Determining and Measuring Self-Efficacy During the Student Teaching Semester

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Abstract

Self-efficacy is the belief that an individual is able to control the outcomes of potentially stressful situations. How teacher candidates feel about their ability to control new challenges can affect their performance in the classroom. Those with a poorer sense of self-efficacy may believe situations are out of their control. A more positive sense of perceived self-efficacy can lead to more positive outcomes. This article reports the results of a teacher self-efficacy scale administered to elementary and secondary teacher candidates at the beginning and end of their student teaching semester. Findings suggest that perceived self-efficacy among student teachers increases throughout the course of the student teaching experience.

Introduction

As teacher candidates begin their student teaching experiences, they face new challenges. How they handle these challenges can reflect upon their belief in their self-efficacy or their "capabilities to organize and execute the course of action required to manage prospective situations" (Bandura, 1997). Self-efficacy is fundamentally concerned with the execution of control rather than the outcome actions produce. Students with a strong sense of self-efficacy are more likely to put forth a high degree of control in meeting challenges, rather than blaming external factors. In contrast, those with a poorer sense of self-efficacy may believe they cannot control situations. Pre-service teachers, with little or no teaching experience may lack a positive sense of self-efficacy. "Converging evidence from diverse methodological and analytic strategies verifies that perceived self-efficacy and personal goals enhance motivation and performance attainments." Bandura & Locke, 2003, p. 87.

A review of the literature reveals a dearth of current studies specifically designed for student teachers. One study by and Pontius (2000) studied changes in teaching

efficacy with pre-service teachers in elementary, middle grades, secondary and special education K-12. They administered pre- and post- efficacy ratings for three-quarters of one academic year and found, as a whole, a statistically significant gain in efficacy at the end of student teaching.

Other studies looked at pre-service teachers in specific disciplines. Cakir and Alici, (2009) compared ratings of pre-service secondary English teachers' self-efficacy beliefs with those of their instructors' perceptions of them using the same scale and found pre-service teachers' ratings of self-efficacy higher than those predicted by their instructors. Cano, Swan, and Wolf (2011) tracked the changes in teacher self-efficacy with secondary students in agricultural education from student teaching to the end of the third year of teaching. Their findings indicated individuals reported the lowest level of self-efficacy at the end of the first year and the highest level at the end of the third year.

Purpose of Study

As teacher educators, we were interested in determining how our elementary and secondary teacher candidates rated themselves in the area of self-efficacy. We believed information gained from the study would assist us in structuring courses during the student teaching semester for student success. We wished to see if there were differences in pre- and post- self-efficacy scores before and after the student teaching semester, between elementary and secondary education majors, and between males and females. We looked at pre-service teachers from varying grade levels (elementary and secondary) as well as multiple disciplines (art, history, math, science, Family and Consumer science, K-12 music, K-12 physical education, and K-12 special education.

Sample for Study

Our study took place in the College of Education at a Midwestern university of about 7500 students located in a predominantly rural area. The sample for our study was 49 teacher candidates - elementary and secondary education majors enrolled in their student teaching semester. Of the original 49 candidates completing the pre-test, only 46 candidates completed the post-test. Of these 46, 19 (41%) were elementary and 27 (59%) were secondary. Of the final sample of 46 candidates, 29 (63%) were female and 17 (47%) were male.

Description of Professional Semester of Study

During the professional semester at the university teacher candidates are placed

with a cooperating teacher for the duration of a 16-week semester, beginning in early January for the spring semester. Prior to the start of the fall semester, teacher candidates begin by attending in-service workshops with their cooperating teachers. Art, music, and physical education teacher candidates are assigned a cooperating teacher at the elementary and secondary grade levels. For the first eight Thursdays, teacher candidates return to campus to attend a variety of seminars, as well as spending time, in a group session with their university supervisor. The seminars address the following areas: career planning and placement, poverty, school law, classroom management, and preparing for a job interview. Secondary teacher candidates also attend two additional meetings with their content area instructors.

Data Gathering Instrument

The *Teacher Self-Efficacy Scale* developed by Schwarzer, Schmitz and Daytner (1999) was used as a measuring instrument. The scale was adapted as an English version from the German *General Self-Efficacy Scale* developed by Jerusalem and Schwarzer (l979). The *Teacher Self-Efficacy Scale* is a ten-item instrument designed to assess a sense of perceived self-efficacy with the aim of predicting the ability to cope, as well as adapt after experiencing stress. Raw scores on the scale range from one to four with higher scores indicating a more positive self-efficacy. According to Schwarzer (1992) the construct of the scale reflects an optimistic self-belief. This is the belief of successfully performing a difficult task or coping with adversity in various settings. Perceived self-efficacy facilitates goal-setting, persistence in frustration, and recovery from setbacks. Perceived self-efficacy is an operative construct, i.e., it is related to subsequent behavior and, therefore, is relevant for clinical practice and behavior change.

Reliability for the scale was gained in samples from 23 nations with Cronbach's alphas ranging from .76 to .90, with the majority in the .80s. Criterion-related validity is documented in numerous correlational studies where positive coefficients were found with dispositional optimism and work satisfaction. Negative coefficients were found with depression, anxiety, stress, and burnout.

Procedures

We began our study at the beginning of the fall semester, when teacher candidates came to campus for the first of eight weekly seminars. During the first session, we administered the *Teacher Self-Efficacy Scale* to 49 teacher candidates. On the final day of the eighth weekly seminar when teacher candidates returned to campus, the survey was administered a second time. Data were then analyzed.

Data Analysis

Initially, the researchers reviewed pre- and post-test scores to determine if there appeared to be any patterns. As illustrated in Table A1, post-test mean scores for the overall sample were higher than pre-test mean scores on every item of the scale. Secondary post-test mean scores were higher on all items except two (items 1 and 3). Elementary post-test mean scores were higher on all items except item six, which remained the same.

Using a simple frequency distribution, results indicated that a greater number of student teachers had higher ratings on the post-test than on the pre-test (Figure A1), indicating that a greater number of candidates rated themselves higher on items related to self-efficacy near the end of student teaching than at the beginning of the experience.

To determine if the increase in ratings was significant, a two-tailed, paired samples t-test was used to test differences between pre- and post-test mean scores on the *Teacher Self-Efficacy Scale* (Table A2). Overall, post test scores on the *Teacher Self-Efficacy Scale* were significantly higher than on the pre-test, t (45) = 2.31, p = .023.

Because there was a significant difference overall, additional t-tests were conducted to determine if there were significant difference in pre- and post-test scores for different academic levels (elementary and secondary). The researchers elected to use one-tailed, paired samples t-tests for each of the two levels, using α = .025 for determining significance.

Results by Academic Level

Elementary post-test scores on the *Teacher Self-Efficacy Scale* were significantly higher than on the pre-test, t (18) = 2.83, p = .006. Secondary post-test scores were higher than pre-test scores; however, the difference was not significant, t (26) = 1.22, p = .116. Although the difference for secondary was not significant in the current study, it was noted that there was one extreme outlier, which impacted the results for the secondary candidates. One candidate had a mean score of 4.0 on the pre-test and 1.8 on the post-test. Elementary scores were higher than secondary on both the pre-test and the post-test; however, the differences were not significant.

Results by Gender

Female scores were slightly higher than males on both the pre-test and the post-test; however, the differences were not significant.

Implications for Teachers

Based on the results from the sample, the presenters believe the strength of the professional semester contributes to the significance shown in this study. Program developers need to think carefully about how to structure entry into the field in a way that promotes mastery. If all of their early experiences lead to success, pre-service teachers may enter the field with a false sense of efficacy because it was developed without the demands of running one's own classroom, dealing with parents and teachers or managing student problems. In a seminal paper (Rohrkemper & Corno, 1988), teachers were cautioned not to ignore the value of "functional failure" and were encouraged to create context in which students can learn from mistakes and learn to persist even when unsuccessful. Their work also has important implications for teacher educators, encouraging programs to rank task difficulty, complexity and frustration of field placements for teacher candidates. Schunk (1991) believes that self-efficacy and motivation are applicable to teachers as well as students

Implications for Further Research

The demands of teaching continue to increase, and teaching is becoming increasingly complex. Research has been conducted in the area of teacher self-efficacy; however, there are some conflicting views on how teacher self-efficacy may ultimately impact student learning and achievement. We wish to expand the body of research in self-efficacy related to student teaching by continuing to administer the *Teacher Self-Efficacy Scale* to student teachers in the future and conduct follow-up administrations at the end of candidates' first and third years of teaching. We feel that this could provide important information related to teachers' self-efficacy as they progress from pre-service through the third year of teaching. We hope to study the relationship of support structures for beginning teachers and self-efficacy, as well as the relationship between teacher self-efficacy and student achievement. We currently administer follow-up surveys to first and third-year program completers to collect feedback on our preparation programs. In addition, we would like to gather information related to induction/mentoring programs and student achievement.

Effective teachers tend to be reflective of their practice and always strive to improve their teaching. The *Teacher Self-Efficacy Scale* could be a valuable tool for pre-service and in-service teachers to use in reflective processes. Collecting qualitative data related to teachers' perceptions of how the scale prompts reflective thinking among teachers could also be beneficial. We may find that the *Teacher Self-Efficacy Scale* is an effective measure of self-efficacy, as well as a resource to guide reflective processes that may help improve their teaching.

References

Bandura, A. & Locke, E.A. Negative self-efficacy and goal effects revisited. *Journal of Applied Psychology*, 88, 2003.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.

Cakir, O. & Alici, D. (2009). Seeing self as others see you: Variability in self-efficacy ratings in student teaching. *Teachers and Teaching: Theory and Practice*, 15. ERIC EJ866438

Cano, J., Swan, B.J., & Wolf, K. J. (2011). Changes in teacher self-efficacy from the student teaching experience through the third year of teaching. *Journal of Agricultural Education,* 52,128.

Fortman, C.K. & Pontius, R. (2000). Self-efficacy during student teaching. Paper presented at the meeting of Mid-Western Educational Research Assoc. Chicago , IL. ERIC ED447103.

Rohrkemper, M., & Corno, L. (1988). Success and failure on classroom tasks: Adaptive learning and classroom teaching. *Elementary School Journal*, 88, 297-312.

Schwarzer, R. (Ed.) (1992). *Self-efficacy: Thought control of action*. Washington,   DC: Hemisphere.

Schwarzer, R., Schmitz, G.S., & Daytner, G.T. (1999). Teacher self-efficacy scale.

Schunk, D.H. (1991). Self-efficacy and academic motivation. *Educational Psychologist*. Summer/Fall 1991, 26, 3/4, p. 207.

Schunk, D.H. (1984). Self-efficacy perspective on achievement behavior. *Educational Psychologist,* 1991, 48-58.

Appendix

Table A1
Pre- and Post-Test Mean Scores for Teacher Self-Efficacy Scale by Item

	Overall		Elementary		Secondary	
	Pre	Post	Pre	Post	Pre	Post
1. I am convinced that I am able to successfully teach all relevant subject content to even the most difficult students.	2.98	3.20	2.74	3.32	3.15	3.11*
2. I know that I can maintain a positive relationship with parents even when tensions arise.	3.26	3.43	3.32	3.42	3.22	3.44
3. When I try really hard, I am able to reach even the most difficult students.	3.24	3.33	3.21	3.47	3.26	3.22*
4. I am convinced that, as time goes by, I will continue to become more and more capable of helping to address my students' needs.	3.78	3.91	3.74	3.95	3.81	3.89
5. Even if I get disrupted while teaching, I am confident that I can maintain my composure and continue to teach well.	3.39	3.65	3.58	3.74	3.26	3.59
6. I am confident in my ability to be responsive to my students' needs even if I am having a bad day.	3.46	3.59	3.68	3.68*	3.30	3.52
7. If I try hard enough, I know that I can exert a positive influence on both the personal and academic development of my students.	3.74	3.87	3.84	3.95	3.67	3.81
8. I am convinced that I can develop creative ways to cope with system constraints (such as budget cuts and other administrative problems) and continue to teach well.	3.41	3.59	3.37	3.68	3.44	3.52
9. I know that I can motivate my students to participate in innovative projects.	3.41	3.57	3.47	3.68	3.37	3.48
10. I know that I can carry out innovative projects even when I am opposed by skeptical colleagues.	3.20	3.41	3.26	3.47	3.15	3.37
Overall Scale Score	**3.39**	**3.55**	**3.42**	**3.64**	**3.36**	**3.50**

*Denotes that post-test score is equal to or less than pre-test score.

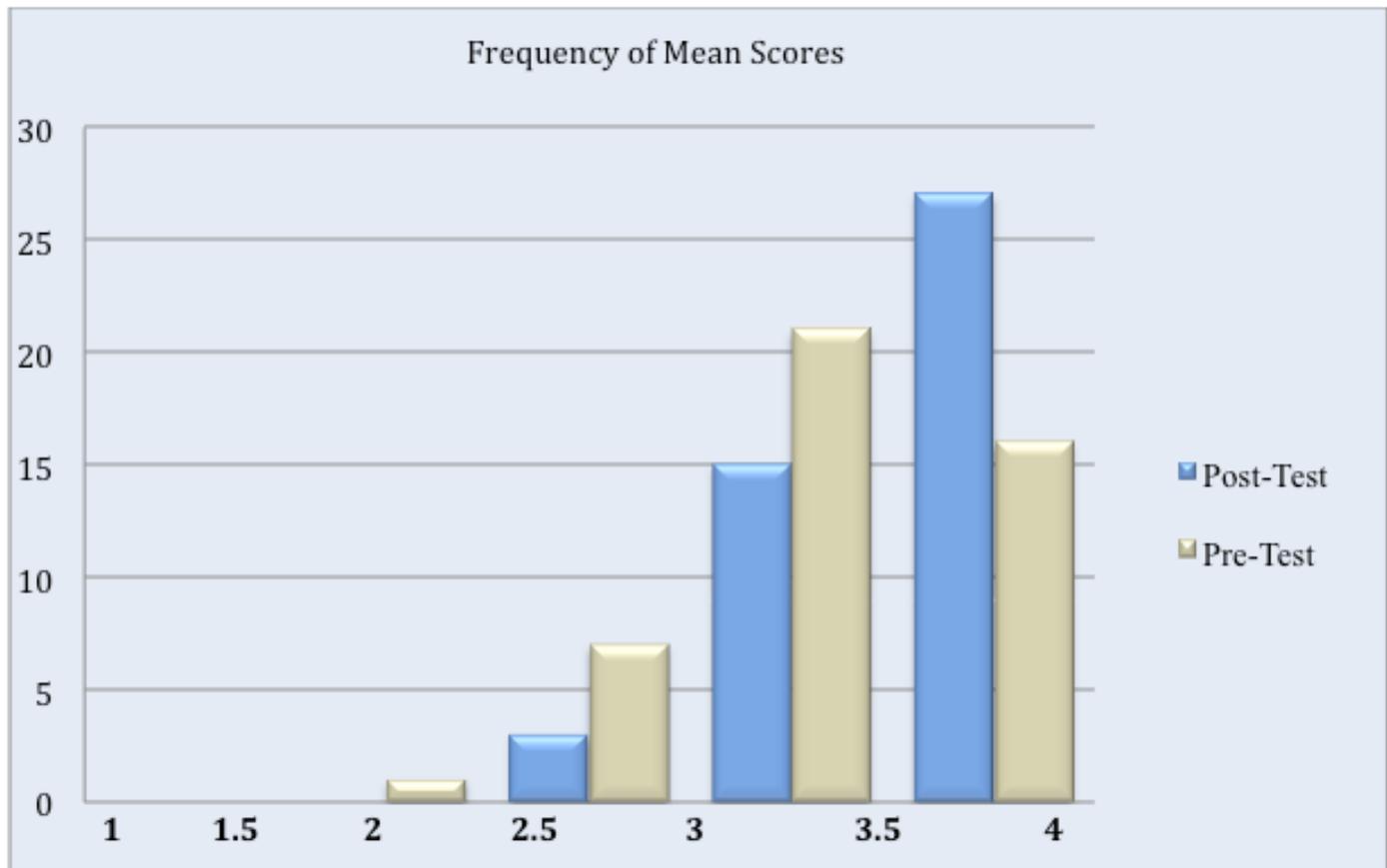*Figure A1.* Frequency of pre- and post-test mean scores

Table A2

Teacher Self-Efficacy Scale Pre- and Post-Test Comparison

	Pre Mean (SD)	Post Mean (SD)	Diff	df	t statistic	Prob
All	**3.387 (.388)**	**3.554 (.388)**	**0.167**	**45**	**2.361***	**0.023***
Elementary	3.421 (.369)	3.637 (.367)	0.216	18	2.83*	0.006*
Secondary	3.363 (.406)	3.496 (.459)	0.133	26	1.22	0.116

Note. *p<.05, two-tailed. †p<.025, one-tailed.