

The Influence of the Initial Ten Weeks of the School Year on Novice Teacher Efficacy in Agricultural Education



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Abstract

The beginning experiences of teachers influence how they teach. This study investigated the influence of the initial ten weeks of the school year on novice teacher efficacy in agricultural education. The participants in this causal comparative study were almost equally distributed (22 student teachers, 29 first-year teachers, 26 second-year teachers, and 29 third-year teachers), 61% (N = 65) were male, and 69% (N = 72) were a student for four years in an agricultural education program in high school. Teacher efficacy decreased for first-year teachers during the first 10 weeks of the school year, but there was essentially no change in teacher efficacy across the first 10 weeks of the school year for student teachers, second-year teachers, and third-year teachers. In comparing the four groups, the greatest difference was between the student teachers and first-year teachers. The student teachers had the highest teacher efficacy and the first-year teachers had the lowest teacher efficacy after the first 10 weeks of the school year. No differences existed between the other groups on 10th-week teacher efficacy.

Introduction

Statement of the Problem and Significance of the Study

The first few months and years of teaching are important in the development of college and university teachers (McKeachie et al., 1994). Likewise, the initial experiences of beginning secondary education teachers can influence their teaching performances. Teachers, who believe they can make a difference in helping students learn, and who display the confidence in their abilities to teach, tend to see greater achievement from their students (Armor et al., 1976) and, are more likely to remain in the teaching profession (Burley et al., 1991; Glickman & Tamashiro, 1982). Beliefs and dispositions of teach-

ers have a major influence on how they teach, the effort they exert, and how students respond to the learning environment, instruction, and their teaching styles and personalities (McKeachie, et al. 1994; Pajares, 1992; Tschannen-Moran et al., 1998). Teachers are the single most important variable related to student achievement (Darling-Hammond, 1997). Therefore, a teacher's beliefs, attitude, and disposition of being a confident, efficacious teacher need further investigation.

Although this study focused on secondary agriculture teachers, it may be relevant to post-secondary and higher education teachers of agriculture because they face similar self-assessments of their own teaching competence when faced with teaching unfamiliar content and performing novice tasks, in new situations. However, this study will not attempt to generalize to post-secondary and higher education teachers. Darling-Hammond (1997) and the National Center for Educational Statistics (1997) reported that working conditions, including professional autonomy, poor student motivation, student discipline problems, and lack of recognition and support from administration, play an important role in determining which teachers stay in education. Seventeen percent of new public school teachers leave the teaching profession within the first three years (National Center for Educational Statistics, 1997). Furthermore, Mundt (1991) found that beginning agriculture teachers lacked confidence and expressed feelings of loneliness, isolation, frustration, and stress.

Theoretical/Conceptual Base and Related Literature

Teacher efficacy is a belief concept of teacher motivation (Hoy & Miskel, 2001) and Tschannen-Moran, et al. (1998) defined teacher efficacy 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

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context" (p. 233). Teacher beliefs play a critical role in the development of teachers (Smylie, 1988). Beliefs filter the perception and interpretation of new knowledge and phenomena, which influences how teachers learn to teach, plan to teach, make instructional decisions, and interact with students (Borko & Putnam, 1996; Richardson & Placier, 2001). Motivated and confident agriculture teachers were more effective teachers (Mille et al., 1991) and are more likely to display a disposition that all students can learn (Darling-Hammond, 1999; NCATE, 2001). Students achieved more, were more motivated, and had a greater sense of efficacy when their teachers had higher teacher efficacy (Ashton & Webb, 1986; Guskey & Passaro, 1994; Tschannen-Moran et al., 1998).

Moreover, teachers' sense of 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 et al., 1998). Teacher efficacy affects the type of activities teachers choose to enhance their teaching, how much effort and persistence they will exhibit when faced with difficulties, and to what degree they will achieve (Ormrod, 2000). Therefore, the conceptual framework of this study is based on the premise that agricultural education teachers who are more confident and efficacious in their teaching, will be more motivated, be more effective in helping students learn, be more persistent in difficult situations, and remain longer in the teaching profession than their counterparts who lack confidence and exhibit low teacher efficacy.

Bandura's (1997) theory of self-efficacy and Tschannen-Moran et al.'s (1997) teacher efficacy model served as the theoretical framework of the study. The major influences on efficacy beliefs are assumed to be the teacher's self analysis and interpretation of the four sources of information about efficacy described by Bandura (1997) mastery experience, vicarious experience, verbal persuasion, and physiological and affective arousal. Teachers engage in self-reflection based on any of the four sources in assessing how well they think they can perform a specific teaching task in a specific situation. The process of efficacy development is cyclical. Teachers with higher efficacy are likely to perform better, thus leading to a greater sense of efficacy. This process stabilizes over time into a relatively stable set of efficacy beliefs (Tschannen-Moran et al., 1998). Moreover, Bandura (1997) purported that beliefs about both the teaching task and personal competence of teaching are likely to remain unchanged unless compelling evidence intrudes and causes them to be re-evaluated.

The purpose of this study was to measure the change in teacher efficacy during the first 10 weeks of the student, first-year, second-year, and third year teaching experience in agricultural education in Ohio. The objectives of the study were to: (1) describe the teachers in the population based on selected characteristics; (2) determine teacher efficacy change of student teachers, first-year teachers, second-year teachers, and third-year teachers during the first 10 weeks of the school year; and, (3) determine the differences in teacher efficacy among the four groups at the 10th week of the school year.

Methods

The researchers sought to explore and describe the population of student and beginning teachers in agricultural education using a causal comparative design. The target population that the researchers sought to generalize to consisted of a census of student teachers and novice teachers in their first three years of teaching in agricultural education. The teacher education program in the university's agricultural education department and the state department of education provided the frame of the accessible population. Returning teachers in their first, second, or third year of teaching with previous teaching experience were contacted to determine if they wished to participate in the study. There were 114 student and beginning teachers in the accessible population. The data sample consisted of 106 teachers (93% response rate) who responded to the questionnaire.

A mailed questionnaire of 23 items was used to collect the data. The researchers created the instrument based on Bandura's (1997) self-efficacy theory and Darling-Hammond's (1999) review of effective teacher characteristics. Twenty-one items were included in the questionnaire to assess personal background information about the teachers in the study. A panel of teacher education experts in the agricultural education department established content validity. Graduate students in agricultural education with student teaching and previous teaching experience field tested the questionnaire to establish face validity. The questionnaires were pilot tested with preservice teachers enrolled in undergraduate courses yielding a Cronbach's (1951) alpha of 0.87 for 12 selected teacher efficacy items. The posthoc reliability coefficients verified that the pretest and posttest questionnaires were reliable (pretest teacher efficacy = .93; posttest teacher efficacy = .94). Reliability measures of the categorical data were not conducted because of the assumption that if the participants responded truthfully and accurately, then the data would also be consistent and reliable.

Dillman's (2000) tailored design method was used to collect the data. The tailored design consists of five

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elements: (a) a respondent-friendly questionnaire; (b) up to five contacts with the questionnaire recipient; (c) inclusion of stamped return envelopes; (d) personalized correspondence; and, (e) a token financial incentive that is sent with the survey request (Dillman, 2000). A hand-written pre-notice message on a frameable Successories® card was sent to each of the participants about five days prior to sending the questionnaire. Questionnaires were sent to the student and beginning teachers at their school addresses with a cover letter and custom-printed pop can insulator as the incentive. A postcard was sent as a thank you and reminder about 10 days after the questionnaire was mailed. Phone calls were made to nonrespondents about 20 days after the questionnaire was mailed as the fourth contact. Replacement questionnaires with cover letters were mailed about 30 days after the first questionnaire was mailed.

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 pretest teacher efficacy and posttest teacher efficacy were summed. Descriptive statistics were used to analyze the categorical and metric data because the study was a census. Therefore, inferential statistics were not used because the assumption of normality was not met. Categorical data were reported as frequencies and metric data were reported as population means and standard deviations. The dependent variable of teacher efficacy change was the difference in the posttest teacher efficacy score and the pretest teacher efficacy score (Posttest TE - Pretest TE = Teacher Efficacy Change). 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 Discussion

Objective 1: Teacher Characteristics

Twenty-one percent (N = 22) were student teachers, 27% (N = 29) were first-year teachers, 25% (N = 26) were second-year teachers, and 27% (N = 29) were third-year teachers who participated in the study. Three percent (N = 3) were returning teachers

who had retired or left the teaching profession and had previous teaching experience. Sixty-one percent (N = 65) were male. The average age of the teachers in the study was 25.9 (N = 105, $\sigma = 6.37$), ranging from 21 to 58 years. Sixteen percent (N = 17) of the teachers were not a student in an agricultural education program in high school, 5% (N = 5) were a student for one year, 5% (N = 5) were a student for two years, 7% (N = 7) were a student for three years, and 69% (N = 72) were a student for four years. This large percentage of agriculture teachers who were students of high school agricultural education programs may be a major factor in preparing agriculture teachers because people develop beliefs through the process of cultural transmission (Pajares, 1992).

Objective 2: Changes in Teacher Efficacy

The teachers ranged from 6.81 to 6.92 on initial teacher efficacy at the beginning of the school year. The teachers ranged from 6.55 to 7.03 on teacher efficacy after 10 weeks into the school year (Table 1). Therefore, student teachers and novice teachers in agricultural education in Ohio were efficacious during the first 10 weeks of the school year. Although this conclusion was incongruent with Mundt's (1991) finding that beginning agriculture teachers lacked confidence, Rodriguez (1997) found that student teachers, first-year teachers, and second-year teachers were efficacious in agricultural education in Ohio. The moderately high efficacy of the student

Table 1. Descriptive data for teacher efficacy.

| | Teacher Efficacy 1 st week | Teacher Efficacy 10 th week |
|---|--|---|
| Student Teachers (N = pre - 22, post - 23) | 6.92 (1.00) | 7.03 (.83) |
| First-Year Teachers (N = pre - 29, post - 30) | 6.84 (.75) | 6.55 (1.00) |
| Second-Year Teachers (N = pre - 26, post - 25) | 6.92 (.72) | 6.79 (.77) |
| Third-Year Teachers (N = pre - 29, post - 28) | 6.81 (.97) | 6.75 (.86) |

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

Table 2. Teacher efficacy change by group.

| Stage of Development | Min | Max | Group Mean | SD | Effect Size | Cohen's Index |
|---------------------------------|-------|------|---------------|------|----------------|---------------|
| Student teacher (N = 22) | -2.54 | 2.46 | .10 | 1.15 | .09 | Small |
| First-year teacher (N = 27) | -2.38 | 0.67 | -.40 | .82 | .49 | Medium |
| Second-year teacher (N = 25) | -1.25 | 1.33 | -.13 | .58 | .22 | Small |
| Third-year teacher (N = 28) | -.92 | 1.07 | <-.01 | .50 | .01 | Small |

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

teachers and novice teachers in agricultural education in Ohio could be due to a combination of several contributing factors (Bandura, 1997) related to supportive teaching environments and manageable teaching loads, apprenticeship of observation (Lortie, 1975), and a community of learners in teacher education.

Table 2 reports the descriptive data for degree of teacher efficacy change for each group of teachers. Student teachers had the largest range of teacher efficacy and were the only group that showed an increase in teacher efficacy change. First-year teachers had the lowest maximum level of teacher efficacy and had the greatest decrease in teacher efficacy. Second-year teachers' efficacy declined 0.13 from week 1 to week 10. Third-year teachers had the lowest minimum and remained nearly the same in teacher efficacy from week 1 to week 10.

First-year teachers' efficacy declined during the first 10 weeks of the school year. There was essentially no change in teacher efficacy across the first 10 weeks of the school year for student teachers, second-year teachers, and third-year teachers. Although there were measurable changes in teacher efficacy for all stages of development, the first-year teachers were the only group that experienced the most noticeable teacher efficacy change. Perhaps, their beliefs were modified and changed by new and compelling knowledge, education, and experience (Alexander & Dochy, 1995). First-year teachers in the first 10 weeks of their teaching career may experience chance encounters that also influence their teaching beliefs (Bandura, 1986). The erosive nature of teacher efficacy during the first 10 weeks of teaching for beginning teachers implies that first-year teachers may feel less efficacious than they did at the end of their student teaching experience. Likewise, Rodriquez (1997) found that first-year teachers were less efficacious than student teachers in agricultural education in Ohio, and Benz, Bradley, Alderman, and Flowers (1992) found that preservice teachers had higher teacher efficacy than classroom teachers. Although teachers may self-select schools where they think that they will fit, most teachers have great difficulty adjusting to their role as a teacher (Waller, 1961).

Objective 3: Group Differences in Teacher Efficacy at the 10th Week

Table 3 lists the mean differences of teacher efficacy between the four groups at the 10th week. The student teachers had the highest teacher efficacy after the first 10 weeks of the school year. The first-year teachers had the lowest 10th-week teacher efficacy. Student teachers and first-year teachers were different on teacher efficacy after the first 10 weeks of school. This finding is congruent with Bandura's (1997) theory that self-efficacy beliefs are likely to remain unchanged unless compelling evidence intrudes and causes them to be re-evaluated. Perhaps, the initial weeks of the first year

of teaching provided compelling evidence and caused new agriculture teachers to think about their teaching competence and abilities to perform in a new context. Practically, there were no differences between student teachers, second-year teachers, and third year teachers. There were no differences on 10th week teacher efficacy between first-year, second-year, and third-year teachers at the 10th week. There was no difference between second-year and third-year teachers after the first 10 weeks of the school year.

Table 3. Descriptive statistics of mean differences of teacher efficacy at the tenth week by stages of development.

| Stage of Development (I) | Stage of Development (J) | Mean Difference (I-J) | Effect Size | Cohen's Index |
|---------------------------------|--------------------------|-----------------------|-------------|---------------|
| Student teacher (N = 23) | First-year | .48 | .56 | Medium |
| | Second-year | .24 | .38 | Small |
| | Third-year | .28 | .39 | Small |
| First-year teacher (N = 30) | Second-year | .24 | .30 | Small |
| | Third-year | .20 | .23 | Small |
| Second-year teacher (N = 25) | Third-year (N = 28) | .04 | .06 | Small |

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

Summary

New agriculture teachers experienced a decline in teacher efficacy during their first year of teaching. First-year teachers should be guided engage in sound decision-making that provides support and direction for their actions, capitalize on planned and fortuitous opportunities, resist social traps that can be detrimental, and disengage from predicaments that beginning teachers typically face (Bandura, 1986). Agricultural teacher educators should prepare teachers of agriculture to anticipate the challenges they will likely face as a new teacher. Some of these teacher preparation strategies should include: (a) opportunities to gain positive teaching experiences, (b) agriculture and education courses that are taught by model teachers, (c) teaching observations with constructive feedback, and (d) developing a community of learners that creates feelings of collegial support.

Beginning teachers need support and assistance almost immediately in their teaching careers. Although it may not be realistic to try to increase teacher efficacy during the initial weeks of the school year, the focus may need to be on maintaining it, or minimizing its decline by trouble-shooting for the greatest challenges and obstacles facing the novice teachers. The greatest decline of teacher efficacy at the entry phase may be congruent with Lortie's (1975) assertion that eased entry into the teaching profession exacerbates feelings of uncertainty. First-year teachers may soon realize that they were not prepared well enough to be a teacher and also feel less efficacious if they see themselves doing worse than their teaching peers (Bandura, 1997). Furthermore, the lack of change among student teachers, second-

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year teachers, and third-year teachers was probably due to the brevity of repeated measures. Reciprocal deterministic relationships and self-efficacy develop over time (Bandura, 1986). Pajares (1992) asserted that beliefs tend to self-perpetuate and persevere even against contradictions caused by time or experience. Moreover, if novice teachers experienced favorable interactions with students, parents, colleagues, and administrators, then their efficacy may not have been tested by obstacles and challenges that are experienced in more negative teaching environments.

Second and third-year teachers appeared to experience no practical changes in teacher efficacy during the first 10 weeks of the school year because the process of teacher efficacy development stabilizes over time into a relatively stable set of efficacy beliefs (Tschannen-Moran et al., 1998). The stability of the second-year and third-year teachers' efficacy during the first 10 weeks of the school year implies that second-year and third-year teachers may have developed a greater sense of personal agency and social support (Bandura, 1986), especially through mastery experiences. Tenably, mastery experiences probably sustain and build teacher efficacy during the second and third year of teaching. Furthermore, second-year and third-year teachers' efficacy beliefs may have been instilled and strengthened by creating networks with other teachers who hold the same ideological commitments (Bandura, 1986).

Teacher educators, supervisors, and professors who teach, mentor, and advise preservice teachers should consider the resistant nature of teacher efficacy beliefs (McDiarmid, 1990; Moore & Esselman, 1992; Nisbett & Ross, 1980; Pajares, 1992; Woolfolk Hoy, 2000). Teacher efficacy beliefs change slowly through the influence of many sources and they develop overtime (Bandura, 1986; Martin, 1989) through a complex combination of sources of self-reflection based on beliefs, values, culture and experiences (Buriak, McNurlen, & Harper, 1996). Although Cole (1995) recommended that teacher efficacy be studied using experimental designs, these research designs could limit the generalizability of significant changes in teacher efficacy due to its nature of being multi-authored through a gradual change process (Bandura, 1986). Further studies should be interpretive in nature, longer in duration, and comparison of different stages of development to provide teacher educators and researchers with valuable information about the process of change that teachers' experience (Richardson & Placier, 2001).

Literature Cited

- Alexander, P. A., & Dochy, F. J. R. C. 1995. Conceptions of knowledge and beliefs: A comparison across varying cultural and educational communities. *American Educational Research Journal*, 32, 413-442.
- Armor, D., Conroy-Osegurea, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. 1976. Analysis of the school preferred reading programs in selected Los Angeles minority schools (Rep. No. R-2007-LAUSD). Santa Monica, CA: RAND. (ERIC Document Reproduction Service No. 130 243).
- 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.
- Benz, C, Bradley, L, Alderman, M, & Flowers, M. 1992. Personal teaching efficacy: Developmental relationships in education. *Journal of Educational Research*, 85(5), 274-286.
- Borko, H., & Putnam, R. T. 1996. Learning to teach. In Berlinger, D. C., & Calfee, R. C. (Eds.), *Handbook of educational psychology*. New York: Simon & Schuster Macmillan.
- Burley, W. W., Hall, B. W., Villeme, M. G., & Brockmeier, L. L. 1991, April. A path analysis of the mediating role of efficacy in first-year teachers' experiences, reactions, and plans. Paper presented at the annual meeting of the American Education Research Association, Chicago, IL.
- 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.
- Cole, K. M. 1995, November. Novice teacher efficacy and field placements. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Biloxi, MS.
- Cronbach, L. J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, 31, 93-96.
- Darling-Hammond, L. 1997. *Doing what matters most: Investing in quality teaching*. New York: National Commission on Teaching and America's Future.
- 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.
- Fraenkel, J. R., & Wallen, N. E. 2000. *How to design and evaluate research in education* (8th ed.). Boston: McGraw-Hill.
- Glickman, C. D., & Tamashiro, R. T. 1982. A comparison of first year, fifth year, and former teachers on efficacy, ego development and problem solving. *Psychology in the Schools* 19(4), 558-562.

- Guskey, T. R., & Passaro, P. D. 1994. Teacher efficacy: A study of construct dimensions. *American Educational Research Journal*, 31, 627-643.
- Hoy, W. K., & Miskel, C. G. 2001. *Educational administrator: Theory, research, and practice* (6th ed.). Boston: McGraw-Hill.
- Lortie, D. C. 1975. *Schoolteacher: A sociological study*. Chicago, IL: The University of Chicago Press.
- Martin, O. L. 1989. Does teacher efficacy begin with teacher education: Implications from student teacher candidates. Paper presented at the Annual Meeting of the Mid-South Educational Research Association, Little Rock, AR.
- McDiarmid, G. W. 1990. Tilting at webs: Early field experiences as an occasion for breaking experience. *Journal of Teacher Education*, 41(3), 12-20.
- McKeachie, W. J., Chism, N., Menges, R., Svinicki, M., & Weinstein, C. E. 1994. *Teaching tips: Strategies, research, and theory for college and university teachers* (9th ed.). Lexington, MA: D. C. Heath and Company.
- Miller, W. W., Kahler, A. A., & Rheault, K. 1989. Profile of the effective vocational agriculture teacher. *Journal of Agricultural Education*, 30(2), 33-40.
- Moore, W. P., & Esselman, M. E. 1992, April. Teacher efficacy, empowerment, and a focused instructional climate: Does student achievement benefit? Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco.
- Mundt, J. 1991. The induction year: A naturalistic study of beginning secondary teachers of agriculture in Idaho. *Journal of Agricultural Education*, 32(1), 18-23.
- National Center for Educational Statistics. 1997. *Characteristics of stayers, movers, and leavers: Results from the teacher followup survey: 1994-95* [Electronic version]. Washington, DC: U.S. Department of Education.
- National Council for Accreditation of Teacher Education. 2001. *Professional standards for the accreditation of schools, colleges, and departments of education*. Washington, DC: Author.
- Nisbett, R., & Ross, L. 1980. *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Ormrod, J. E. 2000. *Educational psychology: Developing learners* (3rd ed.). Upper Saddle River, NJ: Merrill.
- Pajares, F. 1992. Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62, 307-332.
- Richardson, V. & Placier, P. 2001. Teacher change. In V. Richardson, *Handbook of research on teaching* (4th ed.) (pp. 905-950). Washington, D. C.: American Education Research Association.
- Rodriquez, J. F. 1997. *Self-efficacy of preservice and beginning agricultural education teachers in Ohio*. Unpublished doctoral dissertation, The Ohio State University, Columbus.
- Smylie, M. 1988. The enhancement function of staff development: Organizational and psychological antecedents to individual teacher change. *American Educational Research Journal*, 25(1), 1-30.
- 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.

