

THE INFLUENCE OF PERSONALITY TYPE ON THE EXTENT COOPERATING TEACHERS PROVIDE PSYCHOSOCIAL ASSISTANCE TO STUDENT TEACHERS

Tracy Kitchel, Assistant Professor
University of Kentucky

Robert M. Torres, Associate Professor
University of Missouri-Columbia

Abstract

The No Child Left Behind Act emphasized the need to do what university teacher preparation programs have been doing for years - look for ways to improve the development of preservice teachers. Because there are many aspects of preservice teacher preparation, research should begin at the most important aspect of such preparation. In agricultural education, literature points to student teaching being the most important aspect, particularly the student teacher-cooperating teacher interaction within student teaching. The purpose of the study was to determine if personality type, as measured by the Myers-Briggs Type Indicator (MBTI®), influences the psychosocial support cooperating teachers of agricultural education at the University of Missouri-Columbia and the University of Illinois at Urbana-Champaign provided their student teachers. Both student teachers and cooperating teachers are more S, T, and J, according to the MBTI®. According to both student teachers and cooperating teachers, cooperating teachers are providing psychosocial assistance to student teachers, but differently across the five psychosocial functions. Personality type was not found to be influential in predicting psychosocial assistance.

Introduction and Theoretical Framework

The *No Child Left Behind* Act called for strengthening and improving teacher quality (Bush, 2002). This Act emphasized the need to do what university teacher preparation programs have been doing for years - look for ways to improve the development of preservice teachers. Because there are many aspects of preservice teacher preparation, research should begin at the most important aspect of such preparation.

Agricultural educators have identified that "the student teaching phase of the teacher preparation program is almost universally accepted as the most important part of the professional education of teachers" (Berkey, 1981, p. 161). Consistently in teacher education research in agricultural education, the cooperating teacher has been identified as being important and/or influential to student teachers' success (Deeds, Flowers, &

Arrington, 1991; Edwards & Briers, 2001; Garton & Cano, 1996; Harlin, Edwards, & Briers, 2002; Norris, Larke, & Briers, 1990; Schumacher & Johnson, 1990). As reported by Harlin et al. (2002), student teachers rated the cooperating teacher-student teacher relationship as the most important element when compared to the other elements of student teaching. This ranking was consistent before and after student teaching. Therefore, the role of the cooperating teacher, and subsequently the interaction of the student teacher with the cooperating teacher, is an important aspect to teacher preparation.

In piecing together potential variables of interest into one conceptual framework, Dunkin and Biddle's (1974; as cited in Cruickshank, 1990) model was used. In this model, two sets of variables, presage and context, affect observable changes in pupil behavior. Presage variables, such as experience and training, are variables that influence the behavior of the teacher.

Context variables, such as experiences, properties or traits, and school and community contexts, are variables that influence the behavior of the student. As the presage and context variables interact in the classroom, process variables such as teacher and student behaviors develop. As a result of the interaction and process variable development, product variables result. These product variables can be either immediate or long-term for the student. Immediate results include attitude toward subject and growth of other skills; long-term results include adult personality and professional or occupational skills.

Dunkin and Biddle’s (1974) model can be applied to the context of student teaching. If cooperating teachers serve as major supervisors for student teachers during student teaching, then cooperating teachers also play the role of teacher. For student teaching, the “classroom” is the cooperating

center, where the interaction between the student (student teacher) and teacher (cooperating teacher) results in product variables such as immediate and long-term student results. Because a change in venue can occur from university classroom to a cooperating site, “the classroom” is changed to “learning environment.”

Within the learning environment, there is an expected interaction between the teacher (cooperating teacher) and student (student teacher). Within this interaction, an implied relationship is built. This relationship could potentially be positive or negative; therefore, the presage and context variables that affect the interaction, and hence the student teacher-cooperating teacher relationship, should be investigated. Figure 1 illustrates the model as used for student teachers and cooperating teachers and also includes potential variables of interest.

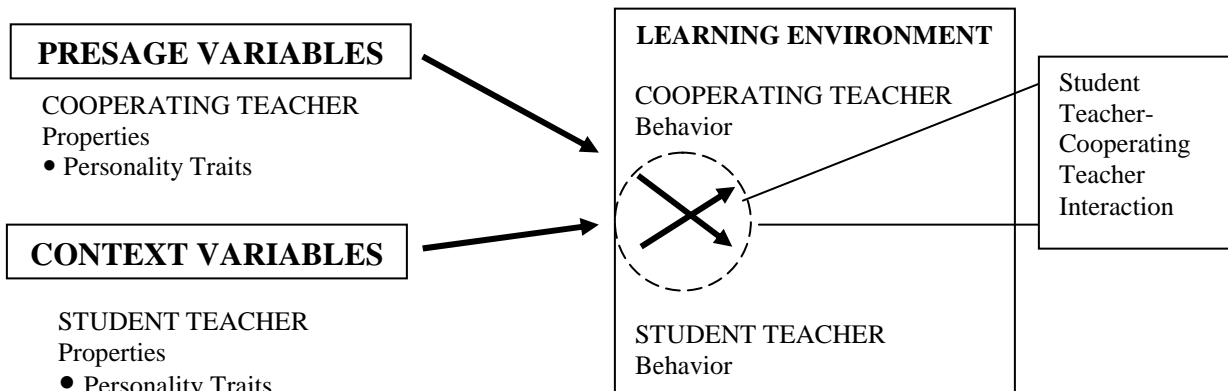


Figure 1. Components and variables of interest in the current study.

Presage and Context Variables Defined

In the Dunkin and Biddle (1974; as cited in Cruickshank, 1990) model, *personality trait* was listed as a potential presage variable. If the personality traits of a teacher influence the learning environment, then arguably the same could be said of the student’s personality traits. Jung’s (1971) psychological type theory was used as the theoretical framework for this piece of the overall conceptual model. In particular, the Myers-Briggs Type Indicator MBTI® was selected to personify the theory and to serve

as the psychological type measurement tool.

Since its introduction, the MBTI® 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). In higher education alone, the MBTI® has been applied to student development, campus retention, student involvement, academic advising, and other

areas such as learning styles (Provost & Anchors, 1987). Fairhurst and Fairhurst (1995) related the types of the MBTI® to teaching style and learning style. Relatedly, Nardi (2001) used personality type and multiple intelligences in concert to assist in understanding one's own potential. Because of its extensive use and application, can the MBTI® be used to help predict aspects of an interaction, such as the one between a student teacher and cooperating teacher?

Personality type theory, as defined by Myers and Myers (1995), revolves around the preference of four sets of opposites, the first being *extraversion-introversion* (E-I), the next being *sensing-intuition* (S-N), the third *thinking-feeling* (T-F) and finally *judging-perceiving* (J-P). Each individual has a preference toward one end of the opposite or the other for each pair. In terms of the E-I opposite, *extraverts* tend to be more outwardly-focused on the outer world, where *introverts* tend to be more reserved, focusing on inward thoughts and ideas. For the S-N opposite, *sensing* individuals tend to focus on concrete and real, while *intuitive* individuals tend to focus on possibilities. As for the T-F opposite, *thinking* individuals tend to be more objective and logical than *feeling* individuals who tend to be more agreeable and sentimental. Finally, with the J-P opposite, *judging* individuals tend to be more organized and planned where *perceiving* individuals tend to be more open and spontaneous. No end of any opposite is better than the other, but an individual's preference has implications as to his or her behavior.

Even though personality has not been studied within the student teaching context, there have been several studies using the MBTI® in agricultural education (Barrett, Sorensen, & Hartung, 1985; Cano, 1999; Cano & Garton, 1994; Cano, Garton, & Raven, 1992; Kitchel & Cano, 2001; Watson & Hillison, 1991). Of these studies, the most extensive study encompassed nine years of undergraduate students who majored or minored in agricultural education. Kitchel and Cano investigated the relationship between learning style, as operationalized by the GEFT, and personality type, as operationalized by the MBTI® at The Ohio State University. In

terms of the MBTI® alone, they found agricultural education majors and minors to be more E, S, T, and J, when looking at the opposite dichotomies individually. Out of the 16 combinations, ISTJ was the most frequent (20%), followed by ESTJ (17%) and ESFJ (12%). The fourth most frequent, ENFP, included only 7% of the sample. The least frequent combination was INFJ (2%). Out of the four function combinations of ST, NT, SF, and NF, the most frequent was ST with 48% of the sample, followed by SF (24%), NT (14%), and NF (13%).

Interaction Defined

There are multiple ways to define student teacher-cooperating teacher interaction, including Kram's (1985) Mentor Role Theory. Hall (1986) described "relationships between junior and senior colleagues that contribute to career development" (p. 161) as mentoring relationships. Cooperating teachers, or senior colleagues, assist student teachers, or junior colleagues, in career development. In particular, the interaction could be defined through the degree of psychosocial assistance a student teacher received from a cooperating teacher.

Psychosocial functions can assist individuals early in their career by developing competence, confidence, and a clear sense of professional identity (Greiman, 2002). In general, these early years of the career are noted by new beginnings, initiation, exploration of career paths, and the development of skills toward career advancement. According to Hall, these psychosocial functions "enhance a sense of competence, clarity of identity, and effectiveness in a professional role" (p. 162). The psychosocial functions are *role modeling*, *counseling*, *acceptance*, and *friendship*. In 1990, Ragins and McFarlin identified that cross-gender mentoring may bring about a social and parenting function. As a result, Greiman added the *social* function to his study of mentor and beginning teachers.

The *role modeling* function is "demonstrating valued behaviors, attitudes and/or skills that aid the junior in achieving competence, confidence, and a clear professional identity" (Hall, 1986, p. 162).

The *counseling* function is when a mentor is “providing a helpful and confidential forum for exploring personal and professional dilemmas” (p. 162). When a mentor provides “mutual caring and intimacy that extends beyond the requirements of daily work tasks” and is “sharing experiences outside the immediate work setting,” then the mentor is providing the *friendship* function (p. 162). In providing support related to the *acceptance* function, a mentor is “providing ongoing support, respect, and admiration, which strengthens self-confidence and self-image” (p. 162). Greiman (2002, p. 22) identified the *social* function as one that includes “social interaction and informal exchanges about work and outside work experiences.”

Greiman (2002) found that there were no significant differences between the extent mentors met psychosocial needs, as perceived by beginning teachers and mentors. Mentors and beginning teachers agreed that mentors were providing the psychosocial functions of acceptance, counseling, friendship and role modeling to a *large extent*. Given the similarity of the relationship between student teacher-cooperating teacher and mentor teacher-beginning teacher, student teachers and cooperating teachers may also perceive this to be true. However, given the daily contact by the cooperating teacher, these scores may potentially differ.

In piecing together the conceptual framework, certain questions arise. Are student teachers consistent in their personality type, as in the Kitchel and Cano (2001) study? To what extent are student teachers being provided psychosocial assistance? Finally, does personality type lend information to teacher educators in predicting psychosocial assistance as a means of understanding and improving the student teaching process?

Purpose of the Study

The purpose of this descriptive-correlational study was to determine if personality type, as measured by the Myers-Briggs Type Indicator (MBTI[®]), influences the psychosocial support cooperating teachers of agricultural education at the

University of Missouri-Columbia and the University of Illinois at Urbana-Champaign provided their student teachers. To achieve this purpose, the following objectives guided the study:

1. Describe the most frequent MBTI[®] opposites among the cooperating teachers and the student teachers.
2. Determine the extent of psychosocial support cooperating teachers provided student teachers, as reported by both student teachers and cooperating teachers.
3. Determine if personality type influenced the degree of psychosocial assistance provided by the cooperating teacher, as reported by both the cooperating teacher and student teacher.

Methods

The target population for this study was agricultural education student teachers and their 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) (Greiman, 2002) was used to assess aspects of the student teacher-cooperating teacher interaction; one part focused on psychosocial assistance.

The MBTI[®] was administered to the subjects of the study. Form G consisted of 126 response items. Part I consisted of 26 questions relating to preference. Part II consisted of 45 pairs of words in which subjects were asked to select the word for each pair that appealed to them the most. Part III consisted of 55 questions that were similar in nature to Part I (Myers & McCaulley, 1985). For interpretation purposes, each preference score was

transformed into a standard score resulting in one single score indicating the end of the opposite each subject preferred. Therefore, there were four scores for each subject: one indicating E-I, one for S-N, one for T-F, and one for J-P. By looking at the single score, one can identify which end of the opposite was preferred and, in addition, the preference score. Preference scores below central scores of 100 indicate the group is more E, S, T, or J. Mean preference scores above 100 indicate the group is more I, N, F, or P. Validity and reliability of the instrument are reported in the *MBTI Manual* (Myers & McCaulley). For this study, the instrument was assumed to be valid and reliable.

Greiman (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.

Part A of the instrument addressed psychosocial assistance. There were 15 items constructed to assess the psychosocial functions that the cooperating teacher was providing the student teacher. The student teacher version measured student teacher perceptions of the extent the cooperating teacher provided the psychosocial functions and the cooperating teacher version measured the cooperating teacher perceptions of the extent they provided psychosocial functions to their student teacher. A 7-point Likert-type scale was utilized with: 1 = not at all, 3 = some extent, 5 = large extent, and 7 = very large extent.

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 on several parts of the instrument, including the part regarding psychosocial functions. These alphas ranged from .93 to .99 for both versions, which was well in the parameters established by Nunally (1967).

For student teachers, both instruments were delivered during student teaching seminars in the spring of 2004. The MBTI[®] was administered at the beginning of student teaching; the MRQ at the end of student teaching. 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, 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) Total Design Method. E-mail pre-notices 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 participation with the MBTI[®].

Because personalized initial delivery and continuous personal contacts was used for this study, potential non-response was error was controlled. For student teachers, 100% response rate was achieved for both 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 were collected from both cooperating teachers and student teachers were given 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. To analyze objectives 1 and 2, means and standard deviations were calculated. To analyze relationships in objective 3, Pearson-product moment correlations were calculated. Both variables were calculated as interval-level data. In interpreting magnitudes of the correlation coefficients, Davis (1971) conventions were adopted for this study.

Findings

The first objective for this study was to describe the most frequent MBTI® opposites among the cooperating teachers and the student teachers. Again, preference scores

below 100 indicate the group is more E, S, T, or J. Mean preference scores above 100 indicate the group is more I, N, F, or P. Table 1 summarized the findings for both student teachers and cooperating teachers.

Table 1
MBTI Mean Scores by Opposites of Student Teachers and Cooperating Teachers

Opposites	Student Teacher (n = 28)			Cooperating Teacher (n = 30)		
	M	SD	Range	M	SD	Range
Extrav.- Introv.	85.29	27.96	51-147	100.93	24.76	53-153
Sensing-Intuition	73.64	29.34	37-139	62.00	21.86	35-131
Thinking-Feeling	90.07	29.29	41-137	77.47	28.95	35-137
Judging-Perceiving	91.79	34.57	45-161	80.60	24.70	45-129

Note. Extrav. = Extroverted, Introv. = Introverted.

Based upon the central score of 100, student teachers were on the E, S, T, and J sides of the opposites, as a group. The most deviation from the central score of 100 existed in the S-N opposite, which yielded a mean score of 73.64 (SD = 29.34) and a difference of 26.36 from the central score of 100. Utilizing the differences from the central score, as a group, student teachers had preference scores of E 14.71, S 26.36, T 9.93, and J 8.21.

Cooperating teachers, based upon the central score of 100, were more I, S, T, and J sides of the opposites, as a group, although the E-I mean was less than one point from the central score. Cooperating teachers also have the most deviation from the central score of 100 in the S-N opposite, which yielded a mean score of 62.00 (SD =

21.86) and a difference of 38.00 from the central score of 100. Utilizing the differences from the central score, as a group, cooperating teachers had preference scores of I 0.93, S 38.00, T 22.53, and J 19.40.

The second objective was to determine the extent of psychosocial support cooperating teachers provided student teachers, as reported by both the student teachers and cooperating teachers. Three of the 15 items related to a specific psychosocial function, yielding five different psychosocial function scores. These findings are summarized in Table 2. Student teachers rated the extent cooperating teachers provided these psychosocial functions. Ratings were based on a 7-point, anchored scale.

Table 2
Psychosocial Assistance Cooperating Teachers Provided to Student Teachers

Function	Student Teacher (n = 31)		Cooperating Teacher (n = 29)	
	M	SD	M	SD
Acceptance	6.02	1.41	6.13	.92
Counseling	5.78	1.41	6.07	.46
Friendship	5.69	1.72	6.03	.61
Role Model	5.43	1.64	5.66	.77
Social	4.25	2.30	3.63	1.78

Note. 1 = not at all, 3 = some extent, 5 = large extent, and 7 = very large extent

According to student teachers, the mean *acceptance* function score was 6.02 (*SD* = 1.41), which is within the real limits of having been provided to a *very large extent*. For the *counseling* function, the mean was 5.78 (*SD* = 1.41). For the *friendship* function, the mean score was 5.69 (*SD* = 1.72) and for *role model* a mean score of 5.43 (*SD* = 1.64) resulted. The lowest mean score came from the *social* function (*M* = 4.25; *SD* = 2.30). The remaining four functions were within the real limits of having been provided to a *large extent*. It should be noted that the standard deviations for all functions are 1.4 and higher, indicating low agreement.

Cooperating teachers rated their own extent that they provided psychosocial functions to their student teachers. Ratings were based on a 7-point, anchored scale. For the *acceptance* function, the mean was 6.13 (*SD* = .92). The *counseling* function mean was 6.07 (*SD* = .46). The *friendship* function yield a mean score of 6.03 (*SD* = .61). The three preceding functions were within the real limits of having been

provided to a *very large extent*. The *role model* function yielded a mean score of 5.66 (*SD* = .77), which was within the real limits of having been provided to a *large extent*. The lowest mean for the cooperating teachers, as with the student teachers, came from the *social function* with a mean of 3.63 (*SD* = 1.78), which was within the real limits of having been provided to *some extent*.

Objective three sought to determine if personality type can predict the degree of psychosocial assistance provided by the cooperating teacher, as reported by both the cooperating teacher and student teacher. The variables personality type and psychosocial function were interval in nature. Therefore, the Pearson's Product Moment correlation was used to calculate the correlation coefficient. The Davis (1971) conventions were used to describe the relationship in magnitude. Table 3 summarizes the correlations between the student teachers' MBTI opposite scores and psychosocial functions and Table 4 displays the same for cooperating teachers.

Table 3
Pearson Product Moment Correlations between MBTI Opposites and Psychosocial Functions of Student Teachers (n = 28)

Psychosocial Function	E-I	S-N	T-F	J-P
Acceptance	-.18	.01	.18	.01
Counseling	-.11	.02	.30	.08
Friendship	-.01	-.07	.20	-.01
Role Model	-.01	-.14	.14	-.20
Social	-.21	.18	.27	.05

Table 4
Pearson Product Moment Correlations between MBTI Opposites and Psychosocial Functions of Cooperating Teacher (n = 28)

Psychosocial Function	E-I	S-N	T-F	J-P
Acceptance	-.30	.31	.14	.36
Counseling	-.39	.10	-.20	-.09
Friendship	-.30	.03	.05	-.10
Role Model	-.30	.38	.05	.01
Social	-.38	.06	.06	.16

For student teachers, the largest correlation existed between the *counseling* function and T-F opposites, with the correlation being positive and moderate ($r = .30$). Similarly, all correlations between the T-F opposite and the psychosocial functions were positive and had an r coefficients between .14 to .30. In addition, only one correlation coefficient, between the *friendship* function and the MBTI opposites T-F opposite, was not negligible ($r = .30$). All other relationships were either low or negligible, without regard to direction (Table 3).

For the cooperating teachers (Table 4), there were eight relationships that were moderate in magnitude. Relationships that were negative and moderate were between the E-I opposite and the functions *acceptance* ($r = -.30$), *counseling* ($r = -.39$), *friendship* ($r = -.30$), *role model* ($r = -.30$) and *social* ($r = -.38$). The relationships between the S-N opposite and the

acceptance function ($r = .31$), the S-N function and the *role model* function ($r = .38$), and the J-P opposite and the *acceptance* function ($r = .36$) were positive and moderate. All other relationships were low or negligible in magnitude, regardless of direction (Table 4).

Conclusions, Implications and Recommendations

Based upon the findings, it is concluded that both student teachers and cooperating teachers are more S, T, and J. This is consistent with the findings of Kitchel and Cano (2001) with agricultural education majors and minors at The Ohio State University. The highest strength score for both student teachers and cooperating teachers is the sensing opposite of the S-N scale. This conclusion is also consistent with previous studies (Watson & Hillison, 1991; Cano, et al.,

1992; Cano & Garton, 1994; Kitchel & Cano, 2001).

Cooperating teachers are providing psychosocial assistance to their student teachers, as reported by both student teachers and cooperating teachers. This conclusion is consistent with Greiman (2002), who looked at similar relationships and interactions between beginning agriculture teachers and their mentors. In the Greiman study, it was concluded that beginning agriculture teachers were being provided psychosocial assistance by the mentor teachers.

According to student teachers, the *acceptance* function is being provided more than the functions *counseling*, *friendship*, *role model* and *social*. There is a difference of 1.18 in mean scores between the fourth highest function, *role model*, and the lowest function, *social*, leaving gaps between the top, middle three, and bottom functions. It is therefore concluded that some psychosocial functions are being provided more than others.

By comparison, cooperating teachers believe they are providing the functions *acceptance*, *counseling* and *friendship* to a very large extent, while the function *role model* is being provided to a large extent. Similarly, the *social* function is being provided the least. There are noticeable differences in agreement with the *social* function, compared to the other standard deviations of the cooperating teachers.

In relation to psychosocial assistance, teacher educators should use Kram's (1985) theory on psychosocial assistance as a framework to aid teachers in assimilating into the role of cooperating teacher. Because agriculture teachers, who serve as both cooperating teachers and mentor teachers (Greiman, 2002), have been found to provide this assistance, student teachers should expect to receive this type of assistance.

The *social* function of mentoring should either be expected of the cooperating teacher or dropped as a function for the student teaching experience. If kept, then teacher educators should look into experiences and expectations that strengthen the cooperating teachers' ability to provide the *social* function such as required social outings

before and/or during student teaching. However, given the unique relationship a student teacher has with a cooperating teacher and the amount of time the pair spends together, the *social* function may not be necessary.

Personality type opposites have little influence in determining most of the psychosocial functions. Even though there is a larger degree of variance found in the E-I opposite as compared to the other opposites, E-I has some to no influence depending on the group of teachers. According to student teachers, it is concluded that the more F student teachers are, the more likely the student teachers perceive their cooperating teachers to provide the *counseling* function. However, it should be noted that the relationship was moderate.

Cooperating teachers who are more extraverted (on the E-I scale) perceive they provide their student teachers more psychosocial assistance for all functions. Even though student teachers are similar to cooperating teacher in terms of the direction of relationship, the strength of relationship was much less or practically non-existent. For the S-N opposite, the more intuitive the cooperating teacher, the more likely that cooperating teachers will perceive they will provide the *acceptance* and *role model* function. For the J-P model, the more perceiving cooperating teachers, the more likely they will perceive they will provide the *acceptance* function.

Even though there are a few moderate relationships, especially with the E-I opposite and cooperating teachers' perception of psychosocial assistance provided, as a whole it is recommended that personality type, as defined by the MBTI[®], should not be used in predicting psychosocial assistance a cooperating teacher will provide a student teacher. Given the findings that personality type as defined by the MBTI[®], in most cases, has little influence on psychosocial assistance, teacher educators should entertain a broader definition of personality type and perhaps even teaching style than is defined by the MBTI[®]. Such definitions may include teaching philosophy, which learning theories the

teacher prescribes to, or overall personal values.

Recommendations for Further Study

Given the limitations in generalizability, this study can only make conclusions about this particular population. Consequently, this study should be replicated with other universities and their student teachers and cooperating teachers. Also, separating the data by institution would allow for comparisons of two different groups. Perhaps there are institutional differences which should be examined. This study should be conducted when the sample size of each institution reaches or exceeds sample sizes for this study.

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.
- Berkey, A. L. (1981). *Teacher education in agriculture*. Danville, IL: Interstate.
- Bush, G. W. (2002). *No child left behind*. Retrieved August 16, 2004, from <http://www.ed.gov/nclb/overview/intro/presidentplan/proposal.pdf>
- 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.
- Cruickshank, D. R. (1990). *Research that informs teachers and teacher educators*. Bloomington, IN: Phi Delta Kappa Educational Foundation.
- Davis, J. A. (1971). *Elementary survey analysis*. Englewood, 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*. (2nd ed.). 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.
- 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.
- Hall, D. T. (Ed.). (1986). *Mentoring in the workplace*. San Francisco: Jossey-Bass.
- 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.

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.

Kram, K. E. (1985). *Mentoring at work*. Boston: Scott, Foresman and Company.

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.

Provost, J. A., & Anchors, S. (1987). *Applications of the Myers-Briggs Type Indicator in higher education*. Palo Alto, CA: Davies-Black.

Ragins, B. R., & McFarlin, D. B. (1990). Perceptions of mentor roles in cross-gender mentoring relationships. *Journal of Vocational Behavior, 37*, 321-339.

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.

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, KY 40546-0215. E-mail: tracy.kitchel@uky.edu.

ROBERT M. TORRES is an Associate Professor in the Department of Agricultural Education at the University of Missouri-Columbia, 126 Gentry Hall, Columbia, MO 65211-7040. E-mail: TorresR@missouri.edu.