DEVELOPING A MODEL OF COOPERATING TEACHER EFFECTIVENESS

T. Grady Roberts, Assistant Professor
Texas A&M University

Abstract

A trend in agricultural education has been a shortage of graduates from preservice agricultural education programs who choose to enter the teaching profession, thus causing a deficit in the number of qualified teachers to fill vacancies. When examining preservice agricultural education programs, student teaching is often the capstone experience, during which, the student teacher works closely with the cooperating teacher. Given that the student teaching experience is often the final semester of preservice agricultural education programs, it is reasonable to assume that satisfaction with that experience contributed to a student teacher's decision to enter the teaching profession. Because the decision to enter teaching is made by the student teacher, insight into their perceptions of the student teaching experience, particularly the cooperating teacher, is invaluable. The purpose of this study was to develop a model of cooperating teacher effectiveness by replicating the work of Roberts and Dyer (2004). The Delphi method was utilized with an expert panel (N = 13) of all the student teachers from the University of Florida. Thirty characteristics were identified and grouped into the categories of Teaching/Instruction, Professionalism, Student Teacher/Cooperating Teacher Relationship, and Personal Characteristics.

Introduction

In 2001, 798 new agricultural science teachers were needed to fill vacant teaching positions (Camp, Broyles, & Skelton, 2002). In that same year, there were 857 newly qualified agricultural education graduates. However, only 59% (509) chose to enter the teaching profession. This discrepancy (798 vacancies, 509 teachers) created a net deficit in the number of qualified people to fill teaching vacancies.

If 93% of the agricultural education graduates in 2001 chose to enter the teaching profession, the net deficit would be erased. So why did 348 new agricultural education graduates choose not to enter teaching? It is reasonable to presume that some went to graduate school and some had military obligations. Anecdotal evidence also suggests that even though they successfully completed an agricultural education program, a few were not well suited to be teachers. But what about the remaining graduates that could have made excellent teachers? What contributed to their decisions?

Given that the student teaching experience is often the final semester of agricultural education programs, it is reasonable to assume that satisfaction with that experience contributed to a student teacher's decision to enter the teaching profession. Unlike preservice courses on campus, during the student teaching experience, cooperating teachers exert a tremendous influence on the quality of the learning experience. Because the decision to enter teaching is made by the student teacher, insight into their perceptions of the student teaching experience, particularly the cooperating teacher, is invaluable.

Theoretical Framework

The theoretical foundation of this study is rooted in constructivism with its central tenet that students actively construct meaning through their experiences (Doolittle & Camp, 1999) and that student experiences do not occur in isolation, but rather in complex social environments (Vygotsky, 1978). Conceptually, a student teacher

constructs meaning through their respective experiences characterized by complex interactions between the student teacher, the students, the cooperating teacher, and the university supervisor (Figure 1). Although not proposed before, this model is consistent with the opinions of Andrews (1964), Devor (1964), and Merrill (1967).

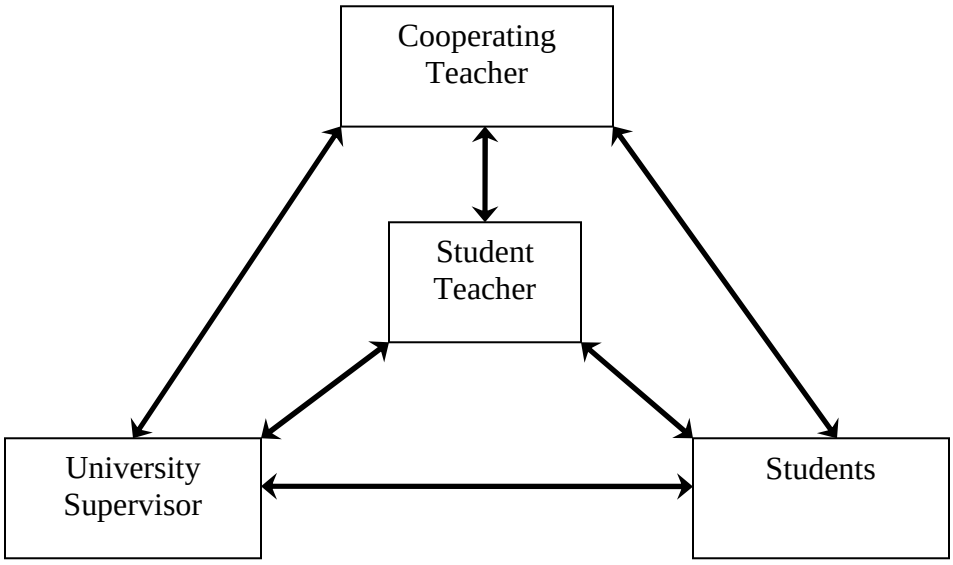

Figure 1. Model of interactions in the student teaching experience.

Dewey (1938) warned that all experiences are not educative. Thus, in a student teaching experience, any one of the interactions can affect the educational experience and is worth investigating. This study specifically focused on the interaction between the student teacher and the cooperating teacher, which many scholars have identified as of critical importance to the overall learning and satisfaction of the student teacher (Barnes & Camp, 2002; Borne & Moss, 1990; Deeds, 1993; Deeds, Flowers, & Arrington, 1991; Edwards & Briers, 2001; Norris, Larke, & Briers, 1990).

Previous research in disciplines other than agricultural education reported that student teachers think the relationship they have with their cooperating teacher is important (Borko & Mayfield, 1995; Montgomery, 2000; Ritchie, Rigano, & Lowry, 2000) and that open communication with cooperating teachers was essential (Montgomery, 2000; Talvitie, Peltokallio, & Männistö, 2000). Adequate feedback was also desired by student teachers (Borko & Mayfield, 1995). Additionally, student teachers desire a cooperating teacher who is understanding (Montgomery). Other identified characteristics included professionalism and personality (Montgomery). Student teachers were dissatisfied with the amount of time their cooperating teachers were able to assist with planning and evaluating lessons (Talvitie et al., 2000)

In agricultural education, Roberts and Dyer (2004) investigated the interaction between student teachers and cooperating teachers by ascertaining student teacher perceptions of the characteristics of effective cooperating teachers. From the results of that Delphi study, they identified 19 characteristics, separated into the five categories of: Instruction, Advising, Professionalism, Cooperating Teacher/Student Teacher Relationship, and Personal Characteristics. Using this data, they developed a model of cooperating teacher effectiveness (Figure 2). Although useful, a major limitation of this study was the small sample size (N = 7).

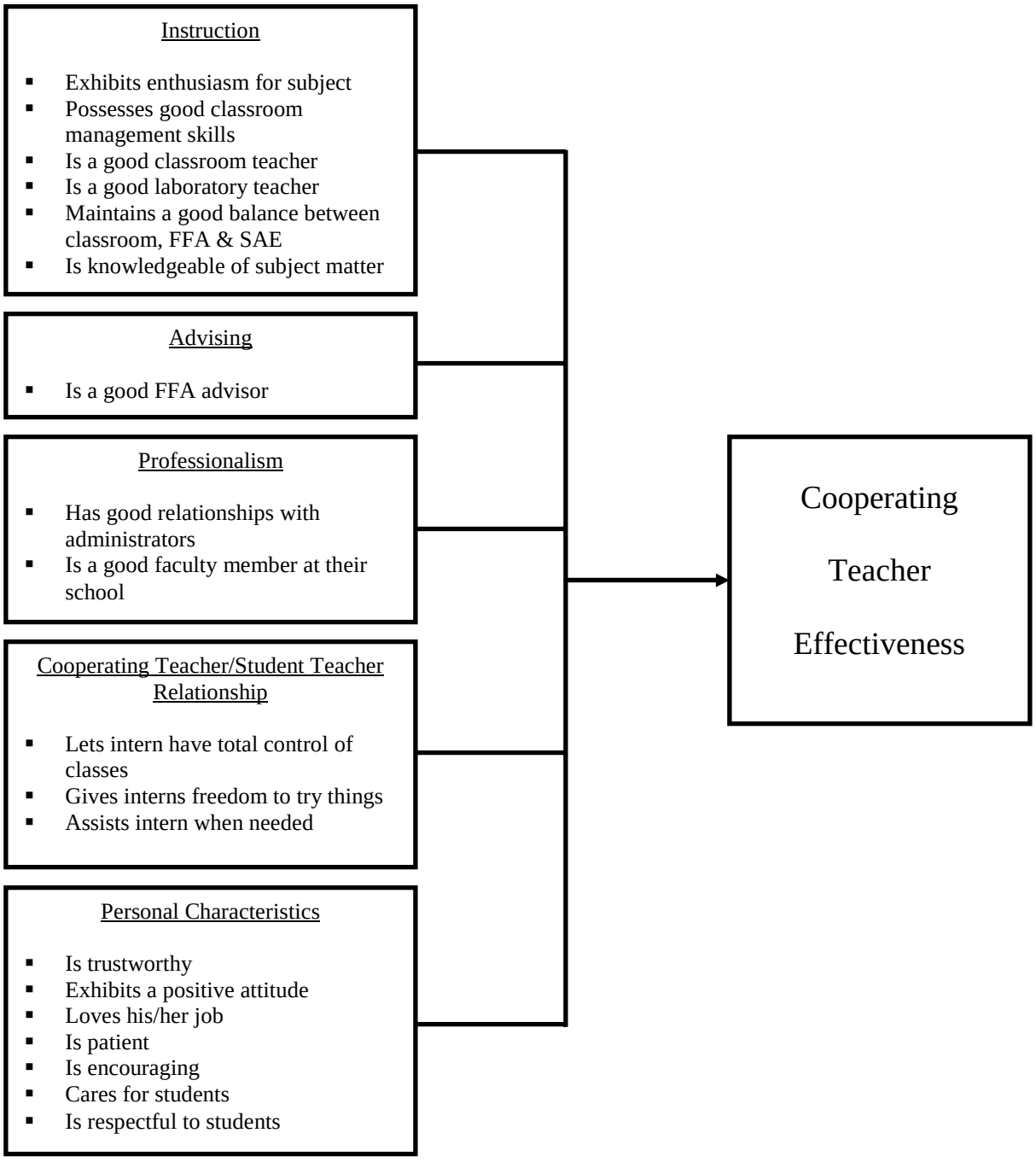

Figure 2. Model of cooperating teacher effectiveness (Roberts & Dyer, 2004).

A recent study also investigated student teacher perceptions of both the cooperating teacher and the cooperating teaching center (Harlin, Edwards, & Briers, 2002). Their results also support the importance of the relationship between the student teacher and cooperating teacher. In an earlier study Larke, Norris, and Briers (1992) also examined student teacher perceptions of cooperating teachers. Results of this study revealed the importance of classroom management and professionalism by the cooperating teacher.

Earlier research that examined this problem from other perspectives (other than student teachers) also identified many of these same characteristics. For example, a cooperating teacher should conduct a total agricultural science program that balances instruction, FFA, and SAE (Deeds, 1993; Edwards & Briers, 2001), exhibit professionalism (Deeds et al., 1991; Larke et al., 1992; Norris et al., 1990), exhibit good classroom management skills (Larke et al., 1992), and be a good classroom teacher (Edwards & Briers, 2001). Additionally, several studies found the relationship between the student teacher and cooperating teacher to be important (Barnes & Camp, 2002; Edwards & Briers, 2001).

The results from Roberts and Dyer (2004) and other research in the area begin to paint a picture of student teacher perceptions of an effective cooperating teacher. However, with the limitation of the Roberts and Dyer study, coupled with a void in other recent research that examined this issue from the student teacher's perspective, further research is still needed.

Purpose

The purpose of this study was to create a model of cooperating teacher effectiveness by replicating the work of Roberts and Dyer (2004). In doing so, two objectives guided this study:

1. Develop a consensus listing of student teacher perceptions of the characteristics of an effective cooperating teacher.
2. Categorize the characteristics identified in Objective 1 into a working model of cooperating teacher effectiveness.

With this knowledge, coupled with additional research from other perspectives (cooperating teachers and teacher educators), a clear picture of an effective cooperating teacher can be developed. This knowledge will be invaluable in assisting teacher educators in placing student teachers with effective cooperating teachers, thus maximizing their chances of a successful learning experience.

Methods

This study replicated the work of Roberts and Dyer (2004), and thus employed the same Delphi methodology. The Delphi method is a widely accepted research tool to obtain consensus from an expert panel (Dalkey, 1969; Helmer, 1966; Stufflebeam, McCormick, Binkerhoff, & Nelson, 1985). The expert panel for the current study consisted of all student teachers at the University of Florida during the spring semester of 2004 (N = 13). This represented a different sample from the same population studied by Roberts and Dyer (2004).

The study used a series of three rounds of data collection in face-to-face sessions with the student teachers during the eighth week of an eleven week student teaching experience. Two measures were undertaken to eliminate bias during data collection: 1) the researcher had no input into participants' grades and 2) confidentiality of responses was maintained from both other university teacher educators and cooperating teachers.

The first round consisted of a questionnaire with the open-ended question, "What are the characteristics of an effective cooperating agriculture teacher?" Data were analyzed using the constant-comparative method to categorize the responses into characteristics (Glaser & Strauss, 1967). Data from this round were treated as nominal data and reported as frequencies. Thirteen members of the panel responded (100%) and identified 35 characteristics.

The second round consisted of a questionnaire that asked panel members to rate each of the 35 characteristics identified in Round 1 using a five point Likert-type scale (1 = Strongly Disagree to 5 = Strongly Agree). Panel members were also asked to make revisions to current characteristics or include additional characteristics. Data from Round 2 were treated as interval data and analyzed using means and standard deviations (Clason & Dormody, 1994). Following the procedures from Roberts and Dyer (2004), it was decided a priori that characteristics with a mean of 4.0 or greater would be retained for the next round. Thirteen panel members responded (100%) and agreed with 32 characteristics. Based on recommendations from the panel, two characteristics were split, thus providing 34 characteristics for consideration in the next round.

Round 3 asked panel members to provide a dichotomous (agree/disagree) indication for each characteristic. Following the precedent from Roberts and Dyer (2004), it was decided *a priori* that characteristics with 80% agreement would be retained. McCampbell and Stewart (1992) indicated that most Delphi studies reach consensus in the third round. Such was the case with this study. Eleven members of the panel responded (85%) and reached consensus on 30 characteristics.

To develop a model of cooperating teacher effectiveness, the constant comparative method was used to categorize the characteristics (Glaser & Strauss, 1967). Specifically, the characteristics were examined and grouped together with similar characteristics or placed in a new category. This process continued until all characteristics were placed in an appropriate category. Based on those categories, the researcher developed a visual representation of cooperating teacher effectiveness.

Results

Round 1 sought to develop a list of potential characteristics of an effective cooperating teacher using the open-ended question, "What are the characteristics of an effective cooperating agriculture teacher?" Panel members identified 35 characteristics, a full list of which can be seen in Table 1. Every panel member (n = 13) indicated that an effective cooperating teacher "Provides constructive feedback/ evaluation." Eleven panel members also identified that "Caring/understanding/ patient" was a characteristic of an effective cooperating teacher. Other characteristics identified by the majority ($n \geq 7$) included "Good interpersonal skills" and "Gives student teacher freedom and control." A full list of the identified characteristics is presented in Table 1.

Table 1
Descriptive Statistics of Characteristics by Delphi Round

	Round 1 (*N* = 13)	Round 2 (*N* = 13)		Round 3 (*N* = 11)
Characteristic	*n*	*M*	*SD*	Agree %
1. Provides constructive feedback/evaluation	13	5.00	.00	100.00
2. Caring/understanding/patient[a]	11	4.92	.28	
2a. Caring/understanding				100.00
2b. Patient				100.00
3. Conducts a program that has teaching, FFA, and SAE	5	4.92	.28	100.00
4. Dependable/responsible/reliable	3	4.92	.28	100.00
5. Trustworthy	1	4.92	.29	100.00
6. Provides a variety of experiences to student teacher	5	4.85	.38	100.00
7. Shares resources with student teacher	4	4.85	.38	100.00
8. Good relations with community	3	4.85	.38	100.00
9. Effective teaching	2	4.85	.38	100.00
10. Serves as a role model	1	4.85	.38	100.00
11. Assists student teacher when needed	5	4.77	.44	100.00
12. Experienced	2	4.77	.44	100.00
13. Provides clear expectations	2	4.77	.44	100.00
14. Good classroom management	1	4.77	.44	100.00
15. Exhibits professionalism	1	4.77	.44	100.00
16. Effective communicator	5	4.69	.48	100.00
17. Cooperative	2	4.69	.48	100.00
18. Fair	1	4.69	.48	100.00

	Round 1 (*N* = 13)	Round 2 (*N* = 13)		Round 3 (*N* = 11)
Characteristic	*n*	*M*	*SD*	Agree %
19. Good interpersonal skills	7	4.62	.51	100.00
20. Excellent FFA advisor	5	4.54	.66	100.00
21. Open to new ideas/flexible	4	4.46	.52	100.00
22. Praises student teacher when appropriate	1	4.46	.78	100.00
23. Has good knowledge of school policies	1	4.38	.87	100.00
24. Supports decisions of student teacher	3	4.69	.48	90.90
25. Effectively supervises SAE projects	2	4.46	.66	90.90
26. Gives student teacher freedom and control[a]	7	4.42	.90	
26a. Gives student teacher control				90.90
26b. Gives student teacher freedom				54.50[c]
27. Good relations with other faculty	2	4.54	.66	81.80
28. Anticipate needs of student teacher	1	4.54	.88	81.80
29. Has good subject matter knowledge	1	4.15	.90	81.80
30. Good relations with parents	1	4.92	.28	72.70 [c]
31. Teaches a diverse curriculum	1	4.31	1.03	63.60 [c]
32. Sense of humor	1	4.08	.76	27.30 [c]
33. Highly organized	1	3.69[b]	1.11	
34. Teaching experience in two agricultural programs	1	2.54[b]	1.33	
35. Buys student teacher lunch	1	2.15[b]	1.68	

[a] Split in to two characteristics after Round 2. [b] Dropped after Round 2. [c] Dropped after Round 3.

In Round 2, panel members were asked to rate their level of agreement with each of the 35 items identified in Round 1 using a 5 point Likert-type scale. Panel members were also given instructions that they could modify any of the items to increase their level of agreement. As noted earlier, it was decided a priori that items with means of 4.0 or greater would be retained. Using this methodology, 32 items were retained. A full list of all items can be found in Table 1. Interestingly, one item, "Provides constructive feedback/evaluation" received "Strongly Agree" responses from all 13 panel members (100%). Three items, "Highly organized," "Teaching experience in two agricultural programs," and "Buys student teacher lunch" had means less than 4.0 and were dropped. Feedback from panel members recommended that two items be split. "Caring/understanding/patient" was split into "Caring/understanding" and "Patient." While "Gives student teacher freedom and control" was divided into "Gives student teacher control" and "Gives student teacher freedom." Therefore, 34 items were considered in Round 3.

In Round 3, panel members were asked for a dichotomous (agree/disagree) response for each item. As indicated earlier, it was decided a priori that items with at least an 80% agreement rate would be retained. A full list of the items considered in this round can be seen in Table 1. Panel members agreed on 30 items, thus dismissing four items. Interestingly, of the two items split in the last round, "Caring/understanding" and "Patient" were both agreed on by 100% of the panel, while "Gives student teacher control" was agreed on by 90% of the panel and "Gives student teacher freedom" was only agreed on by 54% of the panel and dropped. Three additional items were dropped, "Good relations with parents," "Teaches a diverse curriculum," and "Sense of humor."

The second objective of this study sought to categorize the characteristics identified in Objective 1 into a working model of cooperating teacher effectiveness. As indicated earlier a constant-comparative method was used to group items into categories (Glaser & Strauss, 1967). From the data in this study, four categories were identified: Teaching/Instruction, Professionalism, Student Teacher/ Cooperating Teacher Relationship, and Personal Characteristics (Figure 3). The greatest number of characteristics (n = 9) were placed in the Student Teacher/Cooperating Teacher Relationship category, followed by Personal Characteristics (n = 8), Teaching/Instruction (n = 7), and Professionalism (n = 6).

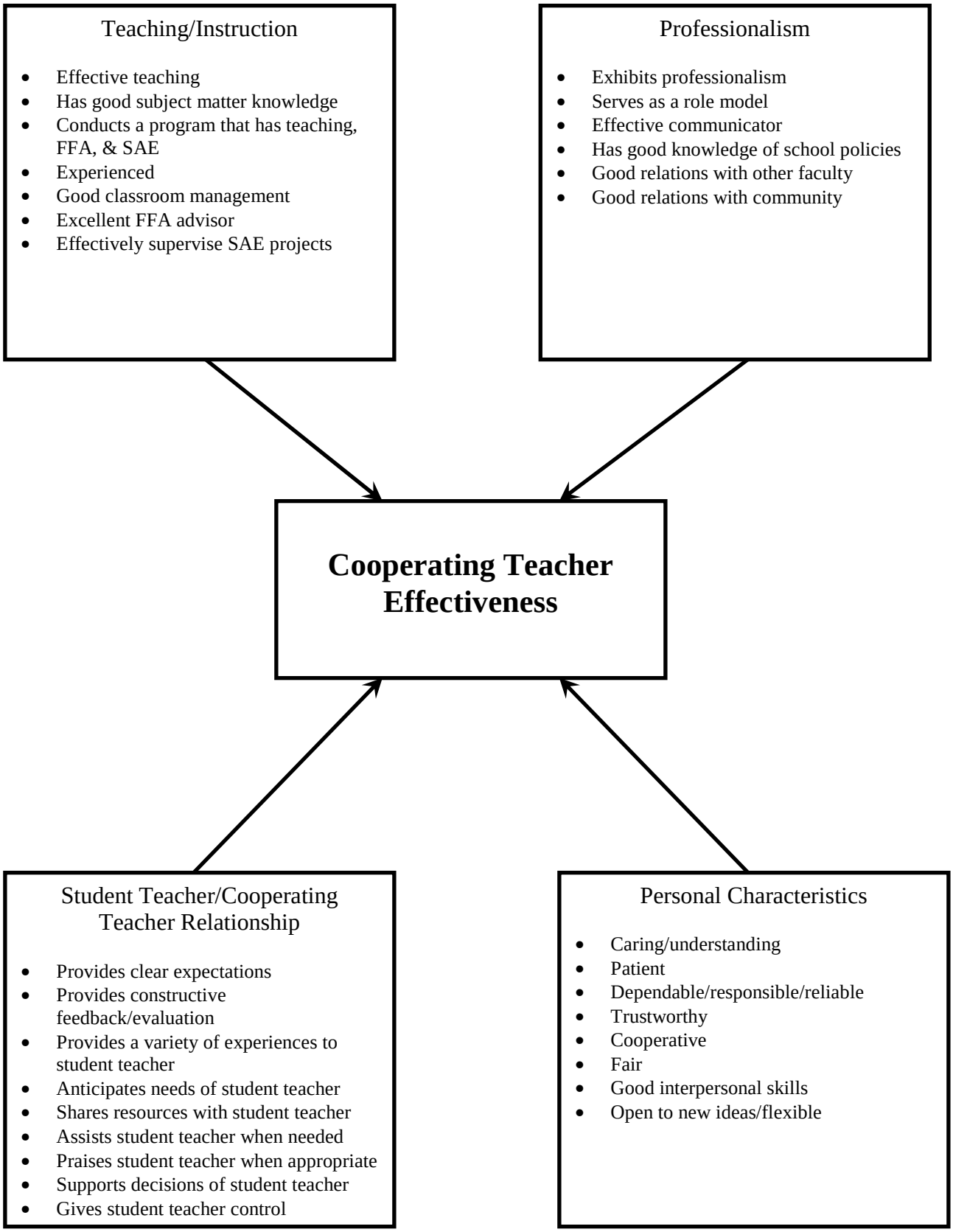

Figure 3. Model of cooperating teacher effectiveness.

Conclusions, Discussion, and Implications

From the data in this study, we can conclude that from the perspective of this population there are 30 characteristics of an effective cooperating teacher and that those characteristics can be grouped into the categories of Teaching/Instruction, Professionalism, Student Teacher/ Cooperating Teacher Relationship, and Personal Characteristics. This conclusion expands the findings of Roberts and Dyer (2004), who found only 19 characteristics.

In the Teaching/Instruction category, the characteristics of an effective cooperating teacher are: effective teaching; has good subject matter knowledge; conducts a program that has teaching, FFA, and SAE; experienced; good classroom management; excellent FFA advisor; and effectively supervise SAE projects. Upon further examination of the model proposed by Roberts and Dyer (2004), it was decided that their categories "Instruction" and "Advising" were truly related and represented "Teaching/Instruction," just in different settings (formal/non-formal). In comparison to their results great similarities were found, with the exception that two new characteristics were identified, "Experienced," and "Effectively supervise SAE projects," while one characteristic identified by Roberts and Dyer, "Exhibits enthusiasm for the subject" was not found in the current study.

The similarities between the current study and Roberts and Dyer (2004) along with other research that examined characteristics related to teaching and instruction (Deeds, 1993; Edwards & Briers, 2001; Larke et al., 1992) support the importance of the teaching ability of a cooperating teacher in all aspects of an agricultural science program (classroom, FFA, and SAE). As such, these abilities should be considered when selecting cooperating teachers.

In the Professionalism category, the characteristics of an effective cooperating teacher are: exhibits professionalism; serves as a role model; effective communicator; has good knowledge of school policies; good relations with other faculty; and good relations with community. These characteristics greatly expand the findings of Roberts and Dyer (2004) who only identified two characteristics in this category "Has good relationships with administrators" and "Is a good faculty member at their school."

The differences between the two studies are worth discussing. First, the two characteristics found in this category by Roberts and Dyer (2004) are remarkably similar to "Has good knowledge of school policies" and "Good relations with other faculty" found in the current study. In examining the other characteristics, although not found by Roberts and Dyer, "Exhibits professionalism" is prevalent in many other studies (Deeds et al., 1991; Larke et al., 1992; Norris et al., 1990). "Serves as a role model" and "Effective communicator" are broad characteristics that are likely implied in the identified characteristics in the earlier study. However, "Good relations with community" was not identified in the earlier study, but is consistent with the philosophy that agricultural science programs are community-based (Phipps & Osborne, 1988). In comparison to other disciplines, Montgomery (2000) also reported that cooperating teachers should exhibit professionalism, but did not elaborate on exactly what that entailed.

In the Student Teacher/Cooperating Teacher Relationship category, the characteristics of an effective cooperating teacher are: provides clear expectations; provides constructive feedback/evaluation; provides a variety of experiences to student teacher; anticipates needs of student teacher; shares resources with student teacher; assists student teacher when needed; praises student teacher when appropriate; supports decisions of student teacher; and gives student teacher control. These characteristics expand the findings of Roberts and Dyer (2004), with one exception. In the earlier study, "Gives interns freedom to try things" was identified and agreed on by 100% of the panel, while in the current study, "Gives student teacher freedom" was only agreed on by 54% of the panel and dropped. This discrepancy is interesting and worthy of further research.

An emerging trend in this category of the current study focused on mentoring of the student teacher. That is, providing clear

expectations, anticipating student teacher needs, giving a variety of experiences, providing feedback, and providing praise when appropriate. This notion of the importance of the relationship between the student teacher and cooperating teacher is supported by other scholars (Barnes & Camp, 2002; Borko & Mayfield, 1995; Edwards & Briers, 2001; Montgomery, 2000; Ritchie at al., 2000; Talvitie et al., 2000).

In the Personal Characteristics category, the characteristics of an effective cooperating teacher are: caring/ understanding; patient; dependable/ responsible/reliable; trustworthy; fair; cooperative; good interpersonal skills; and open to new ideas/flexible. These findings build on the work of Roberts and Dyer (2004). However, a few differences were found. In the earlier study, "Exhibits a positive attitude" and "Loves his/her job" were reported, while neither was found in the current study. Perhaps these characteristics are implied in the identified characteristics. Regardless, this incongruity warrants further examination.

Although not a direct duplication of Roberts and Dyer (2004), the identification of several personal characteristics by the current study provide further insight into the characteristics of an effective cooperating teacher. The importance of personal characteristics is supported in other literature. For example, Montgomery (2000) also found that a cooperating teacher should be understanding. Additionally, Phipps and Osborne (1988, p. 133) posited that, "unquestionable character is essential for every successful teacher" and that "a teacher with a pleasing personality can do a great deal in developing a good community attitude toward the program in agriculture." While difficult to quantify, personal characteristics are important and should be considered in selecting cooperating teachers.

The results of the current study provide further knowledge about the characteristics of effective cooperating teacher and thus further criteria to be considered when selecting cooperating teachers. However, the findings are applicable only to the population studied. It is recommended that the University of Florida utilize the identified characteristics and subsequent model to identify effective cooperating teachers to assign student teachers. An implication of this recommendation is that current cooperating teachers that do not possess the requisite characteristics be provided the necessary preparation to develop the characteristics, or be removed from the list of teachers used as cooperating teachers. Additionally, the model should be used with cooperating teachers to enhance understanding of the dimensions that student teachers find important in cooperating teachers.

This study begins to develop a theoretical basis of the characteristics of effective cooperating teachers. However, many additional questions emerge. Further research is warranted to address the following questions:

1. Will similar results be found at other universities?
2. The current study gathered data during the eighth week of an eleven week experience. Are the same characteristics important throughout and after the student teaching experience?
3. What characteristics do cooperating teachers think are important?
4. What characteristics do teacher educators think are important?
5. If a cooperating teacher does not possess some of the identified characteristics, does that affect the experience had by the student teacher?
6. Are there differences in opinion between the student teachers who chose to enter teaching and those that did not?

References

Andrews, L. O. (1964). *Student teaching*. New York: The Center for Applied Research in Education.

Barnes, R. L., & Camp, W. G. (2002). Desirable characteristics of cooperating centers for agricultural teacher education. *Proceedings of the 2002 Southern Agricultural Education Research Conference*.

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

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

Camp, W. G., Broyles, T., & Skelton, N. S. (2002). *A national study of the supply and demand for teachers of agricultural education in 1999-2001*. Blacksburg, VA: Virginia Polytechnic Institute and State University.

Clason, D. L., & Dormody, T. J. (1994). Analyzing data measured by individual Likert-type items. *Journal of Agricultural Education, 35*(4), 31-35.

Dalkey, N. D. (1969). *The delphi method: An experimental study of group opinion*. Santa Monica, CA: The Rand Corp.

Deeds, J. P. (1993). A national study of student teaching requirements in agricultural education. *Proceedings of the 20th National Agricultural Education Research Meeting, 20*, 219-225.

Deeds, J. P., Flowers, J., & Arrington, L. A. (1991). Cooperating teacher attitudes and opinions regarding agricultural education student teaching expectations and policies. *Journal of Agricultural Education, 32*(2), 2-9.

Devor, J. W. (1964). *The experience of student teaching*. New York: Macmillan.

Dewey, J. (1938). *Experience and education*. New York: Simon and Schuster.

Doolittle, P. E., & Camp, W. G. (1999). Constructivism: The career and technical education perspective. *Journal of Vocational and Technical Education, 16*(1). Retrieved July 22, 2004, from: http://scholar.lib.vt.edu/ejournals/JVTE/v16n1/doolittle.html.

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.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. Chicago: Aldine.

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

Helmer, O. (1966). *Social technology*. New York: Basic Books.

Larke, A., Jr., Norris, R. J., & Briers, G. E. (1992). A three-year national study of teacher educator, supervising teacher, and student teacher perceptions concerning the selection of student teaching centers and supervising (cooperating) teachers in agriculture. *Proceedings of the 19th National Agricultural Education Research Meeting, 19*, 204-210.

McCampbell, W. H., & Stewart, B. R. (1992). Career ladder programs for vocational education: Desirable characteristics. *Journal of Vocational Education Research, 17*(1), 53-68.

Merrill, E. C., Jr. (1967). *Professional student teaching programs*. Danville, IL: Interstate.

Montgomery, B. (2000). The student and cooperating teacher relationship. *Journal of Family and Consumer Sciences Education, 18*(2), 7-15.

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.

Phipps, L. J., & Osborne, E. W. (1988). *Handbook on agricultural education in public schools* (5th ed.). Danville, Illinois: Interstate Printers and Publishers.

Ritchie, S. M., Rigano, D. L., & Lowry, R. J. (2000). Shifting power relations in "the getting of wisdom." *Teaching and Teacher Education, 16,* 165-177.

Roberts, T. G., & Dyer, J. E. (2004). Student teacher perceptions of the characteristics of effective cooperating teachers: A delphi study. *Proceedings of the 2004 Southern Agricultural Education Research Conference,* 180-192.

Stufflebeam, D. L., McCormick, C. H., Binkerhoff, R. O., & Nelson, C. O. (1985). *Conducting educational needs assessments*. Boston: Kluwer Nijhoff Publishing.

Talvitie, U., Peltokallio, L., & Männistö, P. (2000). Student teachers' views about their relationships with university supervisors, cooperating teachers and peer student teachers. *Scandinavian Journal of Educational Research, 44*(1), 79-88.

Vygotsky, L. V. (1978) *Mind in Society*. Cambridge, MA: Harvard University Press.

T. GRADY ROBERTS is an Assistant Professor in the Department of Agricultural Leadership, Education, and Communications at Texas A&M University, MS 2116, 104A Scoates Hall, College Station, TX 77843-2116. E-mail: groberts@tamu.edu.