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ABSTRACT

The objective of this study was to determine the difference in teaching effectiveness between experimental and control teachers as a result of a coordinated inservice program. Subjects were 83 high school teachers of vocational agricultural and other vocational subjects. Results indicate that inservice programs with a substantial theoretical base that can be understood and applied by teachers seemed to help teachers be more effective. Three areas of inservice training that helped the experimental teachers be more effective were knowledge and application of teaching and learning styles, classroom environments, and teaching effectiveness competencies. Teacher identification of needs, based on observational and student data, and development of a plan to improve, had a significant effect on the experimental group of teachers. The 3-year duration of the inservice program had a positive effect on change of teacher behavior. (IAH)

Changing Teaching Effectiveness Behavior Through In-Service

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by

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Introduction/Theoretical Framework

The issues of determining who are effective teachers and how does one become an effective teacher are complex. Effective teaching is certainly more than imparting knowledge of subject matter. Davies (1981) believes that teaching is a combination of efficiency and effectiveness. Brophy and Good (1976) found that proactive teachers are more effective than reactive teachers and Claxton and Murrell (1987) state that teachers who understand learning styles and individual needs are more effective.

In a study conducted by the Stanford Center For Research and Development in Teaching (SCRNT), researchers Clark, Snow, Shovelson (1976) conducted three experiments on learning to teach. They found that few teachers showed marked increases in student learning with practice. Practice, by itself, did not enable teachers to increase student achievement.

If practice is not the answer then the question remains: How does one become a more effective teacher? Jones and Lowe (1990) and Tibbett (1990) maintain that staff development is essential in assisting teachers to become more effective. Medley, Coker and Soar (1984) propose classroom observations over a period of time are needed to diagnose areas of weakness, to implement a strategy for improvement, and to create a system of support and feedback. Brophy and Good (1976) concur; however, they state that in addition to classroom observations, feedback from student ratings can improve teaching effectiveness. The Stanford Group concludes that teachers might profit from a process that would enable them to more systematically observe the effects of their teaching on students. They recommend a training program that would help teachers become researchers on their own teaching effectiveness. They maintain that improvements in teaching effectiveness will be achieved only after teachers themselves learn to define and solve instructional problems in terms of the uniqueness of the complex teaching situations they face alone.

Purpose(s) and Objective(s)

In the last fifteen years, many studies have been done to define teaching behaviors or competencies that could be identified with student learning. However, little research in vocational education has been conducted on how to increase a teachers effectiveness in semi-controlled field

settings. The problem this study addressed was that the profession of Agriculture Education does not have sufficient information to develop intervention programs to improve teaching effectiveness. The objective of this study was to determine the difference in teaching effectiveness between experimental and control teachers as a result of a coordinated in-service program.

Methods and/or Procedures

Population Sample. The population for the study was those secondary teachers in high schools offering vocational agriculture and other vocational subjects within 150 miles of a mid-western city. Seven schools were randomly selected to participate. A three tier design was employed. Two schools were selected as the experimental schools; three schools were designated for the medium treatment control group and two schools for the minimum treatment control group.

Instrumentation. Three instruments were used throughout the project. Teaching/learning styles were identified using the Myers Briggs Type Indicator (MBTI), Form G (Myers, 1985). This is a widely used psychological instrument that has identifiable teaching and learning styles (Golay, 1982; Kiersey, 1978; Lawrence, 1982; Myers, 1985; Silver, 1981; McCaulley, 1976, 1974). The MBTI has eight sub-scales which have a reliability of.80.

The second instrument used was the Classroom Environment Inventory (CEI), developed by Stern (1979). The CEI has been normed and contains 300 questions divided into 30 sub-scales with a reliability coefficient of.64. The CEI is designed to measure the psychological environment of the classroom as perceived by students.

The instrument used to collect teaching effectiveness data was the Classroom Observation Keyed for Effectiveness Research, COKER, (Coker,Coker, 1984). The COKER is a low-inference sign instrument used by observers to code teacher and student activities. This instrument has evolved out of five other observational instruments: OSCAR 5V)Medley, 1973); STARS (Spaulding, 1976); FLACCS (Soar, Soar, and Ragosta, 1971); TPOR (Brown, 1970), and CASES (Spaulding, 1976).

Design

Teachers were divided into 3 groups: full treatment group X (N=21), medium treatment control group A (N=25), and minimum treatment control group B (N=37).

Treatment

The full treatment group X teachers received 1-2 days of in-service each year, over a period of 3 years, followed with one short teachers' meeting each semester to discuss progress. Each teacher in group X received instruction in using teaching/learning styles, student classroom climate feedback data and teaching effectiveness scores.

Medium treatment group A teachers received the same in-service program, however, all feedback data from students or teaching effectiveness scores was delayed 6 months. While the minimum treatment control group B teachers received instruction only on use of teaching and learning styles and student feedback data was delayed for one year. Teaching effectiveness scores were not provided until the end of the third year. (see title 1 for more detail).

Data collection

A minimum of 20 observations per year per teacher was collected over the 3 year period using the COKER.

Table 1

Summary of Treatment Procedures

Treatment	Group X			Group A			Group B		
	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3	Yr 1	Yr 2	Yr 3
Inservice Hrs	9	9	5	7	4	4	0	4	0
Student Learning Styles Provided With Feedback	yes	yes	yes	no	*yes	*yes	no	no	*yes
COKER Observation Feedback	no	yes	yes	no	*yes	yes	no	no	*yes
Classroom Enviromental Feedback	no	yes	yes	no	*yes	*yes	no	no	*yes

* Delayed information

Findings

The COKER instrument yielded scores on 24 teaching effectiveness competencies. There were significant differences ($p < .05$) between teacher treatment groups for 14 competencies (Table 2). Of those 14 competencies, the full treatment group X teachers scored significantly higner then group A or B on 11 competencies. The medium treatment group A teachers scored significantly higher than groups X and B on 3 competencies. The minimum treatment group B teachers did not score higher than groups X or A on any competency.

Table 2

COKER Teaching Effectiveness Competency Mean Scores By Treatment Group Over Three Years

Coker Teaching Effectiveness Competency	Full Treatment Experimental Group X N=21	Medium Treatment Control Group A N=25	Minimum Treatment Control Group B N=37
1. Demonstrates Enthusiasm for Teaching	53.2	51.0	49.0
2. Provides Learning Experiences and Principles for Use Outside School	55.4a*	51.0	49.1b
3. Provides Opportunities for Successful Experiences	52.2	51.0	49.4
4. Demonstrates Proper Listening Skills	54.1a	51.4	48.5b
5. Maintains an Active Learning Environment	55.2a	49.6b	48.2b
6. Encourages Students to Ask Questions	56.1a	51.0	47.5b
7. Provides Positive Feedback on Performance	56.4a	51.0b	47.1b
8. Develops and Demonstrates Problem Solving Skills	55.1a	52.0	49.1b
9. Gives Clear Directions and Explanations	49.1b	54.4a	49.3
10. Implements an Effective Classroom Management System for Positive Behavior	49.0	54.1a	47.2b
11. Provides a Clear Description of the Learning Task and Its Content	50.0	55.1a	48.0b
12. Uses a Variety of Instructional Strategies	54.0a	52.5	48.1b
13. Demonstrates Patience, Empathy and Understanding	53.0	51.0	49.1
14. Monitors Learner, Understanding and Reteaches	53.1	51.4	49.2
15. Helps Students Recognize Progress and Achievements	55.2a	51.4	47.1b
16. Provides Learners Practice and Review	56.1a	51.1	47.2b
17. Demonstrates Ability to Work With Individuals, Small or Large Groups	53.2a	52.1	48.1b
18. Assists Students in Discovering and Correcting Errors and Inaccuracies	53.0	52.3	48.4
19. Teacher Stimulates Student Interest	50.1	49.1	52.1
20. Provides Examples of How Task is to be Completed	53.4	53.0	49.1
21. Uses a Variety of Resources and Materials	52.1	50.1	48.4
22. Uses a Variety of Cognitive Levels in Strategies of Questioning	54.1	51.0	49.2
23. Allows for Individual Difference in Evaluation	52.0	50.2	49.1
24. Uses Convergent and Divergent Inquiry Strategies	54.3a	52.1	48.1b

*Note: Letter "a" is significantly greater than letter "b" ($p<.05$) by Fisher's LSD Test

Conclusions/Recommendations

Several conclusions can be drawn from this study that could be applied to the practice of teacher improvement. First, in-service programs that have a sound theoretical base of substance and can be understood and applied by teachers, seemed to help teachers be more effective. Three areas of in-service training that helped the experimental teachers be more effective were their knowledge and application of teaching and learning styles, classroom environments and teaching effectiveness competencies. Teacher identification of needs based on observational and student data and then developing a plan to improve, had a significant effect on the experimental group of teachers.

At the end of year one, the experimental group X teachers were very enthusiastic about their success in applying the principles learned from teaching and learning styles theories. This enthusiasm was exhibited in the teacher meetings in the kinds of in-depth questions asked as to how to solve problems, and their self-report of efforts to explain their classroom "success" to colleagues not in the program. Immediate supervisors frequently commented about the enthusiasm observed in the experimental teachers.

By the second year, teachers in the experimental group X were beginning to grasp the importance of what they had learned because they had a year of application experience as well as observational data from the COKER and CEI instruments. Teachers in the experimental group X were beginning to practice what Valverde (1982) defined as reflective teaching, where an individual asks value-laden questions and responds to memory and then concludes whether they are satisfied or dissatisfied with their teaching. They were also responding in ways that Brophy (1976) observed, that is, teachers who act in self-defeating ways without awareness, will change their behavior quickly if the problem is called to their attention.

The three year duration of the in-service program had a positive effect on change of teacher behavior. Other studies on in-service education found similar results. Borg (1972), and Little, et.al. (1987) found a relationship between duration of in-service and teacher classroom effectiveness.

A final caveat is needed. Conducting field research to improve teaching effectiveness is at times frustrating, especially when teachers change schools or administrative leadership is lacking. Much patience is needed in trying to affect change because teachers are faced with many agendas other than

the improvement of their teaching. Lastly, being part of a program of teacher improvement where the researcher can get immediate feedback on treatment is certainly worth the effort, and is considered to be essential by Hall and Loucks (1977).

Recommendations

1. In-service education programs that are designed to improve a teachers effectiveness behavior, should be conducted over a period of years.
2. Hold small group meetings of teachers in training to report progress and receive feedback on self-targeted effectiveness content areas.
3. Frequently collect observational data and give results to teachers.
4. Teach teachers how to observe each other and give feedback.
5. Provide teachers the opportunity to learn about their teaching style and student learning styles.
6. Teachers should be taught how to improve teaching effectiveness competencies, that they agree are in need of improvement.
7. Provide an opportunity for teachers to learn how to create positive classroom environments.