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A study of interdisciplinary teaming related to eighth grade students' performance on the Ohio Ninth Grade Proficiency Test

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A STUDY OF INTERDISCIPLINARY TEAMING RELATED TO
EIGHTH GRADE STUDENTS' PERFORMANCE
ON THE OHIO NINTH GRADE PROFICIENCY TEST

A project submitted in partial fulfillment
of the requirements for the
Educational Specialist degrees

by

Laura Nicholson Baker
Donald L. Stephan

THE UNIVERSITY OF DAYTON
DAYTON, OHIO
AUGUST 1995

UNIVERSITY OF DAYTON
SCHOOL OF GRADUATE STUDIES

I hereby recommend that the project prepared under my supervision by Laura Nicholson Baker and Donald L. Stephan entitled *A Study of Interdisciplinary Teaming Related to Eighth Grade Students' Performance On The Ohio Ninth Grade Proficiency Test* be accepted in partial fulfillment of the requirements for the degrees of Educational Specialist.



Advisor



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ABSTRACT

BAKER, LAURA NICHOLSON and STEPHAN, DONALD L.

A STUDY OF INTERDISCIPLINARY TEAMING RELATED TO EIGHTH GRADE STUDENTS' PERFORMANCE ON THE OHIO NINTH GRADE PROFICIENCY TEST, August 1995.

Faculty Advisor: Donald Frericks, Ph. D.

PROBLEM. This study was conducted during the 1994-1995 school year and focused on the results of the Ohio Ninth Grade Proficiency Test administered to the eighth grade students at Bridgeview Middle School. The study compared two groups of students, an experimental group taught using an interdisciplinary teaming method of organization and the control group taught in a traditional classroom arrangement.

Hypothesis. The use of an interdisciplinary teaming approach to middle school organization will not make a significant difference on the students' achievement of a passing score on the four sections of

the Ohio Ninth Grade Proficiency Test and on their attendance.

PROCEDURE. This study was undertaken to compare a group of 58 students organized into an interdisciplinary teaching team for instruction with 58 students taught in a traditional classroom approach.

Student achievement of passing scores on the four sections of the Ohio Ninth Grade Proficiency Test and the rate of school attendance were compared.

FINDINGS. Based on statistical analyses of the data collected, the researchers found that the four hypotheses dealing with mathematics, reading, citizenship, and attendance were confirmed. The experimental group did not perform better than the control group in these four areas. The experimental group's results on the writing section of the Ohio Ninth Grade Proficiency showed a rate of performance better than the control group.

CONCLUSIONS AND/OR RECOMMENDATIONS. Since there is no statistical difference on the results of the Proficiency Test between the two groups, the study

concludes that the interdisciplinary teaching team (experimental group) did not produce better results on the Ohio Ninth Grade Proficiency Test; nor did the experimental group reflect a better attendance record. The results would suggest that other strategies be investigated to intervene with students who might have difficulty passing the Ohio Ninth Grade Proficiency Test.

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CHAPTER I

INTRODUCTION

This study arose from concerns about the Ohio Proficiency Tests among teachers, administrators, students, and their parents. For those teachers and department chairpersons directly involved with teaching the four subject areas: reading, writing, mathematics, and government, the results of the proficiency tests impacted directly on them. Since passage of all four subjects is required for graduation, department chairpersons and teachers must find ways to intervene and assist those students who have not passed one or more of the four subject areas. Consequently, if the number of failures is large, teachers must not only find suitable materials, but also schedule time to meet with these students who are often reluctant learners.

Of course, for those students who do not pass, both they and their parents are impacted by the results as recently indicated by a letter to the editor in *The Sidney Daily News* from a parent whose daughter did not pass the mathematics section of the proficiency test

(Kovaleski, 1995, p. 6). If schools can find ways for students to pass all four parts of the proficiency test in the eighth grade, they will do a service not only to the students, but also for department chairpersons, teachers, parents, and the community at large.

The report from the Carnegie Council on Adolescent Development (1989) argues that the restructuring of schools into interdisciplinary teams of teachers to teach 100-150 students, creating a school-within-a-school, should enable students to achieve greater gains in learning and social development.

Such a team has been formed at Bridgeview Middle School. As a result of a Venture Capital Grant, a team of four teachers was able to form an interdisciplinary teaching team in the eighth grade. This interdisciplinary teaching team used flexible time within a four-period schedule, shared common planning time, held high expectations for students, and planned interdisciplinary units of instruction. Within the team, each teacher was responsible for a group of

students with whom they acted as teacher and/or counselor and made contact with the students' parents.

This study, then, focused on this group of students' results on the Ohio Ninth Grade Proficiency Tests as compared to a control group that was taught by a traditional approach.

The study took place during the 1994-1995 school year. The students' performance in the mathematics and reading subtests on the Comprehensive Test of Basic Skills, administered in the sixth grade, were used to validate the comparability of the two groups.

A major factor demonstrating the need for this study was the limited number of research projects and doctoral dissertations that have been done on the Ohio Proficiency Tests. The researchers found among approximately 2,200 doctoral dissertations on proficiency testing, only five related to the Ohio Proficiency Test.

Statement of the Problem

This study focused on the effects of the interdisciplinary teaming method of instruction on the

results on the Ohio Ninth Grade Proficiency Test for the eighth grade students who took the test in March 1995. The study compares the scores of a group of students taught in interdisciplinary teaching teams and a group of students taught in the traditional classrooms at Bridgeview Middle School.

The mathematics and reading scores that the students earned on the Comprehensive Test of Basic Skills administered during the sixth grade were used to determine whether the two groups of students were comparable.

School attendance for the seventh-grade year and the eighth-grade year were compared to determine the difference in attendance of the two groups.

Assumptions

Because of the national focus on education in general and middle school education in particular and the literature that identified interdisciplinary teaming as a method to improve the effectiveness of schools for this age group, it was assumed that the results of the Ohio Ninth Grade Proficiency Test are a

significant area of inquiry to determine the effectiveness of the interdisciplinary teaming program.

It was assumed that the Ohio Ninth Grade Proficiency Test is a valid measure of student achievement.

It was also assumed that the randomly selected group of teamed students and a group of equal size of randomly selected nonteamed students at Bridgeview Middle School would be comparable.

Since the method of instruction, interdisciplinary teaming, was the only change initiated in the structure of the school, it was assumed that the differences in performance on the Ohio Ninth Grade Proficiency Test would be a result of the interdisciplinary teaming approach to instruction.

Delimitations

The investigation was limited to a comparison of scores of the mathematics and reading subtests on the Comprehensive Test of Basic Skills administered during the sixth-grade year to all students, a comparison of scores on the Ohio Ninth Grade Proficiency Test

administered during eighth grade to the students in March 1995, and a comparison of school attendance during the students' seventh-grade year and the students' eighth grade year.

Limitations of Study

The primary limitation of this study was that all members of each group who were studied were students from one school building, in the same school district. While this could be viewed as a limitation, it can also be viewed as an important factor in making sure that the groups that were studied were comparable.

Hypotheses

This study was designed to examine five research hypotheses related to the students' passing the Ohio Ninth Grade Proficiency Test and the students' attendance.

Hypothesis I: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the mathematics section of the Ohio Ninth Grade

Proficiency Test that was better than the control group of students taught in the traditional classroom.

Hypothesis II: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the reading section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

Hypothesis III: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the writing section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

Hypothesis IV: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the citizenship section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

Hypothesis V: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not have an attendance rate better than the students taught in the traditional classroom.

Definitions

Interdisciplinary teaming: An organization of four teachers in science, mathematics, English/Language Arts, and social studies to deliver instruction during a four-period block of time.

Control group: A selected group of fifty-eight, eighth grade students at Bridgeview Middle School who were taught in the traditional classroom.

Experimental group: A group of fifty eight randomly selected eighth grade students at Bridgeview Middle School who were taught using an interdisciplinary teaching team.

Comprehensive Test of Basic Skills: A nationally normed test administered to determine

academic achievement of basic skills in reading, mathematics, and language.

Ohio Ninth Grade Proficiency Test: A statewide test in mathematics, reading, writing, and citizenship. All students in Ohio must pass this test prior to graduation from high school.

Flexible scheduling: A four-period block of time adjusted according to students' needs and teachers' requirements for instruction.

Restructuring: Changing a school from a departmentalized organization with rigid periods of instruction to one with an interdisciplinary organization using a flexible four-period block of time for instruction.

Summary

The purpose of this investigation was to determine whether the interdisciplinary teaming method of instruction influenced the results on the four subtests of the Ohio Ninth Grade Proficiency Test and whether it

influenced the attendance of the students in this study.

To determine the results, data were collected on attendance and on the pass/fail rate of students in the experimental group and in the control group.

The data were analyzed using appropriate statistical measurement and charting techniques.

The results of this study were reported and conclusions and recommendations were made.

Chapter II of this study is a review of the literature on middle schools, interdisciplinary teaching teams, and proficiency testing.

Chapter III of this study outlines the methodology and design, describes the sample population, data collection instruments, and measurements used.

The results of the study are reported in Chapter IV; and a summary of the data, findings and implications, and recommendations based on the findings are reported in Chapter V.

CHAPTER II

REVIEW OF THE LITERATURE

The following chapter is a detailed review of the literature and research on the education of middle level students, on interdisciplinary teaching teams as a method of instruction, and on proficiency tests as a method of evaluation of academic achievement.

The Middle School

The 1989 report from the Carnegie Council on Adolescent Development, *"Turning Points: Preparing American Youth for the 21st Century"* stressed the need for America "to develop the talents of 'all' our people" (Carnegie Council, 1989, p. 12). To do so, the report urged educators to assist those in the period of early adolescence. The report viewed this as a critical period of biological and psychological change.

Even though this report saw an urgency for education to focus on the age 10 to 15 years, this group has been a focus for some educators for a long time. During the 1909-1910 period, junior high

schools were begun to bridge the gap between elementary schools, which were child centered and high schools which were subject matter centered (Clark & Clark, 1993, p. 448). Then as junior high schools became more like high schools with departmentalization and teachers trained for the secondary level, the middle school concept was originated in the 1950's with the hope of a "program uniquely related to the needs and characteristics of children in the process of transition to adolescence" (Alexander, 1978, p. 3).

Although it is not known when the first middle school was established, it is thought to have been in the 1950's. In 1961 Grambs, Noyce and Robertson suggested that the ninth grade be moved to the high school (Clark & Clark, 1993, p. 450). Further support for grade refiguration was new information showing "that young adolescents were maturing earlier" and "mass communication media had made children much more informed and sophisticated" (Clark & Clark, 1993, p. 450). Alexander and Williams (1965) recommended programs that involved "homerooms of 25 students

directed by teacher/ counselors, each with a specialty in language arts, social studies, mathematics, or science. These four teachers would jointly plan curriculum and serve as team teachers for 100 students" (Clark & Clark, 1993, p. 451). They also suggested that the curricular focus include "these areas: learning skills, general studies, and personal development" (Clark & Clark, 1993, p. 451). In Eichhorn's model, instruction was integrated and included blocking and flexible scheduling (Clark & Clark, 1993, p. 451).

As a result of this call for reform, educators of the 1960's debated over which structure--junior high or middle school--was more effective in meeting the needs of early adolescents. Despite the fact that these two structures were very similar, the debate continued into the 1980's when the two groups coalesced in fighting for the cause of improving early adolescent education. A real force in fighting for the middle school concept came about with the emergence of the National Middle School Association in the 1980's. This group was

assisted by the National Association of Secondary School Principals, the Association for Supervisors and Curriculum Development and the National Association of Elementary School Principals (Clark & Clark, 1993, p. 451). Both of these groups advocated for more than structural change.

Together with this consolidated effort, there was scholarly interest in understanding early adolescent development. John Hill in *Understanding Early Adolescence: A Framework* looked at the following sets of interacting factors:

- primary changes: biological, psychological, and social-definition changes,
- secondary changes: such as attachment, autonomy, intimacy, achievement identity,
- settings of early adolescence: including family, peers, and school (Clark & Clark, 1993, p. 452).

With these studies of early adolescent development, educators were trying to identify characteristics of true middle schools. In 1982, The

National Middle School Association published a set of ten resolutions for Middle Schools. These included:

- middle schools are a unique phase of schooling
- middle school teachers be properly trained for this phase
- responsive grouping practices be implemented
- interdisciplinary teams be organized
- efforts to promote early adolescent health and social development be escalated
- instructional practices which are responsive to this age group be implemented
- school programs encourage students to explore new areas of interest
- parent involvement in the school be increased
- the curriculum help early adolescence preparation for the future
- integration and inclusion of special education students be implemented (National Middle School Association 1988, pp. 18-20).

Even though similar resolutions and lists of descriptions for the middle school have been developed in the last twenty years, surveys reveal that "very little change has taken place" in the education as it is offered in the middle schools (Alexander, 1988, p. 109).

Although middle schools organized with seventh and eighth grades have dramatically increased, Alexander reported 12,000 in 1988, middle level education is still predominantly a traditional classroom operation (Alexander, 1988, p. 109). This lack of progress can be explained in part by the reason for changes to the middle school concept. Alexander's survey revealed, it was "to eliminate crowded conditions in other schools" more than to bring about a new and better way to teach these students (Alexander, 1988, p. 107).

The move to the middle school concept often is proposed as a way to save money because the students can be placed in larger groups. The middle school has been organized for a definite need; but as it often

happens in education, it has not always fulfilled the role for which it was intended.

Summary of Middle School Review

The middle school concept is over forty years old; many middle schools do not fit the "exemplary school" model suggested by William M. Alexander, the "movement's most influential spokesman" (Alexander, 1978, p. 3). Nor do they always fit the characteristics suggest by the Middle School Association in its set of resolutions promulgated in 1982. The numbers of middle schools continue to increase but often because of higher enrollments in the elementary schools or for financial reasons. Thus, the middle school has often become another junior high school with departmentalization and with teachers not trained to deal with early adolescent students.

Interdisciplinary Teaming

Arthur Jackson, Project Director for the Carnegie Corporation's Task Force on Education of Young Adolescents whose report culminated in the publication of *Turning Points: Preparing Youth for the 21st*

Century, found that the report was overwhelmingly accepted even though "very little was new in the report" (Jackson, 1990, p. 1). An example of this statement was the recommendation for interdisciplinary teams. Even though teaming has been recommended since the inception of the middle school organizational concept, a national survey has shown that only 37% of all schools utilize interdisciplinary team teaching at any time between grades five and nine (Jackson, 1990, p. 1).

Although team teaching has often been listed as one of the characteristics for the middle school, (Alexander & George, 1981, p. 16) most of the time, team teaching results in name only. Alexander and George in their book *The Exemplary Middle School* define team teaching as a "type of instructional organization, involving teaching personnel and the students assigned to them, in which two or more teachers are given responsibility, working together, for all or a significant part of the instruction of the same group of students" (Alexander & George, 1981, p. 115).

Alexander and George carry interdisciplinary team organization a step further by identifying the following characteristics of team teaching. In the interdisciplinary teaching team a group of teachers share:

- the responsibility for planning, teaching, and evaluating curriculum and instruction in more than one academic area;
- the same group of students;
- the same schedule; and
- the same area of the building (Alexander & George, 1981, p. 115)

They maintain that when all four of these characteristics are present nothing else is needed; but if one is missing, the team is "less than complete" (Alexander & George, 1981, p. 115). To this, Jackson would add the importance of empowering teachers and administrators to make decisions about how to teach young adolescents. He feels this power "should be negotiable in the same manner that salary, benefits,

and other factors which influence the professional working conditions of school staffs are part of the bargaining process" (Jackson, 1990, p. 2).

To accomplish this end of interdisciplinary team organization, George has conducted a study of "the Four Phases of interdisciplinary team organization." This Four Phase Model begins with the **organizational** phase where a group of teachers and students share the same schedule and space in a school. Even though this provides some cohesiveness for teachers, students, and parents to work together, it is only the beginning step. Unfortunately, this is where many teams begin and end. The second stage is a sense of **community**. In this stage, early adolescents can identify with a smaller group and be known by several adults because students and teachers relate to each other "in an advisor-advisee" capacity. The third stage concerns **instruction** because teachers design and teach interdisciplinary units. Here collaboration in planning is key. Stage four is the **administrative**

level where administrators and teachers share decision making about school issues (Plodzik & George, 1989, p. 15).

The study conducted by Dr. George among 159 middle schools in six New England states was based upon a questionnaire completed by school principals. Results of the survey indicated that 16% had not completed the first stage, 5% were at stage one, 17% at stage two, 21% at stage three, and 40% at stage four. The qualities influential to team growth included "flexibility, academic strength, desire to be a team member, and knowledge of the middle school child." They also acknowledged the importance of inservice. Although common planning time "did not show a relationship with the development of the instructional team," the principals felt this was "vital to the team's functioning" (Plodzik & George, 1989, p. 16).

On a more specific level, a team of teachers in Baltimore County School in Maryland identified six major reasons for establishing an interdisciplinary team. They identified these reasons:

- students have subject matter specialists who coordinate the total program;
- the team of teachers can better meet the needs of students by planning special interdisciplinary units;
- content as well as skills can be better coordinated;
- a personal development program can be better integrated throughout all subject areas and teachers;
- a discipline code can be established for the entire team;
- and contiguous classrooms allow for students to change classrooms at times decided by team members (Merenbloom, 1979, p. 10).

In this system, teachers, whenever possible, were allowed to form their teams. They also felt strongly that no interdisciplinary teaming can be successful without adequate planning time. This individual instance points out the importance of some of the qualities already identified in this review.

Another theoretical perspective as to the effectiveness of interdisciplinary teaching teams is based upon a study of Hackman's book *Groups That Work (and Those That Don't): Creating Conditions for Effective Teamwork*. To be effective groups, they must meet three criteria:

- must be intact groups within the organization rather than artificially constructed
 - have one or more tasks to perform; and
 - operate in an organizational context (within a larger social system such as the entire school)
- (Kain, 1993, p. 25).

Based upon this foundation, a middle school team would be effective if it produces a "good output," works together, and enhances the individual teachers involved (Kain, 1993, p. 26). Even though Hackman's book deals with groups outside of education, relating his criteria to educational teams gives another perspective to the community at large as to why and how team teaching can be effective.

Although what makes an effective team has been defined and described, its effects may seem dubious. Arhar, Johnson, and Markle report that "historically, teaming has shown little effect on student achievement" (1989 p. 24). They cite studies which contradict themselves, such as Sinclair "found that teaming produced significantly higher achievement on all areas of the California Achievement Test among eighth graders" while Noto "found that the traditional, departmentalized arrangement produced higher achievement in math and reading as measured on the Iowa Test of Basic Skills" (Arhar, Johnston, & Markle, 1989, p. 25). In contrast, the effect of teaming on the psychosocial climate of the school has been more positive. George and Oldaker reported that "improvement in school discipline and student personal development as a result" of their being part of a team (Arhar, Johnston, & Markle, 1989, p. 26). Even though there appear to be more studies showing positive results, Sinclair in 1980 found "no significant differences between students in team teaching

arrangements and departmentalized arrangements in student attitudes toward their teachers" (Arhar, Johnston, & Markle, 1989, p. 26).

In terms of the effect of teaming on teachers, a study done by Walsh and Shay (1993) found positive results. In contrast to departmental teachers, team teachers "perceive their school climate as more participative in relation to goal commitment, to decision-making processes, and to team cooperation" (Strubbe, 1990, p. 59). They also see themselves as "more supportive to their students and as more receptive to student ideas" (Strubbe, 1990, p. 59). Thus, the findings support that interdisciplinary teaming has a positive effect on the climate factor.

Summary of interdisciplinary review

Although teaming has been identified as a significant and, by some, an essential factor in the middle school, its use is not widespread. Even where it is claimed to be used, it is used on a very limited basis, such as only at the organizational level. Its effects are also debatable. Some studies show that

academically students in team arrangements perform better than those in departmental organizations. However, other studies show just the opposite. At least according to the ASCD report, it would appear that teaming does have a positive effect on school climate. Teachers report that they feel more professional and participate more in the school setting. These same teachers also have a more positive attitude toward students and are more open to their ideas. Although this was not explicitly reported in any literature, it would appear that those teams that are successful are the teams in which the teachers are prepared to teach middle school and are enthusiastic about being part of a team.

Proficiency Testing

A 1991 Gallup poll revealed that 77% of the respondents supported requiring public schools in their communities to use standardized national tests to ensure student achievement (Jaeger, 1991, p. 240). Among 40 states that operate a high school competency testing program, 19 use their tests as a requirement

for graduation (Jaeger, 1991, p. 242). This demand for testing has gone on for almost two decades in virtually every state in the nation (Jaeger, 1991, p. 240).

Ohio is part of the national trend to require that its students be evaluated by a statewide test.

Substitute House Bill 231, passed in July 1987, mandated that all public school students pass a statewide high school proficiency test as one of the criteria to earn a diploma (Hull & Tache, 1993, p.4). The test covers four areas: reading, writing, mathematics, and citizenship. The results of the test were reported on a pass/fail basis. The proficiency tests consisted of banks of test items constructed by a national test development company for all areas of the test except the writing portion (Hull & Tache, 1993, p.6). The tests were to be administered twice a year beginning in grade nine. Thus, students would have eight opportunities to pass the test before graduation. The test was first administered to ninth grade students in 1990. Three major purposes for testing as revealed in North Carolina's testing program include: "to

evaluate whether a student has mastered a basic set of skills and knowledge needed to function successfully in society; to hold schools responsible for teaching those skills; and to provide societal benefits by withholding school diplomas of students found to be deficient in those skills" (Hull & Tache, 1993 p. 4). While Ohio has not clearly identified its purposes, they seem to be very similar to those expressed by North Carolina. The testing in Ohio requires portions of four days of instructional time.

Although little research has been completed and/or reported on the effects of the tests, the results of three studies have been located in the search of literature. This search included not only ERIC but also the Abstracts International for doctoral dissertations. The testing department of the Ohio State Department of Education was also consulted, and they reported that they were not aware of research on the Ohio Ninth Grade Proficiency Test as it related to school organization such as interdisciplinary teaming.

Mary A. Robins and Mary H. More completed a study in April 1992. They were concerned whether the proficiency test provided unique information or was it redundant with the information provided for testing already in place. Their study's purpose then was "to examine the relationship between student scores on standardized achievement tests taken in the eighth grade and the Ohio Ninth Grade Proficiency Test (Robinson & Moore, 1992. p. 3).

The results of their study raised three concerns. When the proficiency test results were compared to the standardized test results, the mathematics proficiency test is far more difficult than the reading proficiency test. Second, there was a low correlation between the writing proficiency test and the reading and language achievement tests. A third major concern is the fact that no test statistics have been made available, specifically item-difficulty levels, item-to-item correlations, and item bias. They also found the holistic scoring to be a problem (Robinson & Moore, 1992, p. 14).

Their conclusion was that the correlation between the reading and mathematics standardized tests and the same-subject proficiency subtests were high but not high enough to justify the original intent--replacing the proficiency test with the standardized test.

James F. Lanese in his study which compared 31 Ohio school districts test results, including Cleveland City Schools, addressed two concerns:

- Are the tests a valid measure of ninth grade skills in the specific subject areas?
- Do the results of the first year of testing include any disparate results between districts of varying socioeconomic constituencies?

He too did a correlation design using the pass/fail results of the Ohio Proficiency test and criterion referenced and norm-referenced tests. His second question was addressed using the selected district performances reported by the state, correlated with the respective districts published poverty rate. Lanese's analysis supports the notion that the Ohio

Ninth Grade Proficiency Test does represent a valid measure of ninth grade competencies. In regard to the second question, the results indicated that the lower the poverty level of the student, the lower the passage rate (Lanese, 1992, p. 9).

Another study was conducted by Marilyn Hull and Diane Tache among 695 students in one school district. They examined whether test results from the Iowa Test of Basic Skills were a reliable predictor of the results of the Ohio Ninth Grade Proficiency Tests (Hull & Tache, 1993, p. 7). Scores were examined for students who were in eighth grade in the spring of 1990, 1991, and 1992, who then became freshmen the following fall (Hull & Tache, 1993, p. 8). The correlations derived from this study likewise support that the Ohio Ninth Grade Proficiency Test is a "reasonable measure of competencies in reading, mathematics, and citizenship" (Hull & Tache, 1993, p. 10). The researchers also concluded that "using stanines from a standardized achievement test, such as the Iowa Test of Basic Skills, as predictors of

potential success or failure on the Proficiency Test, seems to be justified" (Hull & Tache, 1993, p. 9).

The results of this study seems to support the validity of Ohio's Proficiency Test. Using the results of the standardized achievement test, such as the Comprehensive Test of Basic Skills or the Iowa Test of Basic Skills, teachers could identify potential failures of the Ohio Ninth Grade Proficiency Test and thereby intervene before the students took the test in the fall of the ninth grade. This might help more students pass on the first try and so decrease the number of students who might need intervention in their next three years of high school. This would also decrease costs and additional administrative time to find means to intervene for those students who have failed.

Summary of Proficiency Test

Although limited in number, those studies that have been done would support the validity of the Ohio Ninth Grade Proficiency Test. However, because of the number of failures among students at the poverty level;

the test items could be questioned on their bias. It has yet to be shown whether the test items constitute the basics that high school graduates should know, for one result of the tests is teaching for the test. Therefore, eventually the curriculum will reflect the test. So more than accountability is at stake; that appears to be one of the motives that the legislators had in mandating the test. If accountability was one of the main motives for legislators mandating the test, other effects result. For example, it could narrow the curriculum so that teachers focus only on the context of the test. When this is the case, higher order thinking skills could be overlooked.

CHAPTER III

METHODOLOGY

The intent of this study was to examine whether there were differences between two groups of students at the Bridgeview Middle School in the performance on each of the four sections of the Ohio Ninth Grade Proficiency Test. The interdisciplinary group was taught by a team of four teachers within a time block of four periods. This arrangement allowed the four teachers to construct the time segments as needed for instruction. Beside the flex time, teachers had a common planning period in which they organized interdisciplinary units and daily schedules and organizations of students. This interdisciplinary team was in contrast to the control group which was taught subject matter in a traditional organization by a single teacher.

In addition, this study reviewed attendance information to determine if there was a difference in

the attendance rate of the same two groups of students. Attendance during the seventh grade year, which was the year prior to the study was compared with attendance during the eighth grade year of the study.

The research in this study was designed to be action research.

Study Population

The population for this study came from a group of 318 students enrolled in the eighth grade at Bridgeview Middle School, Sidney, Ohio. Two groups of students were selected using Quattro Pro 5.0 spreadsheet software. Fifty-eight, eighth grade students were selected from an interdisciplinary team to form the experimental group. The fifty-eight members of the control group were randomly selected from the remaining student population who were not a part of the interdisciplinary team. Students identified as gifted and talented or with learning disabilities were excluded from the results as they might bias the results.

Data Collection Instruments

Three data collection instruments were used in this investigation.

- The normal curve equivalent scores in reading and mathematics subtests on the Comprehensive Test of Basic Skills administered to the two groups of students during their sixth grade year were used to determine the degree to which the groups were comparable.
- The students' results in the mathematics, reading, writing, and citizenship sections on the Ohio Ninth Grade Proficiency Test were used to compare academic achievement.
- Finally, school attendance records for the seventh grade as compared to the eighth grade were used to compare the attendance of the interdisciplinary team and the control group.

Data Collection Procedures

Data for this study were collected during the 1994-1995 school year. Data from the Ohio Ninth Grade

Proficiency Test administered in March 1995 were collected. Data regarding attendance were collected from students' permanent records in June 1995. Data on the Comprehensive Test of Basic Skills were collected from students' permanent records in June 1995.

Variables

The independent variable in this study was the group of eighth grade students organized into an interdisciplinary team for instruction.

The dependent variables were:

- the number of days of attendance of the two groups,
- the achievement of a passing score on the mathematics, writing, reading, and citizenship sections of the Ohio Ninth Grade Proficiency Test,

Statistical Treatment

To compare the results in reading and mathematics on the Comprehensive Test of Basic Skills, the test of statistical significance used was the *F*-test.

To compare the results in mathematics, reading, writing, and citizenship on the Ohio Ninth Grade Proficiency Test the *chi - square* was used.

To compare the attendance rate of the two groups the *t-test* was used.

CHAPTER IV

RESULTS OF THE STUDY

This chapter includes descriptions of the participants, results of the *t*-tests on attendance and an analysis of variance (ANOVA), an F-test, to determine if the groups were comparable. It also includes the results of testing the five hypotheses which guided the study and the statistical data for each of the five hypotheses. The alpha level or level of significance was set at .05.

Description of Study Participants

The study took place during the 1994-95 school year at Bridgeview Middle School in Sidney, Ohio. The student population came from a total of 318 eighth grade students. Two groups of 58 students were randomly selected. Fifty-eight eighth grade students were selected from an interdisciplinary teaching team to form an experimental group. A second group, the control group, was composed of 58 eighth grade students

randomly selected from the remaining student population.

Results of the study

To demonstrate that the control group was comparable with the experimental group, the results of the Comprehensive Test of Basic Skills in reading and mathematics subtests were used.

Using an F-test on the scores of the mathematics subtest, the researchers found the degrees of freedom to be 60, the F-test value was 1.193, and a critical value of 0.247.

Using an F-test on the scores of the reading subtest, the researchers found the degrees of freedom to be 60, the F-test value was 1.342, and a critical value of 0.128. (See Table 1, page 41)

From these tests, the researchers concluded that the experimental group and the control group were comparable.

This Comprehensive Test of Basic Skills was administered to the two groups in the sixth grade.

Table 1RESULTS OF READING SUBTEST
COMPREHENSIVE TEST OF BASIC SKILLSF-test for two sample variances

Degrees of freedom	60
F	1.342
P one-tail	0.128

RESULTS OF MATHEMATICS SUBTEST
COMPREHENSIVE TEST OF BASIC SKILLSF-test for two sample variances

Degrees of freedom	60
F	1.193
P one-tail	0.247

Results of Hypothesis

Hypothesis I states: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the writing section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

To test this hypothesis, a chi-square was prepared. The results showed that 87.9% of the experimental group passed the writing section of the Ohio Ninth Grade Proficiency Test while 81.0% of the control group earned a passing mark on the test.

The results showed that 12.1% of the experimental group failed to pass the writing section of the Ohio Ninth Grade Proficiency Test, while 19% of the control group failed to pass the section of the test. (See Table 2, page 43)

Therefore, the experimental group performed better than the control group on the writing section of the Ohio Ninth Grade Proficiency Test.

Table 2RESULTS OF THE WRITING SUBTEST OF
THE OHIO NINTH GRADE PROFICIENCY TEST

	<u>PASSING</u>		<u>FAILING</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Experimental Group	51	87.9	7	12.1
Control	47	81.0	11	19.0

Results of Hypothesis II:

Hypothesis II states: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the reading section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

To test this hypothesis, a chi-square was prepared. The results showed that 77.6% of the experimental group passed the reading section of the Ohio Ninth Grade Proficiency Test while 84.5% of the control group earned a passing mark on the test.

The results showed that 22.4% of the experimental group failed to pass the reading section of the Ohio Ninth Grade Proficiency Test, while 15.5% of the control group failed to pass this section of the test. (See Table 3, page 45)

Therefore, the control group performed better than the experimental group on the reading section of the Ohio Ninth Grade Proficiency Test.

Table 3RESULTS OF THE READING SUBTEST OF
THE OHIO NINTH GRADE PROFICIENCY TEST

	<u>PASSING</u>		<u>FAILING</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Experimental Group	45	77.6	13	22.4
Control	49	84.5	9	15.5

Hypothesis III states: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the mathematics section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom.

To test this hypothesis, a chi-square was prepared. The results showed that 55.2% of the experimental group passed the mathematics section of the Ohio Ninth Grade Proficiency Test while 65.5% of the control group earned a passing mark on the test.

The results showed that 44.8% of the experimental group failed to pass the mathematics section of the Ohio Ninth Grade Proficiency Test, while 34.5% of the control group failed to pass this section of the test. (See Table 4, page 45)

Therefore, the control group performed better than the experimental group on the mathematics section of the Ohio Ninth Grade Proficiency Test.

Table 4RESULTS OF THE MATHEMATICS SUBTEST OF
THE OHIO NINTH GRADE PROFICIENCY TEST

	<u>PASSING</u>		<u>FAILING</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Experimental Group	32	55.2	26	44.8
Control	38	65.5	20	34.5

Hypothesis IV states: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not show a rate of performance on the citizenship section of the Ohio Ninth Grade Proficiency Test that was better than the control group of students taught in the traditional classroom

To test this hypothesis, a chi-square was prepared. The results showed that 72.4% of the experimental group passed the citizenship section of the Ohio Ninth Grade Proficiency Test while 84.5% of the control group earned a passing mark on the test.

The results showed that 27.6% of the experimental group failed to pass the citizenship section of the Ohio Ninth Grade Proficiency Test, while 15.5% of the control group failed to pass this section of the test. (See Table 5, page 49)

Therefore, the control group performed better than the experimental group on the citizenship section of the Ohio Ninth Grade Proficiency Test.

Table 5RESULTS OF THE CITIZENSHIP SUBTEST OF
THE OHIO NINTH GRADE PROFICIENCY TEST

	<u>PASSING</u>		<u>FAILING</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Experimental Group	42	72.4	16	27.6
Control	49	84.5	9	15.5

Hypothesis V states: Eighth grade students who were taught using the interdisciplinary teaming method of instruction will not have an attendance rate that was better than the control group of students taught in the traditional classroom.

To test this hypothesis, a t-test was run at the alpha level of .05. The results showed that the t-test value was 1.251 and the probability of this occurring by chance was $P = 0.213$. Therefore, there was no significant difference in the attendance rate of the two groups. (See Table 6, page 51.)

Overall, the results showed that 28 members of the experimental group passed all four parts of the test, 13 passed three parts of the test, 7 passed two parts of the tests, 6 members passed one part of the test, and 6 did not pass either part of the test.

The results showed that 32 members of the control group passed all four parts of the test, 10 passed three parts of the test, 10 passed two parts of the tests, 1 passed one part of the test, and 5 did not pass either part of the test. (See Table 7, page 52.)

Table 6.RESULTS OF COMPARISON OF EIGHTH GRADE
ATTENDANCETest: Two-Sample Assuming Equal Variance

Degrees of freedom	116
t	1.251
P two-tail	0.213

Table 7.

RESULTS OF OHIO NINTH GRADE PROFICIENCY TEST

	<u>Experimental</u> <u>Group</u>	<u>Control</u> <u>Group</u>
Passed 4 subtests	28	32
Passed 3 subtests	13	10
Passed 2 subtests	7	10
Passed 1 subtest	6	1
Passed 0 subtests	6	5

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS

This chapter is presented in four sections: a summary of the study, findings and conclusions, implications, and recommendations.

Summary of Study

This study investigated the impact of an interdisciplinary teaching team organization on a group of eighth grade students' results on the Ohio Ninth Grade Proficiency Test in comparison to a group of eighth grade students taught in a traditional departmentalized classroom. The interdisciplinary team was composed of four, eighth grade teachers and fifty-eight students. The subjects taught were language arts, mathematics, science, and social studies. The team shared a common block of four periods. Within this block of time, teachers arranged classes as was appropriate for what they were teaching. For example, if a teacher needed an hour rather than forty minutes for a class, the schedule was arranged accordingly.

Teachers also shared a common planning time in which they could plan interdisciplinary units. In contrast, the traditional teachers taught within a set forty-minute period each day.

Findings and Conclusions

This study showed differences between the experimental group and the control group in their performances on the Ohio Ninth Grade Proficiency Test. These results contrast with the Gates (1994) study which compared the same two groups as seventh graders, but showed that the experimental group showed greater achievement on the Ohio Practice Proficiency Test than did the control group. The difference in these results could perhaps be explained by two factors. Since as seventh graders the interdisciplinary team was new, the Hawthorne Effect could have occurred due to the novelty of the program. A second factor might have been the assistance of an aide which the experimental group had the first year. This would have given teachers more

planning time and more time for the aide to work with the individual students.

Another finding that contrasts with the Gates study is the rate of attendance. This study showed that the control group had fewer absences than the experimental group. This was true even though one student in the control group was absent from school 119 days. This figure is noted not only to demonstrate the contrast with the Gates study which showed the experimental group had a better rate of attendance, but also to demonstrate that the groups were truly a random sample. Obviously, a student with 119 days of absence would not be deliberately included in a study that includes the rate of attendance. Again, the difference with the Gates' study can perhaps be explained by the Hawthorne Effect. The students feeling they were a part of a special group came to school more often.

Implications

When students fail the Ohio Ninth Grade Proficiency Test, it has implications not only for

students who must pass the test to graduate, but it also impacts on administrators, department heads, teachers, parents, and the community at large.

Those students who fail the tests must be tutored until they pass all four subtests of the Ohio Ninth Grade Proficiency Test. Although counselors and teachers try to convey the results discreetly to the students, the students encounter a blow to their self-esteem.

Principals, department heads, and teachers must then intervene, a term the Ohio Department of Education has chosen to designate the tutoring process involved in trying to help students pass the test. In the Sidney City Schools district, this has been done in a number of ways that impact on time and finances for the district. First administrators must find available teachers and additional materials to assist with the intervention with these students. Often this is accomplished through the department heads of the three subjects involved: English, Mathematics, and Social

Studies. Once those students who have failed are identified, the department head must check with teachers in their respective departments to see if they have any of these students in class. If not, as sometimes happens when students are taking semester courses in English and Social Studies, the department heads must locate students in study hall and try to arrange for a teacher during his or her planning period to meet with these students. If the teacher is working with a reluctant student, this is not always effective since the student may or may not cooperate with the teacher.

To intervene with a larger number of students, administrators have scheduled remedial sessions during summer school. This has often been a gesture to demonstrate to parents and the public that the school is making an effort to assist those students who have failed one or more of the subtests as part of the Ohio Ninth Grade Proficiency Test. Despite the school's

efforts, usually only a few students attended these summer school sessions.

Another attempt at intervention is to offer a course as part of the regular academic curriculum. For example, next year Sidney High School will offer a mathematics course for all of these students who have not passed the mathematics section of the proficiency test. All of the seniors, juniors, and sophomores who have not passed the test will be required to take this course. If a student passes the test when he/she takes it in October, he/she will be given an A and allowed to leave the course. This will make room for another student who on the second or third try has not passed the test.

Besides the demands of time on the staff and administration, intervention requires purchasing a number of new materials to help those students who need intervention. The Ohio Department of Education has produced several publications, such as *Ohio Department of Education Intervention Module for the Ninth Grade*

Proficiency Test and A Resource Manual for Teachers of Writing. Sources published commercially include: *Buckle Down on Ohio Mathematics*, published by Profiles Corporation, *Passing the Ohio Proficiency Test*, published by the Ohio Proficiency Test Review, Inc., and *Proficiency Through Writing*, published by Breen Reardon. These resources also illustrate the impact that intervention has also had on the publishing field.

The impact on parents and the community has been demonstrated by several letters to the editor of the *Sidney Daily News*. One parent wrote a lengthy letter criticizing the school for not allowing her daughter who failed one section Ohio Ninth Grade Proficiency Test to participate in commencement ceremonies (Kovalaski, 1995, p. 6). Two other citizens were also critical of this action. Passing the proficiency test then becomes a public relations problem. In light of the negative public response, the following recommendations are made.

Recommendations

Serious considerations should be given to the following.

- The eighth grade teachers who teach one of the four subjects tested on the Ohio Ninth Grade Proficiency Test should find ways to assist students before they take the test. Although eighth grade teachers do try to prepare all of the students, it would be helpful if they identified those students who scored low in reading and mathematics on the Comprehensive Test of Basic Skills and give them additional help. This could be effectively done within the interdisciplinary teaching team, which has a greater block of time with the students.
- Near the time that the test is administered, each subject teacher should arrange some additional preparation time with students who have tested low on the Comprehensive Test of Basic Skills mathematics and reading subtests.

- The interdisciplinary teamed teachers should arrange their four-period block of time into blocks of one hour in which each teacher should take a turn intervening with those students who need additional help.
- Finally, in regards to attendance, teachers who are teacher/counselor to a specific group of students within the interdisciplinary teaching team should work with individual students who are frequently absent. Since these teachers are also supposed to work with the parents of the students within their group, the teacher/counselor should also communicate with the parent about the student's absence from school. The team is designed to help individual students, and attendance is an area where this might effectively be done.

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