachers on student teachers were missing in research. Mentor teachers provide supervision that requires frequent observation and feedback to student interns on a daily basis during the student teaching experiences. Borko and Mayfield (1994) contended that, due to day-to-day interactions with pre-service teachers in their internship practicum, mentor teachers are more influential than university supervisors in the growth of efficacy beliefs of student teachers. According to Graham (2006), cooperating teachers who provide guidance and support to student teachers are crucial to the success of intern experience.

Cooperating teachers during the internship practicum find themselves in positions of leadership (Borko & Mayfield, 1995). They do not only supervise student teachers to guide their professional growth and development during the internship practicum, but also serve as models whose behaviors and attitudes will be emulated. York-Barr and Duke (2004) posited that teachers are leaders in the process of teaching and learning. Childs-Bowen, Moller, and Scrivner (2000) advocated that teachers held a leadership position in the ways they affected student learning and inspired excellence in practice in professional learning communities. Northouse (2007) defined that leadership is the process of influencing individuals in order to accomplish a specific goal or outcome. Since leadership is inherent in the roles and responsibilities of cooperating teachers, an understanding of their leadership practices and subsequent effects on student interns is needed (Borko & Mayfield, 1995; McIntyre, Byrd, & Foxx, 1996; Anderson, 2007). However, literature reviews that few empirical studies have looked at the leadership role of mentor teachers through the lens of leadership theories (Pounder, 2006). This paper
is to fill this gap by empirically examining the effects of cooperating teachers’ leadership practices on student interns’ teacher efficacy during the internship practicum. The subsequent study provides empirical evidence for the role that mentor teachers play in the development of efficacy beliefs of student interns, which will be valuable for the improvement and the reform of the current teacher education programs. Additionally, the present study integrates organizational leadership concepts into the existing literature of teacher leadership, which will shed light on the effective leadership practices of mentor teachers involved in the internship practicum.

2. Theoretical development and research questions

2.1 Social cognitive theory and self-efficacy

The social cognitive theory postulates that “human achievement depends on interactions between one’s behavior, personal factors, and environmental conditions” (Erdem & Demirel, 2007, p. 574). Bandura (1997) posits that self-efficacy is constructed from four principal sources of information: mastery experience, vicarious experience, verbal persuasion, and physiological and affective states. According to Bandura (1997), mastery experiences rely on the successes and failures from the previous performances. Student teachers boost their self-efficacy beliefs through mastery experiences when they successfully complete their internship practicum. Bandura (1997) defines that vicarious experiences are the self-appraisal of capabilities in relation to the performance of others. Student teachers grow their personal self-efficacy beliefs through vicarious experiences by observing or modeling the behaviors of cooperating teachers. Bandura (1997) contends that when individuals have little prior experience with the task, the effects of modeling on efficacy beliefs are particularly powerful. Effective coping strategies conveyed by mentors can raise the self-efficacy beliefs of student teachers. Furthermore, self-efficacy beliefs of those experienced student teachers can be boosted if mentors teach them better ways to accomplish tasks. Bandura (1997) defines that verbal persuasions are the performance feedback that individuals receive from others, highlighting personal capabilities to achieve what they seek. Mentor teachers can promote the efficacy beliefs of student teachers through positive appraisal within realistic bounds. Bandura (1997) posits that physiological and affective states such as stressful and taxing situations also influence people’s judgments of their personal capabilities. The internship practicum is a unique event for pre-service teachers to develop the information of mastery experience. Student interns participate in the teaching internship, with multiple opportunities for both verbal persuasion and vicarious experiences, which help foster the future development of efficacious beliefs (Fives, Hamman, & Olivárez, 2007).

2.2 Transformational leadership behaviors and self-efficacy

The present study uses the theoretical framework of transformational leadership to understand the behaviors and practices by which mentor teachers influence student interns. Transformational leadership is the process of “improving the performance of followers and developing followers to their fullest potential” (Northouse, 2007, p176). Crowther (1997) posited that teachers may not consciously be aware of their transformational leadership qualities, but their behaviors in the classroom are similar to those same tenets of transformational leadership as articulated by Burns (1978) and Kouzes & Postner (2007). An example of transformational leadership could be a mentor teacher who attempts to stimulate and inspire student interns by persuasion or example to accomplish great things and develop their own capabilities required to manage prospective teaching situations. Kouzes & Postner (2003)
posit that transformational leaders can achieve extraordinary outcomes by employing five exemplary leadership practices: model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart. According to Kouzes & Postner (2003), model the way is the practice that transformational leaders model the behavior they expect of others. In this regard, this leadership behavior is a source of the vicarious experiences, which occurs when individuals observe and learn from the experiences or modeling of someone else (Fives, Hamman, & Olivárez, 2007; Ormrod, 2008; Tshannen-Moran & Woolfork Hoy, 2007). Bandura (1997) contends that modeling is a critical construct of social cognitive theory. In the context of the teaching internship, mentor teachers provide scaffolding and modeling of effective pedagogical strategies for student teachers during their internship practicum. Student interns observe, discuss, and reflect upon the behaviors of their mentor teachers throughout the internship practicum. The constant and continual interplay between student interns and mentor teachers fosters the growth of student teachers’ efficacy beliefs. Kouzes & Postner (2003) posit that inspire a shared vision is the practice that transformational leaders inspire others to accept the vision as their own. Kouzes & Postner (2003) define that challenge the process is the practice that transformational leaders seek, accept, and embrace challenging opportunities that direct others to greatness. Kouzes & Postner (2003) posit that enable others to act describes how the leader makes it possible for followers to take actions by fostering collaboration and supporting followers in their personal development. This leadership behavior is a source of verbal persuasion, which deals with the verbal judgments of performance and support from others. In the context of the internship practicum, verbal persuasion is the evaluative feedback that student teachers receive about their performance and prospects for success from important others (Tshannen-Moran & Woolfork Hoy, 2003). Kouzes & Postner (2003) posit that encourage the heart is the behavior that leaders recognize followers’ contributions and find ways to celebrate their achievements.

2.3 Dyadic interaction and self-efficacy

The dyadic interaction between cooperating and student teachers during the internship practicum may have a significant impact on the development of teacher efficacy of student interns. According to Grannot (1993), the dyadic interaction can be divided into two forms, imitation and guidance, depending on the levels of collaboration between an expert and a novice. Imitation refers to the low level of collaboration when “the novice simply imitates the actions of the expert” (Hamman, Olivárez, & Stevens, 2007). Guidance refers to the high level of collaboration when “the expert guides and even scaffolds the learning of the novice” (Hamman, Olivárez, & Stevens, 2007). Hamman, Olivárez, & Stevens (2007) found that guidance appears to have a stronger relationship with the efficacy beliefs of student interns than imitation does. Imitation identifies an experience where mentor teachers provide minimal assistance to student interns. Mentor teachers do not acknowledge or scaffold the needs of student interns and continue and follow that status quo by conducting business as usual. Student interns need to figure things out by themselves (Hamman, Olivárez, & Stevens, 2007). Since the asymmetric (expert-novice) relationship exists during the internship practicum, student interns will be ill-equipped to execute proficient or exemplary instructional strategies (Hamman, Olivárez, & Stevens, 2007). Without the interaction and guidance of mentor teachers throughout the internship practicum, student interns’ teacher efficacy is negatively affected. Mentor teachers need to guide student interns through collaborative partnerships in order to improve their efficacy in pedagogical strategies.

2.4 Research questions
The purpose of the present study was to investigate the relationship between student interns' teacher efficacy and leadership behaviors of mentor teachers, controlling for the prior differences in efficacious beliefs of pre-service teachers. The following research questions were addressed:

1. Do three efficacy beliefs: student engagement, instructional strategies, and classroom management, differ between before and after students’ internship practicum?

2. Do three efficacy beliefs vary as a function of transformational leadership practices, controlling for the prior difference in the composite teacher efficacy of student interns?

3. Do three efficacy beliefs differ across different levels of interaction, guidance and imitation, between mentor teachers and student interns during the internship practicum?

3. Method

3.1 Participants and data collection

Participants in this study were 154 student interns in a teacher education program from a mid-sized mid-Atlantic university who were completing their internship practicum within thirty-three professional development schools during the spring of 2009. The sample represents 100% of the population of student interns who engaged in the eight weeks of internship practicum during that semester. Of them, there were 112 females (73%) and 42 males (27%); 143 white, 5 African-American, and 6 “others.” 86 (56%) taught elementary schools, 35 (23%) taught middle schools, and 33 (21%) taught high schools.

All surveys were made available to student interns in a paper and pencil format. Student interns who voluntarily agreed to participate in the study received the coded survey instruments. The research data were collected in two stages. In the first stage, the second author of the present study attended an orientation meeting for student interns prior to the start of their internship practicum. At this meeting, student interns were informed of the study along with the subsequent timelines and procedures for participation and data collection. In addition, student interns’ demographic data along with their teachers’ efficacious beliefs were collected at this meeting. In the second stage, student interns were sent a series of pre-notification emails reminding them that the subsequent survey questionnaire would be available for completion at the conclusion of the eight-week practicum. The second author along with the university seminar instructors administered the surveys to the student interns during their weekly seminar meeting after the eight week internship practicum.

3.2 Measurements

3.2.1 Teacher Sense of Efficacy Scale (TSES)

Student interns’ teacher efficacy was measured using the short form of the Teacher Sense of Efficacy Scale (TSES) designed by Tschannen-Moran and Woolfolk Hoy (2001). The scale consists of twelve items, which include three subscales for efficacy beliefs in student engagement, instructional strategies, and classroom management. Student interns completed the survey instrument prior to the beginning of their internship and during their weekly seminar meeting after the eight week internship practicum. The student interns responded to the statements based on a 9-point frequency scale, with 1 being “none at all,” 3 being “very little,” 5 being “some degree,” 7 being “quite a bit,” and 9 being “a great deal.” An example of the efficacy in student engagement subscale is “how much can you do to
motivate students who show low interest in school work?” An example of the efficacy in instructional strategies subscale is “how well can you implement alternative teaching strategies in your classroom?” An example of the efficacy in classroom management is “how much can you do to control disruptive behavior in the classroom?” Tschannen-Moran and Woolfolk Hoy (2007) reported that the reliabilities have ranged .92 to .95 for the full scale and .86 to .90 for the subscales using Cronbach’s alpha. The reliability coefficient for each of three subscales was reported in table 1, which is consistent with the reliability coefficients in similar studies (Knoblauch & Woolfolk Hoy, 2008; Woolfolk Hoy & Burke-Spero, 2005).

3.2.2 Leadership Practice Inventory (LPI)

Mentor teachers’ leadership behaviors were measured by the Leadership Practice Inventory (LPI) developed by Kouzes and Posner (2003). The LPI consists of 30 statements, which are categorized into five leadership practices: model the way, inspire a shared vision, challenge the process, enable others to act, and encourage the heart (Kouzes & Posner, 2003). Student interns completed the LPI-observer form after the eight week internship practicum. Student interns rate how frequently their mentor teachers engage in the leadership practices using a ten item scale with anchors at one for “almost never” to ten for “almost always.” A sample item for modeling the way is “(my mentor teacher) sets a personal example of what he/she expects of others.” A sample item for inspiring the shared vision is “(my mentor teacher) paints the ‘big picture’ of what we aspire to accomplish.” A sample item for challenging the process is “(my mentor teacher) seeks out challenging opportunities that test his/her own skill & abilities.” A sample item for enabling others to act is “[my mentor teacher] treats others with dignity and respect.” A sample item for encouraging the heart is “[my mentor teacher] praises people for a job well done.” Kouzes and Posner (2003) posited that the reliabilities for the five exemplary leadership practices ranged from .75 to .92 using Cronbach’s alpha. The reliability coefficient for each of these subscales was reported in table 1, which is consistent with the reliability coefficients in similar studies.

3.2.3 Learning to Teach Questionnaire (LTQ)

The levels of interaction about instructional matters between mentor teachers and student interns during the internship practicum were measured with the Learning to Teach Questionnaire (LTQ) developed by Hamman, Olivárez, & Stevens (2007). The LTQ consists of ten statements, which are categorized into two levels of interaction: imitation and guidance (Hamman, Olivárez, & Stevens, 2007). Student interns completed the scale after the eight week internship practicum. Interns assessed how frequently they engaged in the two levels of interaction using a six-point continuum with anchors at 1 = “never occurred” and 6 = “always occurred.” The sample items include “my mentor teacher offers me guidance to improve my teaching” and “when I teach, I replicate my mentor teacher’s instructional methods.” Hamman, Olivárez, & Stevens (2007) posited that the reliabilities were .93 for the whole scale, .89 for the imitation, and .95 for the guidance using Cronbach’s alpha. The reliability coefficient for each of these subscales was reported in table 1, which is consistent with reliability coefficients in similar studies.

4. Results

This study analyzed the data in several sequential steps. First, the descriptive statistics and the Pearson product-moment correlation coefficients were calculated among study variables. Table 1
reported that the means on the three efficacy subscales before and after the internship practicum were 5.98 vs. 6.72 for student engagement, 6.78 vs. 7.59 for instructional strategies, and 6.59 vs. 7.37 for classroom management, indicating that student interns had higher average scores of efficacy beliefs in engaging students in school-related activities, using instructional strategies, and managing a classroom after their intern practicum.

Second, a one-way repeated-measures MANOVA was conducted on three dependent variables associated with teachers’ sense of efficacy: student engagement, instructional strategies, and classroom management, to determine if the means on three efficacy subscales are significantly different between before and after students’ internship practicum. This test revealed a significant difference at the multivariate level, Wilks’ $\lambda = .869$, $F(3, 304) = 15.275$, $p < .001$, with a strong effect size $\eta^2 = .131$. Three follow-up univariate analyses also revealed significant differences in efficacy for student engagement, $F(1, 306) = 29.564$, $p < .001$, $\eta^2 = .088$, instructional strategies $F(1, 306) = 42.096$, $p < .001$, $\eta^2 = .121$, and classroom management $F(1, 306) = 35.820$, $p < .001$, $\eta^2 = .105$. These results indicated that the before and after groups differ significantly with respect to the three efficacy subscales, supporting the research question 1 that the internship practicum in professional development schools had a significant effect on the growth of teachers’ sense of efficacy.

Third, a between-subjects MANCOVA was performed on three dependent variables associated with teachers’ sense of efficacy: student engagement, instructional strategies, and classroom management, to examine whether a combination of the three efficacy scales varies as a function of transformational leadership practices. A set of independent variables, including five transformational leadership behaviors of mentor teachers and two interaction levels were used, controlling for the prior difference in the composite teacher efficacy of student interns. We categorized five leadership behaviors and two types of interactions into seven binary variables (high vs. low) using median scores. With the use of Wilks Lambda criteria, a combination of dependent variables is significantly affected by the leadership behavior of modeling the way, $F(3, 143) = 4.952$, $p = 0.003$, $\eta^2 = .094$, indicating the mean differences among three efficacy beliefs between low and high groups of modeling the way are statistically significant. The multivariate test results supported the research question 2 that three efficacy beliefs vary significantly as a function of the transformational leadership behavior of modeling the way. However, with the use of Wilks Lambda criteria, the combined dependent variables were not related to the other four leadership behaviors, $F(3, 143) = 1.783$, $p > 0.05$, $\eta^2 = .036$, to inspire a shared vision, $F(3, 143) = .472$, $p > 0.05$, $\eta^2 = .010$, to challenge the process, $F(3, 143) = 1.936$, $p > 0.05$, $\eta^2 = .039$, to enable others to act, $F(3, 143) = .686$, $p > 0.05$, $\eta^2 = .014$, to encourage the heart, and two interaction levels, $F(3, 143) = .715$, $p > 0.05$, $\eta^2 = .015$, to guidance, $F(3, 143) = .034$, $p > 0.05$, $\eta^2 = .001$, to imitation.

Last, three separate univariate ANOVAs were conducted to examine more specifically the effects of transformational leadership behaviors on each of the dependent variables associated with teachers’ sense of efficacy as follow-up tests to the significant MANCOVA, controlling for the prior difference of each of the three efficacy subscales in student engagement, instructional strategies, and classroom management. The first independent factorial ANOVA was to investigate whether the efficacy belief in student engagement varies with the levels of transformational leadership behaviors, holding constant prior individual difference in teacher efficacy in student engagement. Column 5 in Table 2 revealed that
teacher efficacy in student engagement varied significantly with the behaviors of model the way, $F(1, 145) = 4.564$, $P < .05$, $\eta^2 = .031$, and enable others to act, $F(1, 145) = 4.214$, $P < .05$, $\eta^2 = .028$.

Student interns with mentors having high levels of model the way were found to have higher efficacy scores ($M = 6.244$, $SD = 1.227$), relative to those with mentors having low levels of model the way ($M = 5.695$, $SD = 1.270$). Compared to students with mentors having low levels of enable others to act ($M = 5.740$, $SD = 1.322$), students with mentors having high levels of enable others to act were found to have higher efficacy scores ($M = 6.215$, $SD = 1.188$). The second factorial ANOVA was to determine if there is a mean difference between different levels of transformational leadership behaviors (low vs. high) on the efficacy in instructional strategies, controlling for the prior difference in efficacy scores in instructional strategies. Column 9 in Table 2 indicated that teacher efficacy in instructional strategies varied significantly with the behavior of enable others to act, $F(1, 145) = 4.376$, $P < .05$, $\eta^2 = .029$.

Student interns with mentors having high levels of enable others to act were found to have higher efficacy scores ($M = 7.016$, $SD = 1.191$), as opposed to those with mentors having low levels of enable others to act ($M = 6.533$, $SD = 1.098$). The third factorial ANOVA was to determine if efficacy belief in classroom management differs with different levels of transformational leadership behaviors (low vs. high), controlling for the pre-intern difference in efficacy beliefs in classroom management. Column 13 in Table 2 revealed that efficacy belief in classroom management varied significantly with the behavior of enable others to act, $F(1, 145) = 4.591$, $P < .05$, $\eta^2 = .031$. Student interns with mentors having high levels of enable others to act were found to have higher sense of efficacy ($M = 6.826$, $SD = 1.089$) than those with mentors having low levels of enable others to act ($M = 6.340$, $SD = 1.446$). However, no statistically significant effects of other transformational behaviors of challenge the way, share an inspired vision, and encourage the heart on dependent variables were found. Nor were there any significant effects for different levels of guidance and imitation, indicating the research question 3 was not supported.

5. Discussion

Student teachers are under the guidance and leadership of mentor teachers during the internship practicum, but literature reviews that very few empirical studies have examined the influence of the leadership role that mentor teachers have on the growth of teachers’ efficacy of student interns through the lens of leadership theories. The purpose of the present study is to examine the effect of leadership behaviors that mentor teachers have on teachers’ sense of efficacy of student interns during the internship practicum in professional development schools.

The present study supports the research question 1 that internship practicum in professional development schools has a significant effect on the development of teachers’ sense of efficacy. This finding is aligned with Bandura’s (1997) proposition that internship practicum, as a source of mastery experiences, boosts the self-efficacy beliefs of student teachers. Internship practicum is considered as the culminating field experience for pre-service teachers (McDonnough & Matkins, 2010). It provides an opportunity for pre-service teachers to gain practical experience in the classroom prior to their formal teaching tasks, which can foster their teachers’ sense of efficacy. Research has consistently shown that the internship practicum serves as the most significant variable in the establishment of the student interns’ experience of training to be educators (Fives, Hamman, & Olivárez, 2007; Tang, 2003; Woolfolk Hoy & Burke-Spero, 2005).

The findings in this study support the research question 2 that teacher efficacy of student interns varies
significantly as a function of the transformational leadership behavior of modeling the way. During the internship practicum, transformational mentor teachers create aspirational standards and set a personal example of what is expected. The result is consistent with Bandura’s (1997) proposition that modeling, as an important source of vicarious experience, is an effective tool to improve a sense of personal efficacy. Kouzes & Posner (2007) suggest that modeling the way does not only build a model of excellence, but also provide followers with information of where to go when they are uncertain and guidance of how to get there. In the context of the internship practicum, transformational mentor teachers teach student interns with appropriate strategies and skills of how to implement instructional plans, motivate students with low interest in school work, and handle students’ inappropriate behavior. This is aligned with Bandura’s (1997) viewpoint that “competent models transmit knowledge and teach observers effective skills and strategies for managing environmental demands.” In addition to the instructive and motivational functions, transformational mentor teachers provide a source of self-efficacy by helping student interns focus on step-by-step accomplishment of large-scale goals, and making those goals seem more realistic and attainable.

Three follow-up univariate analyses reveal that the transformational leadership behavior of enabling others to act is significantly related to each of the three efficacy subscales in student engagement, instructional strategies, and classroom management. The finding is consistent with Kouzes & Posner’s (2007) proposition that the exemplar leadership practice of enabling others to act makes followers feel competent and confident by trusting their expertise and influence and demonstrating respect for them and their ideas. Additionally, Kouzes & Posner (2007) indicates that enabling others to act strengthens followers’ sense of effectiveness by helping them recognize their own capabilities to achieve what they pursue. In this regard, the behavior of enabling others to act functions as another source of self-efficacy, social persuasion, to raise people’s sense of efficacy. In the context of the internship practicum, enabling others to act fosters collaboration by developing a cooperative relationship with student teachers and treating them with dignity and respect. Furthermore, enabling others to act strengthens student interns in their personal development by sharing authority and power to increase their commitments of their own work and coaching their skills of how to get things done and to learn from experience.

The univariate analysis also finds that the exemplar leadership behavior of modeling the way is significantly related to teachers’ efficacy in student engagement. Student interns are provided with opportunities to observe and learn from the modeling and experiences of their mentor teachers. By the behaviors and strategies they demonstrate, transformational mentor teachers teach student interns effective skills and strategies of how to engage students with low interest in school work.

The findings in this study do not support the research question 3 that two forms of interactions, imitation and guidance, are related to teachers’ sense of efficacy. One of the possible explanations could be that an internship practicum of eight weeks may be very short to build a mature relationship between mentor teachers and student interns.

5.1. Limitations and practical implications

The present study is not without limitations. First, the present study relied on the self-reported rating for both predicting and outcome variables, which could have had a chilling effect on student interns’ willingness to be honest in their evaluation of mentor teachers. Second, the respondents in this study
were student interns in a teacher education program from a Mid-Atlantic university. Therefore, the findings may not be generalized to other teacher education programs. Third, the present study was based on an internship of eight weeks, which may be a very short time to bring the effects of certain transformational leadership behaviors and levels of interaction about.

Despite of the limitations of the present study, the results have significant practical implications for teacher educators, mentor teachers, and other policy stakeholders. First, given the significance of an internship practicum has on the formation of teachers’ sense of efficacy, it is recommended that professional school leaders provide student interns with more mastery experiences to cultivate their teachers’ efficacy beliefs. Second, teacher educators and mentor teachers need to understand how significantly their roles and behaviors affect the development of efficacy beliefs of student teachers. Mentor teachers can alter the efficacy beliefs of student interns through a couple of transformational leadership behaviors, such as modeling the way and enabling others to act. Mentor teachers need to build a standard of excellence and set a personal example for student interns to follow. Moreover, mentor teachers need to make their personal values clear and act on their promises and commitments. On the other hand, mentor teachers need to foster collaboration with student interns by creating a climate of trust and developing collaborative relationships. Furthermore, mentor teachers need to strengthen student interns by fostering their accountability for their tasks and giving their choice about how to get the job done.

5.2. Conclusion

The present study investigated the relationship between student interns’ teacher efficacy and leadership behaviors of mentor teachers, controlling for the prior differences in teacher efficacy of pre-service teachers. The results revealed that the internship practicum boosts the teachers’ sense of efficacy of pre-service teachers. Furthermore, we found that mentor teachers who create standards of excellence and set a personal example for others to follow will help lead to the development of student interns’ teacher efficacy. Additionally, we found that mentor teachers who enable others to act by fostering collaboration and strengthening student interns in their personal development will raise their personal self-efficacy. Finally, the transformational leadership behavior of modeling the way makes student interns feel more self-efficacious in student engagement.

6. References


Midgley, C., Feldlauf, H., & Eccles, J. (1989). Change in teacher efficacy and student self-and task-
related beliefs in mathematic during the transition to junior high school. *Journal of Educational Psychology, 81*, 247-258.


Table 1. Descriptive statistics and intercorrelations among study variables

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</thead>
<tbody>
<tr>
<td>11. Pre-TESE</td>
<td>19.35</td>
<td>3.42</td>
<td>.47**</td>
<td>.47**</td>
<td>.56**</td>
<td>.25**</td>
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<tr>
<td>12. Pre-ESE</td>
<td>5.98</td>
<td>1.27</td>
<td>.51**</td>
<td>.40**</td>
<td>.54**</td>
<td>.22**</td>
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</table>
13. Pre-EIS 6.78 1.17 .36** .53** .43** .23** .27** .24** .21**
14. Pre-ECM 6.59 1.29 .43** .37** .55** .23** .27** .21** .19*

Notes: Values along the diagonal represent internal consistency reliabilities. Efficacy score is 1-9 with 9 as highest; * correlation is significant at the 0.05 level. Engagement = Efficacy in Student Engagement; instruction = Efficacy in Instructional Strategies; management = Efficacy in Classroom Management; model = 1 if high in Model the Way; vision = 1 if high in Inspire a Process; act = 1 if high Enable Others to Act; heart = 1 if high Encourage the Heart; pre-TSES = pre-intern teachers’ efficacy in student engagement; pre-EIS = pre-intern teachers’ efficacy in instructional management.

Table 2. The contribution of transformational leadership behaviors to the explained variance of efficacy subscales

<table>
<thead>
<tr>
<th>Source</th>
<th>Student Engagement</th>
<th>Instructional Strategies</th>
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</thead>
<tbody>
<tr>
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<td>df</td>
<td>SS</td>
</tr>
<tr>
<td>Leadership Behaviors</td>
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<td></td>
</tr>
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<td>Model</td>
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<td>3.798</td>
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<tr>
<td>Vision</td>
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<td>1.924</td>
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<tr>
<td>Challenge</td>
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<td>0.075</td>
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<tr>
<td>Act</td>
<td>1</td>
<td>3.506</td>
</tr>
<tr>
<td>Heart</td>
<td>1</td>
<td>0.932</td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>1</td>
<td>0.005</td>
</tr>
<tr>
<td>Imitation</td>
<td>1</td>
<td>0.052</td>
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</table>
### Control variables

<table>
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<tr>
<th></th>
<th>Pre-ESE</th>
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<th>32.775</th>
<th>39.391**</th>
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</thead>
<tbody>
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<td>Pre-EIS</td>
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<td>30.041</td>
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<tr>
<td>Pre-ECM</td>
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<td>120.644</td>
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<td>7135.563</td>
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<td>154</td>
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</tbody>
</table>

**Notes:** * significant at the 0.05 level. ** significant at the 0.01 level. $R^2 = .340$ (Adjusted $R^2 = .304$) for instructional strategies, and $R^2 = .379$ (Adjusted $R^2 = .345$) for the classroom management. Engagement = Efficacy in Student Engagement; instructional strategies = Efficacy in Instructional Strategies; management = Efficacy in Classroom Management; model = 1 if high in Model the Way; vision = 1 if high in Inspire a Shared Vision; challenge = 1 if high in Challenge the Process; act = 1 if high in Enable Others to Act; heart = 1 if high in Encourage the Heart; pre-TSES = pre-intern teachers' sense of efficacy scale; pre-ESE = pre-intern teachers' efficacy in student engagement; pre-EIS = pre-intern teachers' efficacy in instructional strategies; pre-ECM = pre-intern teachers' efficacy in classroom management.