

THE CONTRIBUTION OF STUDENT TEACHING TO TEACHER DEVELOPMENT

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The emergence of a competent, new teacher is the result of many factors, but most educators undoubtedly would rank student teaching as the single most important factor. The student teacher does grow and does change. We are not sure, however, exactly what changes occur, for they are often intangible in terms of specific abilities; yet it is unquestionable that changes do result.

Student teachers in agriculture develop in both manual and mental abilities, so measurement of change should logically be made in these two areas. At present there are no testing instruments designed specifically to measure such change in this situation. However, several standardized texts exist that used in conjunction can provide a worthwhile measuring instrument. What effect such usage has on the test validity score is unknown, but certainly they can provide important clues for further study of the problem.

If studies that specific changes occur, then the kinds of environment and experiences provided for student teaching may be shifted in one direction or the other in order to achieve the most desirable specific change.

The following is a report on such a study. The testing program was carried on for four years until the population tested was large enough to have statistical validity.

Objectives

The purpose of this study was to determine whether changes occur in a student teacher during his student teaching experience and, if so, to measure the extent of the changes. Even though there are many abilities or skills that contribute to the effectiveness of teacher development, for purposes of this investigation only two areas of teacher competence were included, so the study was limited to measuring change in mechanical concepts and in teacher attitude.

Specific hypotheses to be tested:

1. There is no change in prospective teachers as a result of their student teaching experience.
2. There is no change in the mechanical aptitude of prospective teachers as a result of their student teaching experience.

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3. There is no change in teacher attitude of prospective teachers as a result of their student teaching experience.

Scope

The population to be measured was the student teachers in agriculture at the University of California, Davis. Each year the class of student teachers includes 15 to 20 new students, so numbers are relatively small. Therefore, the study was conducted over several years in order to get a population statistically large enough to justify valid conclusions.

A few students, who chose to do their on-campus studies first, were used as a control group in order to determine what changes occur when a developing teacher is placed in an academic environment that is different than student teaching.

Procedure

Student teachers were tested prior to their student teaching experience and again at completion, approximately six months later. "Off-campus" refers to those persons doing student teaching; "on-campus" refers to those pursuing coursework at the University but not yet entered in the student teaching program.

Two standardized tests were used to measure teacher competence in the areas to be studied: 1) The Bennett Mechanical Comprehension Test was used to measure ability in mechanical concepts. While this instrument does not measure actual manipulative ability, it does measure understanding of mechanical principles. 2) There are many mental concepts and abilities involved in teacher education, but teacher attitude is one of prime importance. In order to measure this aspect of teacher growth, The Minnesota Teacher Attitude Inventory was applied. This test measures the climate, environment, and relationship or rapport a teacher has with his students. Teachers who rate high on the test tend to be permissive in their teaching, whereas those at the other end of the scale attempt to dominate the classroom. There are many other characteristics of teachers (as described by the makers of the test) which can be used to depict those individuals scoring high or low, but most tend to fall into two categories--those teachers who get along with students and enjoy them and those who do not.

Findings

Teachers change considerably as individuals, but as a group they do not change significantly as a result of their student teaching experience.

Table I indicates the number of increases or decreases in test

scores for both instruments when applied to student teachers before and after student teaching.

Table I
Changes in Test Scores of Student Teachers Prior
to and After Student Teaching

Group	<u>Bennett Mechanical</u> <u>B.B. Test</u>			<u>Minnesota Teacher</u> <u>Attitude Inventory</u>		
	Increase	Decrease	No Change	Increase	Decrease	No Change
Off-campus	27	19	7	26	23	1
On-campus	2	3	1	4	1	0

While individuals increased or decreased their performance considerably, as measured by the tests, the means of the group changed very little. Change in scores of individuals was especially true in the case of the teacher attitude inventory, even though the difference in means for the group was slight. Table II compares the mean score for the two tests prior to and after student teaching.

Table II
Means of Scores for Tests Applied Prior
to and After Student Teaching

Group	<u>Bennett Mechanical</u> <u>B.B. Test</u>		<u>Minnesota Teacher</u> <u>Attitude Inventory</u>	
	1st Test	Retest	1st Test	Retest
Off-campus	38.23	39.80	11.90	13.24
On-campus	39.83	40.00	15.60	35.60

As previously indicated, there was little change in the means of scores for either measuring instrument. In the case of the on-campus control group, the change in scores for The Minnesota Teacher Attitude Inventory was significantly different, but the population was so small that it would not be prudent to draw conclusions. Tables III and IV summarize

these results.

Table III

Difference in Means for The Bennett Mechanical Comprehension Test Applied Prior to and After Student Teaching

Group	Means	t Test	Level Significance 5%
Off-campus	38.23	1.04	2.000
	39.80		
On-campus	39.83	.03	2.44
	40.00		

Table IV

Difference in Means for The Minnesota Teacher Attitude Inventory Prior to and After Student Teaching

Group	Means	t Test	Level Significance 5%
Off-campus	11.90	.2371	2.000
	13.24		
On-campus	15.60	3.44	2.57
	35.60		

As previously indicated, individuals changed scores as a result of student teaching, even though the mean scores of the group showed little difference. This was especially true in the case of The Minnesota Teacher Attitude Inventory for both off-campus and on-campus groups. The change in score is illustrated by the large

standard deviation of the differences between test scores prior to and after student teaching. Table V summarizes this information.

Table V
Standard Deviation of Differences Between an Individual's Score
Prior to and After Student Teaching for Two Tests

Group	<u>Bennett</u> <u>Mechanical Comprehension</u>	<u>Minnesota Teacher</u> <u>Attitude Inventory</u>
Off-campus	3.02	16.05
On-campus	2.27	18.00

Student teachers do change as a result of student teaching, especially in the area of teacher attitude. The off-campus student teachers were affected, as 26 increased and 23 decreased their score on The Minnesota Teacher Attitude Inventory, and only one had no change. Most important, a standard deviation of 16.05 indicates that the changes were greater than those measured by The Bennett Mechanical Comprehension Test.

Implications

If attitudes of student teachers can be changed, then the environment into which they are placed is an important factor to consider. In general, the single most important factor of their student teaching environment is the supervising teacher. If, on the other hand, such factors as mechanical or technical aptitude cannot be altered, then little stress should be placed on trying to do so; and rather than attempting to mold a teacher into a competent individual in a technical field, he should be placed in a teaching situation commensurate with his natural technical competencies. This leads to the implication that specialists in teaching agriculture should be a goal to lean toward.

Recommendations for Further Study

No attempt was made in this study to measure the competence of supervising teachers who work closely with student teachers during the off-campus experience. The question naturally arises: How does the supervising teacher influence the student teacher? If the hypothesis implies a relationship, then supervising teachers should be tested and their abilities and attitudes compared to the change that takes place in their students. A significant relationship in this area would be

useful in determining the type of environment student teachers should be exposed to, especially in regard to attitudes of supervising teachers.

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