

POSSIBLE FACTORS IN MATCHING STUDENT TEACHERS WITH COOPERATING TEACHERS

Tracy Kitchel, Assistant Professor
University of Kentucky
Robert M. Torres, Professor
University of Missouri-Columbia

Abstract

One common thread throughout the research in agricultural education is that cooperating teachers have been identified as being important and influential to the student teachers' success. If the interaction between student teacher and cooperating teacher is important to the student teaching process, then the matching of a student teacher with a cooperating teacher also becomes important. The purpose of the study was to determine if a relationship exists between similarity and satisfaction as perceived by cooperating teachers and student teachers of agricultural education from the University of Missouri-Columbia and the University of Illinois at Urbana-Champaign. The study utilized the Mentoring Relationship Questionnaire and the Myers-Briggs Type Indicator[®] for data collection. Results indicate that student teachers and cooperating teachers differ in personality type. However, both student teachers and cooperating teachers agree that as a pair they were, in general, similar to each other. Student teachers agree and cooperating teachers strongly agree that they were satisfied with their paired assignment. Relationships exist between the standard items measuring similarity items (and similarity as a whole) and satisfaction of the paired assignment. Relationships were weaker (or non-existent) between personality type differences and satisfaction of the paired assignment.

Introduction and Theoretical Framework

Research on student teaching in agricultural education has taken many directions. A common theme throughout the research in agricultural education is that student teachers have identified cooperating teachers as being important (Deeds, Flowers, & Arrington, 1991; Edwards & Briers, 2001; Garton & Cano, 1996; Harlin, Edwards, & Briers, 2002; Norris, Larke, & Briers, 1990; Schumacher & Johnson, 1990). In a study by Harlan et al. (2002), student teachers rated the cooperating teacher-student teacher relationship the most important student teaching element, as compared to the other elements of student teaching such as class instruction, SAE, FFA, and school and community relations. This high ranking was consistent before and after student teaching.

Outside the agricultural education field, there is agreement with the notion of the importance of student teaching. For

example, Byler and Byler (1984) found a positive relationship between student teaching morale and perceptions about the cooperating teacher. As a result, they recommended that careful consideration be made in finding cooperating teachers who sincerely want to work with student teachers. Kahn (2001) found that a factor of being “not-so-successful” during student teaching was a “poor rapport with cooperating teacher...” (p. 52). Additionally, student teachers reported to value aspects such as collaboration and feedback from their [cooperating] teacher in a study by Beck and Kosnik (2002). In all, these studies demonstrate the importance of the cooperating teachers to the student teacher, and in particular, the importance of the interaction or relationship between them.

Lemma (1993) referred to “conventional wisdom in education” (p. 331) suggesting that the knowledge of the cooperating teacher is important in shaping the student teacher as a teacher. This suggestion is

supported by Posner (2000). Grimmet and Ratzlaff (1986) extend the notion by positing that student teachers learn the most about teaching from the cooperating teacher. If the cooperating teacher is an important element in a successful student teaching experience, should not the interaction or relationship between the student teacher and cooperating teacher also be a factor? Several believe this relationship to be an element of success in student teaching (Roe & Ross, 1994; Schwebel, Schwebel, Schwebel, & Schwebel, 1996). Graham (1997) stressed the importance of research in the area of student teacher-cooperating teacher interaction because the interaction can be potentially problematic.

How can the student teacher-cooperating teacher interaction be improved? If the interaction is important to the student teaching process, then the appropriate and thoughtful matching of a student teacher with a cooperating teacher also becomes important. The process of cooperating teacher selection and assignment has no national standards; however, Morrish (2004) studied the topic in agricultural education. Morrish used the perceptions of head teacher educators in agriculture regarding important elements in the selection of cooperating teachers. The most important characteristic in selecting a cooperating teacher was found to be cooperating teachers have a minimum of three years of teaching experience. The least important characteristic in selecting a cooperating teacher was allowing them to select student teachers from a list.

In Missouri, selection of agricultural education cooperating teachers is based upon a set of criteria outlining specific tasks teachers must have achieved within their programs. One example is that the program must have "exceptional supervised agricultural experience programs" (Missouri Department of Elementary and Secondary Education, 2004). This and other similar requirements lead to multiple interpretations of what a qualified cooperating teacher should be. Therefore, an element of randomness or haphazardness enters the selection process.

After cooperating teachers have been identified, a wide variety of criteria can be used to place or pair a student teacher with a

cooperating teacher. It is important to purposefully pair student teachers and cooperating teachers (Pushkin, 2001). Some criteria may include proximity to the university, proximity to a certain location, previous relationship with the cooperating teacher, personality of the student teacher and cooperating teacher, and success of the program. Unfortunately, some criteria could introduce random and haphazard factors to the interaction, particularly those of proximity. When using variables such as proximity and convenience, the quality of experience does not become a higher priority. The combination of haphazardness and randomness from both the selection process and the assignment or placement process raises questions to the overall process of student teacher placement.

Theoretical Framework

Byrne's (1971) similarity-attraction paradigm suggests that individuals gravitate toward others who are more like themselves. If such a paradigm is in action, then student teachers who have cooperating teachers more like themselves may feel more comfortable with their relationship. Greiman (2002) and Greiman, Torres, Burriss and Kitchel (2006) looked at similarity from a broad perspective with beginning teachers and their mentors. In particular, similarity related to an overall sense of similarity, values and attitudes, working style, perception and teaching philosophy. They found that similarity measured in such a way yielded high, positive correlations with satisfaction of the mentor-beginning teacher relationship. One point of investigation would be to determine if such a relationship exists between cooperating teachers and student teachers.

Beyond the broad Greiman (2002) and Greiman et al. (2006) definition of similarity, other definitions could exist. A specific means of determining similarity might exist in personality type, as defined by Jung's (1971) psychological type theory. Psychological type theory as defined by Jung and personified by Myers and Myers (1995), revolves around the preference of four sets of opposites. The opposites are *extraversion-introversion* (E-I), *sensing-intuition* (S-N), *thinking-feeling* (T-F) and

judging-perceiving (J-P). Everyone has a preference placing that preference somewhere between the polar ends continuum. *Extraverts* tend to focus on outside events and people, where *introverts* tend to focus on inner thoughts and ideas. *Sensing* individuals tend to be more concrete and focus on what has already been done, while *intuitive* individuals tend to be more creative and are open possibilities. *Thinking* individuals tend to value objective fairness, *feeling* individuals who tend to value harmony. Finally, *judging* individuals tend to be more structured whereas *perceiving* individuals value spontaneity. There are no polar opposites or combinations of opposites that are better than another.

Since its introduction, the Myers-Briggs Type Indicator (MBTI[®]), a personality type instrument, has been linked to, used to describe, or been studied with topics such as career management, management, leadership, teams, counseling and psychotherapy, learning and cognitive styles, multiculturalism, health, stress, and coping (Hammer, 1996). Teaching and learning styles were explored with the lens of personality type by Fairhurst and Fairhurst (1995). Related, Nardi (2001) studied multiple intelligences under the personality type lens as well. Myers and Myers (1995), reported studies that investigated marriage, relationships and similarity of personality type. Because of its extensive use and application, can the similarity in MBTI[®] types be used to predict satisfaction of the student teacher-cooperating teacher interaction?

Even though personality has not been studied within the student teaching context, several researchers (Barrett, Sorensen, & Hartung, 1985; Cano, 1999; Cano & Garton, 1994; Cano, Garton, & Raven, 1992; Garton, Thompson, & Cano, 1997; Kitchel & Cano, 2001; Watson & Hillison, 1991) in agricultural education have studied personality type. Kitchel and Cano (2001) studied nine years of undergraduate students who majored or minored in agricultural education at The Ohio State University. It was found that the population as a whole was more E, S, T, and J, but when looking at the 16 combinations, ISTJ was the most frequent (20%), followed by ESTJ (17%)

and ESFJ (12%). The least frequent combination was INFJ (2%). Out of the four function combinations (which includes the middle opposites: ST, NT, SF, and NF) the most frequent was ST (48%), followed by SF (24%), NT (14%), and NF (13%).

Teacher educators make many decisions regarding the preparation of their pre-service teachers. Decisions about student teaching experience remains paramount to the success of those student teachers. Appropriately matching student teachers with cooperating teachers can be tedious. If Byrne's (1971) paradigm is put to task, would teacher educators be able to effectively match student teachers who are similar to their cooperating teachers? And if so, how can this concept of similarity be defined?

Purpose and Objectives

The purpose of the study was to determine if a relationship exists between similarity, as operationalized by Greiman (2002)'s Mentoring Relationship Questionnaire (MRQ) and the Myers-Briggs Type Indicator[®] or (MBTI[®]), and satisfaction as perceived by cooperating teachers and student teachers of agricultural education from the University of Missouri-Columbia and the University of Illinois at Urbana-Champaign. To achieve the purpose of this descriptive-correlational study, the following research objectives were developed:

1. Describe the extent of similarity in MBTI[®] scores between student teachers and cooperating teachers;
2. Describe the extent of similarity (according to the MRQ) student teachers and cooperating teachers perceive they exhibit with each other;
3. Describe the level of satisfaction (according to the MRQ) student teachers and cooperating teachers perceive they have with each other; and
4. Determine the relationship between perceived similarity (MRQ) and perceived satisfaction, and between similarity in personality type

(MBTI[®]) and perceived satisfaction as reported by both the student teachers and cooperating teachers.

Methods

The target population for this study was agricultural education student teachers and their assigned cooperating teachers from the University of Missouri-Columbia and the University of Illinois at Urbana-Champaign. The type of sample ($n = 60$) was a time and place sample of the population for the 2003-2004 academic year, thus yielding 16 pairs of teachers from the one university and 12 pairs from the other university. There were two cases where more than one cooperating teacher was identified for a student teacher.

Two instruments were utilized to collect data. The Myers-Briggs Type Indicator (MBTI[®]) was utilized to assess personality type. The Mentor Relationship Questionnaire (MRQ) (Grieman, 2002) was used to assess the aspects of the student teacher-cooperating teacher interaction – overall similarity (e.g. values, beliefs, attitudes, teaching) and overall satisfaction of interaction.

Form G of the MBTI[®] was administered; the instrument consisted of 126 response items. Parts I and III contained 26 and 55 items respectively, relating to preference, while Part II contained 45 pairs of words in which subjects were asked to select the word for each pair that appealed to them the most (Myers & McCaulley, 1985). Each opposite is designated by a score and a letter indicating which end of the opposite is preferred. For interval-level data analysis, each opposite's score is either added to or subtracted from a central score of 100 (Myers & McCaulley). If the letter indicating a preference for E, S, T, or J is listed, the score is subtracted from 100; however, if the letter indicating a preference for I, N, F, or P is listed, the score is added to 100. Each person taking the MBTI[®] would then receive four scores, one for each opposite: E-I, S-N, T-F, and J-P. Therefore, preference scores below 100 indicate a person (or group if the mean scores are calculated) is more E, S, T, or J and scores above 100 indicate a person is more I, N, F, or P. To develop a similarity score, for each

set of opposites, the difference between the student teachers' scores and cooperating teachers' were calculated. Therefore, the lower the difference the more similar the pair was in personality type according to the MBTI[®]. Validity and reliability of the instrument is addressed in detail in the *MBTI[®] Manual* (Myers & McCaulley, 1985), therefore the instrument was deemed valid and reliable.

Overall perceived similarity and satisfaction was operationalized and measured by the MRQ. Grieman (2002) developed two versions of the MRQ based upon a review of literature. The two versions were the mentor teacher version and beginning teacher version. Semantic modifications were made to the original MRQ to reflect the student teacher as the beginning teacher and the cooperating teacher as the mentor teacher.

One part of the MRQ instrument addressed overall perceived similarity and satisfaction. Five items assessed the overall similarity between the student teacher-cooperating teacher pair and five items measured overall satisfaction of the interaction. For both sets of item statements, a 7-point, Likert-type scale was utilized, with a scale of: 1 = strongly disagree, 3 = disagree, 5 = agree, and 7 = strongly agree.

Greiman (2002) conducted two types of validation on the MRQ. A panel of experts ($n = 8$) reviewed the MRQ for face and content validity. A pilot test was conducted for both instruments with second and third year teachers not in the study to establish reliability. Cronbach's alpha was calculated as reliability estimates which ranged from .93 to .99 falling within the acceptable parameters established by Nunnally (1967).

For student teachers, both data collection instruments were delivered during student teaching seminars in the spring of 2004. The MBTI[®] was administered at the beginning of student teaching in February; the MRQ at the end of student teaching in May. Both instruments were administered by university faculty. For cooperating teachers, the MBTI[®] was hand-delivered by university supervisors at each institution at the beginning of student teaching. For one institution, MBTI[®] score sheets were collected on the second student teacher visit.

For the other institution, self-addressed, stamped return envelopes were added to the packet of materials. The MRQ was mailed at the end of student teaching to the cooperating teachers using modifications of Dillman’s (2000) Tailored Design Method. E-mail pre-notice and reminders were sent in place of post cards, because both institutions utilized e-mail to correspond with cooperating teachers. In addition, the participants were aware of the study because of their earlier participation with the MBTI®.

To minimize non-response error, personal contacts with the student teachers and cooperating teachers were utilized as much as possible for this study. As a result, for student teachers, 100% response rate was achieved for both data collection instruments. For cooperating teachers, a 96.6% return rate for the MBTI® and a 93.3% for the MRQ was achieved. Two student teachers did not have a single cooperating teacher that could be identified from having been placed in a multiple teacher program; therefore, data was collected from both cooperating teachers and student teachers were given two separate MRQ’s for each cooperating teacher.

Data were analyzed using SPSS version 12 for Windows platform computers. In determining the appropriate analysis of the

data, the primary guidance was scales of measurement of the data. To analyze the first four objectives, descriptive statistics were calculated. To analyze relationships in objective four, Pearson-product moment correlations were calculated. When interpreting the magnitudes of the correlation coefficients, the Davis’ (1971) conventions were adopted. Generalizations of the findings should be kept to the specific sample and its years following.

Findings

Describing the extent of similarity in MBTI® scores between student teachers and cooperating teachers was the first research objective for this study. Table 1 summarizes the findings. For each personality opposite, the difference in the opposite score (based upon a central score of 100) was calculated between the student teacher and cooperating teacher. For this objective, a mean score was calculated based upon each pair’s difference score. Therefore, a lower difference score indicated more similarity for that MBTI® opposite. The differences in scores were close to 30. The student teachers and cooperating teachers were more similar on the S-N score ($M = 27.53$) while the least similar was the J-P opposite with a mean score of 35.87.

Table 1
Mean of the Differences Between Student Teachers’ and Cooperating Teachers’ MBTI® Scores

Opposite	Mean of the Differences	Standard Deviation	Range (min-max)
Extraversion- Introversion	31.60	20.38	0 - 74
Sensing-Intuition	27.53	23.09	2 - 80
Thinking-Feeling	31.53	29.29	2 - 90
Judging-Perceiving	35.87	23.14	2 - 82

Research objective 2 was to describe the extent of similarity (according to the MRQ) student teachers and cooperating teachers perceive they exhibit with each other. Mean scores for the five items were calculated for both cooperating teachers

and student teachers (Table 2). A grand mean for the construct of overall similarity (or similarity according to the MRQ) was also reported for both cooperating teachers and student teachers (Table 2).

Table 2
Mean Scores by Item for the Perceived Similarity Construct Reported by Cooperating Teachers (n = 29) and Student Teachers (n = 30)

Item	Cooperating Teacher		Student Teacher	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Have similar values and attitudes	5.55	1.35	5.45	1.95
Are alike in a number of areas	5.38	1.40	5.16	1.88
Have similar working styles	5.17	1.54	4.55	1.96
See things much the same way	5.38	1.21	4.97	1.94
Have similar teaching philosophies	5.31	1.23	5.00	1.93
Overall Mean	5.36	1.18	5.03	1.80

Note. Scale: 1 = Strongly Disagree; 3 = Disagree; 5 = Agree; 7 = Strongly Agree

For cooperating teachers, all mean scores for the items were 5.0 or higher, yielding a 5.36 overall mean score for this similarity construct. The item with the highest mean score for cooperating teachers was “have similar values and attitudes” with an item mean score of 5.55. For student teachers, all mean scores for the items were 4.5 or higher, yielding a 5.03 overall mean score for this similarity construct. The item with the highest mean score for student

teachers was also “have similar values and attitudes” with an item mean score of 5.45.

Research objective 3 was to describe the level of satisfaction student teachers and cooperating teachers perceive they have with each other. Mean scores for the five items were calculated for both cooperating teachers and student teachers (Table 3). A grand mean for the construct of satisfaction was also reported for both cooperating teachers and student teachers (Table 3).

Table 3
 Mean Scores by Item for the Perceived Satisfaction Construct Reported by Cooperating Teachers (n = 29) and Student Teachers (n = 30)

Item	Cooperating Teacher		Student Teacher	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
The relationship has been a positive experience	6.34	1.23	6.03	1.70
I am glad I had the opportunity to interact with my cooperating teacher/student teacher	6.41	1.15	6.10	1.58
The relationship has been successful	6.38	1.15	5.87	1.80
If I had it to do over again, I would want to have the same cooperating teacher/student teacher	6.14	1.64	5.87	1.91
I was satisfied with the interaction	6.31	1.34	5.81	1.89
Overall Mean	6.32	1.28	5.94	1.72

Note. Scale: 1 = Strongly Disagree; 3 = Disagree; 5 = Agree; 7 = Strongly Agree

For cooperating teachers, all mean scores for the items were 6.0 or higher, yielding a 6.32 overall mean score for this satisfaction construct. The item with the highest mean score for cooperating teachers was “I am glad I had the opportunity to interact with my cooperating teacher” with an item mean score of 6.41. For student teachers, all mean scores for the items were 5.8 or higher, yielding a 5.94 overall mean score for this similarity construct. The item with the highest mean score for student

teachers was also “I am glad I had the opportunity to interact with my cooperating teacher” with an item mean score of 6.10.

Determine the relationship between perceived similarity (MRQ) and perceived satisfaction, and between similarity in personality type (MBTI®) and perceived satisfaction as reported by both the student teachers and cooperating teachers was the fourth research objective. Table 4 outlines the correlation coefficients among the variables.

Table 4
Pearson Product Moment Correlations among Student Teachers' (n = 28) and Cooperating Teachers' (n = 29) Perceived Similarity, Personality Type Similarity, and Perceived Satisfaction

Characteristic	S.T. Satisfaction	C.T. Satisfaction
E-I Difference	-.31	-.19
S-N Difference	.18	.28
T-F Difference	.06	-.18
J-P Difference	-.28	-.26
Overall Similarity	.85	.76
Have similar values and attitudes	.75	.59
Are alike in a number of areas	.85	.62
Have similar working styles	.73	.65
See things much the same way	.81	.75
Have similar teaching philosophies	.84	.73

For student teachers, the strongest correlations existed with overall similarity ($r = .75$) and its related items, yielding positive, very high correlations for all five items. The highest correlation was with the item "are alike in a number of areas" ($r = .85$) and "have similar teaching philosophies" ($r = .84$). In terms of the MBTI[®], the strongest (also negative) correlation with satisfaction was the E-I opposite, yielding a negative, moderate correlation of $-.31$, followed by the J-P opposite with a negative, low correlation of $-.28$.

For cooperating teachers, the strongest correlations also existed with overall similarity ($r = .76$) and its related items, yielding positive, very high correlations for two of its items and substantial correlations for the remaining three items. The highest correlation was with the item "see things much the same way" ($r = .75$) and "have similar teaching philosophies" ($r = .73$). In terms of the MBTI[®], the strongest correlation with satisfaction was the S-N

opposite, yielding a positive, low correlation of $.28$, followed by J-P with a negative, low correlation of $-.26$.

Conclusions, Implications and Recommendations

Student teachers and cooperating teachers differ in the area of personality type. Although there is no standard on evaluating the mean scores of the differences between cooperating teachers and student teachers on the MBTI[®], those mean scores and ranges do not approach zero, which would indicate no difference in personality type. It is therefore implied that student teachers and cooperating teachers should expect to have some differences in terms of personality type, but the amount of difference could vary from person to person. Given this conclusion and implication, it is recommended that both student teachers and cooperating teacher be aware of such differences as a way of building a common communication. Even if there is or is not a

relationship between personality type and satisfaction, personality could serve as a means of student teachers and cooperating teachers better understanding their attitudes and behaviors.

Cooperating teachers “agree” that they are similar to their student teachers both holistically and in specific ways. Cooperating teachers in the study felt they have similar values and attitudes, were alike in several areas, see things much the same way, have similar teaching philosophies, and have similar working styles as their student teachers, in that rank order. Student teachers also “agree” that they are similar to their cooperating teachers both holistically and in specific ways. Student teachers in the study felt they have similar values and attitudes, are alike in a number of ways, have similar teaching philosophies, see things much the same way, and have similar working styles as their cooperating teacher. This implies that perhaps there was forethought in matching the student teacher with their cooperating teacher. It is then recommended that teacher educators consider these potential areas of similarity, if similarity is important to the student teacher-cooperating teacher matching.

Cooperating teachers “strongly agree” and student teachers “agree” that they were satisfied with their pair relationship both holistically and in specific ways. Both student teachers and cooperating teachers were satisfied with the relationship when confronted by different approaches (or items) to the concept of satisfaction. This implies that if the matching was purposeful, then the matching brought about relationship satisfaction. It is therefore recommended that the purposeful matching be continued when doing so for cooperating teachers and student teachers. Teacher educators should take into account the findings of this study and continue to explore other ways of building successful matches such as a supervision style of the cooperating teacher, supervision need of the student teacher, and maturity of the student teacher, and culture of the cooperating site’s school and program.

Cooperating teachers and student teachers who perceive themselves to be more similar with their student teacher-

cooperating teacher partner also perceive they are more satisfied with their pair relationship, although this does not fall true as much for similarity as operationalized by the MBTI®. In particular, for student teachers, the strongest relationship exists between satisfaction and with the student teachers thinking they are alike in many areas as their cooperating teachers. In particular, for student teachers, the strongest relationship exists between satisfaction and with the cooperating teachers thinking they see things much the same way as their student teachers. The MBTI® yielded much weaker relationships that these items identified by the MRQ. It is therefore recommended that the MRQ items should have stronger weight in terms of similarity matching criteria. It is also recommended that teacher educators consider these areas of similarity (as identified by the MRQ) in their rank order as a way of matching student teachers and cooperating teachers.

In all, Byrne’s (1971) similarity-attraction paradigm was both supported and refuted. Similarity, as described holistically in this study, supported the paradigm in that there is more of satisfaction with the dyad experience of student teachers and cooperating teachers as the approach being more similar. However, the paradigm was not supported when similarity was defined by Jung’s (1971) psychological type theory, using the MBTI® as a measurement. There are still some looming questions on why this may be. It is clear, though, that the use of the MBTI® in matching student teachers should be cautioned. However, this study does not support the notion that the MBTI® should be abandoned for use in working on strengthening the understanding between the student teacher and cooperating teacher.

In terms of recommendations for further research, this study should be replicated with other universities and their student teachers and cooperating teachers to increase the generalizability of the findings. Given the limitations, this study can only make conclusions about this particular sample.

Now that perceived similarity, according to the MRQ, has been concluded to be influential upon perceived satisfaction of student teacher-cooperating teacher

interaction, further studies should focus on the particular items of similarity to find more detail in what exactly leads to a stronger relationship. For example, in terms of rank order, both student teachers and cooperating teachers had similar teaching philosophy as their second highest correlation. In what ways should the teaching philosophy be similar?

However, perceived satisfaction of the student teacher-cooperating teacher interaction may be only one piece of the bigger picture. Items for the satisfaction part of the MRQ related directly to the student teacher or cooperating teacher's partner of the student teacher-cooperating teacher pair. The items did not look at the overall satisfaction of the student teaching experience. Therefore, an exploratory study investigating more specific constructs relating to similarity (philosophy, work ethic, teaching style, etc.) could result in different findings.

References

- Barrett, L., Sorensen, R., & Hartung, T. (1985). Personality type factors of faculty and students: Implications for agriculture college teaching. *NACTA Journal*, 29(1), 50-58.
- Beck, C., & Kosnik, C. (2002). Components of a good practicum placement: Student teacher perceptions [Electronic version]. *Teacher Education Quarterly* 29, 81-98.
- 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.
- Byrne, D. (1971). *The attraction paradigm*. New York: Academic Press.
- Cano, J. (1999). The relationship between learning style, academic major, and academic performance of college students. *Journal of Agricultural Education*, 40(1), 30-37.
- Cano, J., & Garton, B. L. (1994). The learning styles of agriculture preservice teachers as assessed by the MBTI. *Journal of Agricultural Education*, 35(1), 8-12.
- Cano, J., Garton, B. L., & Raven, M. R. (1992). Learning styles, teaching styles and personality styles of preservice teachers of agricultural education. *Journal of Agricultural Education*, 33(1), 46-60.
- Davis, J. A. (1971). *Elementary survey analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Deeds, J. P., Flowers, J., & Arrington, L. R. (1991). Cooperating teacher attitudes and opinions regarding agricultural education student teaching expectations and policies. *Journal of Agricultural Education*, 32(2), 2-9.
- Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method*. New York: John Wiley & Sons.
- Edwards, M. C., & Briers, G. E. (2001). Cooperating teachers' perceptions of important elements of the student teaching experience: A focus group approach with quantitative follow-up. *Journal of Agricultural Education*, 42(3), 30-41.
- Fairhurst, A. M., & Fairhurst, L. L. (1995). *Effective teaching, effective learning*. Palo Alto, CA: Davies-Black.
- Garton, B. L., & Cano, J. (1996). The relationship between cooperating teachers' and student teachers' use of the problem-solving approach to teaching. *Journal of Agricultural Education*, 37(1), 48-55.
- Garton, B. L., Thompson, G. W., & Cano, J. (1997). Agriculture teachers and students: In concert or conflict? *Journal of Agricultural Education*, 38(1), 38-45.
- Graham, P. (1997). Tensions in the mentor teacher-student teacher relationship: Creating productive sites for learning within a high school English teacher education

program. *Teaching and Teacher Education*, 13, 513-527.

Greiman, B. C. (2002). *Providing professional and psychosocial assistance for beginning agriculture teachers: The perceptions of formal mentors and novice teachers*. Unpublished doctoral dissertation, University of Missouri-Columbia.

Greiman, B. C., Torres, R. M., Burris, S., & Kitchel, T. (2006). Perceptions of beginning teachers: A comparison of two formal mentoring arrangements. *Proceedings of the 2006 National Agricultural Education Research Conference*. Charlotte, NC.

Grimmett, P. P., & Ratzlaff, H. C. (1986). Expectations for the cooperating teacher role. *Journal of Teacher Education*, 37(6), 41-50.

Hammer, A. (1996). *MBTI applications*. Palo Alto, CA: Consulting Psychologists Press.

Harlin, J. F., Edwards, M. C., & Briers, G. E. (2002). A comparison of student teachers' perceptions of important elements of the student teaching experience before and after an 11-week field experience. *Journal of Agricultural Education*, 43(3), 72-83.

Jung, C. G. (1971). *Psychological types*. Princeton, NJ: Princeton University Press.

Kahn, B. (2001). Portrait of success: Cooperating teachers and the student teaching experience [Electronic version]. *Action in Teacher Education*, 22(4), 48-58.

Kitchel, T., & Cano, J. (2001). The relationship between learning style and personality type of students majoring and minoring in agricultural education at The Ohio State University. *Proceedings of the 55th Central States Agricultural Education Research Conference*. St. Louis, MO. 142-153.

Lemma, P. (1993). The cooperating teacher as supervisor: A case study.

Journal of Curriculum and Supervision 8, 329-342.

Missouri Department of Elementary and Secondary Education. (2004). *Criteria for selection student teaching centers*. Jefferson City, MO: DESE Division of Career Education – Agricultural Education.

Morrish, D. G. (2004). Examination of relationships between the level of importance of student teacher placement methods and the quality of the student teacher experience. *Proceedings of the Second North Central AAAE Conference*. 202-214.

Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.

Myers, I. B., & Myers, P. B. (1995). *Gifts differing*. Palo Alto, CA: Davies-Black.

Nardi, D. (2001). *Multiple intelligences and personality type*. Huntington Beach, CA: Telos.

Norris, R. J., Larke, A. Jr., & Briers, G. E. (1990). Selection of student teaching centers and cooperating teachers in agriculture and expectations of teacher educators regarding these components of a teacher education program: A national study. *Journal of Agricultural Education*, 31(1), 58-63.

Nunnally, J. C. (1967). *Psychometric theory*. New York: McGraw Hill.

Posner, G. J. (2000). *Field experience: A guide to reflective teaching*. New York: Addison Wesley Longman.

Pushkin, D. (2001). *Teacher training: A reference handbook*. Santa Barbara: ABC-CLIO.

Roe, B. D., & Ross, E. P. (1994). *Student teaching and field experience handbook*. New York: Macmillan.

Schumacher, L. G., & Johnson, D. M. (1990). Time series analysis of agricultural education student teachers' perceptions of agricultural mechanics lab management competencies. *Journal of Agricultural Education*, 31(4), 2-8.

Schwebel, A. I., Schwebel, B. L., Schwebel, C. R., & Schwebel, M. (1996).

The student teacher's handbook. Mahwah, NJ: Lawrence Erlbaum Associates.

Watson, L. W., & Hillison, J. (1991). Temperament type and job satisfaction among selected West Virginia agricultural education teachers. *Journal of Agricultural Education*, 32(4), 25-30.

TRACY KITCHEL is an Assistant Professor in the Department of Community and Leadership Development at the University of Kentucky, 304 Garrigus Building, Lexington, Kentucky 40546-0215. E-mail: tracy.kitchel@uky.edu.

ROBERT M. TORRES is a Professor in the Department of Agricultural Education at the University of Missouri-Columbia, 126 Gentry Hall, Columbia, Missouri 65211. E-mail: TorresR@missouri.edu.