Evaluating Teacher Candidates' Self-Efficacy Before, During, and After Student Teaching

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Introduction and Need for Research

According to Smith et al. (2025), there is a national shortage of over 150 agricultural educators, and in 2024, only 74% of license-eligible teacher candidates (TCs) entered the classroom. Helping TCs build self-efficacy throughout a teacher preparation program is important to helping them recognize their potential to enter the classroom (Harlin et al., 2007; Krysher et al., 2012; Roberts et al., 2006). While work has been done to examine the self-efficacy of TCs at various points during student teaching (Edgar et al., 2009; Edgar et al., 2011; Harlin et al., 2007; Krysher et al., 2012; Swan et al., 2011) and into their careers (Burris et al., 2010; Swan et al., 2011), this work was needed because there is limited work comparing self-efficacy from the start of the student teaching compared to the end of student teaching. Assessing the levels of self-efficacy at various points throughout student teaching gives teacher educators an opportunity to provide additional and timely engagement experiences or resources so TCs feel more prepared and supported to empower them to enter the classroom. The purpose of this study was to assess TCs' beliefs and perceptions about teaching prior to, during, and at the end of student teaching. Objectives were: 1) to measure TCs' efficacy related to student engagement, instructional strategies, and classroom management throughout their student teaching experience, and 2) to compare differences between a TC's efficacy before and after their student teaching experience.

Theoretical Framework

Bandura's (1977) self-efficacy theory indicates self-efficacy is one's belief in their ability to succeed in a task. This study examined TCs' self-efficacy related to engagement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk, 2001). Self-efficacy is built through: 1) *performance outcomes*, attributed to prior achievements within a competency, 2) *vicarious experiences*, through watching others perform a competency, 3) *verbal persuasion*, or encouragement from others related to a competency, and 4) *physiological feedback*, gleaned from feelings received in performing a competency (Bandura, 1977). Through engaging in a cohort model before student teaching with performance-based coursework, including simulated microteachings and field experiences, TCs built self-efficacy via instructor, peer, and field experience site supervisors' feedback (performance outcomes; verbal persuasion) and watching one another develop skills (vicarious experiences; physiological feedback) (Bandura, 1977).

Methods

An IRB-approved instrument adapted from Tschannen-Moran and Woolfolk (2001) was used. The instrument consisted of three scales: 1) student engagement ($\alpha = 0.87$), 2) instructional strategies ($\alpha = 0.91$), and 3) classroom management ($\alpha = 0.90$), each containing eight competencies associated with effective teaching. TCs assessed their perceived ability to demonstrate each competency using a score from 1 (nothing/never) to 9 (a great deal). Nunnally (1978) posits these scales are reliable, along with an overall coefficient of 0.94, all of which are greater than the advised minimum of 0.70. The instrument was administered to a census of 14 Iowa State University TCs in December 2024 (prior to student teaching), in March 2025 (midpoint of student teaching), and in May 2025 (end of student teaching). All 14 completed the instrument each time, yielding a 100% response rate. Data collection occurred via Qualtrics; SPSS analysis provided means, standard deviations, and paired *t*-tests to measure change over time. Identifiers were removed, and data were reported in aggregate form (Creswell & Creswell, 2018). We felt parametric procedures were appropriate since we gathered data from a census of TCs as opposed to a sample (Creswell & Creswell, 2018; Frankfort-Nachmias et al., 2021).

Results

Objective 1 measured TCs' efficacy related to student engagement, instructional strategies, and classroom management throughout student teaching. Table 1 reveals the TCs' consistently high scores, and steady increases, indicating growth and high levels of confidence in these areas.

Table 1

Teacher Candidates' Average Scores on Each Scale Over Time (n = 14)

Scale	Pre		Mid		Post	
	μ	σ	μ	σ	μ	σ
Student Engagement	7.11	0.31	7.13	0.42	7.26	0.38
Instructional Strategies	7.29	0.47	7.40	0.28	7.87	0.14
Classroom Management	7.39	0.37	7.46	0.31	7.74	0.32

Note. Scores of 1 (nothing/never) to 9 (a great deal) were used for items in each scale

Objective 2 compared differences between a TC's efficacy before and after student teaching. A paired *t*-test compared the pre- and post-findings, with statistically significant differences found in the instructional strategies and classroom management scales. Findings are shared in Table 2.

Table 2

Teacher Candidates' Change on Scales Over Time (n = 14)

Scale	*df*	Mean Diff.	SD Diff.	*t*-statistic	*p*	Effect Size
Student Engagement	13	0.152	0.963	0.589	0.283	0.963
Instructional Strategies	13	0.580	1.127	1.926	0.038*	1.127
Classroom Management	13	0.348	0.771	1.690	0.057+	0.771

Note. * significant at $p < 0.05$; + marginally significant at $p < 0.10$

Conclusions and Recommendations

A key limitation of this study was a small sample size ($n = 14$). While this was a census of Iowa State University spring 2025 TCs, future work should include more TCs from additional cohorts. Objective 1 findings reveal steady increases in TCs' efficacy in student engagement, instructional strategies, and classroom management. These increases are likely attributed to increased confidence as they gain additional practice, feedback, and mentorship (Bandura, 1977; Edgar et al., 2009; Krysher et al., 2012). Similarly, findings for objective 2 reveal statistically significant differences in efficacy at the start and end of student teaching in two scales. TCs reported the least amount of efficacy in student engagement; this was also the scale without statistically significant differences—this is consistent with Roberts et al.'s (2006) findings.

Research recommendations include conducting this study over the course of multiple years, and following up with teacher candidates who enter the classroom to see if there are additional longitudinal differences in efficacy at the end of one year of teaching (Bandura, 1977). Qualitative work would also reveal the impact of a TC's school environment, mentor support, and other factors and how these play a role in their perceptions and self-efficacy levels. For professional practice, teacher educators should provide TCs with additional resources relating to student engagement prior to student teaching to increase their efficacy in this area. This could include offering an arsenal of ready-to-use engagement activities that can be modified for a variety of situations, and more instruction on engagement best practices in methods courses.

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