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This study investigated the 3-year effect of a field-based teacher education program, which significantly decreased teacher-pupil ratio, upon elementary school children's learning in a midwestern city. A pretest/posttest design controlling for the testing situation, the teacher, the school, and the ability of subjects (Ss) grade levels in both an experimental and a control school were compared with children's test scores at those same grade levels 4 years later (N=320). Input of the field-based teacher education program resulted in a marked decrease in Ss' learning as measured by the Iowa Test of Basic Skills at the third grade level with a nonsignificant influence on student learning at the sixth grade level, urging program evaluators to further exploration in this area. (Author)

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THE EFFECT OF A FIELD-BASED TEACHER EDUCATION PROGRAM UPON PUPIL LEARNING

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This study investigated the three-year effect of a field-based teacher education program, which significantly decreased teacher-pupil ratio, upon elementary school children's learning in a midwestern city. A pretest/posttest design controlling for the testing situation, the teacher, the school, and the ability of Ss was used. Forty children's test scores at the third and sixth grade levels in both an experimental and a control school were compared with children's test scores at those same grade levels four years later (N=320). Input of the field-based teacher education program resulted in a marked decrease in Ss learning as measured by the Iowa Test of Basic Skills at the third grade level with a non-significant influence on student learning at the sixth grade level, urging program evaluators to further exploration in this area.

RATIONALE

Preparing effective elementary school teachers is one of the most important concerns of our society to which college and school personnel can direct themselves. It is evident that well-thought-through programs do produce measurable differences in the prospective teacher (Cuban, 1964; LaGrove, 1965; Tyler and Okumu, 1965; Stone, 1968; Cooper, 1970; and Hausman, 1970). There is some empirical evidence which indicates that field-based programs, or programs that realistically simulate classroom conditions, can better prepare the prospective classroom

teacher in a variety of areas. Using the Minnesota Teacher Attitude Inventory, Brim (1966), at the University of Denver, found that the field experiences of 250 teacher candidates significantly liberalized their attitudes toward children. Amidon (1966) concluded that, as a result of training in the Flander's system of interaction analysis, given the provision of feedback about verbal behavior during practice teaching, teacher candidates became (1) more accepting, (2) less critical, and (3) more encouraging of pupil-initiated talk.

Evidence also exists that field-based programs can and do provide an effective inservice vehicle for the classroom teachers involved in the program. Moskowitz (1966) worked with cooperating teachers in a field setting and documented that the experience enabled them to form more positive interpersonal relationships. Loadman (1972) studied teacher perceptions regarding a field-based program complete with inservice seminars and found that teachers highly valued these experiences.

As is obvious, even from a cursory review of the literature, educators have found it relatively easy to document the effectiveness of field-based teacher education programs among inservice and preservice participants. In part this is true because these efforts usually incorporate research instruments that are specifically designed to evaluate the researcher's perceived strength of the program. In part this is true because this research focuses upon the program's *immediate* effectiveness.

Because of problems such as these, many researchers have delayed looking at the total picture and have begun to seriously study the effects of various components of their program on pupil learning. They argue, very cogently, that the most appropriate test for judging the

adequacy of teacher training materials is its effect as measured in pupil learning. Already this movement has produced a limited but fine group of research studies (Rosenshine and Furst, 1971; Okey and Ciesla, 1972).

Just as researchers concerned with the evaluation of teacher training materials have moved from behavior studies to the discovery that teacher behavior *as it effects and can be measured in student learning* is the more viable approach to the evaluation of their topic, so, too, might teacher program evaluators find that a more appropriate test for their program lies in an analysis of its effect on pupil learning. Logically the results of their preservice and inservice efforts must be an improvement in instruction measurable in pupil growth. Although progress has been made by documenting the *immediate* gains of pupils effected by teachers who have been trained with specially designed teacher training materials, at some point teacher educators must be held accountable for the *normative or long-range* growth of pupils effected by their total teacher education programs.

The teacher education program used as the case study for this investigation is a year-long field-based program encompassing the methods and student teaching components of the elementary professional sequence at a major midwestern public university. Those features unique to the program include: (1) full-year student teaching experiences; (2) student teaching under 2-3 teachers, on 2-3 grade levels, in 2-3 schools; (3) extensive observation of a variety of classroom teachers; (4) close supervision by university personnel (1:10 ratio); and (5) systematic use of video-tape and follow-up critique conferences. The program's success among preservice and inservice teachers has readily been documented during its three years of existence (Loadman, 1972; Mahan and Loadman, 1973).

This paper will not re-establish the effectiveness of this experimental program among these participants. The purpose of this study, being exploratory in nature, is to determine the effectiveness of this program as measurable in long-term or normative pupil learning. In so doing, this study is an initial exploration for a much needed focus on the inter-institutional evaluation of teacher education programs.

METHOD

Figure 1 shows the research design in graphic form.

EXPERIMENTAL SCHOOL

	1968[a]	1971[b]
Grade 3	N=40	N=40
Grade 6	N=40	N=40

CONTROL SCHOOL

	1968[a]	1971[b]
Grade 3	N=40	N=40
Grade 6	N=40	N=40

[a]Pre-Program Year
[b]Post-Program Year

Figure 1
RESEARCH DESIGN

A longitudinal pretest/posttest design was used to test the following null hypotheses at both the third grade and the sixth grade levels:

H_1 *There will be no difference between the 1968 and 1971 achievement groups in the experimental school on their performance on the Iowa Test of Basic Skills.*

H_2 *There will be no difference between the 1968 and 1971 achievement groups in the control school on their performance on the Iowa Test of Basic Skills.*

To rule out such intervening variables as school size, SES make-up, and teacher turnover, the experimental school was matched with a school having a similar demographic configuration. A non-significant *t* value between student I.Q. scores as measured by the Lorge-Thorndike added credibility to the comparability of schools assumption.

Student scores by grade level and year were randomly selected across teacher to eliminate test administration bias. A sample size of 40 per group was deemed large enough to test the hypothesis under study. All students received Form 3 of the Iowa Test of Basic Skills in November of 1968 and 1971. This test yielded a total score upon which pupils at each grade level were studied. The Iowa Test of Basic Skills was selected because of its availability, its continued popularity among public school personnel, and its focus on basic skills. The *separate variance t test formula* was used to test the first hypothesis. This formula was appropriate in that the null hypothesis of variance homogeneity was rejected using the *F ratio test*. The *pooled variance t test formula* was used to test the second hypothesis. This formula was appropriate in that the null hypothesis of variance homogeneity could not be rejected using the *F ratio test*.

THIRD GRADE RESULTS

Group mean scores in the control school showed no significant difference on the Iowa Test of Basic Skills at the third grade level (see Table 1). The 1971 student body continued to perform at a comparable level to that of their 1968 counterparts. In light of the comparability of groups assumption, this finding was as expected.

TABLE 1

A COMPARISON OF IOWA TEST OF BASIC SKILLS SCORES
FOR 3RD GRADE PUPILS IN CONTROL SCHOOL

GROUP	NUMBER	STANDARD DEVIATION	MEAN SCORES	t^a
1968	40	66.72	210.80	.727
1971	40	73.75	226.20	

[a]Since $n_1=n_2$ and $s_1^2=s_2^2$, the *pooled variance formula* was used with degrees of freedom equal to $n_1 + n_2 - 2$.

Third grade group mean scores in the experimental school, however, showed negative growth during the study period as measured by the Iowa Test of Basic Skills (see Table 2). The 1971 student body scored significantly lower than their 1968 counterparts ($p<.001$). The hypothesis that there will be no difference between the achievement groups in the experimental school on their performance was rejected.

TABLE 2

A COMPARISON OF IOWA TEST OF BASIC SKILLS SCORES
FOR 3RD GRADE PUPILS IN EXPERIMENTAL SCHOOL

GROUP	NUMBER	STANDARD DEVIATION	MEAN SCORES	t^a
1968	40	71.86	228.20	6.74[b]
1971	40	44.57	138.10	

[a]Since $n_1=n_2$ and $s_1^2 \neq s_2^2$, the *separate variance formula* was used with degrees of freedom equal to n_1-1.

[b]Significant beyond the .001 level.

SIXTH GRADE RESULTS

Group mean scores in the control group showed no significant difference as measured by the Iowa Test of Basic Skills at the sixth grade level (see Table 3). The hypothesis that there will be no difference between the achievement groups in the control school was found tenable.

TABLE 3

A COMPARISON OF IOWA TEST OF BASIC SKILLS SCORES FOR 6TH GRADE PUPILS IN CONTROL SCHOOL

GROUP	NUMBER	STANDARD DEVIATION	MEAN SCORES	t^a
1963	40	98.34	193.24	.376
1971	40	114.91	205.89	

[a]Since $n_1=n_2$ and $s_1^2=s_2^2$, the *pooled variance formula* was used with degrees of freedom equal to $n_1 + n_2 - 2$.

Sixth grade group mean scores in the experimental group showed positive growth during the study period as measured by the Iowa Test of Basic Skills total score (see Table 4). The hypothesis that there will be no difference between the achievement groups in the experimental school on their performance, however, was found tenable ($p<.10$).

TABLE 4

A COMPARISON OF IOWA TEST OF BASIC SKILLS SCORES FOR 6TH GRADE PUPILS IN EXPERIMENTAL SCHOOL

GROUP	NUMBER	STANDARD DEVIATION	MEAN SCORES	t[a]
1968	40	121.07	175.40	1.39[b]
1971	40	67.72	216.80	

[a]Since $n_1=n_2$ and $s_1^2 \neq s_2^2$, the *separate variance formula* was used with degrees of freedom equal to n_1-1.

[b]Significant beyond the .10 level.

DISCUSSION

The data from this study indicate that the input of a field-based teacher education program decreased pupil growth at the primary grade level. While the control group made expected gains, third-grade experimental group Ss grew significantly less than was expected. An opposite but non-significant trend can be detected in the data for the sixth grade Ss. Taken together, these findings suggest that the input of a field-based teacher education program into a school has a negative effect on the performance of primary grade pupils, but a somewhat positive effect upon the performance of intermediate grade pupils. As this exploration was a case study, the above statement should be viewed as a finding suggested by this study but in need of further exploration.

The particular element of the program that can be attributed to the decrease in pupil learning in the primary grades is not clear. Was it the input of personnel that, while decreasing the pupil-teacher ratio, also increased the discontinuity of the program and upset the stable

environment needed by primary children? Do the teacher training materials used in this program more effectively train upper elementary teachers? Despite these and many more questions left unanswered by this research, the evidence is quite clear: Teacher educators might well include pupil learning as one measure for judging the adequacy of their innovative programs. Evaluation of pupil performance provides a universal focus for the evaluation of endemic, and often institutionally specific teacher education programs. Such focuses are desperately needed at all program levels (Harste, 1972). Public school personnel might well, in light of the evidence provided by this study, approach inter-institutional cooperative programs with research models in hand to monitor the program's effect upon pupil learning.

Several limitations on the generalization of the results of the study should be noted. This study investigated pupil learning in only one of the three schools involved in this field-based teacher education program. This school drew students from a blue-collar SES area. The average I.Q. of the school remained constant (99-102) but is substantially lower than recent tests indicate as the current average for the United States.

Further, there are several limitations imposed by the design of this study. In a matched group design, the researcher can never be sure that he has selected the "right" variables. The researcher may have a good idea about which variable to use, but may, for various reasons, not want to match on these variables. Because this researcher wanted to skirt the issue of teacher effectiveness, no qualitative matching across teachers was performed. It is therefore possible (although statistically unlikely)

that all of the third grade teachers in the experimental school were less competent than those in the control school. Similarly, school administrators were not matched. If style of administration does have an effect on the climate of a school, as much research suggests, this fact could also account for the differences noted.

One comment needs to be said regarding the instrument selected and used in this study. Many persons might argue that this instrument is inappropriate as it does not reflect the current thrust of instruction at the elementary school level. This argument seems weak, however, as the ferment in education is, for the most part, a discussion of what processes and what sets of experiences are to constitute curriculum, and not a direct challenge to the ends or basic outcomes of education itself. To further clarify this point, educators have long wanted children to be able to handle their mother tongue effectively. How children acquire this ability, or what role the teacher is to play in this acquisition, is where differences seem most expressed.

This discussion on the limitations of the study could be greatly extended. It is the researcher's hope that the limitations given will place in perspective the provocative and suggestive finding of this study. This does not mean, however, that this finding should be ignored. After all, it may truly represent a phenomenon of great significance. Rather, it is to suggest that this study represents a single shuffle of the cards and must be accepted for what it is, a case study exploration, the findings of which urge program evaluators to further explore the effects of their teacher education programs on long-term or normative pupil learning.

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