

# **A Comparison of Personal Factors, Environmental Factors, and Student Teachers' Efficacy Between Two Agricultural Education Student Teacher Programs**

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## Abstract

Student teaching programs vary across the states, but do the personal factors, environmental factors, and teacher efficacy vary among the student teachers? This exploratory-descriptive study investigated these variables grounded on Bandura's (1986, 1997) social cognitive and self-efficacy theories. Two university-based agricultural student teaching programs, Ohio State University and University of Illinois, were compared to determine differences in personal factors, environmental factors, and student teacher efficacy. Although the personal and environmental factors were not analyzed to determine their influence on student teacher efficacy, these factors suggest that student teacher efficacy was maintained throughout the student teaching programs. The data also suggests that student teachers in two different teacher education programs with differences in personal and environmental factors can support student teachers to feel similarly efficacious. Further, the data suggests that student teachers enter their student teaching programs already feeling efficacious, and the student teachers in the two programs did not experience any change in teacher efficacy throughout the student teaching experience. The exploratory nature of this study lays the ground work for future studies in explaining and predicting student teacher efficacy.

## Introduction and Theoretical Framework

Student teaching is an important event (Borko & Mayfield, 1995) for preservice teachers to apply their knowledge and skills through experiences in real teaching situations and learn through unplanned incidents. Student teachers can benefit from situated and incidental learning in authentic social context through increased knowledge, opportunities to apply knowledge in new ways and new situations, increased competence, increased self-knowledge, value for lifelong learning, improved life skills, and development of self-confidence (Lankard, 1995). Student teachers interact with students in authentic learning environments and are introduced to some of the cultural and interpersonal aspects of work in the teaching profession. A dynamic interplay between the teacher and teaching environment comes to life because beliefs, values, culture and experiences influence how one teaches (Buriak, McNurlen, & Harper, 1996).

Although personal factors and environmental factors interdependently influence teachers' beliefs in how capable they feel that they can teach, this study sought to compare student teachers enrolled in two different university-based teacher education programs to determine if personal factors, environmental factors, and student teacher efficacy varied between two states. The study conceptualized the student teaching experience based on Bandura's (1986, 1997) social cognitive and self-efficacy theories and this explorative study investigated personal and environmental factors that may be related to student teacher efficacy (Figure 1).

The two teacher education programs were briefly compared (Table 1) to illustrate similarities and differences between the student teaching programs. The teacher education programs were very similar on the following criteria of their student teaching programs.

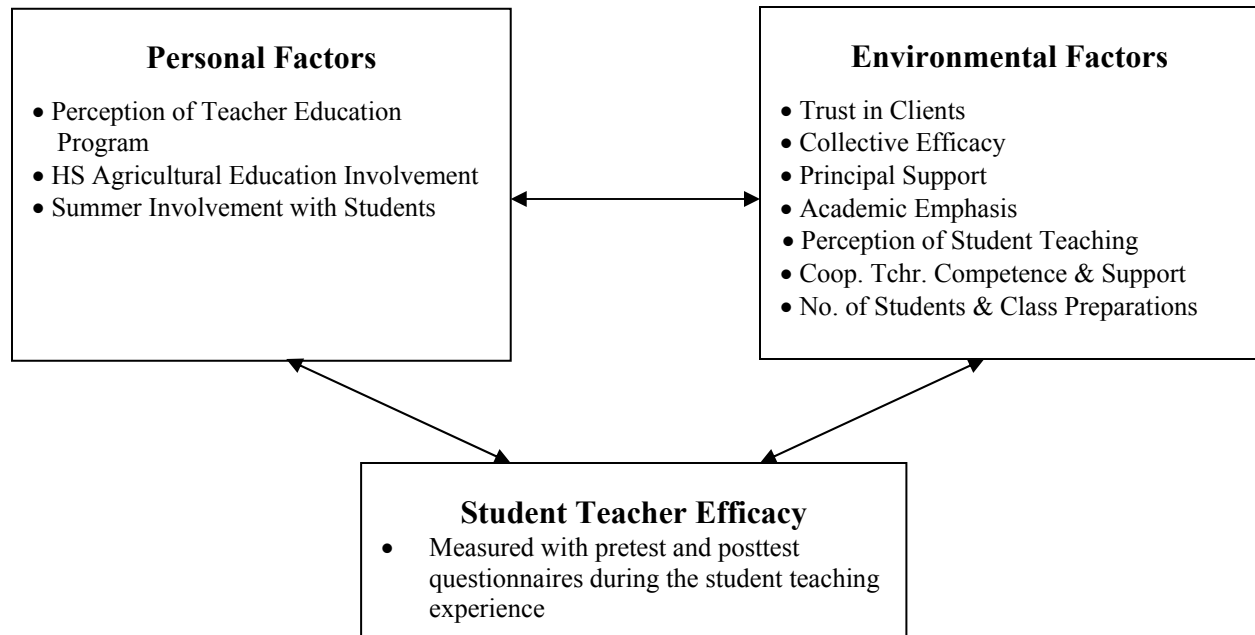


Figure 1. Conceptual framework.

Table 1

*Comparison of Student Teacher Programs*

Variable	Ohio State University	University of Illinois
Student teaching requirements	<ul style="list-style-type: none"> <li>• Minimum 2.5 CGPA</li> <li>• Teaching methods course</li> <li>• Placement application</li> </ul>	<ul style="list-style-type: none"> <li>• Minimum 2.5 CGPA</li> <li>• Teaching methods course</li> <li>• Placement application &amp; interview</li> <li>• Co-requisite of Program Planning</li> </ul>
Professional education courses prior to student teaching	<ul style="list-style-type: none"> <li>• Introduction to Ag. Ed. (Foundations &amp; Ed. Psychology)</li> <li>• History or Philosophy of Ed.</li> <li>• Teaching Methods</li> <li>• Program Planning</li> </ul>	<ul style="list-style-type: none"> <li>• Educational Foundations</li> <li>• Educational Psychology</li> <li>• Introduction to Ag. Ed.</li> <li>• Teaching Methods</li> </ul>
Early field experience	<ul style="list-style-type: none"> <li>• 80 hours</li> </ul>	<ul style="list-style-type: none"> <li>• 100 hours</li> </ul>
Selection of teaching centers and cooperating teachers	<ul style="list-style-type: none"> <li>• Input from teacher education faculty and department of education consultants</li> <li>• Min. 3 years teaching experience</li> </ul>	<ul style="list-style-type: none"> <li>• Approved list of model ST centers by agricultural teacher education faculty</li> <li>• Min. 3 years teaching experience</li> </ul>
Length of student teaching	<ul style="list-style-type: none"> <li>• 10 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• 12 weeks</li> </ul>
No. of university supervisor visits	<ul style="list-style-type: none"> <li>• 3 on-site by the same university supervisor</li> </ul>	<ul style="list-style-type: none"> <li>• 3 on-site rotated among 3 university supervisors</li> </ul>
Time of year	<ul style="list-style-type: none"> <li>• Fall</li> </ul>	<ul style="list-style-type: none"> <li>• Spring</li> </ul>
No. of student teachers per site	<ul style="list-style-type: none"> <li>• One ST per site</li> </ul>	<ul style="list-style-type: none"> <li>• One ST per site</li> </ul>
No. of sites per student teacher	<ul style="list-style-type: none"> <li>• One site</li> </ul>	<ul style="list-style-type: none"> <li>• One site</li> </ul>

The environment in which student teachers develop in can determine their efficacy beliefs about teaching. Pajares (2001b) asserted it makes little sense to study the development of individuals in isolated contexts because the developing teacher is embedded within several environmental systems. Bandura's (1986) social cognitive theory posits that human functioning accords a central role to cognitive, vicarious, self-regulatory and self-reflective processes in human adaptation and change. Human functioning is viewed as the product of a dynamic interplay of personal, behavioral, and environmental influences (Bandura, 1986). These influences, or determinants, affect each other bi-directionally through a process called reciprocal determinism, which creates the model of triadic reciprocity. In explaining how human behavior is influenced by the environment, Bandura's social cognitive theory focuses on how a person cognitively processes and interprets environmental outcomes. Although powerful, the element of triadic reciprocity makes the social cognitive theory a complex theory to understanding human and social phenomena. The strength of the social cognitive theory is grounded on the cognitive processing of the interactions and how beliefs, values, cultural resources, and experiences that a person possesses mediate the five fundamental human capabilities (Bandura, 1986). People make sense of their experiences, explore their cognitions and self-beliefs, evaluate themselves, and alter their thinking and behavior through self-reflection. Bandura believed that one's own percept of efficacy derived from self-reflection is the most powerful of the five fundamental human capabilities.

Self-efficacy theory emerged from Bandura's social cognitive theory. Building on the social cognitive theory, Bandura (1986) posited that factors affect human behavior through psychological mechanisms of the self-system because "most external influences operate through cognitive processing" (p. 13). The motivation, affective states, and actions are based more on what people believe than what is objectively the case (Bandura, 1986). Self-efficacy has been especially prominent in studies of educational constructs related to attributions of success and failure, goal setting, career development, and teaching and teacher education (Pajares, 2001a). Specifically related to the study, teacher efficacy, a type of self-efficacy, is a belief-oriented motivation construct. Teacher efficacy is 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, & Hoy, 1998, p. 233).

Teacher efficacy is an important variable in teacher development and how teachers teach (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Teacher efficacy has been shown to be a powerful construct related to student outcomes such as achievement, motivation, and sense of efficacy (Ashton & Webb, 1986; Guskey & Passaro, 1994; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Moreover, teacher efficacy was related to teachers' behavior, effort, goals, aspiration, openness to new ideas, innovation, planning and organization, persistence, resilience, reluctance to use criticism, enthusiasm, willingness to work with difficult students, and commitment to teaching and their careers (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Researchers are interested in studying teacher beliefs of prospective teachers because teaching efficacy beliefs are difficult to change once they are established (Woolfolk Hoy, 2000). After reviewing a number of studies, there is evidence of stability and change in student teacher beliefs (Nettle, 1998). Borko and Mayfield (1995) found that although student teachers experienced some change, they did not experience fundamental changes regarding their beliefs about teaching and learning. Nettle (1998) concluded that changes after student teaching are influenced by the beliefs held by student teachers before their student teaching experience. Martin (1989) suggested that a high sense of efficacy begins early in teacher education programs. Teacher efficacy increased throughout the teacher preparation program (Brown & Gibson, 1982; Woolfolk Hoy, 2000), when student teachers attempted to manage problems and take risks (Rushton, 2000), and after student teaching (Brown & Gibson, 1982; Fortman & Pontius, 2000; Hoy & Woolfolk, 1990).

Few researchers have studied teacher efficacy in agricultural education. Rodriquez (1997) found that teaching efficacy of student teachers was higher than the teaching efficacy of preservice teachers and novice teachers in agricultural education in Ohio. Although few researchers have studied teacher efficacy in agricultural education, several researchers have investigated factors related to student teaching and are important in developing student teachers. Although student teaching experiences vary across the states (Borne & Moss, 1990; Kirts & Claycomb, 1981), they were a critical component to the teacher education program. Borne and Moss (1990) also found that most student teachers felt positive about their student teaching experience. Student teachers' plans to teach were related to rapport with students and professional preparation (Briers & Byler, 1979). Furthermore, teacher factors, such as background and preparation program, contributed more to teacher effectiveness than student, colleagues, and principal related factors (Ganser, 1996). Student teachers and cooperating

teachers identified that the relationship between the cooperating teacher and student teacher was the important element of student teaching (Edwards & Briers, 2000; Harlin, Edward, & Briers, 2001). Furthermore, cooperating teachers can influence the morale of student teachers (Byler & Byler, 1984). Although the time of the school year had little influence on student teachers' morale (Briers & Byler, 1979), early field experience, student teachers' role expectations, and school discipline influenced student teacher morale (Byler & Byler, 1984).

If the success of a local agricultural education program depends on teacher expertise and beliefs (Anderson, 1977), then personal and environmental factors that influence student teachers' efficacy beliefs and self-percept of competence should be identified. When teacher educators know and understand the influences of the student teaching experience on teacher efficacy, then they may be more likely to help prepare qualified, competent, and caring agriculture teachers.

### Purpose and Objectives

The purpose of the study was to explore and describe the differences between personal factors, environmental factors, and student teacher efficacy of two university-based student teacher programs in agricultural education. The objectives of the study were to: (a) describe differences in personal factors of student teachers between the two teacher education programs; (b) describe differences in environmental factors of student teachers between the two teacher education programs; and, (c) describe the differences in student teacher efficacy of the teacher education programs at the beginning and the end of the student teaching experience.

### Methods and Procedures

This exploratory descriptive study used a static group comparison with a pretest design to assess teacher efficacy of two populations of student teachers in agricultural education. The population for the study consisted of a census of agricultural education student teachers in teacher education at the Ohio State University and the University of Illinois. There were 23 Ohio State University student teachers and 13 University of Illinois student teachers in the accessible populations. The naturally occurring, non-manipulated treatment was student teaching experience in public schools located in the two different states. The student teachers conducted a 10-week student teaching experience in Ohio and a 12-week student teaching experience in Illinois during the 2001-02 school year. The dependent variable was teacher efficacy and the independent variables were selected personal and environmental factors.

The data were collected through pretest and posttest questionnaires. The pretest questionnaire consisted of five items that measured high school agricultural education enrollment and summer involvement with students, and 24 items that measured teacher efficacy using the OSU Teacher Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). The OSU Teacher Efficacy Scale used Bandura's (1997) 9-point efficacy scale with anchors at (1) Nothing; (3) Very Little; (5) Some Influence; (7) Quite A Bit; and (9) A Great Deal. Tschannen-Moran and Woolfolk Hoy (2001) reported that the OSU Teacher Efficacy Scale had construct validity established by factor analysis and reliability ranged from 0.92 to 0.95. The posttest questionnaire consisted of the same 24 teacher efficacy items and 50 items that measured

personal and environmental factors. The domains of teacher trust in clients (Hoy & Tschannen-Moran, 1999), collective efficacy (Goddard, 2002), supportive principal behaviors (Hoy, Tarter, & Kottkamp, 2000), and academic emphasis (Hoy, Tarter, & Kottkamp, 2000) were all based on existing instruments with established reliability and validity. Perception domains of teacher education program, student teaching experience, cooperating teacher's competence, cooperating teacher's support were created by the researchers based on Bandura's (1997) self-efficacy theory and Darling-Hammond's (1999) review of effective teacher characteristics. The perception items had a 6-point summated rating scale: (1) Strongly Disagree, (2) Moderately Disagree, (3) Slightly Disagree, (4) Slightly Agree, (5) Moderately Agree, and (6) Strongly Agree. The number of students in the agricultural education program and the number of classroom preparations taught during student teaching were measured at the ratio level.

A panel of teacher education experts in agricultural education established content validity of the questionnaires. Graduate students in agricultural education with student teaching and previous teaching experience established face validity through a field test. The questionnaires were pilot tested with preservice teachers enrolled in undergraduate courses yielding a Cronbach's (1951) alpha of 0.87 for 12 teacher efficacy items. The posthoc reliability coefficients verified that the pretest and posttest questionnaires were reliable (perception of teacher education program = .72; high school agricultural education involvement = .98; summer involvement with students = .58; trust in clients = .80; collective efficacy = .86; supportive principal behaviors = .85; academic emphasis = .81; pretest student teacher efficacy = .95; posttest student teacher efficacy = .94).

The data were collected using Dillman's (2000) tailored design method. The Ohio State University collected that data using a mailed survey technique. The response rate was 96% ( $N = 22$ ) on the pretest and 100% ( $N = 23$ ) on the posttest for the Ohio State University. The University of Illinois conducted the survey using a mailed survey technique for the pretest and administering the posttest questionnaire in person at a student teaching seminar. The response rate was 92% ( $N = 12$ ) on the pretest and posttest for the University of Illinois.

### Analysis of Data

The data were analyzed using the Statistical Package for the Social Sciences, Personal Computer version (SPSS/PC+). Subscales were aggregated into composite scores before analyzing the data. Participants whose responses were incomplete were excluded automatically by SPSS in the data analyses procedures. Domains for personal factors, environmental factors, and student teacher efficacy were summed. Descriptive statistics were used to analyze the data because the study was a census. Therefore, inferential statistics were not used because the assumption of normality was not met. Population means and population standard deviations were calculated. Population means, population standard deviations, and effect sizes were rounded to the nearest 1/100th. Effect sizes were computed using Cohen's (1988) *d* coefficient and index. The effect size decision criterion was established *a priori* at 0.50 (Fraenkel & Wallen, 2000).

## Results and Findings

For Objective 1 (Table 2), the student teachers at the Ohio State University perceived their teacher education program positively with a mean of 4.61 ( $\Phi = .87$ ,  $N = 22$ ) and the student teachers at the University of Illinois perceived their teacher education program positively with a mean of 4.75 ( $\Phi = 1.36$ ,  $N = 12$ ). The effect size of the difference in student teacher perceptions of their teacher education programs was small (.13). The student teachers at the Ohio State University were involved high school agricultural education, on average, for 3.33 years ( $\Phi = 1.43$ ,  $N = 22$ ) as an agriculture student, FFA member, and having a SAE project. The student teachers at the University of Illinois were involved in high school agricultural education, on average, for 1.78 years ( $\Phi = 1.54$ ,  $N = 12$ ) as an agriculture student, FFA member, and having a SAE project. The effect size of the difference in high school agricultural education involvement between the

Table 2  
*A Comparison of Two University Teacher Education Programs Based on Personal Factors*

	Ohio State University	University of Illinois	Effect Size
Perception of Teacher Education Program <sup>A</sup>	4.61 (.87)	4.75 (1.36)	.13 Small
HS Ag. Ed. Involvement <sup>B</sup>	3.33 (1.43)	1.78 (1.54)	.74 Medium
Summer Involvement with Students <sup>C</sup>	0.57 (.42)	0.75 (.40)	1.09 Large

Scales: <sup>A</sup>: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Moderately Agree, 6 = Strongly Agree; <sup>B</sup>: Years enrolled; and, <sup>C</sup>: 0 = No, 1 = Yes.

two universities was substantially medium (.74). Fifty-seven percent ( $\Phi = .42$ ,  $N = 22$ ) of the student teachers at the Ohio State University were involved with their students the summer prior to student teaching, whereas, 75% ( $\Phi = .40$ ,  $N = 12$ ) of the student teachers at the University of Illinois were involved with students during the summer before student teaching. The effect size of the difference in summer involvement was 36% greater than a large effect size (1.09).

For Objective 2 (Table 3), student teachers at the Ohio State University had a population mean of 4.38 ( $\Phi = .53$ ,  $N = 22$ ) for trust in clients, and student teachers at the University of Illinois had a population mean of 4.30 ( $\Phi = .46$ ,  $N = 12$ ) for trust in clients. The effect size of the difference in trust in clients was small (.32). Student teachers at the Ohio State University had a population mean of 4.43 ( $\Phi = .73$ ,  $N = 23$ ) for collective efficacy, whereas, the student teachers at the University of Illinois had a population mean of 4.13 ( $\Phi = .80$ ,  $N = 12$ ) for collective efficacy. The effect size of the difference in collective efficacy between the two universities was medium (.54). Student teachers at the Ohio State University had a population mean of 2.99 ( $\Phi = .54$ ,  $N = 23$ ) for supportive principal behaviors, whereas, student teachers at the University of Illinois had a population mean of 3.33 ( $\Phi = .56$ ,  $N = 12$ ) for supportive principal behaviors. The effect size of the difference between supportive principal behaviors for the two universities was 46% greater than a large effect size (1.17). Student teachers at the Ohio State University had a population mean of 2.84 ( $\Phi = .51$ ,  $N = 23$ ) for academic emphasis, whereas, student teachers at

the University of Illinois had the same population mean of 2.84 ( $\Phi = .50, N = 12$ ) for academic emphasis.

The student teachers at the Ohio State University had a population mean of 5.20 ( $\Phi = .96, N = 23$ ) for their perception of the student teaching experience, whereas, the student teachers at the University of Illinois had a population mean of 5.29 ( $\Phi = .90, N = 12$ ) for their perception of the student teaching experience. The difference between the two groups on the perception of the student teaching experience had a negligibly small effect size (.07). The student teachers at the Ohio State University perceived their cooperating teachers' competence as 4.87 ( $\Phi = 1.13, N = 15$ ), whereas, the student teachers at the University of Illinois perceived their cooperating teachers' competence as 5.42 ( $\Phi = .90, N = 12$ ). The effect size of the difference in perceptions of cooperating teacher competence was 31% greater than a large effect size (1.05).

The student teachers at the Ohio State University had a population mean of 4.80 ( $\Phi = 1.37, N = 15$ ) based on their perception of cooperating teacher support, whereas, the student teachers at the University of Illinois had a population mean of 5.17 ( $\Phi = 1.47, N = 12$ ). The effect size of the difference in perceptions of cooperating teacher support was 140% greater than a large effect size. The student teachers at the Ohio State University taught in programs with an average enrollment of 89.14 students ( $\Phi = 49.91, N = 21$ ), whereas, student teachers at the University of Illinois taught in programs with an average enrollment of 120.63 students

Table 3  
*A Comparison of Two University Teacher Education Programs Based on Environmental Factors*

	Ohio State University	University of Illinois	Effect Size
Trust in Clients <sup>A</sup>	4.38 (.53)	4.30 (.46)	.32 Small
Collective Efficacy <sup>A</sup>	4.43 (.73)	4.13 (.80)	.54 Medium
Supportive Principal Behaviors <sup>B</sup>	2.99 (.54)	3.33 (.56)	1.17 Large
Academic Emphasis <sup>B</sup>	2.84 (.51)	2.84 (.50)	.00 None
Perception of Student Teaching Experience <sup>A</sup>	5.20 (.96)	5.29 (1.41)	.07 Small
Cooperating Teacher Competence <sup>A</sup>	4.87 (1.13)	5.42 (.90)	1.05 Large
Cooperating Teacher Support <sup>A</sup>	4.80 (1.37)	5.17 (1.47)	1.92 Large
Number of Students in Ag. Ed. Program <sup>C</sup>	89.14 (49.91)	120.63 (148.42)	<.01 None
Number of Class Preparations Taught <sup>C</sup>	3.50 (1.71)	4.83 (1.53)	.49 Small

Scales <sup>A</sup>: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Moderately Agree, 6 = Strongly Agree; <sup>B</sup>: 1 = Rarely Occurs, 2 = Sometimes Occurs, 3 = Often Occurs, 4 = Very Frequently Occurs; and, <sup>C</sup>: Ratio data.

( $\Phi = 148.42$ ,  $N = 12$ ). The difference in student enrollment of student teaching centers between the two universities had an extremely small effect size ( $<.01$ ). The student teachers at the Ohio State University taught 3.50 ( $\Phi = 1.71$ ,  $N = 22$ ) class preparations, whereas, the student teachers at the University of Illinois taught 4.83 ( $\Phi = 1.53$ ,  $N = 12$ ) class preparations. The difference in the number of class preparations between the two groups of student teachers was nearly a medium effect size (.49).

For Objective 3 (Table 4), the population mean of pretest teacher efficacy was 6.92 ( $\Phi = .94$ ,  $N = 34$ ) and the population mean of posttest teacher efficacy was 7.00 ( $\Phi = .84$ ,  $N = 35$ ). The effect size in the overall population means between pretest teacher efficacy and posttest teacher efficacy was fairly small (.10). In comparing the two universities, the pretest teacher efficacy mean for the student teachers at the Ohio State University was 6.92 ( $\Phi = 1.00$ ,  $N = 22$ ) and the pretest teacher efficacy mean for the student teachers at the University of Illinois was 6.89 ( $\Phi = .87$ ,  $N = 12$ ). The effect size for the difference in pretest teacher efficacy between the two universities was a negligibly small effect size (.03). The posttest teacher efficacy mean for the student teachers at the Ohio State University was 7.03 ( $\Phi = .83$ ,  $N = 23$ ) and the posttest teacher efficacy mean for the student teachers at the University of Illinois was 6.94 ( $\Phi = .91$ ,  $N = 12$ ). The effect size for the difference in posttest teacher efficacy between the two universities was a fairly small effect size (.12).

Table 4.

*A Comparison of Two Student Teaching Programs Based on Teacher Efficacy*

	Ohio State University	University of Illinois	Effect Size
Pretest Teacher Efficacy	6.92 (1.00)	6.89 (.87)	.03 Small
Posttest Teacher Efficacy	7.03 (.83)	6.94 (.91)	.12 Small

Scale: 1 = Nothing, 3 = Very Little, 5 = Some Influence, 7 = Quite A Bit, 9 = A Great Deal.

Conclusions, Recommendations, and Implications

In comparison on personal factors, the student teachers at the two universities similarly perceived their teacher education programs as positive (Borne & Moss, 1990). However, the student teachers at the Ohio State University had greater involvement in high school agricultural education, but the student teachers at the University of Illinois were more involved with students the summer prior to their student teaching. Although the student teachers at the University of Illinois were less likely to be enrolled in high school agricultural education as a student and FFA member with a SAE project, perhaps they may have compensated by becoming more involved with students in summer activities and county fairs.

In comparison on environmental factors, the student teachers at the two universities were similar on trust in clients, academic emphasis of schools, perception of student teaching experience, number of students in the agricultural education program, and number of class

preparations taught. The number of class preparations taught was very close to the decision criteria and may be considered as noticeably different in the field. Although the student teachers at the Ohio State University were higher on collective efficacy, the student teachers at the University of Illinois were higher on supportive principal behaviors, perception of cooperating teacher competence, and perceptions of cooperating teacher support. The differences in environmental factors could suggest that student teachers at the University of Illinois felt more support from their cooperating teachers and principals, whereas, the student teachers at the Ohio State University perceived more support from other teachers.

In comparison on teacher efficacy, student teachers at the two universities similarly efficacious and had “quite a bit” of efficacy. Furthermore, the student teachers at both universities saw no change in teacher efficacy after their student teaching experiences. This finding did not support other studies that saw an increase in teacher efficacy after student teaching (Brown & Gibson, 1982; Fortman & Pontius, 2000; Hoy & Woolfolk, 1990). One implication of this finding is that student teachers were already efficacious about teaching before they started their student teaching experience (Martin, 1989; Nettle, 1998). This could suggest that student teachers feel that they already know how to teach before their student teaching experience and their student teaching experience confirms their efficacy beliefs. However, student teachers may also have an inflated efficacy that they can teach, which remains inflated throughout student teaching because of the supportive teaching environment of a cooperating teacher.

Another implication of these findings is that student teachers at two different universities can be similarly efficacious with different personal and environmental factors. Although student teaching experiences vary across states, student teachers may have felt efficacious at both universities because of how their positive perceptions of their teacher education programs, trust in students and parents, teaching in schools with academic emphasis, having positive student teaching experiences, and teaching less than five class preparations. The student teachers’ efficacy at the Ohio State University may have been supported more by their involvement in high school agricultural education (Ganser, 1996) and teaching in schools with higher collective efficacy. The student teachers’ efficacy at the University of Illinois may have been supported more by their summer involvement with students prior to student teaching, feeling more support from cooperating teachers and principals, and perceiving their cooperating teachers as more competent (Edwards & Briers, 2000; Harlin, Edward, & Briers, 2001).

This study raises more questions than it may have added to the body of knowledge. There is no evidence from this study that these personal and environmental factors influenced student teacher efficacy. Therefore, the next study should investigate the relationships between personal and environmental factors and student teacher efficacy. Once relationships are identified, further studies using multiple regression models should look at personal and environmental factors collectively in explaining student teacher efficacy. The construct of student teacher efficacy should be further developed to reflect the standards and competencies student teachers in agricultural education are expected to perform. Longitudinal trend studies should follow student teachers to determine if personal and environmental factors influence teacher efficacy at different points throughout the teacher development process. Furthermore,

triangulated studies should be conducted to determine what personal and environmental factors influence student teachers' performances related to teacher efficacy.

### References

Anderson, B. H. (1977). An over the shoulder look at the contemporary philosophy and standards in vocational agriculture. *Journal of the American Association of Teacher Educators in Agriculture*, 18(1), 1-8.

Ashton, P. T., & Webb, R. B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement*. New York: Longman.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

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

Buriak, P., McNurlen, B., & Harper, J. G. (1996). Toward a scientific basis for the craft of teaching. *Journal of Agricultural Education*, 37(4), 25-37.

Borko, H., & Mayfield, V. (1995). The roles of the cooperating teacher and university supervisor in learning to teach. *Teaching and Teacher Education*, 11(5), 501-518.

Borne, C., & Moss, J. W. (1990). Satisfaction with agricultural education student teaching. *Journal of Agricultural Education*, 31(2), 29-34.

Briers, G. E., & Byler, B. L. (1979). Morale of student teachers in agricultural education at Iowa State University. *The Journal of the American Association of Teacher Educators in Agriculture*, 20(3), 41-51.

Brown, R., & Gibson, S. (1982, April). *Teachers' sense of efficacy: Changes due to experience*. Paper presented at the annual meeting of the California Educational Research Association, Sacramento, CA.

Byler, B. L., & Byler, L. F. (1984). Analysis of student teacher morale before and after student teaching. *The Journal of the American Association of Teacher Educators in Agriculture*, 25(3), 22-28.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2<sup>nd</sup> ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 31, 93-96.

Darling-Hammond, L. (1999). *Teacher quality and student achievement: A review of state policy evidence*. Seattle, WA: Center for the Study of Teaching and Policy.

Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons.

Edwards, M. C., & Briers, G. E. (2000). *Cooperating teachers' perceptions of important elements of the student teaching experience: A focus group approach with quantitative follow-up*. Paper presented at the National Agricultural Education Research Conference, San Diego, CA.

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

Fraenkel, J. R., & Wallen, N. E. (2000). *How to design and evaluate research in education* (8th ed.). Boston: McGraw-Hill.

Ganser, T. (1996, October). *Teacher effectiveness: Views of preservice and inservice teachers*. Paper presented at the annual meeting of the Mid-Western Educational Research Association, Chicago, IL.

Goddard, R. (2002). A theoretical and empirical analysis of the measurement of collective efficacy: The development of a short form. *Educational and Psychological Measurement*, 62(1), 97-110.

Guskey, T. R. , & Passaro, P. D. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal*, 31, 627-643.

Harlin, J. F., Edwards, M. C., & Briers, G. E. (2001). *A comparison of student teachers' perceptions of important elements of the student teaching experience before and after completing an 11-week field experience*. Paper presented at the National Agricultural Education Research Conference, New Orleans, LA.

Hoy, W. K., Tarter, C. J, & Kottkamp, R. B. (2000). *Open schools/healthy schools: Measuring organizational climate*. Retrieved June 21, 2001, from [http://www.coe.ohio-state.edu/whoy/on-line%20books\\_4.htm](http://www.coe.ohio-state.edu/whoy/on-line%20books_4.htm)

Hoy, W. K., & Tschannen-Moran, M. (1999). Five faces of trust: An empirical confirmation in urban elementary schools. *Journal of School Leadership*, 9, 184-208.

Hoy, W. K., & Woolfolk, A. E. (1990). Socialization of student teachers. *American Educational Research Journal*, 27, 279-300.

Kirts, C., & Claycomb, D. (1981). Student teaching management in agricultural education: A national study. *The Journal of the American Association of Teacher Educators in Agriculture*, 22(1), 41-47, 64.

Lankard, B. A. (1995). *New ways of learning in the workplace*. (ERIC Digest No. 161). Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education. Retrieved May 25, 2002 from <http://www.ericacve.org/docgen.asp?tbl=archive&ID=A011>

Martin, O. L. (1989). *Does teacher efficacy begin with teacher education: Implications for student teacher candidates*. Paper presented at the annual meeting of the Mid-Western Educational Research Association, Little Rock, AK.

Nettle, E. B. (1998). Stability and change in the beliefs of student teachers during practice teaching. *Teaching and Teacher Education*, 14(2), 193-204.

Pajares, F. (2001a). *Overview of self-efficacy*. Retrieved January 12, 2002, from <http://www.emory.edu/EDUCATION/mfp/eff.html>

Pajares, F. (2001b). *Self-efficacy web site*. Retrieved January 22, 2002, from <http://www.emory.edu/EDUCATION/mpf>

Rodriguez, J. F. (1997). *Self-efficacy of preservice and beginning agricultural education teachers in Ohio*. Unpublished doctoral dissertation, The Ohio State University, Columbus.

Rushton, S. P. (2000). Student teacher efficacy in inner-city schools. *Urban Review*, 32(4), 365-383.

Tschannen-Moran, M., Woolfolk Hoy, A. & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research*, 68(2), 202-248.

Woolfolk Hoy, A. (2000, April). *Changes in teacher efficacy during the early years of teaching*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

# **A Comparison of Personal Factors, Environmental Factors, and Student Teachers' Efficacy Between Two Agricultural Education Student Teacher Programs**

A Critique  
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The author conducted a population census of student teachers at two major Mid-Western universities during school year 2000-2001, providing descriptive data regarding both the student teachers and the programs of the two institutions. He provided a good literature review and clearly enunciated a solid theoretical framework for the study. The author relates the findings of the study back to the literature in a coherent fashion.

As we would expect, the structure of the programs and the students in the programs had a number of commonalities but were very different in a number of ways. The author pointed out that this was an exploratory study. Nevertheless, the author has identified what may prove to be an important variable for extensive study in the profession and I expect a very extensive and extremely productive program of focused research to emanate from this start. The researcher rightly observed that this study raises more questions than it answers.

Some questions to consider:

1. If pre-and post student teaching measures are newly identical,
  - Would the same hold true for measures taken prior to the pre-clinical experience?
  - Would the same hold true for teachers at the end of year one?
  - Year two?
2. What can we do, as teacher educators, to improve the teaching efficacy for preservice and inservice teachers?
3. Can the early clinical and student teaching experiences be structured with teacher efficacy perceptions being considered? If we structure those experiences to provide teacher efficacy reinforcement, can we expect a higher placement rate among newly qualified potential teachers?
4. If self-efficacy as it relates specifically to teaching a predictor of perseverance in teaching? If it is, can we use that knowledge to help solve the problem of high turnover in beginning teachers?
5. How does perceived teacher efficacy relate to the perseverance behaviors examined in the Rogers, Townsend, Lindner study?
6. How can teacher efficacy beliefs be manipulated systematically to improve practice in the profession?