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ABSTRACT

The components of a cooperating teacher summative evaluation instrument were identified and the extent to which the final grade in student teaching could be determined based upon the evaluation was examined. Specific objectives of the study were to examine the relationship between grade in student teaching and the summative evaluation and determine the amount of variance in the final student teaching grade. The population for the study was all agricultural education graduates who completed student teaching at Ohio State University between 1980 and 1986 (N=283). The Inventory of Student Teacher Traits was completed by cooperating teachers as a summative evaluation of their respective student teachers. The Likert-type instrument included 14 traits rated by the cooperating teachers. Descriptive statistics were used to summarize and analyze the data. Analysis revealed that student teachers attended regularly, were conscientious about learning, and were knowledgeable in safety aspects but not in work knowledge. Of the 14 traits listed, student teachers were rated high on all items. Cooperating teacher evaluations were valued by teacher educators when determining students' final grades. The performance component was more meaningful than the quality component in determining grades. (29 references) (NLA)

Summary of
# Research

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## The Identification of Components Underlying the Summative Evaluation of Student Teachers and Component Influence Upon Students' Final Grade

Matt Baker and Lowell E. Hedges

Scholars are generally in agreement that the student teaching experience is the cornerstone of the teacher education program. A student teaching component has been identified in the earliest formal teacher education curriculum in this country (Byler & Byler, 1984; Cruickshank & Armaline, 1986). In a highly publicized study of teacher education, Conant (1963) found that a field experience was "the one indisputably essential element in professional education" (p. 142).

Follow-up studies in agricultural education have indicated that former students highly value the student teaching experience (Crowder, 1979; Miller, 1974; Orthel, 1979). Marvin (1982) revealed quite clearly the importance of student teaching in the agricultural education preservice program when he stated that student teaching is "universally accepted as the most important part of the professional education of teachers" (p. 161).

Cooperating teachers play a critical role in the development of the abilities and attitudes of preservice students (Byler & Byler, 1984; Chiu, 1975; Haines, 1960; Hedges, 1989; Karmos & Jacko, 1977; Mahan & Lacefield, 1978; Seperson & Joyce, 1973; Yee, 1969; Zevin, 1974). At least three national reports have advocated a greater degree of involvement from practicing teachers in the field for the improvement of teacher education (National Commission for Excellence in Teacher Education, 1985; The Holmes Group, 1986; The Carnegie Task Force on Teaching as a Profession, 1986).

Cruickshank (1985) forwarded a number of recommendations for the improvement of teacher education in his book entitled: *Models for the Preparation of America's Teachers*. Among his recommendations, was a call for individuals involved in teacher education to obtain consensus regarding the evaluation of student teachers.

### Need for the Study

The validity of Likert-type cooperating teacher summative evaluation instruments has been questioned in terms of halo and leniency effects. Halo effect is subjective rating error associated with raters who are highly influenced by a single behavior or trait (Phelps, Schmitz, & Boatright, 1986).

Researchers have found that cooperating teachers often evaluate student teachers based upon an overall impression as opposed to specific competencies (Wheeler & Knoop, 1982). Others have identified factors such as student teacher preparation and their quality of presentation (Hattie, Olphert, & Cole, 1982) and student teacher self-confidence and their expertise in the instructional process (Phelps et al., 1986) as examples of the halo effect.

Leniency is another subjective rating error associated with evaluations uti-

lizing rating scales (Anastasi, 1982). Leniency refers to a cooperating teacher's inclination to assign consistently satisfactory ratings (Phelps et al., 1986). Allison (1978) and Phelps et al. (1986) revealed quite clearly that when Likert-type instruments were utilized, cooperating teachers exhibited leniency error.

The most opportune time for preservice teachers to infuse theory into practice is during the student teaching experience. The feedback which student teachers receive from cooperating teachers is essential in forming positive teaching behaviors. To date, there has been little research in the agricultural education profession that has focused upon cooperating teachers' summative evaluation instruments.

## Purpose and Objectives

The purpose of this study was to identify the various components of the cooperating teacher summative evaluation instrument, and to examine the extent to which final grade in student teaching could be determined based upon such evaluations.

Specific objectives of the study were to:

1. Describe the summative evaluation instrument utilized by cooperating teachers in Ohio.
2. Determine the underlying components identified by the summative evaluation instrument used by cooperating teachers in Ohio.
3. Examine the relationship between grade in student teaching (as determined by teacher educators) and the summative evaluation of student teachers by their respective cooperating teachers.
4. Determine the amount of variance in final student teaching grade that could be explained by summative evaluations of cooperating teachers.

## Methodology

This was a descriptive-correlational study which allowed the researchers to determine underlying components of the summative evaluation instrument which cooperating teachers utilized when determining student teacher performance. The design of the study also facilitated the researchers in determining the amount of variance in final student teaching grade which was accounted for by cooperating teacher summative evaluations.

### Population and Sample

The population for this study was all agricultural education graduates who completed student teaching at The Ohio State University between Winter Quarter, 1980 and Winter Quarter, 1986 (N = 283). The composition of the sample included 160 purposefully selected graduates chosen upon their degree of coursework completed at The Ohio State University and availability of summative ratings by their cooperating teachers. A number of transfer students who had taken several courses in the professional education component of the curriculum at other universities were excluded from the study. Completed summative evaluations by cooperating teachers could not be located in departmental records for many students who were not included in the study.

### Instrumentation

The "Inventory of Student Teacher Traits" was completed by cooperating teachers as a summative evaluation of their respective student teachers. The Likert-type instrument included 14 traits which were rated by the cooperating teachers. The "Inventory of Student Teacher Traits" was utilized for an undeterminable number of years in the department. A major limitation of study involved the absence of content or face validity being established for the instrument. A post hoc reliability of the instrument was established on the purposefully selected sample included in the study. Based upon the components of the instrument (discussed below), reliability of the

performance component resulted in a Cronbach's alpha reliability coefficient of $r$ = .95, and reliability of the quality component resulted in a Cronbach's alpha reliability coefficient of $r$ = .73.

## Data Collection and Analysis

Data concerning student performance were obtained from transcripts and other official documents located in the departmental office. Data were analyzed on the SPSS/PC+. Descriptive statistics were used to summarize and analyze the data. Principal components analysis using an oblique rotation method was used to determine latent variables in the 14-item "Inventory of Student Teacher Traits." Relationships were examined using Pearson product-moment correlation coefficients. Multiple linear regression analysis was used to determine the extent to which cooperating teacher summative evaluations contributed to grade in student teaching.

## Results

Research findings are presented and organized in accordance with the objectives of the study.

## Objective One

Table 1 shows that student teachers received highest ratings on attendance (X = 8.36, SD = 1.22), safety (X = 8.15, SD = 0.86), and response to authority (X = 8.07, SD = 1.09). Students received the lowest rating in their knowledge of work (X = 7.52, SD = 1.18). The distribution of all 14 traits was negatively skewed.

## Objective Two

Components analysis facilitated the transformation of the set of observed variables (14 items on the "Inventory of Student Teacher Traits") into a new set of variables, without assuming the existence of a hypothetical causal model (Ford, MacCallum, & Tait, 1986; Hair, Anderson, & Tatham, 1987). Two components emerged as underlying elements of the "Inventory of Student Teacher Traits" (Table 2). The ten items loading on the performance component included: (1) attitude, (2) cooperation, (3) initiative, (4) dependability, (5) response to authority, (6) work habits, (7) judgment, (8) quantity/speed of work, (9) knowledge of work, and (10) prospect as a teacher.

The four items loading on the quality component included: (1) neatness and orderliness, (2) safety, (3) quality of work, and (4) attendance. As indicated in Table 3, student teachers received slightly higher ratings on the quality component (X = 8.06, SD = .76) than on the performance component (X = 7.79, SD = .98). The Bartlett method (Norusis, 1988) was utilized to quantify the data into two true component scores (identified as performance and quality components) for subsequent analysis.

## Objective Three

Teacher educators have the final responsibility of assigning the final student teaching grade. Final grades are based upon personal observations of student teachers by cooperating teachers, assigned work, and cooperating teacher input. Table 4 shows a summary of grades received in student teaching.

Student teaching was a 15-quarter course completed by preservice students during their senior year. Three grades were assigned by teacher educators for the 15 units of credit. The three grades were combined for analysis purposes in order to come up with a final student teaching grade.

Of the 160 preservice teachers in the study, the grades ranged from C to A. The average grade was B+ (X = 3.42). The distribution was negatively skewed.

As revealed in Table 5, the analysis showed a positive substantial association (Davis, 1971) among the performance component and student teaching grade ($r$ = .62), compared with a positive moderate relationship between the quality component and student teaching grade ($r$ = .36). Student teaching grade as assigned by teacher educators increased as both the performance component and quality component ratings from cooperating teachers increased.

Table 1

COOPERATING TEACHER SUMMATIVE EVALUATIONS OF STUDENT TEACHERS * (N = 160)

| Trait | Mean | Standard Deviation | Range |
|---|---|---|---|
| Attitude | 7.78 | 1.19 | 3 - 9 |
| Cooperation | 7.99 | 1.15 | 4 - 9 |
| Attendance | 8.36 | 1.22 | 1 - 9 |
| Initiative | 7.73 | 1.17 | 3 - 9 |
| Dependability | 7.97 | 1.25 | 2 - 9 |
| Response to Authority | 8.07 | 1.09 | 2 - 9 |
| Work Habits | 7.86 | 1.21 | 2 - 9 |
| Judgment | 7.61 | 1.22 | 3 - 9 |
| Neatness/Orderliness | 7.93 | 1.06 | 4 - 9 |
| Safety | 8.15 | 0.86 | 4 - 9 |
| Quality of Work | 7.82 | 0.94 | 5 - 9 |
| Quantity/Speed of Work | 7.61 | 1.05 | 4 - 9 |
| Knowledge of Work | 7.52 | 1.18 | 3 - 9 |
| Prospect as a Teacher | 7.77 | 1.31 | 3 - 9 |

(* Based upon a 9-point Likert-type scale where 1 = poor performance and 9 = superior performance.)

Table 2

ROTATED COMPONENT PATTERN MATRIX OF LOADING ORDER OF FOURTEEN STUDENT TEACHER TRAITS

| | Oblique Rotation of Traits | |
|---|---|---|
| Trait | 1 | 2 |
| Initiative | (.91867) | .10722 |
| Prospect as a Teacher | (.90172) | -.05950 |
| Cooperation | (.87805) | -.09261 |
| Judgment | (.84774) | .00291 |
| Attitude | (.83675) | -.02521 |
| Response to Authority | (.81833) | .02982 |
| Work Habits | (.80727) | .10634 |
| Quantity/Speed of Work | (.69090) | .19022 |
| Dependability | (.60846) | .33862 |
| Knowledge of Work | (.54414) | .27991 |
| Safety | -.15226 | (.90816) |
| Neatness/Orderliness | .13044 | (.64932) |
| Quality of Work | .34282 | (.58043) |
| Attendance | .24727 | (.46429) |

Table 3

PRINCIPAL COMPONENTS ANALYSIS SUMMARY FOR COOPERATING TEACHER SUMMATIVE EVALUATIONS (OBLIQUE ROTATION METHOD)

| Component | X | SD | # of Items | Eigen Value | % of Variance |
|---|---|---|---|---|---|
| Performance | 7.79 | 0.98 | 10 | 8.21 | 58.6 |
| Quality | 8.06 | 0.76 | 4 | 1.08 | 7.7 |

**Objective Four**

As indicated in Table 6, simultaneous entry multiple linear regression was utilized to determine the amount of variance explained in student teaching grade by the linear combination of the performance and quality components. Forty-eight percent of the variance in student teaching grade was accounted for by the cooperating teacher ratings. A statistically significant proportion of the variance in final student teaching grade was explained by the performance and quality component ratings by cooperating teachers ($F = 71.87$, $p = .001$).

In terms of the performance component, the partial regression coefficient was statistically significant ($b = .26$, $t = 12.00$, $p = .001$). The performance component contributed to the regression equation when the quality component was held constant. The quality component partial regression coefficient was not statistically significant ($b = .02$, $t = .58$, $p = .57$), indicating that the quality component contributed very little to student teaching grade when the performance component was held constant.

Although a positive substantial relationship was found between student teaching grade and the performance component, and a positive moderate relationship was found between student teaching grade and the quality component, only the performance component was found to explain a significant proportion of the variance in student teaching grade.

## Conclusions and Implications

1. Univariate analysis on the instrument revealed that cooperating teachers perceived that the student teachers attended regularly, were conscientious about learning, and

Table 4

GRADES IN STUDENT TEACHING (n = 160)

| Grade | Value | Frequency | Percent |
|---|---|---|---|
| A | 4.0 | 9 | 5.6 |
| A- | 3.7 | 19 | 11.7 |
| B+ | 3.3 | 88 | 55.1 |
| B | 3.0 | 32 | 20.1 |
| B- | 2.7 | 7 | 4.4 |
| C+ | 2.3 | 3 | 1.9 |
| C | 2.0 | 2 | 1.2 |
| Total $\bar{X} = 3.42$, SD =0.37 | | 160 | 100 |

Table 5

RELATIONSHIPS BETWEEN STUDENT TEACHING GRADE AND RATINGS BY COOPERATING TEACHER (n = 160)

| | r* |
|---|---|
| Performance Component | .62 |
| Quality Component | .36 |

* = Pearson product-moment correlation

were well-versed in the safety aspects associated with teaching secondary agricultural education. However, cooperating teachers held lower perceptions of the student teachers' knowledge of work. Pfister and Newcomb (1984) warned that cooperating teacher expectations of student teachers were unrealistic and were inconsistent when compared to expectations which teacher educators held for student teachers.

2. Of the 14 traits listed on the summative evaluation instrument, cooperating teachers tended to rate student teachers high on all items. Such high ratings could reflect a problem with the validity of the instrument. High ratings by the cooperating teachers could also support similar findings regarding leniency error (Allison, 1978; Phelps et al., 1986). Cooperating teachers might be experiencing difficulty in distinguishing differences in various levels of student teacher performance.

3. Two underlying components were identified in the "Inventory of Student Teacher Traits." The two components were performance rating (consisting of ten traits) and quality rating (consisting of four traits). The identification of only two components might also reflect a *validity* problem with instrumentation. Another plausible explanation might be related to a halo effect. The identification of only two components tends to support findings of others (Hattie et al., 1982; Phelps et al., 1986) that a possible halo effect exists. Cooperating teachers may be evaluating student teachers based upon an overall impression as opposed to specific traits.

4. Collectively, summative performance and quality components of the summative evaluation instrument utilized by cooperating teachers were useful in determining almost one-half of the variance accounted for in student teaching grade. Teacher educators tend to value cooperating

Table 6

REGRESSION OF STUDENT TEACHING GRADE ON COOPERATING TEACHER RATINGS (n = 160) (SIMULTANEOUS ENTRY)

| | R2 | R2 Change | b | t | p |
|---|---|---|---|---|---|
| Performance Component | .48 | .48 | .26 | 12.00 | .001 |
| Quality Component | .48 | .001 | .02 | .58 | .57 |
| (Constant) | | | 3.42 | 159.37 | .001 |

Standard error = .27
Adjusted R2 = .47
F = 71.87, p = .001

teacher evaluations when determining final student teaching grade.

5. The performance component was more meaningful than the quality component in determining final grade in student teaching. Teacher educators seemed to utilize caution when assigning final student teaching grade with regard to cooperating teacher perceptions of neatness and orderliness, safety, quality of work, and attendance. Perhaps cooperating teacher expectations of these traits are too high.

## Recommendations

Based upon the findings, conclusions, and implications of the research, the following recommendations are made:

1. The instrument utilized by cooperating teachers needs to be examined more closely in terms of the content and face validity of the instrument. Specific constructs linked to important teacher behaviors should be reviewed and the instrument should be revised accordingly.

2. The study should be replicated at other universities to determine if indeed leniency error and halo effects exist in the profession, in regard to cooperating teacher and student teacher evaluations.

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## SUMMARY OF RESEARCH SERIES

Student teaching is an essential element in the professional education of agriculture teachers. This is an opportunity for the college student to demonstrate his or her performance and potential as a teacher. The evaluation of this experience results in a recommendation whether or not the individual should be awarded a teaching certificate. This study identified the various components of the cooperating teacher summative evaluation instrument used in the Department of Agricultural Education, The Ohio State University, and examined the extent to which the final grade in student teaching could be determined based upon the evaluation. The study should be of interest to teacher educators in agriculture as they revise or refine their evaluation procedures.

This summary is based on research conducted by Matt Baker and Lowell E. Hedges. Matt Baker was a graduate student in the Agricultural Education Department at The Ohio State University. He is currently an Assistant Professor of Agricultural Education at California State Polytechnic University at Pomona. Dr. Lowell E. Hedges is an Associate Professor, Department of Agricultural Education, The Ohio State University. Special appreciation is due to Kerry S. Odell, West Virginia State University; Paul Vaughn, Texas Tech University; and N. L. McCaslin, The Ohio State University for their critical review of the manuscript prior to publication.

Research has been an important function of the Department of Agricultural Education since it was established in 1917. Research conducted by the Department has generally been in the form of graduate theses, staff studies, and funded research. It is the purpose of this series to make useful knowledge from such research available to practitioners in the profession. Individuals desiring additional information on this topic should examine the references cited.

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