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**MIDDLE LEVEL SUMMER SCHOOL EFFECTIVENESS AS MEASURED BY
STUDENT GAINS IN ACHIEVEMENT AND ATTITUDE**

by

Melanie Janine Mueller

A DISSERTATION

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Doctor of Education

Major: Educational Administration

Under the Supervision of Dr. Martha Bruckner

Omaha, Nebraska

December, 2000

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DISSERTATION TITLE

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BY

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Abstract

MIDDLE LEVEL SUMMER SCHOOL EFFECTIVENESS AS MEASURED BY STUDENT GAINS IN ACHIEVEMENT AND ATTITUDE

Melanie Janine Mueller, Ed. D., Educational Administration

University of Nebraska, 2000.

Advisor: Dr. Martha Bruckner

The purpose of this study was to determine to what extent, if any, an effective middle level summer school program, using Edmonds' (1979) five effective schools characteristics (e.g., educational leadership, emphasis on basic skills, high expectations, safe climate, frequent monitoring of student progress) enhanced students' academic achievement and change in attitude.

This quantitative study used Stufflebeam's (1971) CIPP (Context, Input, Process, Product) evaluation model. The population included students, parents, and teachers associated with one suburban school district's, 5-week, middle level, summer school program. Teacher-made tests were used to measure English and mathematics achievement. Sandman's (1979) Mathematics Attitude Inventory and the researcher's English Attitude Inventory were used to measure change in students' attitudes. Baldwin's et al. (1993) School Effectiveness Questionnaires were administered the last week of summer school to all three populations to measure perceptions of summer school effectiveness. Finally, the parametric analyses included descriptive statistics, multiple regressions, analyses of variance, and dependent t-tests.

The results of this study were five-fold: (1) students' perceptions regarding the extent that Edmonds' four effective schools characteristics existed within a middle level summer school program did not predict students'

achievement or change in attitude in mathematics or English; (2) parents' perceptions regarding the extent that Edmonds' five effective schools characteristics existed within a middle level summer school program did predict students' achievement in mathematics but did not predict students' English achievement or change in attitude in mathematics or English; (3) a 5-week summer school program did not result in statistically significant differences in a change in students' attitudes toward mathematics or English; (4) a 5-week summer school program did result in statistically significant differences in students' achievement in mathematics and English; and (5) regardless of students' gender, grade level, socioeconomic status, or location, the changes that were observed in students' mathematics and English achievement were statistically significant. The information gained from this study was useful to management and staff making program improvements.

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Special acknowledgement and indebtedness are due to the summer school lead teachers: Pat Allison, Gary Anderson, Tammy Daugherty, and Martye Graham and to the computer technicians: Lisa Alfrey, Pam Krambeck, Kimberly Kinen, John Willoz, and Beth Winans.

Finally, a very heartfelt thanks goes out to my husband, John, my parents and family, and his parents and family for their willingness to listen to the author vent on occasion. And thanks to Nancy Edick, Kathy Peterson, and Lisa Sterba for their belief in my abilities. In one way or another, those three in particular, have made this journey worth every minute.

Dedication

This dissertation is dedicated to my husband, John Alan Mueller. To the one who said, "I really do care". This timely comment was offered prior to my proposal meeting, sent along with a dozen roses, to wish me luck. He will now know how much that gesture and his support over the last three years have meant to me. Thanks John, for all your love, support, humor, and for your willingness to play the game.

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CHAPTER 1

Introduction

Although summer school programs have been in existence since the turn of the century, such programs have generally not been thoroughly evaluated. The evidence thus far on summer school programs is not conclusive. The latest trend in schools is to require students to attend a summer school program if they do not pass their course work during the regular school year. Some schools have even required students to repeat the previous grade if they do not pass summer school. Research has yet to support whether the combined efforts of summer school and then retention upon failing summer school are positive in terms of their effect on eventual student achievement and student attitude in meeting academic requirements. However, preliminary studies of mandatory summer school programs operating in Illinois, Minnesota, Colorado, Massachusetts, and Louisiana report student academic gains of two to six months from successful completion of a summer program (Chmelynski, 1998; Hendrie, 1997).

This potential connection between summer school and retention is interesting because much of the research prior to 1990 is very critical of retention policies in schools (e.g., House, 1989; Shepard & Smith, 1989). A review of retention literature finds little or no support for retention of students by grade level as an effective tool in helping low achievers reach expected achievement levels (i.e., to their grade level equivalent) as measured by nationally normed tests. A meta-analysis done by Holmes and Matthews (1984) reported cumulative research evidence showing the potential for negative effects outweighing the positive outcomes of retention. As a result,

some administrators are looking into the effective implementation of a summer school program in lieu of retention (Aidman, 1997/1998).

Edmonds (1979) distinguished five characteristics of effective schools: educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress. He posited that these five characteristics existed in effective schools. However, these effective school characteristics have not been researched comprehensively in any summer school program. Unfortunately, much of the information available on summer school exists only in the form of program format, guidelines for implementation, and recommendations. Very little empirical evidence is available.

Although Edmonds' (1981) research on effective schools examined educating the urban poor in a traditional school year, his landmark study contained recommendations for research methods applicable to a summer school setting. For example, he suggested that the effectiveness of a school could be measured by comparing students' mathematics and reading scores on standardized achievement tests to the city average grade level equivalent in mathematics and reading. Edmonds believed that if "the proportion of poor children achieving minimum mastery approximated [sic] the proportion of middle-class children achieving minimum mastery" (p. 59), an effective school had been identified. In addition, he opposed deriving successful academic performance from family background, because it would then be difficult to hold teachers accountable for effective instruction of basic skills.

Furthermore, Edmonds (1979) suggested that future effective schools studies should consider stratification designs and employ longitudinal files of

student achievement. This is necessary, he says, in order to “disentangle the separate effects of pupil background and school social class makeup on pupil achievement” (p. 22). Although Edmonds was criticized for “using norm-referenced test scores as measures of what were really grade level curriculum goals” (Marshall, 1996, p. 308), the model is useful in developing an effective schools research design in a summer school setting. All in all, Edmonds’ five effective schools characteristics parallel the objectives of many summer school programs. More specifically, the main objective of many summer school programs is to make sure that students have the basic skills necessary to be successful the following year.

Such programs are becoming more prevalent and popular. In fact, President Clinton in his 1998 State of the Union Address, stated that schools should make summer school mandatory, suggesting that social promotion should become a thing of the past. If this is to be, administrators and board members will need information assessing a summer school’s effectiveness. Summer school is not a low-cost endeavor, but the alternatives to summer school, such as grade retention, are even more costly when considering per-pupil expenditures over another year’s time. As a result, an investigation gauging the existence of effective schools characteristics and examining the association of effective schools characteristics to summer school students’ cognitive and non-cognitive gains should provide information to aid management and staff in determining a summer school program’s necessary and useful characteristics.

Theoretical Frameworks

This study was based on two main theories: school effectiveness theory

and program evaluation theory. School effectiveness theory was used as a measurement tool to identify and interpret a variety of summer school characteristics related to effectiveness. Program evaluation theory served as the framework for accountability. More specifically, Stufflebeam's (1971) CIPP (Context, Input, Process, and Product) evaluation model was used to make educated decisions about whether implementing and promoting the effective schools characteristics identified, improved the overall effectiveness of the summer school program. Overall effectiveness was measured using both descriptive perception data and outcome data related to perception data. Perceptions of parents, students, and teachers were measured to determine to what extent, if any, Edmonds' (1979) five effective schools characteristics existed. Once Edmonds' characteristics were accounted for using perception data, whether students' outcomes in achievement and attitude would be predicted by the levels of each effectiveness characteristic was yet to be seen.

School Effectiveness Theory

School effectiveness theory can be traced back to the 1966 study by Coleman et al. in the Equity of Educational Opportunity report and a reanalysis of Coleman's study done by Jencks et al. (1972). These two landmark studies supported the notion that schools do very little to positively affect students' achievement. In an attempt to discredit the findings of Coleman and Jencks, Edmonds (1979) conducted pioneering research to identify effective schools characteristics common to schools with high academic achievement. Edmonds' work was the foundation for extensive effective schools research to follow (e.g., Clark, Lotto & Astuto, 1984; Odden, 1991; Ralph & Fennessey, 1983).

Edmonds eloquently described his original model of five characteristics of effective schools:

1. They have strong administrative leadership without which the disparate elements of good schooling can neither be brought together nor kept together.
2. Schools that are instructionally effective for poor children have a climate of expectation in which no children are permitted to fall below minimum but efficacious levels of achievement.
3. The school's atmosphere is orderly without being rigid, quiet without being oppressive, and generally conducive to the instructional business at hand.
4. Effective schools get that way partly by making it clear that pupil acquisition of the basic skills takes precedence over all other school activities.
5. There must be some means by which pupil progress can be frequently monitored. (p. 22)

Although there are numerous effective schools characteristics, Edmonds' five effective schools characteristics appear to align very well with characteristics that commonly define a summer school setting. Therefore, three School Effectiveness Questionnaires developed by Baldwin, Coney, Fardig, and Thomas (1993) were purchased by the researcher to assess perceptions of effectiveness among the three populations involved in the summer school program (see Appendix A).

Baldwin's et al. (1993) School Effectiveness Questionnaires measure up to 11 effective schools characteristics and Edmonds' (1979) original five

effective schools characteristics are included in those 11 characteristics. A previous attempt to modify an effective schools questionnaire developed by the Austin Independent School District, Texas Office of Research and Evaluation (1981) specifically designed with Edmonds' effective schools characteristics was less than successful. The unsuccessful attempt to modify the Austin instrument was related to having only two of Edmonds' five effective schools characteristics measuring higher than .7 on pilot data using Cronbach's coefficient alpha. This outcome suggested that the modifications made to the Austin instrument were not accurately measuring all five effective schools characteristics to a reliable degree. Furthermore, the lack of norm-referenced comparison data restricted the usefulness of the Austin instrument. As a result, Baldwin's et al. School Effectiveness Questionnaires were used because of the very high coefficient alpha reliabilities associated with every characteristic in Edmonds' original model of effective schools.

Parents' and teachers' perceptions of Edmonds' (1979) five effective school characteristics and students' perceptions of four of Edmonds' five effective schools characteristics provided a framework useful in determining to what extent, if any, a middle level summer school program exhibited effectiveness characteristics. Baldwin et al. (1993) did not include educational leadership on the Effective Schools Questionnaire for Students, as they believed that students would not have enough information to provide a meaningful response. As such, students' perceptions involve four, not all five of Edmonds' effective schools characteristics when predicting student achievement.

The populations' perceptions of effectiveness were useful in assessing

the existence of the effective schools characteristics and in completing the program evaluation. However, the presumption of this study was that a more complete analysis of a summer school program's effectiveness could be executed by measuring students' academic achievement and change in attitude and then relating the results to students' and parents' perceptions about the level at which each of Edmonds' effective schools characteristics existed. Teachers' perceptions were not related to students' achievement or change in attitude because there were only four teachers included in this study.

The independent variables were comprised of individual mean scores for each of Edmonds' effective schools characteristics as separately perceived by parents (5 variables) and students (four variables). The four dependent variables, student academic achievement (mathematics and English) and attitudinal change (mathematics and English) were related to students' and parents' perceptions of effective schools characteristics separately.

Student academic achievement and attitudinal change in mathematics and English were the four dependent variables in the study. Students' academic achievement in mathematics and English was measured using teacher made pre- and post-tests. Mathematics and English achievement were selected as dependent variables because studies suggest that "most effectiveness studies have used achievement test data on a limited set of subjects (language and mathematics)" (Scheerens, 1991, p. 391). Student attitudinal change was measured using two measurement tools. Student attitudinal change in mathematics was measured using the Mathematics Attitude Inventory (see Appendix B) developed by Sandman (1979). Student

attitudinal change in English was measured using an English Attitude Inventory (see Appendix C) developed by the researcher. The English Attitude Inventory was field tested by the researcher for validity and reliability during a 1999 pilot study. Student attitudinal change was included as a dependent variable based on Knuver and Brandsma's (1993) report that attitudes should be viewed as by-products of academic achievement. Finally, the mediating variables of gender, grade level, socioeconomic status, and location were examined to monitor for any inconsistencies in sub-populations' achievement and change in attitude.

Program Evaluation Theory

Just as effective schools theory is useful in identifying the characteristics associated with effective schools, program evaluation theory is useful in identifying a systematic framework for assessing implementation of the effective schools characteristics. Horace Mann is credited with the development of educational evaluation dating back to the the mid-1840s, measuring student achievement in an attempt to assess the quality of a school. In this century, the Elementary and Secondary Education Act of 1965 was responsible for the increased popularity in the use of program evaluation. For the first time, educators were required by Congress to file evaluation reports after receiving federal grants for developing programs and making program improvements. This requirement was an attempt to insure that an educational program was necessary, useful, and cost effective (Worthen, Sanders, & Fitzpatrick, 1997). Most recently, program evaluation has evolved into a process useful in studying the immediate effects of a program on participants' knowledge, attitude, and behavior (Muraskin, 1998). Today, traditional

program evaluation is being revolutionized to be more user-friendly, applying simple principles used in business management (Sylvia, Sylvia, & Gunn, 1997). Although almost 30 years old, Stufflebeam's (1971) CIPP Model creates a useful guide that is not only user friendly but also useful in reporting immediate effects. Stufflebeam's CIPP Model creates the following frame of reference:

- Context:** identifying the target population, assessing their needs, and setting objectives;
- Input:** identifying and implementing the improvement strategies;
- Process:** judging and describing the strengths and weaknesses of implementation;
- Product:** measuring intended and unintended effects (Stufflebeam & Shrinkfield, 1985).

Stufflebeam's (1971) CIPP Model provides an excellent design in that all areas that appear pertinent to a summer school program's success can be evaluated. Finally, the rationale for using the management-oriented evaluation approach rests in the fact that "the decision maker is always the audience to whom a management-oriented evaluation is directed, and the decision maker's concerns, informational needs, and criteria for effectiveness guide the direction of the study" (Worthen et al., 1997, p. 97). This study reports findings from one suburban school district's middle level summer school program operating at two sites. The results provide management and staff with information useful for making program improvements. With that information, management and staff may be better able to make educated

decisions about future program implementation when considering effective schools characteristics.

Research Questions

The following research questions were addressed:

1. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in mathematics?
2. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in English?
3. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in summer school students' attitudes toward mathematics?
4. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in summer school students' attitudes toward English?
5. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in mathematics?
6. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in English?
7. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward mathematics?

8. **What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward English?**
9. **Is there a significant difference between students' attitudes regarding mathematics before and after completing a middle level summer school experience?**
10. **Is there a significant difference between students' attitudes regarding English before and after completing a middle level summer school experience?**
11. **Is there a significant difference between students' mathematics achievement before and after completing a middle level summer school experience?**
12. **Is there a significant difference between students' English achievement before and after completing a middle level summer school experience?**
13. **Is there a significant difference in achievement in mathematics of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?**
14. **Is there a significant difference in achievement in English of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?**
15. **Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding mathematics before and after completing a middle level**

summer school experience?

16. Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding English before and after completing a middle level summer school experience?

Definition of Terms

The following terms were used consistently throughout the study:

Achievement is defined as positive change in pre- and post-test assessments related to curriculum specific tests rather than standardized achievement tests over the duration of 5-weeks.

Educational Leader is a school leader actively involved in implementing, developing and monitoring educational objectives, and who does more than administrative tasks (Scheerens, 1991).

Effective Schools Research is an approach to examining successful programs in order to explain effectiveness. In regard to producing high student achievement, it specifically relates to goal attainment in the immediate output variable of student achievement in reference to the educational goals in mathematics, English, and non-cognitive areas (Creemers & Scheerens, 1994; Mortimore, Sammons, Lewis, & Ecob, 1988).

Middle Level Students refers to seventh and eighth grade students only.

Non-Cognitive Gain is defined as attendance, good or bad behaviors at school, and attitude improvement (Mortimore, 1988).

School Effectiveness Questionnaires are three measurement tools developed by Baldwin et al. (1993) that quantitatively measure three populations' (students, teachers, and parents) perceptions of up to 11 effective

schools characteristics. Educational leadership is not included on the School Effectiveness Questionnaire for Students so students' and parents' perceptions regarding Edmonds' (1979) effective schools characteristics will fluctuate between four characteristics for students and five characteristics for parents throughout this study.

Stufflebeam (1971) CIPP Model is an evaluation framework. The acronym stands for Context, Input, Process, and Product. This evaluation framework is commonly used by administrators to help them make decisions in planning, structuring, implementing, and evaluating.

Summer School refers to a 5-week remedial program, offering mathematics and English to seventh and eighth grade students.

Limitations

The major technical design limitations of this study were that the research of the summer school program (a) focused on only five of the unlimited effective schools characteristics, (b) used a survey to define non-cognitive gains, (c) used only the subjects of mathematics and English as representative of academic achievement over the 5-week summer school session, and (d) the researcher was also the administrator of the middle level summer school program being researched.

Delimitations

The boundaries of the study include (a) the use of Edmonds' (1979) five characteristics to define effective schools, (b) the outcome variables of student attitude change and academic achievement in both mathematics and English, (c) the use of middle level seventh and eighth grade students, and (d) the 5-week duration of the summer school program.

Assumptions

This study was conducted under four assumptions:

1. that the summer school program would exhibit many, if not all, of Edmonds' (1979) effective schools characteristics (e.g., educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress);
2. that the perceptions of students, teachers, and parents regarding the extent that Edmonds' effective schools characteristics existed in their summer school program would be useful to management and staff in supporting program improvements;
3. that the three populations would accurately respond to the effective schools questionnaires;
4. that students would participate in a manner that would allow any change in attitude and academic achievement to be measurable.

Significance of the Study

Although summer school programs have been in existence for over a century, little empirical evidence can be found accurately measuring a summer school program's impact on student achievement at the middle level. With summer school programs making a resurgence across the country, the results of this study have implications for educational practice. Specifically, in a time when student achievement is of paramount concern, the information gained from this study may improve practice by contributing to the decisions that school board members and central office administration will have to make in regard to the implementation or continuation of summer school programs

and/or program improvements. At the building level, these research findings could be used by administrators and teachers to implement and develop more effective middle level summer school programs. Furthermore, this study has implications for research in that it contributes to our knowledge of summer schools and to the range of effective schools research.

Organization of the Study

A review of selected literature is presented in Chapter Two. The review of literature provides a history of summer school, retention research, effective schools research, and research in regard to academic loss over a summer. Chapter Three addresses methodology and reports the population, the description of the measurement tools, the collection of data and analysis procedures, and further rationale for using Stufflebeam's (1971) CIPP evaluation model as the study's design. Chapter Four presents the specific research findings for each of the 16 research questions posed in this study. Chapter Five provides an analysis of the results presented in Chapter Four, as well as the implications and limitations of this study. Finally, ideas for further research of summer school programs are presented.

CHAPTER 2

Review of Selected Literature and Research

There are three bodies of literature relevant to this study of summer school effectiveness: (1) the literature relevant to summer schools, (2) the literature relevant to grade retention, and (3) the effective schools research literature. The salient points from each of the three literature bases have been organized into four sections. First, the history of summer school programs from 1866 to the present is reviewed. Second, the research on grade retention as an alternative to summer school is discussed. Third, effective schools research is reviewed in general. Finally, effective schools research applied to summer school is discussed. In conclusion, these four sections are synthesized to demonstrate the need for a study focusing on summer school effectiveness and how such a study fits into the framework of summer school research.

Historical Background

Turn of the Century Summer School Systems

The very first known summer school program was established in 1866 by the First Church in Boston. This “vacation school” was established to remove children “from undesirable influences to which they would otherwise be exposed” (Odell, 1930, p. 10). At that time, the term “school” was used very loosely, given the non-essential school subjects offered and the fact there was no attempt at making the students do any work even closely resembling the work done in a regular school year. In part, this was because the programs were run by social and charitable organizations. “Summer work”, as it was referred to, became affiliated with the public school system in New York in

1897, and in Providence and Chicago in 1900. By the early 1900s, the arrangement of various summer work programs had moved from a recreational setting to an academic setting quite similar to the regular school year. However, the course offerings remained very limited and much of the work was remedial.

1900s Research Findings

Research done in the early 1900s focused mainly on the structure of the summer school program with little attention to summer school student achievement. In addition, much of the data was collected by open-ended surveys rather than experimentally. Reports focused on the number of schools housing summer work programs and summarized how summer work programs were organized. Initial summer school research was far more descriptive than analytical or evaluative.

It was common to find summer work programs that allowed students to take two classes for 6 weeks at 3 to 4 hours per day (Bush, 1924; Deffenbaugh, 1917). However, summer work programs were not extremely popular. To illustrate, Jones (1925) stated that about one-eighth of the regular population attended Indiana summer schools and less than one-fourth of those students took summer school for remedial purposes. Although a 254% increase was reported in the summer school enrollment over a 5 year period, the increase in summer school enrollment primarily reflected the increase in student population. Finally, summer tuition was charged in an average of 54% of the schools and ranged from 5 to 30 dollars per subject. Teacher and principal salaries ranged from 5 to 6 dollars and 9 to 10 dollars, respectively (Hoffman, 1925). These figures illustrate the descriptive statistics commonly

reported during that period of time.

The earliest research on summer school academic achievement, although limited, was rather mixed in terms of reporting academic gain. It was evident that summer school was stigmatized as a gathering for educational laggards. For example, Reals (1928) reported that in a group of 400 pupils, "22% failed in enough work to be definitely retarded" (originally cited in Odell, 1930, p. 38). This stigma was also very apparent in comparisons between the summer school students and the regular students. However, reports are inconsistent. To illustrate, two studies are worth noting. Jones (1925) reported that 15% of the summer school population failed while only 10% of the previous semester's population had failed. Unfortunately, the report gave no indication as to what population this failure percentage represented. If it was representative of the one-fourth population taking summer school for remedial work, then the percent of students failing was larger during the summer school session. Moreover, Reals (1928) compared achievement tests with intelligence tests of 1,500 New York City summer school participants. The results indicated that "the summer-school pupils were decidedly lower in intelligence than those of the regular year. Despite this fact, however, the achievement test results were slightly better for the summer-school pupils than for the others" (originally cited in Odell, 1930, p. 37). In the following year, Reals reported that the regular year pupils did better in only 5 of the 13 comparisons. The other eight comparisons produced results that were not statistically significant.

In summary, although there appeared to be a need to show that summer school students were somehow academically inadequate, the

discrepancy in reports makes such a notion invalid. Regardless, summer schools continued to spread rapidly throughout the United States.

1960s and 1970s Summer School Research

Curriculum Objectives

There is a major gap in research information reported on summer schools from the late 1930s to the late 1950s. However, by 1960, research on summer schools became more common. In addition to continuing the 1920s practice of reporting the structural elements of summer schools, summer school research reports began to include data on curriculum and enrichment offerings at the elementary, junior high, and secondary levels. To illustrate, results of a California elementary school administrator survey ranked these five curriculum objectives in order of importance: basic skill remediation, enrichment in academic areas, enrichment in nonacademic areas, experience offerings, and social development opportunities (CESAA, 1960). Furthermore, a 1967 New York City evaluation of summer school at the intermediate grade listed its goals as to “produce changes in a positive direction in academic achievement, attitudes toward school, and educational and vocational aspirations” (Fox & Weinberg, p. 3). Finally, Kirby (1958) reported the following purposes of a summer school curriculum at the high school level: acceleration of the academic program, remedial work due to past failure, an alternative to remaining idle during the summer months, curriculum enrichment through course offerings not available during the regular school year, and as a relief from overcrowding. Although summer school curriculum objectives were being developed at all levels of schooling, little if any research was done to associate the instructional offerings with students’ outcomes.

Experimental Research

Because of segregation issues, research on summer school and school in general in the 1960s became more concerned with inequalities existing in achievement and school effectiveness. In fact, early studies of “school effects” found that improving the schools contributed little to the prediction of individual achievement that was unrelated to family background (Coleman et al., 1966). Coleman’s cross-sectional study was not a description of intervention such as summer school. He did conclude, however, that home environment and neighborhood were such dominant forces that the quality of the school had little impact on improving students’ basic skill achievement levels. Coleman’s cross-sectional report using aggregated data does not deal directly with summer school. But it is related because the authors emphasized that “efforts solely to increase equality of educational opportunity are not likely to go far toward the attainment of equality of educational achievement” (originally cited in Yinger, Ikeda, Laycock, & Cutler, 1977, p. 17).

Jencks’ et al. (1972) follow-up study strengthened the belief that schools had little effect on student achievement by reporting that only one-third of the variance was statistically significant in those areas directly related to school effects. Although more than two-thirds of the variance in Jencks’ et al. research on school effects was unaccounted for, the researchers proceeded to treat this evidence that school effects were negligible. Jencks’ et al. research implied that family background was so strong that student achievement levels would not be significantly affected by increasing one’s educational opportunity whether it be summer school, retention, or other interventions. Interestingly, Edmonds (1979) believed that it was this social science notion that needed to

be repudiated before public schooling could successfully be reformed.

Although Coleman et al. (1966) and Jencks' et al. (1972) studies set the tone for school effects research, the studies were flawed. For example, no effort was made to track the schools and/or students involved in the Coleman et al. study, making it impossible to further analyze the magnitude of the effective schools characteristics reported. As a result, comparisons can only be made for effects on current educational inequalities. More importantly, 30% of the schools selected for the Coleman et al. study did not participate. With a rather high non-response rate, the true differences that existed in school populations could have been vastly underestimated. The Jencks' et al. follow-up study was more concerned with the change in the school population, particularly racial composition, rather than with the multiple variables that affected student achievement. Jencks' et al. focus on racial composition is very important to note because, as Edmonds (1979) stated, "the prime factors that condition a school's instructional effectiveness appear to be principally economic and social, rather than racial" (p. 21).

The numerous shortcomings associated with school effects research were strengthened by the lack of experimental research reports. Sewell (1967) summed up the salient criticism in regard to researching school effects.

Actually, the effects of schools and of other variables should be determined at least by longitudinal studies and at best by well-designed experiments in which students are assigned to schools at random or, if this is not possible - as it probably is not - there should be prior careful assessments of ability, family background, and other potentially confounding variables so that their effect can be controlled or appraised

statistically. (p. 478)

In truth, some longitudinal work was undertaken. A good example was the Middle Start - Special Opportunity Program, a longitudinal experiment covering 7 years. This program researched the academic achievement levels of seventh graders in an intensive summer school program. Yinger et al.

(1977) reported that their Special Opportunity Program with the

provisions of expanded opportunities, the enlargement of the range of cultural experience, the encouragement of skill and the heightening of aspiration, all in a context that promotes continuity of the initial experience, can significantly affect educational outcomes....A brief but energetic program early in secondary school can make an essential contribution. (p. 101)

It is important to point out that Middle Start was not the average summer school program. It was, in fact, an intensive summer school program, taking students off to camp for the entire summer. Obviously, the significant gains reported by Yinger et al. (1977) would be related to the control of family background, if only for one summer. As a result, such a study would be very difficult to replicate.

In summary, the influence of Coleman et al. (1966) and Jencks' et al. (1972) studies posed a challenge for future research on school effects by implying that schools had little or no lasting impact on the academic achievement of students. Each study did illustrate the importance of controlling for family background and socioeconomic status. However, because of additional research shortcomings, neither study limits the possibilities for future research on school effects as related to summer school

programs.

Grade Retention Research

Retention Practices

The practice of retention is resurfacing as a follow-up strategy for students who do not pass summer school. This link between retention and summer school failure is interesting because of the lack of convincing proof that such a practice is effective. To illustrate, Shepard and Smith (1989) cited the following findings from research on retention:

- (i) **Grade retention does not ensure significant gains in achievement for children who are academically below grade level;**
- (ii) **The threat of non-promotion is not a motivating force for students;**
- (iii) **Grade retention does not generally improve achievement or adjustment for developmentally immature students;**
- (iv) **Economically, grade retention is a poor use of the education dollar, because it increases the cost of education (the retained child spends an additional year in the public school system) without any benefits for the vast majority of retained children;**
- (v) **Characteristics such as low socioeconomic status and poor classroom conduct affect the likelihood that a child will be retained. (p. 109)**

Furthermore, House (1989) posited that an attitude favoring the retention of students existed based on “a protective ideological shield” (p. 210) that teachers and administrators put up in order to protect themselves from getting at the root of the problem. In fact, he goes as far to say

In this case. . . the evidence is extensive and unequivocal. It includes

test scores, teacher ratings, parent ratings, interviews, surveys, personality and emotional adjustment measures, case studies --- everything from elaborate statistical analysis to asking students how they feel. Almost everything points in the same direction ---retention is an extremely harmful practice. (p. 210)

Many students, absent the opportunity to attend summer school, may have been prime candidates for retention. However, by associating these research findings with the new trend of retaining summer school students who fail, the practice of retaining students upon failing summer school would appear to be very inappropriate; in fact, it would appear costly and ineffective. Furthermore, House (1989) offers no empirical evidence to support an alternative strategy to use to get at the "root of the problem". Would it not be reasonable to hold students accountable by requiring additional time on task, through retention or summer school?

These questions are not easily answered within the context of the often flawed and inconclusive retention research that exists. For example, Jackson (1975) concluded that

there is no reliable body of evidence to indicate that grade retention is more beneficial than grade promotion for students with serious academic or adjustment difficulties. This conclusion should not be interpreted to mean that promotion is better than retention but, rather, that the accumulated research evidence is so poor that valid inferences cannot be drawn. (p.627)

Interestingly, Karweit's (1992) more recent review of literature on retention reported similar conclusions, almost 20 years later!

Alexander, Entwisle, and Dauber (1994) provided several limitations for past research shortcomings and why past research models might be suspect. To begin with, they found that many studies did not research student pre-retention status, such as lower effort levels and lower feelings of competence prior to being retained. This in turn, made it difficult to compare how retention had affected students. In addition, many studies did not follow a comparison group of non-retained students. As a result, later behavior of members of the retained and non-retained groups may be similar and have little to do with whether they had been retained or not.

Furthermore, Alexander et al. (1994) suggest that trying to isolate the effects of retention is difficult and results can vary depending on whether the comparison group was by same grade or by same age comparisons.

Sameage [sic] comparisons may tilt results against retention because the agemates [sic] are at different grade levels, so the promoted group will have been exposed to more of the elementary school curriculum. Samegrade [sic] comparisons may tilt results in favor of retention because the retained youngsters have advantages: being older than their grademates [sic], having gone through the curriculum twice, receiving special remedial efforts, and perhaps being test-wise if the same evaluation instrument is used repeatedly. (p. 16)

Finally, researchers cannot ethically create the ultimate retention study by randomly promoting and not promoting students for comparison purposes. All in all, many of the half century old, often unpublished research findings are suspect as a result of the demographic changes that have occurred over that period of time.

Administrative Considerations

What are the implications for future administrators in regard to retention practices in conjunction with summer school failure? To begin with, results of an 8 year study in Baltimore City Public Schools, the Beginning School Study (BSS), found positive results in its retention practices. The experience of the BSS students contradicted past research findings on retention.

Instead of impeding their progress, repeating a grade helped retainees do better in their repeated year and for some years thereafter, although in diminishing amounts, until they made the transition into middle school. Rather than harming these children emotionally, retention led to improvement in their attitudes about self and school during the repeated year, and gave children a boost that often persisted until middle school.

(Alexander et al., 1994, p. 214)

These results were due in part to the effectiveness of the retention program. These students did not simply repeat a grade; there were programs in place to aid in their transition. A reading program and an intensive remedial program, with teachers trained to effectively teach these programs, were available. One important implication for administrators is involving trained staff in the development of curriculum to help meet the needs of the students that the curriculum is intended to assist.

Secondly, although the evidence thus far on summer school programs is not very encouraging, such programs have not been adequately evaluated. As a result, another implication for administrators is that an effective summer school program might be a viable alternative to retention. As Feldman (1997) advised, administrators must provide clear standards "defining what students

should know and be able to do at various grade levels” (p. 6). Timely and effective intervention is the key. And, as Alexander et al. (1994) posited, “retention does not cure children’s problems. The distinction between ‘solution’ and ‘some help’ is critical” (p. 214).

Effective Schools Research

Retention research is helpful in describing the background for the use of retention or the lack thereof. In relation to research on summer school programs, however, retention research is somewhat out-dated because retention has not been administered regularly or consistently for years (House, 1989; Shepard & Smith, 1989). Furthermore, it is too early to make generalizations about the success of retention in conjunction with summer school, as it has just been formally practiced by the Chicago Public Schools within the last three years (Chmelynski, 1998; Hendrie, 1997). In contrast, effective schools research is up-to-date and abundant, offering many suggestions for methodological improvements for future research that could easily be adapted to a summer school setting.

Although effective schools research in a summer school setting is very limited, if nonexistent, drawing on the general research from both effective schools and summer schools to investigate the possible application of effective schools research in conjunction with a summer school program may be advantageous to management and central office administration. Awareness of past effective schools research shortcomings and improved methodologies may be useful in measuring student academic achievement and change in attitude in a summer school program. Furthermore, the information gained may be helpful in identifying and implementing effective

schools characteristics, creating a more effective summer school program.

History of Effective Schools Research

The origins of effective schools research can be traced to the Coleman et al. (1966) report and the Jencks' et al. (1972) study. While both supported the idea that schools did not make a difference in student achievement, they did not stop researchers from trying to isolate various indicators in pursuit of effective school characteristics. Edmonds (1979) led the charge with the first round of effective schools checklists for unusually effective schools.

Edmonds' (1979) collected family background and socioeconomic data on children in elementary and intermediate schools in numerous urban districts throughout the United States. He then organized the data into five social-class subsets ranging from poor to middle class. By analyzing the interaction between achievement data and socioeconomic status, Edmonds was able to identify schools that were academically successful across all social subsets. Then, sufficient controls were put into place to identify various characteristics that accounted for the variance in student achievement from school to school. Finally, effective schools were paired with ineffective schools and observers were sent to both schools to describe the school life of each.

In analyzing the data reported by numerous observations, a commonality was evident. This led to the development of Edmonds' (1979) original model of effective schools proposing strong educational leadership, high expectations for performance, a safe and orderly climate, an emphasis on teaching basic skills, and frequent monitoring of student progress. These five characteristics had been commonly observed in effective schools. Furthermore, improvement in skill acquisition was noted in schools asserting

all five characteristics.

Edmonds' (1979) research sparked additional studies by various researchers resulting in a wide range of characteristics for effective schools. Subsequent effective schools studies comprised a broad variety of approaches and reported contradictory findings (Edmonds & Frederiksen, 1979). Methodologies were improved to take into account the wide range of academic abilities but to look more at individual student's abilities within a school (Cohen, 1982). In addition, accommodations were made for the relationship between school resources and the quality of education. Finally, progress rather than achievement was being used as an assessment of effectiveness (Clark, Lotto, & Astuto, 1984). Progress was measured using curriculum specific tests rather than standardized achievement tests as measurement for effectiveness. This shift in assessment was necessary to measure student outcomes at the basic skill level. Standardized achievement tests required students to apply basic skills to other curriculum areas, making "achievement" gains unclear.

The history of effective schools research emphasizes the lack of a consensus as to the characteristics that identify school effectiveness. In fact, it has been over 30 years since the Coleman et al. (1966) report, and the question, 'Do schools make a difference?' has yet to be answered. The review of effective schools research helps to establish the baseline for the common and often numerous characteristics that administrators can utilize to improve students' academic achievement, specifically students' summer school academic achievement.

Classification of Effective Schools Research

Due to this lack of consensus as to what constituted “effective schools” and “unusually effective schools”, researchers began to classify various ways that literature on effective schools should be reviewed. For example, Ralph and Fennessey (1983) distinguished between the study of effective schools with a focus on schools and the differences among schools, and the study of school effects where the focus is on school and classroom level characteristics that have an effect on student achievement. Similarly, Clark et al. (1984) differentiated between instructionally effective schools and school improvement. Instructionally effective schools research concentrates on altering processes and arrangements, where school improvement focuses on whether schools can change. Such clarifications provide useful guidelines for creating newly designed research models that will hold up against future criticism and debate.

Implications for Educational Practice

Questions of school accountability have motivated continuing research on ways to improve student achievement levels. There are numerous studies available on effective schools research and school effects in the form of outlier studies, program evaluations, surveys, checklists, and case studies. All use the term “effectiveness” in various ways (e.g., Edmonds, 1979; Odden, 1991; Purkey & Smith, 1983; Ralph & Fennessey, 1983). However, many reports now note that in order for a program to be successful, it must be implemented appropriately. A more recent line of thinking about effective schools indicates a need to focus on the everyday reality of schools and the implementation processes at the classroom level (Harber, 1992; McLaughlin, 1991). As a

result, it is up to future researchers to use that knowledge base to arrive at a richer understanding of effective schools, specifically effective summer schools, and their relation to academic achievement and change in student attitude. In order for the latest approaches for effective schools to be useful, school administrators need to understand the why and how of implementation, not just the what and how much (McLaughlin, 1991; Odden, 1991). Effective school administrators in the 21st century will be required to make an impact on educational practices by using research as a tool for school improvement.

Effective Schools Research Applied to Summer School

Inequalities in Academic Achievement

Effective schools research applied to a summer school program might be the timely intervention that is needed to provide some help at the middle level where it appears that retention becomes less effective (Alexander et al., 1994; Yinger et al., 1977). In fact, the application of effective schools research to a summer school program might help to alleviate the academic loss that often occurs over a summer vacation.

Heyns (1978) research on academic loss over a summer contributes to the plentiful but often inconsistent research available on the subject. One area of inconsistency is how to measure academic losses. Although there are a variety of measurements available, Heyns describes academic loss over a given period of time using grade equivalent scores but analyzes academic loss using raw scores from achievement test data. All in all, research on academic loss over a summer relates well with effective schools research in that the research shows that academic losses over a summer are affected by such factors as socioeconomic status and family background (Heyns, 1978).

The earliest research available on academic loss over summer did not take into account the socioeconomic status of the student, and investigations into the amount students lose academically over summer were inconclusive. Many studies reported substantial losses during the summer months, especially in the areas of mathematics and language (Beggs & Hieronymus, 1968; Keys & Lawson, 1937; Morgan, 1929). Conversely, Schrepel and Laslett (1936) questioned a need for summer training, reporting no “serious losses of knowledge” (p. 302) after a 14-week summer vacation. Recently, citing a lack of conclusive empirical evidence relating student achievement gains to such rigid requirements, Archibold (1999) questioned the increased use of mandatory summer school programs.

By the early 1970s, socioeconomic status was regularly included as a variable in the research on a student’s academic loss over summer. Researchers began to question whether summer school programs were an effective tool in decreasing the academic loss students experienced over a summer vacation (Carter, 1984; Klibanoff & Haggart, 1981).

As researchers began to focus on the socioeconomic status of a student and how it related specifically to a student’s academic loss over summer, a commonality surfaced. Researchers observed that the achievement gap between lower and higher socioeconomic children widened during the summer (Heyns, 1978; Schroeder, 1997; Ward; 1989). More importantly, Heyns (1978) reported that “affluent children learn more than poor children both during the school year and during the summer, but the difference is far smaller during the school year than during the summer” (p. xi). This finding should have accentuated the need to support summer programs targeting

lower socioeconomic students. However, she reported that “summer schools as well as other summer programs had, at best, a modest impact on achievement and did not overcome the heightened impact of parental status” (p. 11). This report indirectly relates Coleman's et al. (1966) and Jencks' et al. (1972) research findings about socioeconomic status and student achievement to summer school. This apparent connection may be due in part to Heyns' collaboration on Jencks' et al. (1972) book: Inequality: A Reassessment of the Effects of Family and Schooling in America.

Research supports the notion that academic losses do occur over a summer vacation (Beggs & Hieronymus, 1968; Heyns, 1978; Keys & Lawson, 1937; Ward, 1989), and indicates that the amount varies for numerous reasons including the time spent in summer school, the intensity of the program's curriculum, and the socioeconomic status of the student (Carter, 1984; Heyns, 1978; Klibanoff & Haggart, 1981; Ward, 1989). In fact, a student's socioeconomic status in relation to academic loss over a summer is so strong that whether it is worth the effort to develop strategies to correct the loss is in question. Summer school may have an effect on a student's potential for academic gain (Ward, 1989). However, a student's socioeconomic status and the time allowed for student learning in summer school must be considered when interpreting that gain, as it is uncommon to find academic gains in summer programs operating for fewer than 6-weeks (DeBlois, 1997; Heyns, 1978; Jencks et al., 1972).

Non-Cognitive Summer Gains

More recent research on summer schools has become more specific, shifting focus from academic achievement to at-risk students' achievement and

attitudes toward school. Unfortunately, many studies are neither longitudinal nor experimental. As a result, they do not meet the tests of practicality and generalizability.

Nevertheless, survey research has been helpful in assessing student attitudes toward summer school. There is evidence that students perceive they benefit from a shorter day, fewer subjects, better attendance, smaller classes, defined expectations, and increased class participation. In addition, negative attitudes toward summer school attendance can have a positive effect on achievement because students would work harder the following year in an effort to avoid going back to summer school (Jones, 1995; Opuni, Tullis, & Sanchez, 1990). Furthermore, a study of gifted students comparing regular year classroom affective experiences to the affective experiences of summer school may provide useful methodologies for future affective studies done in remedial summer school programs (Lenz & Burruss, 1994). Among the available reports, the largest non-cognitive gains were in feeling of self-worth and social competence.

In summary, summer schools vary greatly in the curriculum they provide for remedial instruction. Activities implemented for remedial work are inconsistent and have not been thoroughly evaluated for positive effects on a student's academic gain or attitudinal change. As a result, the reports on the effectiveness of any given summer school program will be mixed, depending on the extent to which the expectation of student achievement matches the curriculum objectives. Furthermore, it is imperative that the students' socioeconomic status be considered in making judgments about the effectiveness of any summer school program. Finally, research suggests that

academic gains over a summer may be minimal. As a result, a change in student attitude over a summer must not be overlooked because any positive attitude gains may be maintained, affecting the odds of gains in academic achievement the following year. Taken all together, the literature is very inconclusive.

Summary

A review of the research suggests some reason to believe that a well implemented and effective summer school program may increase a student's chances for future success in school (Aidman, 1997/1998; Alexander et al., 1994). Summer school offers an opportunity to work with students who have failed to succeed in a regular school year setting without necessarily having to rely upon retention policies to gain the academic support a student needs. Nardini and Antes (1991) ranked successful strategies used by 75% or more of the principals from 85 middle schools across the United States. These strategies, reported by principals as being "very effective" in supporting underachieving students, include special teachers, individualized instruction, special education, communication with parents, smaller classes, special study skills, more time on basic skills, *a summer school program*, and the option to retain in grade. Interestingly, many of these strategies either already exist in a summer school setting or they could easily be implemented into a summer school program.

Many of these strategies were recently observed in an Omaha, Nebraska, summer school setting. The first strategy, a "special teacher", was described by the director of the summer school program as a "special breed" (*of a complimentary nature*). In comparing summer school teachers to regular

teachers, the director stated, "They [summer school teachers] really go out of their way to recognize the individual needs of students and to make the appropriate adjustments for those students, not only from an academic standpoint, but also from a psycho-social standpoint" (M. Feldhausen, personal communication, June, 1998). The researcher, in observing a "special teacher" and her summer school class, overheard one ninth grade boy say, "That's the first test that I've put up on the fridge since, I think, first grade" (personal communication, June, 1998). That statement was very powerful and supports a summer school's potential effect on student academic achievement and change in attitude.

Unfortunately, the research available on summer school achievement is limited. Very few scientific studies consistently link summer school to heightened academic achievement. However, that is not to say that summer school does not affect student achievement. What it does imply is that specific features of summer school have not yet been isolated enough to produce accurate results. Thus, until summer school curriculum is specifically defined and its program components delineated, this problem will continue because the effects of quantitative differences resulting from exposure to summer school cannot be measured consistently.

Furthermore, Caswell and Keller (1998) add that evaluation is a process of both art and science. "On the one hand, creativity is needed to develop imaginative ways of measuring qualitative factors; on the other hand, the overall evaluation process needs to be systematic. Every decision carries tradeoffs in validity, reliability, and/or practicality" (p. 30). This appears to be the case for much of the research evaluating summer school programs. Very

few qualitative studies on successful summer school programs can be replicated. However, summer school research of an experimental nature is next to impossible to design. As a result, the analysis must be one that can assess the program's effect on student academic gain and attitudinal change, maintaining the validity of the results through careful research design.

This study addressed the following question: can a structured summer program composed of strong educational leadership, high expectations for student performance, a safe and orderly climate, an emphasis on teaching basic skills, and frequent monitoring of student progress promote academic gains and positive attitudinal changes of middle level students? The answer to this question may add to the knowledge about a summer school program's ability to better equip adolescents with the skills and knowledge they will need to be successful in school and beyond.

CHAPTER 3

Methods

The purpose of this quantitative study was to determine to what extent, if any, a middle level summer school program using Edmonds' (1979) five effective schools characteristics enhanced students' academic achievement and change in attitude. This study used an evaluation based design, reporting research findings to management and staff for program improvements. The methods used are described within this chapter. This chapter discusses the rationale for using Stufflebeam's (1971) CIPP evaluation model as the study design, the population, the selection of the survey measurement tools, the collection of data, and the study analysis procedures.

The Evaluation Design within the Study

Early school effectiveness research was aimed at finding the processes that differentiated effective and less effective schools. The methodologies of effective school outlier studies were often criticized as little more than fishing expeditions (Creemers & Scheerens, 1994). Because it is difficult to design an effective schools study that is empirically sound, Stufflebeam's (1971) CIPP evaluation model was utilized to provide a useful approach for making recommendations for ongoing program improvements. Similar comprehensive framework models for educational effectiveness have been used to evaluate various levels and characteristics of the school environment (Scheerens, 1991; Stringfield & Slavin, 1992). Furthermore, this evaluation process has been integrated previously with survey research at the classroom or micro level (Mortimore et al., 1988; Prince & Taylor, 1995). Finally, Stufflebeam's CIPP model is noted for systematically guiding program

evaluators through the entire evaluation process from planning to program improvements. As a result, this study utilized the CIPP evaluation model to systematically assess three populations' perceptions related to the various levels of Edmonds' (1979) effective schools characteristics at one suburban middle level summer school program. In addition to appraising the perceptions of effectiveness within and between the three populations, parents' and students' perceptions were also used to compare the level of Edmonds' effective schools characteristics to subsequent academic achievement and change in student attitude in the areas of both mathematics and English during the product evaluation.

The CIPP model encompasses four separate evaluations: context, input, process, and product. Within this study, the context evaluation was completed to identify the target population and to assess whether the proposed objectives were responsive to the target populations' needs. The input evaluation resulted in recommendations for alternative programming strategies (indicators) to enhance the original systems' capabilities of exhibiting program effectiveness qualities. The process evaluation identified any shortcomings in the implementation process, resulting in necessary procedural changes. Finally, the product evaluation was the collection of outcome data that will be related to the context, input, and process evaluation results to aid management in making sound decisions for program accountability and improvements for Summer, 2001. The specific levels of Stufflebeam's (1971) CIPP model that created the framework for this study included:

Context: remedial middle level summer school populations;

- Input:** application of Edmonds' (1979) five effective schools characteristics;
- Process:** analyzing and articulating the strengths and weaknesses of implementation;
- Product:** measuring the effects of implementation upon student academic progress as measured by teacher-made tests for competency and change in student attitude as measured by attitude inventory instruments (Stufflebeam & Shrinkfield, 1985).

The researcher completed the first three evaluations of the CIPP model over the last 3 years. The context and input evaluations were completed during the implementation stage, 2 years prior to the start of the pilot summer school program of 1999. The process evaluation was completed in the third year using data from the 1999 pilot study. Finally, the product evaluation was completed with the results of this study using data from the summer of 2000.

Context Evaluation

To begin with, the context evaluation involved membership on a building-level summer school committee and leadership of a district-level summer school committee that researched intra-district, metropolitan area, and country-wide summer school programs. In addition, data were collected by the researcher via surveys, observations, and interviews. Surveys were administered to teachers, parents, and students within the district to ascertain a need for and the level of support for a middle level summer school program. Summer school classes in the metropolitan area were observed and scripted by the researcher to gain perspective in the realities of summer school.

Finally, the researcher interviewed summer school teachers and administrators to gain insight regarding operation, management, productivity, and a variety of areas pertinent to summer school development and implementation.

After numerous committee meetings at both levels to review, analyze, and interpret all the data, the context evaluation ended with a report to the school board identifying the student population (context) as middle level students in need of remediation skills in the areas of mathematics and English.

Input Evaluation

Next, the input evaluation was completed by the building-level and district-level summer school committee members. A review of literature on effective schools and summer schools was completed by the researcher and subsequently reported to the committee members. Committee members discussed effective schools characteristics and collaborated to formulate summer school program goals aligned with Edmonds' (1979) effective schools model (input). Specific summer school program goals evolving from the input evaluation were (a) weekly student progress monitoring sheets for parents, (b) a tuition reward program tied to attendance, behavior, and academic achievement, (c) class sizes no larger than 15, and (d) the development of a basic skills curriculum for the academic areas of mathematics and English that would be different than the curriculum offered during the regular school year. The input goals were tested in the pilot summer school program of 1999.

Process Evaluation

The process evaluation started at the end of the pilot summer school program of 1999. A summer school program summary including student

populations, course enrollments, and students' math and English assessments in achievement and attitude was presented to the school board for program accountability (see Appendix D). At that time, the school board requested additional follow-up information questioning the summer school program's effectiveness toward continued students' successes into the next school year.

In an attempt to answer that question, follow-up surveys were developed by the researcher and administered to students, teachers, and parents who participated in the 1999 pilot summer school program. Survey results were analyzed to improve the alignment of the summer school goals with Edmonds' (1979) effective schools model. Summer school lead teachers and the researcher discussed the strengths and weaknesses of the pilot summer school program, as well as the survey results from students, teachers, and parents.

Using this information, summer school personnel refined summer school program goals agreeing: (a) to figure a percentage grade rather than using a pass-fail system to report students' weekly academic progress to parents (frequent monitoring), (b) to eliminate the 15-minute break between classes (safety), (c) to continue to award students a \$25 dollar reimbursement in tuition for successfully completing the summer school program (high expectation), and (d) to expand the basic skills curriculum in the academic areas of mathematics and English (a focus on basic skills).

The follow-up survey results and the summer school personnel's program recommendations were shared with the school board. After the report, the school board voted to allow the middle level summer school program to continue the following summer.

Finally, the last weakness identified by the researcher during the process evaluation was the need to locate and/or develop a more reliable effective schools measurement tool. This issue was resolved with the researcher's decision to purchase the School Effectiveness Questionnaires (Baldwin et al., 1993). The process evaluation ended with a parent-student summer school orientation that presented implementation alterations and program information to summer school prospects and their parents preparing for summer school, 2000.

At the summer school orientation, the administrator advised parents and students of the program goals related to Edmonds' (1979) effective schools characteristics. Also, the tuition reward program and class schedules were discussed in detail. Furthermore, lead teachers described the courses they would be teaching this summer and offered suggestions related to how those courses would be different from the regular school year's curriculum. For example, the English lead teachers described using the outdoor classroom for plays and speeches, traveling to the local library to improve study skills, and utilizing the computer lab regularly, if not daily, to conduct research and to write compositions. Finally, the mathematics lead teachers stressed that the mathematics curriculum would be "more fun" than the regular school year's curriculum. Students could look forward to career applications, card games, a trip to the local car lot, cookie baking, guest speakers, and use of the newspaper, the stock market, and the Omaha World Series promotion. These activities and materials would be used to improve basic mathematics skills.

Product Evaluation

By gaining final approval from the school board to continue the summer

school program, the stage was set for the product evaluation. The program summary information (see Appendix D) presented to the school board and the follow-up survey information collected during the process evaluation provided an excellent framework for the product evaluation. The product evaluation began the first day of summer school, 2000, and continued throughout the summer school program.

At the end of the product evaluation, students', teachers', and parents' perceptions were assessed using Baldwin's et al. (1993) School Effectiveness Questionnaires to gauge the degree at which Edmonds' (1979) effective schools characteristics (e.g., educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress) existed within the summer school program context. First, all three populations' perception data were used by management to assess the usefulness of various program indicators related to effective schools characteristics. Thereafter, the parents' and students' perception data were used to predict students' academic achievement and students' attitudinal change in both mathematics and/or English.

Finally, the mediating variables included in this study were students' gender, grade level, socioeconomic status, and location. Location was included as a mediating variable because the same summer school program was offered at two junior high locations within the same school district. Upon completing the product evaluation, the goal was to provide useful information to management and staff to help them make informed and sound decisions about program improvements in summer school programs.

In summary, Stufflebeam's (1971) CIPP evaluation model was the study design used over a 3-year period to implement and evaluate the summer school program's goals and objectives. The information gained from the first three evaluations was applied to the fourth and final evaluation to improve the alignment of the program goals with Edmonds' (1979) effective schools characteristics. Together, the two theoretical frameworks (e.g., school effectiveness theory, program evaluation theory) played a major role in the implementation and development of the summer school program in this study.

Population

The three populations from the summer school program who took part in this study were students, teachers, and parents. The student population started at 70 students, declining to 69 students after one student dropped out of the summer school program in the 4th week. The reason for the student's early withdrawal was a result of parental visitation rights, out-of-state. Table 1 illustrates the specific student populations at the two middle school locations within one suburban school district.

The teacher population included four lead teachers with an average of 16.50 ($SD = 9.75$) years of experience. The lead teachers were responsible for developing the mathematics and English curriculums over a 2-year period. In addition, the same lead teachers taught the remedial summer school courses the last two summers. Because of the small number of teachers participating in this study, the teachers' perception data were reported descriptively.

Finally, the parent population included only those parents who completed and returned Baldwin's et al. (1993) School Effectiveness

Table 1

Student Populations Categorized by Gender, Grade, and Course

Populations	<u>Total</u>	<u>Middle School 1</u>	<u>Middle School 2</u>
	<u>n</u>	<u>n</u>	<u>n</u>
Total Students	70	52	18
Male	49	37	12
Female	21	15	6
7th graders	43	32	11
8th graders	27	20	7
English 7/8	49*		13 (5)**
Math 7/8	54*		15 (4)**
English 7		21 (3)***	
English 8		15 (4)	
Math 7		26 (5)***	
Math 8		13 (6)	

Note. Values enclosed in parentheses represent the number of female students within the total. * This number is indicative of an overlap in the number of students registering for both mathematics and English ** 7th and 8th graders were combined for English and mathematics at middle school 2 due to small enrollment numbers. *** Represents two course sections listed as one.

Questionnaire for Parents. Students delivered the parent questionnaire in a sealed envelope addressed to their parents, with a memo describing the process for completion and return. Students were offered a small incentive (i.e., a bag of M&Ms) for returning their parents' completed survey. This proved to be an effective incentive and process as 63 out of 69 parent surveys were completed and returned. Parents had been told at the parent-student orientation in May, 2000, that a parent survey would be coming home via their student to be completed by parents the last week of the summer school program. At that time, parents were also informed that a number would be placed on the parent survey for confidentiality reasons so that student achievement data could be related to parents' perceptions of the summer school program's effectiveness. Finally, to acknowledge parental involvement, an announcement was made at the awards assembly on the last day of summer school, thanking parents for taking part in the parent survey. In a final effort to acquire data, parents were offered the opportunity to complete a survey at that time, if they had not done so already. Four surveys were completed and returned the day of the awards assembly, resulting in an overall 97% return rate.

Instrumentation

Baldwin's et al. (1993) School Effectiveness Questionnaires were the survey instruments used to assess students', parents', and teachers' perceptions regarding the extent that Edmonds' (1979) effective schools characteristics existed in the summer school program. These measurement tools had previously been administered during a regular school year not during a summer session. As a result, the researcher had to validate each

instrument using all three summer school populations. Originally, reliability estimates using coefficient alpha were figured using the summer school population for each of the three questionnaires based on each entire instrument: School Effectiveness Questionnaire for Teachers, $.97, n = 4$, School Effectiveness Questionnaire for Parents, $.97, n = 67$, and School Effectiveness Questionnaire for Students, $.95, n = 69$. However, these three effective schools questionnaires were developed by Baldwin et al. to measure 11 effective schools characteristics by teachers, 9 effective schools characteristics by parents, and 7 effective schools characteristics by students during a regular school year. The focus of this study was specifically on Edmonds' five effective schools characteristics and although all five characteristics were included within Baldwin's School Effectiveness Questionnaires, the original population was not a summer school population. Thus, it was necessary to assess Cronbach's alpha for each of the five effective schools characteristics on all three school effectiveness questionnaires related specifically to the three summer school populations being surveyed.

The process began by reviewing the range of questions identified by Baldwin et al. (1993) as aligning with Edmonds' (1979) five effective schools characteristics. Upon realignment by the researcher, many of the questions that Baldwin et al. included to measure each of Edmonds' effective schools characteristics for the three regular school year populations remained as measurements for the three summer school populations. Because some of the questions Baldwin et al. included to measure Edmonds' effective schools characteristics in a regular school setting did not relate well to a summer

school setting, teachers of the summer school program were also asked to review Baldwin's et al. range of questions related to Edmonds' five effective schools characteristics. The researcher then revised the range of questions where necessary and gained confirmation of the revisions from the summer school teachers for each of Edmonds' characteristics on each of the three populations' effective schools questionnaires. Cronbach's alpha was calculated for each effective schools characteristic on all three questionnaires. Some items were deleted because Cronbach's alpha increased as a result of the item's deletion, and the item did not appear to be essential to the content. Other items were maintained for content reasons, even if Cronbach's alpha decreased.

Table 2 illustrates Baldwin's et al. (1993) School Effectiveness Questionnaire for Teachers' range of questions and subsequent Cronbach's alpha reliabilities related to a regular school year population and the researcher's alterations to Baldwin's range of questions and subsequent Cronbach's alpha reliabilities related to a summer school population. Both question sets aligned with Edmonds' (1979) five effective schools characteristics. Table 3 provides sample items from Baldwin's et al. School Effectiveness Questionnaire for Teachers since actual test items cannot be included per the test publishing agreement.

Table 4 illustrates Baldwin's et al. (1993) School Effectiveness Questionnaire for Parents' range of questions and subsequent Cronbach's alpha reliabilities related to a regular school year population and the researcher's alterations to Baldwin's range of questions and subsequent Cronbach's alpha reliabilities related to a summer school population. Both are

Table 2

School Effectiveness Questionnaire for Teachers' Range of Questions Aligned with Edmonds' (1979) Five Effective Schools Characteristics

Edmonds' characteristics	Baldwin et al. (1993) n = 86		Researcher n = 4	
	Questions	Alpha	Questions	Alpha
Educational leadership	1-8	.96	1-5	.98
Focus on basic skills	42-46	.96	42-44,46	.92
Frequent monitoring	36-41	.96	36-41	.96
Safe climate*	16-20	.96	15-18,20-22	.90
High expectations	31-35	.96	31-33,35	.96

Note. * The researcher's selection of questions is outside the original range of questions due to essential content alignment needs.

Table 3

**Sample Items from Baldwin's et al. (1993) School Effectiveness Questionnaire
for Teachers Used to Measure Edmonds' Effective Schools Characteristics**

Edmonds' (1979)	Baldwin's et al. (1993) Sample Items	Researcher's Additions/Deletions
Educational leadership	curriculum knowledge, informed decision making, a focus on quality instruction, involvement, communication	(-) teacher evaluation
Focus on basic skills	skill development, application, problem solving, monitor skills, evaluate skills, content specific	(-) electives
Frequent monitoring	frequent use of & variety of evaluations, evaluation results applied to curriculum decisions, parents & students informed of progress, monitor processes	
Safe climate	fair & consistent discipline, rules known by parents & students, rules taught to students	(-) clean plant (+) trust, respect for social differences, safety plan
High expectations	expectation awareness, expectations based on ability, expectations maintained	(-) related to past performance

Note. (+) Denotes sample items added to Baldwin's et al. original range of questions. (-) Denotes sample items deleted from Baldwin's et al. original range of questions.

Table 4

School Effectiveness Questionnaire for Parents' Range of Questions Aligned with Edmonds' (1979) Five Effective Schools Characteristics

Edmonds' characteristics	Baldwin et al. (1993) $n = \text{***}$		Researcher $n = 67$	
	Questions	Alpha	Questions	Alpha
Educational leadership	1-6	.94	1-6	.84
Focus on basic skills	31-32	.95	31-38	.84
Frequent monitoring	26-30	.94	26-30	.81
Safe climate	11-15	.95	11-16	.83
High expectations	23-25	.95	23-25	.82

Note. ***The exact number of parents responding was not reported. However, the original questionnaires were field tested in 10 schools represented by all grade levels. The revised instrument was then tested on approximately 30,000 students, teachers, and parents.

aligned with Edmonds' (1979) five effective schools characteristics. Table 5 provides sample items from Baldwin's School Effectiveness Questionnaire for Parents since actual test items cannot be included per the test publishing agreement.

Table 6 illustrates Baldwin's et al. (1993) School Effectiveness Questionnaire for Students' range of questions and subsequent Cronbach's alpha reliabilities related to a regular school year population and the researcher's alterations to Baldwin's range of questions and subsequent Cronbach's alpha reliabilities related to a summer school population both aligned with Edmonds' (1979) four effective schools characteristics. Table 7 provides sample items from Baldwin's et al. School Effectiveness Questionnaire for Students since actual test items cannot be included per the test publishing agreement.

These six tables illustrate the similarity between Baldwin's et al. (1993) selection of questions related to Edmonds' (1979) effective schools characteristics for teachers, parents, and students during the regular school year and the researcher's selection of questions related to Edmonds' effective schools characteristics for teachers, parents, and students during a summer school session.

Content validity was provided by input about each of the three effectiveness questionnaires from the summer school lead teachers. Originally, lead teachers were asked to review Baldwin's et al. (1993) range of questions for each of the five effective schools characteristics, noting any discrepancies related to the context of summer school. Then, lead teachers were asked for their suggestions to improve the range of questions related to

Table 5

**Sample Items from Baldwin's et al. (1993) School Effectiveness Questionnaire
for Parents Used to Measure Edmonds' Effective Schools Characteristics**

Edmonds' (1979)	Baldwin's et al. (1993) Sample Items	Researcher's Additions/Deletions
Educational leadership	curriculum knowledge, informed decision making, quality instruction promoted, communication, leadership	
Focus on basic skills	skill development, application, problem solving	(+) instruction time, field trips, planning, variety of methods
Frequent monitoring	variety of evaluations, performance monitored, parents & students informed of progress, 2-way feedback	
Safe climate	fair & consistent discipline, rules known by parents, rules taught to students, informed consent	(+) trust, respect for social differences
High expectations	expectations known, expectations appropriate, expectations related to ability	

Note. (+) Denotes sample items added to Baldwin's et al. original range of questions. (-) Denotes sample items deleted from Baldwin's et al. original range of questions.

Table 6

School Effectiveness Questionnaire for Students' Range of Questions Aligned with Edmonds' (1979) Four Effective Schools Characteristics

	Baldwin et al. (1993) <u>n</u> = 190		Researcher <u>n</u> = 69	
Edmonds' characteristics	Questions	<u>Alpha</u>	Questions	<u>Alpha</u>
Educational leadership	----	----	----	----
Focus on basic skills	27-34	.81	27,29,31,33	.76
Frequent monitoring	23-26	.80	23-26,48	.80
Safe climate	1-9	.79	1, 3-9	.82
High expectations	20-22	.81	12,13,15,17, 19-22	.79

Note. Students' perceptions regarding educational leadership were not included in the School Effectiveness Questionnaire for Students.

Table 7

**Sample Items from Baldwin's et al. (1993) School Effectiveness Questionnaire
for Students Used to Measure Edmonds' Effective Schools Characteristics**

Edmonds' (1979)	Baldwin's et al. (1993) Sample Items	Researcher's Additions/Deletions
Focus on basic skills	math and English skills learned, useful, important	(-) social studies, science
Frequent monitoring	homework graded, grades indicate effort, progress known by students and parents	(+) parents aware of school happenings
Safe climate	rules known by students, rules known and supported by parents, appropriate behavior and rules taught to students, rules are enforced and obeyed	(-) student input applied to rule development
High expectations	expected to do well, challenged to learn, encouraged	(+) absenteeism, conduct and effort monitored, positive attitude and achievement rewarded

Note. (+) Denotes sample items added to Baldwin's et al. original range of questions. (-) Denotes sample items deleted from Baldwin's et al. original range of questions.

content. Specifically, teachers were asked to concentrate on the indicators of effectiveness as discussed during the input and process evaluations (e.g., curriculum components, expectations related to tuition reimbursement, evaluation and monitoring practices, etc.) Lastly, the researcher modified the questionnaires using the input shared by lead teachers.

Evidence of content validity was provided by the summer school teachers' affirmation of the modified range of questions for each of the three questionnaires. In addition, a consistency in response from all three regular school year populations is noted by Cronbach's alpha measuring .80 or greater on 13 of 14 effective schools characteristics being measured. A similar consistency in response from all three summer school populations is noted by Cronbach's alpha measuring .80 or greater on 12 of 14 effective schools characteristics being measured. Therefore, the researcher's selected survey questions appear to be measuring the identified characteristic to a reliable degree. This validation process was necessary to help support the first eight research questions posed in this study. The results related to these research questions are reviewed in Chapter Four.

Two measurement tools were used to assess student attitudinal change in mathematics and English. The first measurement tool, the Mathematics Attitude Inventory (see Appendix B), developed by Sandman (1979), was used to assess summer school students' attitudinal change over a 5-week summer school mathematics class. This measurement tool has been tested for validity and reliability. A stratified random sampling of 105 junior high schools and 105 senior high schools in Indiana and California contributed data from 5034 students (Sandman, 1979) to complete the validity and reliability analysis

procedures. The reliability of the pre-test Mathematics Attitude Inventory as determined by Cronbach's alpha coefficient was .90 for Summer, 2000.

Secondly, the Mathematics Attitude Inventory developed by Sandman (1979) was modified to develop a similar English Attitude Inventory (see Appendix C). The questions were modified and/or rewritten specifically for English to assess summer school students' attitudinal change over a 5-week summer school English class. The English attitude inventory was field tested during the pilot summer school program in the summer of 1999. A factor analysis was run to assess the number of dimensions being measured. Three common factors emerged. Each factor was grouped based on the high loadings on the factor. Although three factors were identified, the English Attitude Inventory was used to report a total attitude rating. Furthermore, the reliability of the pre-test English Attitude Inventory as determined by Cronbach's coefficient alpha was .88 for Summer, 2000.

The measurement tools used to measure student academic achievement were teacher-made tests given in mathematics and English before and at the conclusion of the summer school program. The mathematics test was developed by modifying a sixth grade placement test that has been used by the district for the last 10 years. The two summer school mathematics teachers, the program administrator (also a mathematics teacher), and the mathematics department head collaborated and reorganized the sixth grade placement test to assure that only material being taught during the summer school program would be included on the basic skill assessment test. Similarly, the two summer school English teachers and two other eighth grade English teachers collaborated to develop three English assessments for

summer school achievement measurement. This instrument included a writing sample instrument with a scoring key, a word recognition test, and a reading comprehension test. These three English tests were averaged and reported as one English total battery. All of these tests were field tested in the pilot summer school program of 1999. To insure consistency, all English and mathematics teachers used the same pre-test and post-test materials for their given subject areas.

Data Collection

The first phase of data collection was the administration of the pre-tests of basic competencies in mathematics and English. The pre-tests were given to those students attending summer school the first week of June. Post-tests were administered to those same students completing summer school, the last week of June. These measurement tools were administered to assess student academic achievement.

Next, Sandman's (1979) Mathematics Attitude Inventory (see Appendix B) and the English Attitude Inventory (see Appendix C) were administered the first week of June and the last week of June to assess student attitudinal change. Finally, the School Effectiveness Questionnaires (see Appendix A) developed by Baldwin et al. (1993) were administered the last week of June to assess students', teachers', and parents' perceptions regarding the extent that Edmonds' (1979) effective schools characteristics existed within the summer school program.

Research Questions

The following research questions were addressed:

1. What relationship, if any, do the students' perceptions of the level of

- Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in mathematics?
2. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in English?
 3. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in summer school students' attitudes toward mathematics?
 4. What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in summer school students' attitudes toward English?
 5. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in mathematics?
 6. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in English?
 7. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward mathematics?
 8. What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward English?
 9. Is there a significant difference between students' attitudes regarding mathematics before and after completing a middle level summer school

- experience?
10. Is there a significant difference between students' attitudes regarding English before and after completing a middle level summer school experience?
 11. Is there a significant difference between students' mathematics achievement before and after completing a middle level summer school experience?
 12. Is there a significant difference between students' English achievement before and after completing a middle level summer school experience?
 13. Is there a significant difference in achievement in mathematics of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?
 14. Is there a significant difference in achievement in English of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?
 15. Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding mathematics before and after completing a middle level summer school experience?
 16. Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding English before and after completing a middle level summer school experience?

Data Analysis

Research Question 1 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' four effective schools characteristics (an emphasis on teaching basic skills, high expectation for student performance, a safe and orderly climate, and frequent monitoring of student progress), as perceived by students, was related to students' mathematics academic achievement. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by students' perceptions. The dependent variable was academic achievement in mathematics. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 2 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' four effective schools characteristics, as perceived by students, was related to students' English academic achievement. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by students' perceptions. The dependent variable was academic achievement in English. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 3 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' four effective schools characteristics, as perceived by students, was related to students' change in attitude toward mathematics. Backward elimination was

used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by students' perceptions. The dependent variable was the change in attitude toward mathematics. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 4 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' four effective schools characteristics, as perceived by students, was related to students' change in attitude toward English. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by students' perceptions. The dependent variable was the change in attitude toward English. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 5 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' five effective schools characteristics (educational leadership, an emphasis on teaching basic skills, high expectation for student performance, a safe and orderly climate, and frequent monitoring of student progress), as perceived by parents, was related to students' mathematics academic achievement. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by parents' perceptions. The dependent variable was academic achievement in mathematics. Because multiple statistical tests were conducted, a .01 alpha level was employed to help

control for Type I errors.

Research Question 6 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' five effective schools characteristics, as perceived by parents, was related to students' English academic achievement. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by parents' perceptions. The dependent variable was academic achievement in English. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 7 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' five effective schools characteristics, as perceived by parents, was related to students' change in attitude toward mathematics. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by parents' perceptions. The dependent variable was the change in attitude toward mathematics. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 8 was analyzed using a multiple regression analysis with backward elimination to measure which, if any, of Edmonds' five effective schools characteristics, as perceived by parents, was related to students' change in attitude toward English. Backward elimination was used to identify any suppressor variables. The independent variables were the mean scores for each of Edmonds' characteristics as represented by parents'

perceptions. The dependent variable was the change in attitude toward English. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 9 was analyzed using a dependent t-test, to examine the significance of the difference between student pre-test and post-test mathematics attitude scores. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 10 was analyzed using a dependent t-test, to examine the significance of the difference between student pre-test and post-test English attitude scores. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 11 was analyzed using a dependent t-test, to examine the significance of the difference between student pre-test and post-test mathematics achievement scores. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 12 was analyzed using a dependent t-test, to examine the significance of the difference between student pre-test and post-test English achievement scores. Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 13 was analyzed using four univariate two-way analyses of variance, (ANOVA), for the mathematics achievement dependent variable. The independent variables for the first 2X2 ANOVA were gender (male and female) and testing condition (pre-test and post-test). The independent variables for the second 2X2 ANOVA were grade level (seventh

or eighth) and testing condition (pre-test and post-test). The independent variables for the third 2X2 ANOVA were socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) and testing condition (pre-test and post-test). The independent variables for the fourth 2X2 ANOVA were location (middle school 1 and middle school 2) and testing condition (pre-test and post-test). Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 14 was analyzed using four univariate two-way analyses of variance (ANOVA) for the English achievement dependent variable. The independent variables for the first 2X2 ANOVA were gender (male and female) and testing condition (pre-test and post-test). The independent variables for the second 2X2 ANOVA were grade level (seventh or eighth) and testing condition (pre-test and post-test). The independent variables for the third 2X2 ANOVA were socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) and testing condition (pre-test and post-test). The independent variables for the fourth 2X2 ANOVA were location (middle school 1 and middle school 2) and testing condition (pre-test and post-test). Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 15 was analyzed using four univariate two-way analyses of variance (ANOVA) for the mathematics attitude dependent variable. The independent variables for the first 2X2 ANOVA were gender (male and female) and testing condition (pre-test and post-test). The

independent variables for the second 2X2 ANOVA were grade level (seventh or eighth) and testing condition (pre-test and post-test). The independent variables for the third 2X2 ANOVA were socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) and testing condition (pre-test and post-test). The independent variables for the fourth 2X2 ANOVA were location (middle school 1 and middle school 2) and testing condition (pre-test and post-test). Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Research Question 16 was analyzed using four univariate two-way analyses of variance (ANOVA) for the English attitude dependent variable. The independent variables for the first 2X2 ANOVA were gender (male and female) and testing condition (pre-test and post-test). The independent variables for the second 2X2 ANOVA were grade level (seventh and eighth) and testing condition (pre-test and post-test). The independent variables for the third 2X2 ANOVA were socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) and testing condition (pre-test and post-test). The independent variables for the fourth 2X2 ANOVA were location (middle school 1 and middle school 2) and testing condition (pre-test and post-test). Because multiple statistical tests were conducted, a .01 alpha level was employed to help control for Type I errors.

Summary

In summary, the research design was based upon an evaluation format using Stufflebeam's (1971) CIPP evaluation model. The design included the mediating variables of gender, grade level, socioeconomic status, and middle

school location. The School Effectiveness Questionnaires (see Appendix A) developed by Baldwin et al. (1993) were modified to assess Edmonds' (1979) effective schools characteristics within one suburban, middle level summer school program and then administered to the three summer school populations of teachers, parents, and students. The independent variables were parents' and students' perceptions regarding the extent that Edmonds' effective schools characteristics (e.g., educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress) existed within one suburban summer school program.

The dependent variables included both students' academic achievement and attitudinal change in both mathematics and English, as measured by pre- and post-tests. The measurement tool that was used to evaluate change in student attitude toward mathematics was the Mathematics Attitude Inventory (see Appendix B) developed by Sandman (1979). This measurement tool was modified and rewritten to create a similar English Attitude Inventory. The English Attitude Inventory (see Appendix C) was field tested and a factor analysis and reliability analyses were conducted. Finally, descriptive statistics, multiple regressions, analyses of variance, and dependent t-tests were the statistical analyses used in this study.

The information collected from this study will be useful to management and staff in making program alterations and in making program improvements. The information gained will also be useful to central office administration in making decisions about program continuation. In addition, the answers to these questions may add to the knowledge about summer school and the

knowledge about effective schools research, collectively.

CHAPTER 4

Results

Prior to addressing each of the 16 research questions posed in this study, a discussion on how students' and parents' perception scores were calculated for each of Edmonds' (1979) effective schools characteristics (e.g., educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress) is necessary.

Research questions one through four were analyzed using multiple regression analyses with backward elimination to help identify any suppressor variables; that is, variables related to one another rather than to the dependent variable. The independent variables for research questions one through four were represented by the mean scores for four out of Edmonds' (1979) five effective schools characteristics based on students' perceptions using the revised School Effectiveness Questionnaire for Students (see Table 6 on page 55) Baldwin et al. (1993) did not include Edmonds' effective schools characteristic, educational leadership, on the School Effectiveness Questionnaire for Students, this is the reason for finding only four of five mean scores for students. The dependent variables were calculated using pre- and post-test difference scores for students' mathematics and English achievement, and change in attitude toward mathematics and English, respectively.

Research questions five through eight were analyzed using multiple regression analyses with backward elimination to help identify any suppressor variables. The independent variables for research questions five through

eight were represented by the mean scores for each of Edmonds' (1979) five effective schools characteristics based on parents' perceptions using the revised School Effectiveness Questionnaire for Parents (see Table 4 on page 52). The dependent variables were calculated using pre- and post-test difference scores for students' mathematics achievement, English achievement, attitude toward mathematics, and attitude toward English, respectively.

Research questions 9 through 12 were analyzed using dependent t-tests to examine the significance of the differences between the pre- and post-test assessments measuring the dependent variables of students' mathematics achievement, English achievement, attitude toward mathematics, and attitude toward English, respectively.

Finally, research questions 13 through 16 were analyzed using four univariate two-way analyses of variance (ANOVA) for each of the four dependent variables: academic achievement in mathematics and English, and change in attitude in mathematics and English. The independent variables for all four univariate 2X2 analyses of variance (ANOVA) were gender (male and female) and testing condition (pre-test and post-test); grade level (seventh and eighth) and testing condition (pre-test and post-test); socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) and testing condition (pre-test and post-test); and middle school location (middle school 1 and middle school 2) and testing condition (pre-test and post-test), respectively.

Descriptive Statistics

The teachers' perceptions regarding the extent that Edmonds' (1979)

five effective schools characteristics existed within a middle level summer school program were assessed using the revised School Effectiveness Questionnaire for Teachers (see Table 2 on page 50). The teachers' perception mean scores and standard deviations for each of Edmonds' five effective schools characteristics are reported in Table 8. However, the teachers' perception mean scores were not used to predict students' outcome variables (the dependent variables of mathematics achievement or attitude change and the dependent variables of English achievement or attitude change) because there were only four teachers. The remainder of chapter four will address all 16 research questions posed in this study. When appropriate, a table will be used to clarify statistical results.

Research Question 1

What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in mathematics?

The relationship between students' perceptions of Edmonds' effective schools characteristics and change in mathematics achievement was not statistically significant. Using backward elimination, the students' perceptions of effective schools characteristics including a focus on basic skills ($t = -0.033$, $p = .974$), frequent monitoring ($t = 0.065$, $p = .949$), high expectations ($t = -0.203$, $p = .840$), and safe climate ($t = -0.309$, $p = .759$) did not significantly predict change in mathematics achievement ($M = 4.7925$, $SD = 5.2123$) ($F(4,48) = .048$, $p = .996$) (see Table 9).

Research Question 2

What relationship, if any, do the students' perceptions of the level of

Table 8

Teachers' Perception Mean Scores for Edmonds' (1979) Five Effective Schools Characteristics

Characteristics	Teacher Perceptions $n = 4$	
	<u>M</u>	<u>SD</u>
Educational leadership	4.45	.72
Safe climate	4.39	.47
High expectations	4.25	.96
Frequent monitoring	4.54	.63
Focus on basic skills	4.31	.69

Note. A mean score of 5.0 = Strongly Agree

Table 9

Students' Perception Mean Scores of Edmonds' (1979) Four Effective Schools Characteristics Used to Predict Mathematics Achievement (n = 53) and English Achievement (n = 48)

Characteristics	Mathematics Students		English Students	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Safe climate	3.60	0.65	3.68	0.63
High expectations	3.78	0.66	3.78	0.63
Frequent monitoring	3.78	0.75	3.87	0.76
Focus on basic skills	4.14	0.75	3.93	1.01
Educational Leadership	-----	-----	-----	-----

Note. A mean score of 5.0 = Strongly Agree. (--) Students' perceptions regarding educational leadership were not included in Baldwin's et al. (1993) School Effectiveness Questionnaire for Students.

Edmonds' (1979) four effective schools characteristics have to summer school students' academic achievement in English?

The relationship between students' perceptions of Edmonds' effective schools characteristics and change in English achievement was not statistically significant. Using backward elimination, the students' perceptions of effective schools characteristics including high expectations ($t = 0.410$, $p = .684$), frequent monitoring ($t = 0.490$, $p = .626$), safe climate ($t = -0.677$, $p = .502$), and a focus on basic skills ($t = 1.055$, $p = .297$) did not significantly predict change in English achievement ($M = 5.6333$, $SD = 4.5688$) ($F(4,43) = 1.070$, $p = .383$) (see Table 9).

Research Question 3

What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in summer school students' attitudes toward mathematics?

The relationship between students' perceptions of Edmonds' effective schools characteristics and change in attitude toward mathematics was not statistically significant. Using backward elimination, the students' perceptions of effective schools characteristics including a focus on basic skills ($t = 0.585$, $p = .561$), high expectations ($t = 0.412$, $p = .682$), safe climate ($t = -0.779$, $p = .439$), and frequent monitoring ($t = 1.507$, $p = .138$) did not significantly predict change in attitude toward mathematics ($M = 3.1321$, $SD = 13.8398$) ($F(4,48) = 1.871$, $p = .131$) (Please see Table 10 on the next page).

Research Question 4

What relationship, if any, do the students' perceptions of the level of Edmonds' (1979) four effective schools characteristics have to any change in

Table 10
Students' Perception Mean Scores of Edmonds' (1979) Four Effective Schools
Characteristics Used to Predict Mathematics Change in Attitude (n = 53) and
English Change in Attitude (n = 48)

Characteristics	Mathematics Students		English Students	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Safe climate	3.60	0.65	3.68	0.63
High expectations	3.78	0.66	3.78	0.63
Frequent monitoring	3.78	0.75	3.87	0.76
Focus on basic skills	4.14	0.75	3.93	1.01
Educational Leadership	-----	-----	-----	-----

Note. A mean score of 5.0 = Strongly Agree. (--) Students' perceptions regarding educational leadership were not included in Baldwin's et al. (1993) School Effectiveness Questionnaire for Students.

summer school students' attitudes toward English?

The relationship between students' perceptions of Edmonds' effective schools characteristics and change in attitude toward English was not statistically significant. Using backward elimination, the students' perceptions of effective schools characteristics including a focus on basic skills ($t = -0.451$, $p = .654$), safe climate ($t = 0.097$, $p = .923$), high expectations ($t = -0.258$, $p = .798$), and frequent monitoring ($t = 0.712$, $p = .480$) did not significantly predict change in attitude toward English ($M = 3.4375$, $SD = 11.8858$) ($F(4,43) = .454$, $p = .769$) (see Table 10). The high inner-correlations among the five predictors made a parsimonious model unable to be formulated as a result of multicollinearity (Kachigan, 1991; SPSS, 1999).

Research Question 5

What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in mathematics?

There was a statistically significant relationship between parents' perceptions of Edmonds' effective schools characteristics and mathematics achievement. The variables that predicted change in mathematics achievement were a focus on basic skills ($t = -3.273$, $p = .002$) and educational leadership ($t = 2.233$, $p = .030$). The linear regression equation for the two predictor model was mathematics achievement = 12.223 + 3.749 (educational leadership) + - 5.833 (focus on basic skills), ($F(2,48) = 5.357$, $p = .008$), R Square = .182, $p = .008$. Using backward elimination, the parents' perceptions of effective schools characteristics including frequent monitoring ($t = -.906$, $p = .370$), high expectations ($t = .844$,

$p = .403$), and safe climate ($t = .428$, $p = .671$) did not significantly add to the prediction of a change in mathematics achievement ($M = 4.8235$, $SD = 5.2181$) and were excluded from the model (see Table 11).

Research Question 6

What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to summer school students' academic achievement in English?

The relationship between parents' perceptions of Edmonds' effective schools characteristics and English achievement was not statistically significant. Using backward elimination, the parents' perceptions of effective schools characteristics including a focus on basic skills ($t = -0.330$, $p = .743$), frequent monitoring ($t = -0.421$, $p = .676$), educational leadership ($t = -0.785$, $p = .436$), high expectations ($t = -0.872$, $p = .388$), and safe climate ($t = -1.049$, $p = .300$) did not significantly predict change in English achievement ($M = 5.6255$, $SD = 4.6179$) ($F(5,41) = .368$, $p = .868$) (see Table 11).

Research Question 7

What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward mathematics?

The relationship between parents' perceptions of Edmonds' effective schools characteristics and change in attitude toward mathematics was not statistically significant. Using backward elimination, the parents' perceptions of effective schools characteristics including high expectations ($t = 0.500$, $p = .620$), educational leadership ($t = 0.841$, $p = .405$), a focus on basic skills ($t = 0.884$, $p = .381$), frequent monitoring ($t = 0.893$, $p = .376$), and a safe climate

Table 11

Parents' Perception Mean Scores of Edmonds' (1979) Five Effective Schools Characteristics Used to Predict Mathematics Achievement (n = 51) and English Achievement (n = 47)

Characteristics	Parents of Mathematics Students		Parents of English Students	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Educational leadership	3.80	0.56	3.82	0.64
Safe climate	3.98	0.58	3.93	0.60
High expectations	3.96	0.70	3.93	0.59
Frequent monitoring	3.78	0.63	3.79	0.62
Focus on basic skills	3.71	0.53	3.74	0.54

Note. A mean score of 5.0 = Strongly Agree

($t = 1.077$, $p = .287$) did not significantly predict change in attitude toward mathematics ($M = 2.9608$, $SD = 13.7840$) ($F(5,45) = .318$, $p = .899$) (see Table 12).

Research Question 8

What relationship, if any, do the parents' perceptions of the level of Edmonds' (1979) five effective schools characteristics have to any change in summer school students' attitudes toward English?

The relationship between parents' perceptions of Edmonds' effective schools characteristics and change in attitude toward English was not statistically significant. Using backward elimination, the parents' perceptions of effective schools characteristics including a focus on basic skills ($t = -0.051$, $p = .960$), high expectations ($t = 0.163$, $p = .872$), educational leadership ($t = 0.410$, $p = .684$), safe climate ($t = 0.637$, $p = .527$), and frequent monitoring ($t = 0.994$, $p = .326$) did not significantly predict change in attitude toward English ($M = 3.3830$, $SD = 12.0082$) ($F(5,41) = .673$, $p = .646$) (see Table 12).

Research Question 9

Is there a significant difference between students' attitudes regarding mathematics before and after completing a middle level summer school experience?

The difference in students' attitudes toward mathematics was not found to be statistically significant. The mean score on the Mathematics Attitude Inventory after completing the summer school program ($M = 130.70$, $SD = 13.85$) was not significantly greater than the mean score on the Mathematics Attitude Inventory before completing the summer school program ($M = 127.57$, $SD = 17.04$) ($t(52) = -1.648$, $p = .105$, two-tailed).

Table 12

Parents' Perception Mean Scores of Edmonds' (1979) Five Effective Schools Characteristics Used to Predict Mathematics Change in Attitude (n = 51) and English Change in Attitude (n = 47)

Characteristics	Parents of Mathematics Students		Parents of English Students	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Educational leadership	3.80	0.56	3.82	0.64
Safe climate	3.98	0.58	3.93	0.60
High expectations	3.96	0.70	3.93	0.59
Frequent monitoring	3.78	0.63	3.79	0.62
Focus on basic skills	3.71	0.53	3.74	0.54

Note. A mean score of 5.0 = Strongly Agree

Research Question 10

Is there a significant difference between students' attitudes regarding English before and after completing a middle level summer school experience?

The difference in students' attitudes toward English was not found to be statistically significant. The mean score on the English Attitude Inventory after completing the summer school program ($M = 94.27$, $SD = 14.00$) was not significantly greater than the mean score on the English Attitude Inventory before completing the summer school program ($M = 90.83$, $SD = 12.96$) ($t(47) = -2.004$, $p = .051$, two-tailed).

Research Question 11

Is there a significant difference between students' mathematics achievement before and after completing a middle level summer school experience?

The difference in students' mathematics achievement was found to be statistically significant. The mean score on the basic skills test for mathematics after completing the summer school program ($M = 27.43$, $SD = 7.38$) was significantly greater than the mean score on the basic skills test for mathematics before completing the summer school program ($M = 22.64$, $SD = 5.86$) ($t(52) = -6.694$, $p < .0005$, two-tailed).

Research Question 12

Is there a significant difference between students' English achievement before and after completing a middle level summer school experience?

The difference in students' English achievement was found to be statistically significant. The mean score on the total battery for basic skills in

English after completing the summer school program ($M = 36.64$, $SD = 5.36$) was significantly greater than the mean score on the total battery for basic skills in English before completing the summer school program ($M = 31.00$, $SD = 6.99$) ($t(47) = -8.542$, $p < .0005$, two-tailed).

The English total battery included three separate pre- and post-tests that were developed and revised at the completion of the pilot summer school program of 1999 by two summer school teachers and another English teacher. The individual results for each test included in the English total battery were: word recognition ($t(47) = -10.964$, $p < .0005$, two-tailed), reading comprehension, ($t(47) = -1.478$, $p = .146$, two-tailed), and writing sample ($t(47) = -2.883$, $p = .006$, two-tailed). The English total battery was computed by averaging the three test scores. The English total battery average was used to measure change in English achievement over a 5-week summer school session.

Research Question 13

Is there a significant difference in achievement in mathematics of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?

The differences between all four sub-populations' mathematics achievement were not found to be statistically significant. Table 13 illustrates the means and standard deviations for the first 2X2 repeated-measures ANOVA for gender (male or female). The results of the first univariate two-way analysis of variance (ANOVA) for mathematics achievement were as follows. The data did not produce a statistically significant interaction between gender and testing condition ($F(1,51) = .210$, $p = .649$). The gender (male or female)

Table 13

Pre- and Post-Test Mean Scores for Mathematics Achievement by Gender

Gender	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Male	22.13	6.54	38	27.13	7.77	38
Female	23.93	3.45	15	28.20	6.47	15

Note. Maximum score = 50.

main effect was not significant ($F(1,51) = .584, p = .448$). The testing condition (pre-test and post-test) main effect was significant ($F(1,51) = 33.477, p < .0005$). Collapsed across gender, there was a statistically significant difference in mathematics achievement before ($M = 23.032, SD = 6.50$) and after ($M = 27.666, SD = 8.26$) completing a 5-week summer school program.

Table 14 illustrates the means and standard deviations for the second 2X2 repeated-measures ANOVA for grade level (seventh or eighth). The results of the second univariate two-way analysis of variance (ANOVA) for mathematics achievement were as follows. The data did not produce a significant interaction between grade level and testing condition ($F(1,51) = 1.783, p = .188$). The grade level (seventh or eighth) main effect was not significant ($F(1,51) = .006, p = .938$). The testing condition (pre-test and post-test) main effect was however significant ($F(1,51) = 33.838, p < .0005$). Collapsed across grade level, there was a statistically significant difference in mathematics achievement before ($M = 22.798, SD = 6.32$) and after ($M = 27.226, SD = 7.96$) completing a 5-week summer school program.

Table 15 illustrates the means and standard deviations for the third 2X2 repeated-measures ANOVA for socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance). The results of the third univariate two-way analysis of variance (ANOVA) for mathematics achievement were as follows. The data did not produce a significant interaction between socioeconomic status and testing condition ($F(1,51) = .525, p = .472$). The socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) main effect was not significant ($F(1,51) = .625, p = .433$). The

Table 14

Pre- and Post-Test Mean Scores for Mathematics Achievement by Grade**Level**

Grade level	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
7th grade	22.36	6.13	36	27.81	7.58	36
8th grade	23.24	5.37	17	26.65	7.11	17

Note. Maximum score = 50.

Table 15

**Pre- and Post-Test Mean Scores for Mathematics Achievement by
Socioeconomic Status**

SES qualification	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Yes	21.50	3.73	6	24.83	6.55	6
No	22.79	6.09	47	27.77	7.48	47

Note. Maximum score = 50.

testing condition (pre-test and post-test) main effect was significant ($F(1,51) = 13.408, p = .001$). Collapsed across socioeconomic status, there was a statistically significant difference in mathematics achievement before ($M = 22.144, SD = 9.31$) and after ($M = 26.300, SD = 11.67$) completing a 5-week summer school program.

Table 16 illustrates the means and standard deviations for the fourth and final 2X2 repeated-measures ANOVA for location (middle school 1 or middle school 2). The results of the fourth and final univariate two-way analysis of variance (ANOVA) for mathematics achievement were as follows. The data did not produce a significant interaction between location and testing condition ($F(1,51) = 2.397, p = .128$). The location (middle school 1 or middle school 2) main effect was not significant ($F(1,51) = 2.211, p = .143$). The testing condition (pre-test and post-test) main effect was significant ($F(1,51) = 46.007, p < .0005$). Collapsed across location, there was a statistically significant difference in mathematics achievement before ($M = 21.782, SD = 6.25$) and after ($M = 27.101, SD = 8.24$) completing a 5-week summer school program.

Research Question 14

Is there a significant difference in achievement in English of any sub-population of students (gender, grade level, socioeconomic status, and location) after completing a summer school program for middle level students?

The differences between three of the four sub-populations' English achievement were not found to be statistically significant, all but location. Table 17 illustrates the means and standard deviations for the first 2X2 repeated-measures ANOVA for gender (male or female). The results of the

Table 16

Pre- and Post-Test Mean Scores for Mathematics Achievement by Location

Location	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Middle school 1	23.76	6.34	38	27.87	7.55	38
Middle school 2	19.80	3.03	15	26.33	7.08	15

Note. Maximum score = 50.

Table 17

Pre- and Post-Test Mean Scores for English Achievement by Gender

Gender	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Male	31.96	6.66	36	36.66	5.43	36
Female	28.14	7.45	12	36.58	5.36	12

Note. Maximum score = 48.

first univariate two-way analysis of variance (ANOVA) for English achievement were as follows. The data did not produce a statistically significant interaction between gender and testing condition ($F(1,46) = 6.744, p = .013$). The gender (male or female) main effect was not significant ($F(1,46) = 1.024, p = .317$). The testing condition (pre-test and post-test) main effect was significant ($F(1,46) = 83.456, p < .0005$). Collapsed across gender, there was a statistically significant difference in English achievement before ($M = 30.051, SD = 7.92$) and after ($M = 36.618, SD = 6.26$) completing a 5-week summer school program.

Table 18 illustrates the means and standard deviations for the second 2X2 repeated-measures ANOVA for grade level (seventh or eighth). The results of the second univariate two-way analysis of variance (ANOVA) for English achievement were as follows. The data did not produce a significant interaction between grade level and testing condition ($F(1,46) = 1.338, p = .253$). The grade level (seventh or eighth) main effect was not significant ($F(1,46) = .078, p = .781$). The testing condition (pre-test and post-test) main effect was significant ($F(1,46) = 74.831, p < .0005$). Collapsed across grade level, there was a statistically significant difference in English achievement before ($M = 30.988, SD = 7.12$) and after ($M = 36.717, SD = 5.42$) completing a 5-week summer school program.

Table 19 illustrates the means and standard deviations for the third 2X2 repeated-measures ANOVA for socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance). The results of the third univariate two-way analysis of variance (ANOVA) for English achievement were as follows. The data did not produce

Table 18

Pre- and Post-Test Mean Scores for English Achievement by Grade Level

Grade level	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
7th grade	31.13	7.94	27	36.10	5.89	27
8th grade	30.84	5.71	21	37.34	4.62	21

Note. Maximum score = 48.

Table 19

Pre- and Post-Test Mean Scores for English Achievement by Socioeconomic Status

SES qualification	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Yes	34.00	4.58	3	39.33	5.69	3
No	30.81	7.11	45	36.46	5.35	45

Note. Maximum score = 48.

a significant interaction between socioeconomic status and testing condition ($F(1,46) = .014, p = .908$). The socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) main effect was not significant ($F(1,46) = .768, p = .385$). The testing condition (pre-test and post-test) main effect was significant ($F(1,46) = 15.922, p < .0005$). Collapsed across socioeconomic status, there was a statistically significant difference in English achievement before ($M = 32.403, SD = 14.49$) and after ($M = 37.897, SD = 11.09$) completing a 5-week summer school program.

Table 20 illustrates the means and standard deviations for the fourth and final 2X2 repeated-measures ANOVA for location (middle school 1 or middle school 2). The results of the fourth and final univariate two-way analysis of variance (ANOVA) for English achievement were as follows. The data did not produce a significant interaction between location and testing condition ($F(1,46) = .183, p = .671$). The location (middle school 1 or middle school 2) main effect was statistically significant ($F(1,46) = 7.999, p = .007$). Collapsed across testing condition (pre-test and post-test), there was a statistically significant difference between location 1 ($M = 35.167, SD = 6.33$) and location 2 ($M = 30.204, SD = 10.39$). This finding is difficult to interpret because of the population differences, but Chapter 5 attempts to provide some possible insight. The testing condition (pre-test and post-test) main effect was also statistically significant ($F(1,46) = 59.629, p < .0005$). Collapsed across location, there was a statistically significant difference in English achievement before ($M = 29.795, SD = 7.43$) and after ($M = 35.575, SD = 5.61$) completing a 5-week summer school program.

Table 20

Pre- and Post-Test Mean Scores for English Achievement by Location

Location	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Middle school 1	32.44	6.58	35	37.90	4.91	35
Middle school 2	27.15	6.81	13	33.25	5.19	13

Note. Maximum score = 48.

Research Question 15

Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding mathematics before and after completing a middle level summer school experience?

The differences between all four sub-populations' change in attitude toward mathematics were not found to be statistically significant. Table 21 illustrates the means and standard deviations for the first 2X2 repeated-measures ANOVA for gender (male or female). The results of the first univariate two-way analysis of variance (ANOVA) for attitude toward mathematics were as follows. The data did not produce a statistically significant interaction between gender and testing condition ($F(1,51) = 3.784$, $p = .057$). The gender (male or female) main effect was not significant ($F(1,51) = .334$, $p = .566$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,51) = 5.606$, $p = .022$).

Table 22 illustrates the means and standard deviations for the second 2X2 repeated-measures ANOVA for grade level (seventh or eighth). The results of the second univariate two-way analysis of variance (ANOVA) for attitude toward mathematics were as follows. The data did not produce a significant interaction between grade level and testing condition ($F(1,51) = .606$, $p = .440$). The grade level (seventh or eighth) main effect was not significant ($F(1,51) = .651$, $p = .424$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,51) = 3.281$, $p = .076$).

Table 23 illustrates the means and standard deviations for the third 2X2 repeated-measures ANOVA for socioeconomic status (qualifies for summer

Table 21

Attitude toward Mathematics Pre- and Post-Test Mean Scores by Gender

Gender	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Male	128.00	17.63	38	128.87	14.92	38
Female	126.47	15.98	15	135.33	9.59	15

Note. Maximum score = 192.

Table 22

Attitude toward Mathematics Pre- and Post-Test Mean Scores by Grade Level

Grade level	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
7th grade	129.14	16.80	36	131.25	15.21	36
8th grade	124.24	17.59	17	129.53	10.73	17

Note. Maximum score = 192.

Table 23

Attitude toward Mathematics Pre- and Post-Test Mean Scores by
Socioeconomic Status

SES qualification	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Yes	123.33	15.92	6	134.17	11.29	6
No	128.11	17.27	47	130.26	14.19	47

Note. Maximum score = 192.

school tuition assistance or does not qualify for summer school tuition assistance). The results of the third univariate two-way analysis of variance (ANOVA) for attitude toward mathematics were as follows. The data did not produce a significant interaction between socioeconomic status and testing condition ($F(1,51) = 2.141, p = .150$). The socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) main effect was not significant ($F(1,51) = .005, p = .944$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,51) = 4.785, p = .033$).

Table 24 illustrates the means and standard deviations for the fourth and final 2X2 repeated-measures ANOVA for location (middle school 1 or middle school 2). The results of the fourth and final univariate two-way analysis of variance (ANOVA) for attitude toward mathematics were as follows. The data did not produce a significant interaction between location and testing condition ($F(1,51) = 1.372, p = .247$). The location (middle school 1 or middle school 2) main effect was not significant ($F(1,51) = 3.381, p = .0720$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,51) = .963, p = .331$).

Research Question 16

Is there a significant difference between any sub-population of students' (gender, grade level, socioeconomic status, and location) attitudes regarding English before and after completing a middle level summer school experience?

The differences between all four sub-populations' change in attitude toward English were not found to be statistically significant. Table 25

Table 24

Attitude toward Mathematics Pre- and Post-Test Mean Scores by Location

Location	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Middle school 1	129.03	18.16	38	133.55	13.14	38
Middle school 2	123.87	13.67	15	123.47	13.35	15

Note. Maximum score = 192.

Table 25

Attitude toward English Pre- and Post-Test Mean Scores for Gender

Gender	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Male	91.06	13.94	36	95.03	15.25	36
Female	90.17	9.92	12	92.00	9.47	12

Note. Maximum score = 136.

illustrates the means and standard deviations for the first 2X2 repeated-measures ANOVA for gender (male or female). The results of the first univariate two-way analysis of variance (ANOVA) for attitude toward English were as follows. The data did not produce a statistically significant interaction between gender and testing condition ($F(1,46) = .287, p = .595$). The gender (male or female) main effect was not significant ($F(1,46) = .231, p = .633$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,46) = 2.115, p = .153$).

Table 26 illustrates the means and standard deviations for the second 2X2 repeated-measures ANOVA for grade level (seventh or eighth). The results of the second univariate two-way analysis of variance (ANOVA) for attitude toward English were as follows. The data did not produce a significant interaction between grade level and testing condition ($F(1,46) = 1.322, p = .256$). The grade level (seventh or eighth) main effect was not significant ($F(1,46) = 3.521, p = .067$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,46) = 4.573, p = .038$).

Table 27 illustrates the means and standard deviations for the third 2X2 repeated-measures ANOVA for socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance). The results of the third univariate two-way analysis of variance (ANOVA) for attitude toward English were as follows. The data did not produce a significant interaction between socioeconomic status and testing condition ($F(1,46) = .034, p = .856$). The socioeconomic status (qualifies for summer school tuition assistance or does not qualify for summer school tuition assistance) main effect was not significant ($F(1,46) = .139, p = .711$). The

Table 26

Attitude toward English Pre- and Post-Test Mean Scores for Grade Level

Grade level	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
7th grade	94.52	13.22	27	96.22	14.99	27
8th grade	86.10	11.22	21	91.76	12.53	21

Note. Maximum score = 136.

Table 27

Attitude toward English Pre- and Post-Test Mean Scores for Socioeconomic**Status**

SES qualification	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Yes	87.67	9.29	3	92.33	8.33	3
No	91.04	13.22	45	94.40	14.35	45

Note. Maximum score = 136.

testing condition (pre-test and post-test) main effect was also not significant ($F(1,46) = 1.255, p = .268$).

Table 28 illustrates the means and standard deviations for the fourth and final 2X2 repeated-measures ANOVA for location (middle school 1 or middle school 2). The results of the fourth and final univariate two-way analysis of variance (ANOVA) for attitude toward English were as follows. The data did not produce a significant interaction between location and testing condition ($F(1,46) = .004, p = .950$). The location (middle school 1 or middle school 2) main effect was not significant ($F(1,46) = .747, p = .392$). The testing condition (pre-test and post-test) main effect was also not significant ($F(1,46) = 3.206, p = .080$).

Table 28

Attitude toward English Pre- and Post-Test Mean Scores for Location

Location	Pre-test			Post-test		
	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>
Middle school 1	89.94	11.30	35	93.31	12.44	35
Middle school 2	93.23	16.95	13	96.85	17.86	13

Note. Maximum score = 136.

CHAPTER FIVE

Discussion

The purpose of this quantitative study was to determine to what extent, if any, a middle level summer school program using Edmonds' (1979) five effective schools characteristics (e.g., educational leadership, an emphasis on teaching basic skills, high expectations for student performance, a safe and orderly climate, and frequent monitoring of student progress) enhanced students' academic achievement in mathematics and/or English and students' change in attitude toward mathematics and/or English. This chapter discusses the results of the statistical analyses over the range of the 16 research questions.

The results are presented in three parts:

First, a descriptive review of the teachers' perceptions of effectiveness are discussed, as teachers' perceptions were not used to predict change in students' academic achievement or to predict change in students' attitude toward mathematics and/or English. Teachers' perceptions of effectiveness are then compared within the teacher population, as well as between the other two populations' perceptions. This means that parents' and students' perceptions of effectiveness are also reviewed descriptively for comparison purposes. By analyzing the prioritization of the effective schools characteristics among the various populations, management and staff may address program consistency and identify areas of strengths and weaknesses to make program improvements. In addition to the descriptive analyses, students' and parents' perceptions are analyzed for the ability to significantly predict change in students' mathematics and/or English achievement and

change in students' attitude toward mathematics and/or English.

Second, a review of students' statistically significant pre- and post-test differences in mathematics and English achievement are presented.

Furthermore, the lack in students' statistically significant gains in attitude toward mathematics and English are also examined.

Third, the sub-populations (e.g., gender, grade level, socioeconomic status, and middle school location) are reviewed to assess any inconsistencies between individual groups in regard to students' gains in mathematics and English achievement and change in students' attitude toward mathematics and English.

Next, the implications that these results have for management and staff in making program improvements, assessing program quality, and in making decisions about program continuation are discussed. Finally, limitations of the present study and ideas for additional research are addressed.

Teachers' Perceptions of Effectiveness

Originally, it was unknown to what extent, if any, Edmonds' (1979) effective schools characteristics would exist in the summer school program under study. As a result, the perception mean scores for each of Edmonds' characteristics by all three summer school populations, separately, allow management and staff to assess the various levels that the effective schools characteristics were perceived. Then, a summary of the population mean scores for each characteristic can be scrutinized by management for program improvements. This attention to detail allows management to make educated decisions about maintaining or altering various program indicators (i.e., tuition reward requirements, parental notification of academic progress, curriculum

offerings, conduct rules, etc.) that were modified by summer school personnel in the process evaluation after the pilot summer school program of 1999. In a time when accountability is of paramount concern, all three populations' perceptions must be considered and will be equally important toward improving the quality of the summer school program.

The summer school lead teachers completed the Effective Schools Questionnaire for Teachers (Baldwin et al., 1993); because there were only four teachers, their perceptions regarding the extent that Edmonds' (1979) five effective schools characteristics existed within the summer school program were not used to predict students' academic achievement or change in students' attitude. However, teachers' perception mean scores of the effective schools characteristics were useful for comparisons within and between the summer school populations. By gauging the level that each characteristic had been perceived within the teacher population, the indicators that were used to support a particular effectiveness characteristic could be evaluated. Furthermore, by comparing the differences in the perception ratings for each effective schools characteristic between summer school populations, the program's accountability could be appraised. Perception mean scores greater than 3 would indicate the presence of specific effective schools characteristics supportive to an academic climate.

The teachers' mean scores for each effective schools characteristic were well above the neutral (3) level (see Table 8 on page 73), suggesting that the teachers perceived that the summer school program reflected all five of the effective schools characteristics.

The teachers perceived frequent monitoring as the strongest of the five

characteristics. In their view, student performance was monitored, evaluated, and used to improve the curriculum. In addition, teachers were responsible for reporting progress to students and parents. Incidentally, the summer school teachers completed weekly progress reports, gauging students' homework completion, homework accuracy, responsibility for materials, and behavior. Students were required to take the reports home and return them signed by their parents.

The teachers also perceived educational leadership within the summer school program. The educational leader of the summer school program was also the researcher. Over a 3-year period, the researcher took an active role in the development of the summer school program. As a result, it was no surprise that Baldwin's et al. (1993) educational leadership indicators such as strong communication, program involvement, instructional effectiveness, and program knowledge were factors observed in the educational leader by the summer school teachers.

Finally, the teachers perceived a safe climate, a focus on basic skills, and high expectations to be present in the summer school program. This is a logical finding because the indicators for all three of these effective schools characteristics were redefined based on the suggestions from the summer school personnel during the process evaluation at the end of the pilot summer school program of 1999. Whether these five effective schools characteristics will continue to be perceived by summer school teachers in further offerings of such interventions is beyond the scope of this study. But, by tracking what perceptions vary from year to year, changes made to program indicators can be better monitored.

Program evaluation theory and organizational theory help to support the positive perceptions communicated by the summer school teaching staff. Worthen, a noted program evaluation theorist, (1997) stated “. . . the criteria for effectiveness guides the direction of the study” (p. 97). For instance, the summer school teachers took part in the process evaluation at the conclusion of the pilot summer school program of 1999. At that time, Edmonds’ (1979) five effective schools characteristics were refined by the summer school personnel to better align the effective schools characteristics with the context, goals, and objectives of the summer school program. These characteristics later evolved into a measurement for program quality based on perceptions of the three populations involved with the program.

From an organizational theory point of view, Waterman (1988) posits that guided autonomy can generate commitment by the staff. This can lead to greater balance within new programs. Stufflebeam’s (1971) CIPP evaluation model provided the “guide”. During the input evaluation, lead teachers collaborated to decide what indicators would best communicate effectiveness across the five levels identified. Then, during the pilot program of 1999, lead teachers were able to apply Edmonds’ (1979) effective schools characteristics to their own summer school classrooms. Perhaps these past experiences strengthened the autonomy and commitment of the summer school teachers. In fact, the CIPP evaluations had fostered involvement by the summer school teachers. Teacher involvement in instructional decision making on a variety of educational levels is strongly supported by effective schools research (Cawelti, 1999; Purkey & Smith, 1983; Taylor & Levine, 1991).

Moreover, the uniformity between three different summer school

populations' perceptions regarding effectiveness in a second-year summer school program is an indication of consistency across five levels of effectiveness. In organizational theory, as well as program evaluation theory, consistency across levels of an organization is essential to the successful implementation of a program because it signifies an acceptance of the program's goals and objectives (Waterman, 1988; Hernandez, 2000). The three populations collectively observed the presence of effective schools characteristics that may have contributed to the program's supportive climate and that may have indirectly contributed to students' achievement gains.

Parents' Perceptions of Effectiveness

Although teachers' perceptions were not used to predict students' achievement or attitude, parents' and students' perceptions were used to predict students' achievement because research suggests the existence of certain characteristics relate to higher student achievement gains (Creemers & Scheerens, 1994; Edmonds, 1979; Mortimore et al., 1988). Parents' perceptions regarding the extent that Edmonds' (1979) five effective schools characteristics existed within a summer school program did not significantly predict summer school students' achievement in English or summer school students' attitude change toward mathematics and/or English. However, parents' perceptions of effectiveness did significantly predict mathematics achievement.

The parents' perceptions of a focus on basic skills and educational leadership together accounted for 18% of the variance in the prediction of mathematics achievement. The prediction model indicated that a positive difference in mathematics achievement was predictable when parents'

perceptions of educational leadership increased, while at the same time parents' perceptions of a focus on basic skills decreased. These two effective schools characteristics were strongly correlated and were not able to predict students' mathematics achievement independently of one another.

The negative coefficient associated with a focus on basic skills could be interpreted as parents' skepticism about the mathematics curriculum. The mathematics teachers developed a curriculum that was very different from the regular school year. At the parent-student orientation, the mathematics teachers suggested that students would be playing card games, going to a car lot, baking cookies, and using the newspaper among other activities to learn basic mathematics skills. At the conclusion of the summer school program, it appears that parents were unsure that such a curriculum had been successful at improving students' basic skills.

The positive coefficient related to parents' perceptions of educational leadership could be interpreted as parents having faith in the administration and staff to provide instructional leadership and quality instruction within the classroom. The combination of parents trusting the educational leader to promote and manage quality instruction while on the other hand, questioning the newly developed curriculum that was very different from the regular school year, resulted in a prediction model for students' mathematics academic achievement using parents' perceptions of two effectiveness characteristics. These two effective schools characteristics together predicted students' mathematics achievement.

The ability of parents' perceptions of effective schools characteristics to predict mathematics achievement is supported by Zigarelli's (1997) recent

empirical research. Zigarelli posited that “achievement seems to be much more a function of student and family variables than of schooling variables” (p. 108). The summer school under study is in line with his assumption, in that effective schools characteristics were able to predict academic achievement to a limited degree. However, Zigarelli’s prediction model was strengthened when he included parental influence variables such as socioeconomic status, family background, and educational expectations in addition to effective schools characteristics. Furthermore, when he added student variables such as ability, effort, and hours spent on homework to predict student achievement, rather than using school effectiveness characteristics alone, the prediction model was even more successful at predicting student achievement. Thus, it is important to note that although effective schools characteristics are related to student achievement, other variables indirectly related to the school environment may play a much larger role in the prediction of student achievement.

Although parents’ perceptions of effectiveness significantly predicted students’ achievement in mathematics, the small amount of academic achievement accounted for by parents’ perceptions of a focus on basic skills and educational leadership makes such a predication model rather unsubstantial. Furthermore, the lack of consistency in being able to predict students’ achievement in English or change in attitude in mathematics and/or English makes such a prediction model inadequate.

So, in addition to using parents’ perceptions to predict student achievement, the mean scores of parents’ perceptions regarding the extent that Edmonds’ (1979) five effective schools characteristics existed within the

summer school program were useful in evaluating the summer school program's quality across five levels of effectiveness (see Table 11 on page 79). A mean score of 3 represents no opinion and all 10 mean scores were above the neutral range, indicating a positive parent perception.

More specifically, parents of both mathematics and English students perceived a safe climate and high expectations as the two strongest characteristics. The summer school parents strongly agreed that students were disciplined in a consistent and fair manner. In addition, parents were aware of program expectations and agreed that the program's expectations were reasonable. Both mathematics and English parents also perceived educational leadership. Factors such as communication, a commitment to instructional effectiveness, and program knowledge were factors observed in the educational leader by the summer school parents.

The last two effective schools characteristics of a focus on basic skills and frequent monitoring were scored least favorably by parents but still above a 3 or neutral level. Interestingly, the effective schools characteristic of frequent monitoring rated most highly by the teacher population ($M = 4.54$, $SD = .63$) was rated among one of the lowest by the parent population ($M = 3.79$, $SD = .62$). Teachers were responsible for completing weekly progress reports that were sent home every Friday to be signed by parents and returned. The stronger perception of frequent monitoring by teachers may be related to the fact that frequent monitoring of students' progress was a part of the teachers' job description, whereas the lesser perception of frequent monitoring by parents may be related to the avenue of delivery in having the summer school student take the report home.

As mentioned, perceptions of a focus on basic skills were also scored least favorably by parents, although still perceived above the neutral level. The lower mean score in parents' perceptions of a focus on basic skills is difficult to interpret based on the survey instrument alone. The weaker perception rating by parents may be related to the newly developed curriculum that incorporated the newspaper, careers, field trips, and cookie baking for mastery of basic skills in mathematics or the frequent use of the outdoor classroom and computer lab for English basics. Whatever the cause, the need for accountability, particularly in a parent-pay program, would indicate a need for a better description for the application of basic skills and problem solving, as well as a possible need for parent conferencing and cumulative student assessment data to reassure parents that basic skills are being developed (Cawelti, 1999).

Students' Perceptions of Effectiveness

Students' perceptions regarding the extent that Edmonds' (1979) four effective schools characteristics existed within a summer school program did not significantly predict summer school students' achievement in mathematics and/or English and summer school students' attitude change toward mathematics and/or English. The results of this study would indicate that perceptions of Edmonds' (1979) effective schools characteristics were unsuccessful at predicting academic achievement.

This study may have been unsuccessful at predicting student achievement but the perception data produced an outline of school effectiveness that may be useful to summer school personnel making program improvements. In fact, there are a few comparison between Edmonds' (1979)

research and this study that need to be addressed.

Edmonds' (1979) research utilized trained observers using instruments specifically written to measure effectiveness characteristics to analyze school life for the purpose of measuring effective schools. This study used surveys specifically written to measure perceptions of Edmonds' effective schools characteristics, by populations directly involved with the summer school program, for the purpose of measuring an effective program. Edmonds' used the information gained from the observations to identify effective and non-effective schools and to predict student achievement based on five levels of income, controlling for pupil populations and neighborhoods to improve the prediction model. The information gained from the study at hand was used to assess the need for program improvements and to predict individual student achievement at all levels of income. Together, these studies illustrate that effective schools characteristics, whether perceptions or otherwise, may be able to predict academic achievement to some degree. However, both studies also suggest that effective schools characteristics may support a climate conducive to student achievement whether it be a school or a program.

The lack in effective schools characteristics ability to predict student achievement is not uncommon. A recent report by Prince and Taylor (1995) on 20 schools within one school district during a regular school year suggests that change in student achievement scores did not correlate with change in the presence of effective schools characteristics. Similar findings reported in this study help to strengthen Prince and Taylor's research findings, suggesting that there is also no observed relationship when predicting academic achievement and change in attitude using perceptions of effective schools characteristics in

a summer school setting.

Prediction of student achievement dates back to the Equal Educational Opportunity report by Coleman et al. (1966) who found that schools (mainly resources like books and materials) accounted for 10% of the variance in pupil achievement during a regular school year. And although more recent studies improved the prediction of student achievement by way of school effects (Jencks, 1972; Scheerens, 1991), models incorporating student ability and effort variables were by far the most productive in predicting students' achievement over effective schools characteristics alone (Zigarelli, 1997).

Although students' perceptions of effectiveness did not significantly predict students' achievement or attitude change in mathematics or English, the mean scores of students' perceptions regarding the extent that Edmonds' (1979) four effective schools characteristics existed within the summer school program were still useful in evaluating the summer school program's quality across four levels of effectiveness (see Table 9 on page 74). A mean score of 3 represents no opinion and all eight mean scores were above the neutral range, indicating a positive student perception.

Both mathematics and English students perceived a focus on basic skills as the strongest of the characteristics. The summer school students in mathematics and English both agreed that the respective subject material was not only important to know but also useful. This illustrates the student's acceptance of the newly developed curriculum that was intended to be more user friendly, more career oriented, and more entertaining to some degree.

Furthermore, the effective schools characteristics of high expectation and frequent monitoring were also positively perceived by students in both

mathematics and English. The importance of attendance, being rewarded, being challenged, and being evaluated were all factors reflected within the summer program by the students. Students were reminded almost daily about the \$25 tuition reward that they would be earning after the completion of a successful 5-weeks. Whenever one or more students would deviate from the expectations of the program, the administrator, teachers, and/or students played an active role in correcting misbehaviors. Although students were only earning a dollar or two a day, they still perceived the high expectations of the program to be positive. One parent suggested that the opportunity to earn the tuition reward was what motivated her student to get out of bed in the morning (personal communication, September, 2000).

Finally, the students perceived a safe climate the weakest of the characteristics. Although the students' perceptions of safety were still above a 3 or neutral level, students appeared to question the knowledge of, parental support of, and obedience of the conduct rules. Furthermore, the cleanliness and maintenance of the buildings were rated lower by the student population.

The lower rating of safety by students may be related to the use of portables for summer school because of summer painting projects at one location and/or the lack of custodial support at the other summer school location. Furthermore, the number of student referrals may support the lack of obedience of conduct rules to some degree. But multiple referrals by the same three students (4 referrals each) do not satisfy the question by many students about the knowledge of conduct rules. The lower rating of safety based on students' perceptions will need to be addressed by management and staff.

Overall, students' perceptions regarding the extent that Edmonds'

effective schools characteristics existed within the middle level summer school program were favorable.

Summary of Perception Data

In conclusion, the mean scores for the perceptions of teachers, parents, and students regarding the extent that Edmonds' (1979) effective schools characteristics existed were useful in describing the quality of the summer school program. Parents, students, and teachers were specifically asked for their view of the quality of the summer school program in terms of their perceptions of effectiveness based on five effective schools characteristics presented and discussed at the parent-student orientation.

Effective schools characteristics were perceived to a positive degree by all three summer school populations. Looking to economic theory, "the characteristics approach has become the more relevant methodology for evaluating improvements in quality" (Ashworth & Papps, 1993, p. 187). Although the summer school program is not merchandise, it did advertise specific components, backed by effective schools research, that tuition-paying parents and prospective summer school students were promised at summer school orientation. Although parents' and students' perceptions of the effective schools characteristics did not successfully or consistently predict student achievement in mathematics or English, statistically significant achievement gains were reported by both student populations. As a result, these effective schools characteristics, although not necessarily predictors of students' academic achievement, should not be seen as inhibitors of academic achievement but rather factors that may create an environment conducive to students' achievement gains.

Furthermore, it is unrealistic to propose a study that would subject one group of summer school students to a program promising effective schools characteristics and yet another summer school program that did not offer summer school students the same effective schools characteristics for the simple comparison of achievement gains. Therefore, parents', students', and teachers' perceptions must be valued as a quality gauge for program improvements albeit lacking the connection to students' achievement predictions.

Keeping in line with the procedures of program evaluation, the perception mean scores from each population were evaluated against past context, input, and process evaluations for accountability purposes. The mean scores from each of the three populations' perceptions created a baseline for future comparisons of perceptions. And, although all three populations' perceptions may differ, each sub-populations' perceptions about the relative effectiveness of the summer school program and the relative valuation of the summer school program are required in order to make program improvement decisions.

By involving all populations in the evaluation, the program's strengths and weaknesses can be identified and reviewed by management and staff to assure that the program has been implemented and administered in the manner it was intended and with the quality expected. "Information about achieved outcomes alone, although necessary, is not sufficient for the appropriate utilization of results" (Hernandez, 2000, p. 28).

Students' Gains in Attitude

Summer school students' attitudes toward mathematics and/or English

did not change significantly over the course of a 5-week summer school program. Although an increase was noted from pre- to post-test attitude inventories for both mathematics and English, neither was found to be statistically significant.

There is little empirical research relating students' attitudes to effective schools characteristics. In fact, much of the research on changing students' attitudes (i.e., non-cognitive gains) is inconsistent and often related to students' achievement rather than with effective schools characteristics (Mortimore et al., 1988; Knuver & Brandsma, 1993). To illustrate, Mortimore et al. (1988) found no relationship between academic achievement and non-cognitive outcomes such as behavior, attendance, and attitude. However, Marsh, Smith, and Barnes (1985) found a negative relationship between achievement and attitude. On the contrary, Knuver's research (1993) reported a positive relationship between attitudes towards mathematics and mathematics achievement (originally cited in Creemers & Scheerens, 1994). Knuver's research viewed affective outcomes as "by-products" of academic achievement. Since then, non-cognitive gains have rarely been considered as criterion variables with effective schools predictor variables. In fact, recent research indicates that attitudes about school subjects and school in general are only indirectly related to achievement. The focus on attitude should be directed at students' attitudes regarding achievement goals and intentions, rather than students' attitudes toward a particular subject, in order to improve predictions of achievement via attitude (Abu-Hilal, 2000). The results of this study using effective schools characteristics to predict affective differences over a 5-week summer school program would suggest continuation of such

practice.

Improved attitude is often viewed as an after-effect of experiencing academic success for a prolonged period of time. As a result, the gains made in attitude in only a 5-week summer school program may be difficult to identify and even more difficult to measure accurately. Therefore, it is important to report two anecdotal incidents that were noted by the researcher during the 5-week summer school program. One student wrote, "I hope summer school will help me do better in English next school year for all the time and money my family is wasting. I think summer school is not going to be as bad as I thought, and it might be fun" (personal communication, June, 2000). Another student wrote, "I dont [sic] realy [sic] care if I graduate or not because Im [sic] not getting the money any more because Im [sic] getting an office referal [sic] so I dont [sic] care any more at all" (personal communication, June, 2000). These two examples help to illustrate the diverse adolescent student population, where attitude played a very significant role in day-to-day levels of students' participation, motivation, and openness to being engaged learners.

Students' Gains in Achievement

This study found summer school students' achievement in mathematics and English to be statistically significant. Given a 5-week summer school setting, statistically significant gains should be considered a positive step toward improving students' basic skill deficiencies. However, this is only one intervention over a 5-week period of time used to address a deficiency that may have been created over a 12 to 13 year period. As a result, the lasting impact in summer school gains is often questioned by management and staff.

More importantly, conflicting reports make questions regarding long-

term gains in summer school even more difficult to answer. To illustrate, Coeyman (2000) reports that “students who were at risk of repeating a grade were. . . able to boost their test scores by attending summer school” (p. 15). Conversely, Coeyman (1999) states “almost 40 percent of students in summer school were retained despite extra instruction” (p. 13). The difference in Coeyman’s remarks only exemplify the difficulty in trying to prove long-term effects of summer school achievement. Considering that past research suggests that lower socioeconomic children make less progress during the summer than during the regular school year compared to their higher socioeconomic peers, maintaining skills over a 5-week summer school session may be just as important as reporting modest gains (Coleman, 1966; Heyns, 1978).

Modest gains in summer school achievement have recently been reported by Cooper, Charlton, Valentine, and Muhlenbruck (2000) in Making the Most of a Summer School. A meta-analysis on summer school achievement recently published by Cooper et al. (2000) reviewed all levels of summer school (K-12), multiple forms of summer school (remedial, gifted, and multiple goaled), a total of 54 summer school reports containing enough information to determine effect sizes (published and unpublished), and over a 30 year range in summer school program reports (1965 to 1998).

Of the 14 middle level remedial programs, 11 programs reported modest gains in mathematics and English achievement (Cooper et al., 2000). The gains reported in this study are similar to Cooper’s et al. recent research finding on students’ achievement in summer school. However, the academic gains reported by Cooper et al. did not speculate on the specific reasons for

the academic gains. In this study, the modest achievement gains reported may be a result of numerous factors related to having only one or two subjects to concentrate on, having a longer class period, having classes no larger than 15 students, earning a \$25 refund for being successful, and participating in curriculum that was different from the regular school year. Furthermore, the commitment by the summer school staff to make students' summer school experience meaningful and productive may have increased the level of engagement by learners.

Sub-Population Comparisons in Students' Achievement and Attitude

The results of all four repeated-measure analyses of variance, (ANOVA), indicated that statistically significant differences did not exist between any sub-population (e.g., gender, grade level, socioeconomic status, and/or middle school location) to a discernible degree regarding students' achievement in mathematics and/or English and students' attitude change toward mathematics and/or English. Although no statistically significant interactions were noted, collapsed across testing condition, there was a statistically significant difference in English achievement between location 1 ($M = 35.167$, $SD = 6.33$) and location 2 ($M = 30.204$, $SD = 10.39$).

The statistically significant difference in English achievement between location 1 and location 2 is difficult to interpret without additional information regarding students' past performance in English to analyze why the English achievement level was lower at location 2 than at location 1. Although the means between the two locations varied, both locations made statistically significant gains in English achievement. Speculation about specific differences in English achievement between location 1 and location 2 is

beyond the scope of this study.

The results of the sub-population comparisons might be considered somewhat positive findings regarding student achievement in mathematics and/or English, especially when considering that past research concluded that the achievement gap between lower and higher socioeconomic children often widened during the summer (Heyns, 1978; Schroeder, 1997; Ward; 1989).

Moreover, the analyses of variance for each of the four sub-populations provided a control for this study, suggesting that all four sub-populations had similar experiences related to opportunities for achievement and/or change in attitude during summer. As stated by Cooper et al. (2000), "comparison groups matched by achievement, age, sex, race, SES, and/or achievement motivation are clearly preferable to unmatched district averages. And the more numerous the matching variables, the more confidence we can place in conclusions" (p. 104).

Taken together, achievement gains were made in both mathematics and English regardless of students' gender, grade level, socioeconomic status, or middle school location during the 5-week summer school program. The same cannot be said for positive changes in students' attitude toward mathematics and/or English during a 5-week summer school program. Gains in academic achievement by all sub-populations are an extremely positive finding, especially when considering populations from different locations within the district. The similar experience by the sub-populations may be related to the same teachers teaching at both sites, as well as the administrator having traveled between the two sites. This consistency may have played a rather large role in the consistency of results in students'

achievement.

This study posed the following question: can a structured summer program composed of strong educational leadership, high expectations for student performance, a safe and orderly climate, an emphasis on teaching basic skills, and frequent monitoring of student progress promote academic gains and positive attitudinal changes of middle level students? Based on the results from the sub-population comparisons, the answer would be yes. Modest gains were reported for all sub-populations regarding mathematics and English achievement. And, although not significant, a positive change in attitude was reported for both mathematics and English students.

Summary of Results

The results of this study are five-fold:

(1) students' perceptions regarding the extent that Edmonds' (1979) four effective schools characteristics existed within this summer school program did not predict students' mathematics achievement, students' English achievement, students' change in attitude toward mathematics, or students' change in attitude toward English;

(2) parents' perceptions regarding the extent that Edmonds' (1979) five effective schools characteristics existed within this summer school program significantly predicted students' mathematics achievement, but did not predict students' English achievement, students' change in attitude toward mathematics, or students' change in attitude toward English;

(3) the 5-week summer school program did not result in statistically significant differences in a change in students' attitudes toward mathematics or a change in students' attitudes toward English;

(4) the 5-week summer school program did result in statistically significant differences between pre and post-test comparisons in students' achievement in mathematics and students' achievement in English;

(5) students' mathematics achievement gains and students' English achievement gains were statistically significant and not interactive with students' gender, grade level, socioeconomic status, or middle school location (with the exception of English achievement and location).

The implications that these five findings have for management and staff in making program improvements and in making decisions about program continuation will be discussed in detail in the following paragraphs.

Implications for Results

Program Improvements Using Perceptions of Effectiveness

The first implication would be the lack of a consistent relationship between students' and parents' perceptions of Edmonds' (1979) five effective schools characteristics and students' achievement in mathematics and/or English or students' change in attitudes toward mathematics and/or English. Although students' and parents' perceptions of Edmonds' five effective schools characteristics were not generally useful in predicting students' achievement or change in attitude, these five characteristics did provide a useful framework to assess the various levels that the effective schools characteristics were perceived. By comparing teachers', parents', and students' perceptions of effectiveness, management can make educated decisions about maintaining or altering various program indicators (e.g., weekly progress information and dissemination, tuition reward program components, code of conduct guidelines, curriculum offerings, etc.) that were defined by the lead teachers

and administrator during the process evaluation. These indicators are directly related to the summer school program's effectiveness and were evaluated using perception data.

Interestingly, parents' and students' positive perceptions of each of the effective schools characteristics varied to some degree. This suggests that parents and students may have different expectations in regard to what a summer school program provides in terms of skills, safety, evaluation, expectations, and leadership. The challenge for summer management and staff will be to meet the needs of the two populations, satisfying the tuition-paying parent, while engaging an academically deficient adolescent.

The differences in priorities between parents and students are noted in the perception data specifically regarding a focus on basic skills and safety. In reviewing mean scores, the largest discrepancies in perceptions were between students and parents relating to a focus on basic skills, particularly in mathematics. Students perceived the summer school program to have focused on basic skills in mathematics and English, as did their parents, but to a lesser degree. The fact that students actually experienced a different curriculum from the curriculum used during the regular school year may be one reason for the students' more favorable perception of a basic skill focus versus their parents' lesser rating of the same.

Another discrepancy in perceptions between students and parents was related to safety. In this case, students perceived safety to a lesser degree than did their parents. Unfortunately, this discrepancy is difficult to interpret based on perception data alone. The issues of cleanliness and classroom location will be a priority, along with any additional areas noted by

management to improve the perceptions of safety for next summer.

Finally, the differences in perceptions between teachers and parents along with their students are noted in the data specifically regarding frequent monitoring. The perception of frequent monitoring, rated by teachers to be the most highly perceived effective schools characteristics, was rated by parents and students very similarly and to a lesser degree than teachers. Interestingly, the high rating by teachers may be directly related to the summer school teachers' involvement in the process evaluation. A means of frequent monitoring was identified by the teachers during this phase of the program evaluation. Summer school personnel decided that students would be evaluated on a weekly basis and asked to relay this information to parents, via a weekly sheet. Since parents rated the monitoring process lowest among the three groups, the avenue for communication (i.e., a report delivered by the student) may have been ineffective. Perhaps this process was perceived by parents to be less effective than a conference or phone call. Weekly phone calls and e-mails to the administrator/researcher from parents inquiring about students' homework, behavior, and tuition reward status only strengthen this inclination.

Although all effective schools characteristics in this study were rated by both parents and students favorably (above the neutral level of 3), the three aforementioned areas indicated a need for review by management and staff to maintain the effectiveness of the current summer school program. Follow-up surveys administered to both parents and students should include questions regarding all five effective schools characteristics related to specific elements of the summer school program in order to address improvement goals.

Moreover, the discrepancies between all three populations' perceptions regarding safety, basic skills, and frequent monitoring must be addressed when analyzing the results of the product evaluation against the context, input, and process evaluations. Thus, more specific indicators for a focus on basic skills, safety, and frequent monitoring must be identified in order to address the inconsistency of perceptions in those specific areas. The goal for management is to gain a general consensus that the program is operating at a level satisfactory to all populations involved.

A Need for Longitudinal Attitude Assessment

The second implication is related to the students' change in attitudes in mathematics and English. Summer school did not significantly improve attitudes toward English and/or mathematics. However, students had little or no time to recognize and apply their achievement gains made in summer school to the regular school year setting. Students had not yet had the opportunity to apply the skills gained in summer school and then experience success in areas they had previously failed. This lack in application of newly acquired skills may inhibit measurable changes in attitude. If summer school can build students' confidences in basic skill mastery, maybe attitude will be a by-product of future academic success. Although longitudinal studies are often impractical because of the time commitment necessary to carry them out, follow-up strategies must not be neglected. Successful gains in attitude might best be illustrated by summer school participants demonstrating a trend toward stronger classroom performance during the regular year after attending summer school (Cale, 1992).

Testimonials by parents, students and teachers involved in the summer

school program would suggest a need for longitudinal research designs measuring attitudinal gains after successful completion of a summer school program (personal communications, September, 2000). However, management and staff must also be trained in alternative methods for more accurate measurement of students' attitudes to improve understanding of potential non-cognitive gains.

Student Achievement Gains in A Supportive Climate

The third implication is related to students' academic achievement in mathematics and English. Although parents' and students' perceptions of effectiveness were not useful in consistently predicting student achievement, academic gains were reported for both mathematics and English. The gains in student achievement may be due in part to the supportive climate created by the effective schools characteristics that were positively perceived by all three populations.

What ever the case, this research demonstrated that summer school can be effective in improving students' achievement levels of basic skills in mathematics and English. In this study, summer school also seemed to meet the needs of a diverse student population (e.g., gender, grade level, socioeconomic status, location) that in the past may have been allowed to fail. And although retention is no longer a common practice in schools, it is resurgent upon failure of summer school. As a result, management and staff must continue to assess student populations to provide summer school curriculum offerings that meet the needs of the student populations. In that way, summer school provides a reasonable alternative for parents and schools, as well as diminishes the use of ineffective retention practices.

Sub-Population Comparisons for Program Quality Control

The fourth and final implication is associated with the significant achievement gains made by mathematics and/or English students regardless of their gender, grade level, socioeconomic status, or middle school location. These four sub-populations were compared to assure consistency throughout the summer school program. This finding addresses the need for quality control. In each comparison, with the exception of one, no sub-population achieved to a greater statistically significant degree. Although this may be related to the 5-week duration of the program, this is not what previous research would indicate, particularly when comparing students' achievement between low versus high socioeconomic status (Coleman et al., 1966; Heyns, 1978; Jencks et al., 1972).

Management and staff must continue to monitor progress of sub-populations to assure parents that all students are receiving the same quality treatment. Since parents have the final say in enrolling a student in summer school, the student population can be even more diverse than anticipated because parents may elect to enroll students, not for basic skill deficiencies, but for other reasons. Even though parents are aware of the remedial nature of the program, some parents enroll their student for reasons including but not limited to: a poor attitude, immaturity, a lack of effort, and misbehavior. This can be a challenge for the summer school classroom teacher when trying to meet the needs of all students using a curriculum for basic skill development. In maintaining class sizes under 15 students, individual needs can be addressed more readily. This may have played a role in finding no differences between sub-populations' achievement data. Although class size research is

extensive, class size was not commonly reported in the summer school research reports. In conclusion, as the program grows, summer school personnel will need to collaborate to ensure that the needs of all populations taking part in the summer school program are met.

Limitations of the Present Study

The limitations within this study included (1) focusing on only five of the numerous effective schools characteristics, (2) using a survey to define non-cognitive gains (i.e., change in attitude in mathematics and English), (3) using only mathematics and English as measures of academic achievement over a 5-week summer school session, and (4) the possibility of some interpretative bias because the researcher and administrator of the summer school program were the same individual.

The first limitation was necessary because of the sample sizes associated with the summer school population. The mathematics students' population of $n = 53$ and the English students' population of $n = 48$ limited the number of predictors that could be used in the linear regression. A good rule of thumb is 10-15 subjects for each predictor variable (personal communication, Schulte, April, 2000). The study was not weakened by the number of predictors, but perhaps, was weakened by the selection of those five predictors. Edmonds' (1979) five effective schools characteristics were selected as a result of the applicability to the summer school program's goals.

The second limitation of using surveys to measure non-cognitive change was directly related to the research design. Because a quantitative approach was taken, a measurement tool was needed to assess non-cognitive gains mathematically. This led to the decision to purchase Sandman's (1979)

Mathematics Attitude Inventory and to the development of a similar English Attitude Inventory. In using quantitative data to calculate non-cognitive change, the results were not as rich as they might have been using other approaches. However, some anecdotal insight was provided where appropriate to improve this area of weakness.

The third limitation was the use of only mathematics and English to measure achievement. Once again, this limitation was directly related to the summer school program's course offerings. The middle level summer school program has only been operating for two years. As a result, the course offerings are limited. Although this limitation could not be avoided or improved upon, it should be viewed as a starting point for further research.

The fourth and final limitation was possible interpretative bias because the researcher and administrator of the summer school program were the same individual. This must be noted as a minor weakness. The quantitative nature of the study helped to limit the amount of bias that entered into the study's results. In addition, the summer school program was developed through a collaborative process over a 3-year period. Ethical considerations such as maintaining confidentiality of data, preserving the anonymity of individual surveys, and using the research results to improve practice were a priority. Finally, Stufflebeam's (1971) CIPP evaluation model, the foundation for this study's research design, provided a systematic framework from which to work. The CIPP evaluation model led to a comprehensive report of the program's development, as well as, the research results associated with the program.

Implications for Future Research

The results of this study suggest five major areas for future research. All five of these areas fall within the context, input, process, and product stages of Stufflebeam's (1971) CIPP evaluation model.

First, the context of this study concentrated on a middle level student population, who attended a summer school program based on their parents' discretion. Students were not required by the school district to attend summer school. The first area for possible future research will be the need to assess the outcomes of summer school student populations attending mandatory vs. voluntary summer school programs. With the resurgence of retention practices associated with summer school failure, would mandatory summer school attendance result in negative gains such as those reported in much of the past retention research (House, 1989; Jackson, 1975; Karweit, 1992)?

The second area for future research relates to the input aspect of this evaluation's design. Parents' and students' perceptions regarding Edmonds' (1979) effective schools characteristics were for the most part used unsuccessfully to predict students' achievement over a 5-week summer school program. Since this is the latest in the list of studies showing no predictable relationship, future summer school research might do well to address student and family variables (e.g., homework hours, effort, motivation, past success, parental volunteer time, parental expectations) in addition to schooling variables or effective schools characteristics to improve the prediction model for summer school achievement (Prince & Taylor, 1995; Zigarelli, 1997). Future studies should also consider students' goals and intentions for predicting or measuring a change in attitude in a summer school setting.

Finally, future research studies would benefit by incorporating a variety of effective schools characteristics, not only in an attempt to predict academic achievement or change in attitude, but also to assess the appropriateness of various program indicators used to measure effectiveness.

Although students' and parents' perceptions of Edmonds' (1979) effective schools characteristics were not consistently able to predict student achievement in this summer school setting, effective schools research would indicate that schools with certain identifiable characteristics do better overall. Perhaps if additional effective schools characteristics were used to predict student achievement, the ability to predict student achievement could be improved upon. Furthermore, the ability to predict academic achievement may not be as important as simply reporting academic gains.

The latest development in effective schools measurement technique is the value-added statistical model developed by the National Opinion Research Center (NORC). This model measures a school's performance only after taking a student's family circumstances into account. Smith and Graham (1999) state that this method allows a researcher to identify schools that do a great job with the clientele they have. Future research on summer school effectiveness would benefit from such customization practices.

The third area for future research relates to the process aspect of this evaluation's design. A major weakness in this study was the difficulty in accurately measuring non-cognitive gains. Although gains in attitude were reported in both mathematics and English, they were not statistically significant gains. Attitude is difficult to isolate and measure. In order to gain accurate results, future research on change in attitude during a summer school program

may warrant qualitative rather than quantitative assessments (Caswell & Keller, 1998). This study collected a limited amount of summer school student feedback. The anecdotal entries in this quantitative study illustrate the need to expand the qualitative constructs that may exist within a successful summer school program. Moreover, a longitudinal, qualitative or quantitative study focusing on past summer school attendees' future successes and/or failures may provide the follow-up information many parents, summer school personnel, and school board members desire following summer school attendance.

The fourth area for future research relates to the product aspect of this evaluation's design. Obviously, the outcome measures of mathematics and English achievement can be extended to other curriculum areas when considering future research on summer school effectiveness. Furthermore, questions regarding the effective length in weeks of a summer school program, the most effective length of class times of a summer school program, and the most effective day to begin a summer school program, as related to improved students' academic achievement (outcomes) are all questions that lend themselves to research on effective summer school programs.

The fifth and final area for future research, also related to product aspect regarding this particular study, would best be served by a longitudinal approach, comparing student achievement over time to measure summer school effectiveness or a summative evaluation completed by an external evaluator to further protect against biased results related to the program's effectiveness.

Conclusion

Once reserved for educational laggards and those classified as “definitely retarded” (Reals, 1928), summer schools at the middle level have become an intervention to meet the needs of a variety of students including slow starters, socially immature students, learning disabled, chronic underachievers, students with poor attitudes, and students with delinquent behaviors. More than 70 years ago, a stigma was attached to summer school attendees suggesting that these students were academically inferior. Today, this stigma is less apparent due to the resurgence of summer school programs. This resurgence may be a result of President Clinton's 1998, State of the Union Address, recommending mandatory summer school programs and ending social promotion. More likely, the resurgence in summer school programs is related to such factors as the change in the make-up of the American family, the increased number of households led by single mothers (Farley, 1996), and the demand by the American public to hold schools accountable for student achievement. Whatever the reason, “nationally, more students than ever before are enrolled in summer school” (O'Connor & Matczak, 2000, p. 1).

The study posed the following question: can a structured summer program composed of strong educational leadership, high expectations for student performance, a safe and orderly climate, an emphasis on basic skills, and the frequent monitoring of student progress promote academic gains and positive attitudinal changes of middle level students? The results of this study indicate, yes, at least in part. Although parents' and students' perceptions regarding the extent that Edmonds' effective schools characteristics existed

did not consistently predict students' achievement and/or students' attitudinal changes, the same perceptions indicated that the summer school program did positively exhibit all five levels of Edmonds' effective schools characteristics which were examined. Furthermore, students made academic gains in English and mathematics, regardless of their gender, grade level, socioeconomic status, or middle school location. And although students' change in attitudes in either mathematics or English were not found to be statistically significant, an increase in attitude was reported for both English and mathematics students regardless of their gender, grade level, socioeconomic status, or middle school location.

These results open the door for additional research on summer school programs in a variety of context, input, process, and product areas of evaluation. As Alexander et al. (1994) posited, "retention does not cure children's problems. The distinction between 'solution' and 'some help' is critical" (p. 214). This study suggests that an effective summer school program, as defined by students', teachers', and parents' positive perceptions regarding the existence of effective schools characteristics, does provide some help by possibly creating a supportive climate that may help to foster gains in student achievement.

Future research on summer school programs should provide additional help in finding ways to accurately measure a summer school program's effectiveness toward improving students' attitudes and achievement. A longitudinal research design utilizing the CIPP evaluation model may be the most proactive response required to help school leaders equip a greater proportion of adolescents with the skills and knowledge they will need to be

successful in school and beyond.

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APPENDIX A
 School Effectiveness Questionnaire: Letter of Approval for Use
 Baldwin et al. (1993)



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February 9, 2000

Ms. Melanie J. Mueller
 425 South Washington
 Papillion, NE 68046

Dear Ms. Mueller:

Thank you for your letter concerning your use of the School Effectiveness Questionnaire in your dissertation research to determine whether an effective middle, level summer school program improves students' attitude and/or academic achievement in math and/or English in 50-seventh and eighth grade students.

As a responsible test publisher, we believe it is our duty to protect the security and integrity of our test instruments. Therefore, we cannot allow copies of the test to be included with or stapled in your dissertation manuscript. If available, sample items may be included, but actual test items cannot. Also, all testing must be conducted in your presence or that of another qualified individual so that all test materials remain secure.

We will gladly grant permission for the use of this test instrument if the above restrictions will be followed. Please indicate your agreement to these terms by signing and returning this letter for our files. When you have returned the signed letter, you may contact Shirley Elizondo in Customer Service at (800) 223-0752, ext. 5427, to order your test materials. If you have already placed an order, it will be released upon receipt of this signed letter. As a student, you are eligible for a 50% discount on these materials; however, you must pay for the order yourself and request the discount at the time you place the order.

Also, please forward a copy of your final dissertation for our library.

Thank you for your interest in our test materials. If you have further questions or needs, please contact us. Good luck with your research.

Sincerely,

Catherine Amaro Baker
 Contract Specialist
 Legal Affairs

AGREED:

APPENDIX B**Mathematics Attitude Inventory****Directions**

The following statements are about the study of Mathematics. Please read each statement carefully and decide whether it describes the way YOU feel about mathematics. Then, find the number of the statement in the answer column and blacken one of the spaces according to the following directions:

If you strongly agree with the statement, blacken space 1.

If you agree with the statement, blacken space 2.

If you disagree with the statement, blacken space 3.

If you strongly disagree with the statement, blacken space 4.

Be sure to blacken only ONE space for each statement.

Be sure to answer every question. You will have about 20 minutes to complete the 48 statements of the inventory. Remember to answer each statement according to the way YOU feel at the present time.

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1. **Mathematics is useful for the problems of everyday life.**
2. **Mathematics is something which I enjoy very much.**
3. **I like the easy mathematics problems best.**
4. **I don't do very well in mathematics.**
5. **My mathematics teacher shows little interest in the students.**
6. **Working mathematics problems is fun.**
7. **I feel at ease in a mathematics class.**
8. **I would like to do some outside reading in mathematics.**
9. **There is little need for mathematics in most jobs.**
10. **Mathematics is easy for me.**
11. **When I hear the word mathematics, I have a feeling of dislike.**
12. **Most people should study some mathematics.**
13. **I would like to spend less time in school doing mathematics.**
14. **Sometimes I read ahead in our mathematics book.**
15. **Mathematics is helpful in understanding today's world.**
16. **I usually understand what we are talking about in mathematics class.**
17. **My mathematics teacher makes mathematics interesting.**
18. **I don't like anything about mathematics.**
19. **No matter how hard I try, I cannot understand mathematics.**
20. **I feel tense when some talks to me about mathematics.**
21. **My mathematics teacher presents material in a clear way.**
22. **I often think, "I can't do it," when a mathematics problem seems hard.**
23. **Mathematics is of great importance to a country's development.**
24. **It is important to know mathematics in order to get a good job.**
25. **It doesn't disturb me to work mathematics problems.**
26. **I would like a job that doesn't use any mathematics.**
27. **My mathematics teacher knows when we are having trouble with our work.**

28. I enjoy talking to other people about mathematics.
29. I like to play games that use numbers.
30. I am good at working mathematics problems.
31. My mathematics teacher doesn't seem to enjoy teaching mathematics.
32. Sometimes I work more mathematics problems than are assigned in class.
33. You can get along perfectly well in everyday life without mathematics.
34. Working with numbers upsets me.
35. I remember most of the things I learn in mathematics.
36. It makes me nervous to even think about doing mathematics.
37. I would rather be given the right answer to a mathematics problem than to work it out myself.
38. Most of the ideas in mathematics aren't very useful.
39. It scares me to have to take mathematics.
40. My mathematics teacher is willing to give us individual help.
41. The only reason I'm taking mathematics is because I have to.
42. It is important to me to understand the work I do in mathematics.
43. I have a good feeling toward mathematics.
44. My mathematics teacher knows a lot about mathematics.
45. Mathematics is more of a game than it is hard work.
46. My mathematics teacher doesn't like students to ask questions.
47. I have a real desire to learn mathematics.
48. If I don't see how to work a mathematics problem right away, I never get it.

APPENDIX C**English Attitude Inventory****Directions**

The following statements are about the study of English. Please read each statement carefully and decide whether it describes the way YOU feel about English. Then, find the letter of the statement in the answer column and blacken one of the letters (A - D) according to the following directions:

If you strongly agree with the statement, blacken space A.

If you agree with the statement, blacken space B.

If you disagree with the statement, blacken space C.

If you strongly disagree with the statement, blacken space D.

Be sure to blacken only ONE space for each statement.

Be sure to answer every question. You will have about 15 minutes to complete the 34 statements of the inventory. Remember to answer each statement according to the way YOU feel at the present time.

1. English is useful for the problems of everyday life.
2. English is something that I enjoy very much.
3. I don't do very well in English.
4. My English teacher shows little interest in the students.
5. Working English problems is fun.
6. There is little need for English in most jobs.
7. English is easy for me.
8. When I hear the word English, I have a feeling of dislike.
9. Most people should study some English.
10. I would like to spend less time in school doing English.
11. Sometimes I read ahead in our English book.
12. English is helpful in understanding today's world.
13. I usually understand what we are talking about in English class.
14. My English teacher makes English interesting.
15. I don't like anything about English.
16. I often think, "I can't do it," when an English problem seems hard.
17. English is of great importance to a country's development.
18. It is important to know English in order to get a good job.
19. It doesn't disturb me to work English problems.
20. I enjoy talking to other people about English.
21. I like to play games that use words.
22. I am good at working English problems.
23. My English teacher doesn't seem to enjoy teaching English.
24. Sometimes I work more English problems than are assigned in class.
25. You can get along perfectly well in everyday life without English.
26. I remember most of the things I learn in English.

27. Most of the ideas in English aren't very useful.
28. My English teacher is willing to give us individual help.
29. The only reason I'm taking English is because I have to.
30. It is important to me to understand the work I do in English.
31. I have a good feeling toward English.
32. My English teacher knows a lot about English.
33. My English teacher doesn't like students to ask questions.
34. I have a real desire to learn English.

APPENDIX D
Pilot Study Results
Summer School, 1999

	<u>District Total</u>		<u>LVJH</u>		<u>PJH</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Student Populations:</u>	59	100	22	37	37	63
Male:	36	61	14	64	22	59
Female:	23	39	8	36	15	41
7th:	42	71	18	82	22	59
8th:	17	29	4	18	15	41

Note. ** 62 students originally enrolled - 2 dropped out (PJH) and 1 did not report (LVJH)

	<u>District Total</u>		<u>LVJH</u>		<u>PJH</u>	
	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>	<u>N</u>	<u>%</u>
<u>Course Enrollments:</u>	93	100				
English 7/8	48	52	16	48	32	53
Math 7/8	45	48	17	52	28	47
English 7					15	47
English 8					17	53
Math 7					14	50
Math 8					14	50

Note. ** 4 teachers were hired - 2 teachers at LVJH with 1 section each (combination 7/8) and 2 teachers at PJH with 2 sections each. Also, 20 hours of curriculum writing/teacher at \$15.00/hr.

	<u>Student Assessment - District Totals</u>			
	<u>Pre-test %</u>	<u>Post-test %</u>	<u>Percent Increase</u>	<u>Sig.</u>
	<u>Mean</u>	<u>Mean</u>	<u>Mean</u>	
<u>Math Attitude:</u>	68	69	1.47	.224
<u>Math Basic Skill:</u>	44	50	13.64	.002*
<u>English Attitude:</u>	67	68	1.47	.592
<u>English Basic Skill:</u>	73	79	8.22	.005*

Note. * Represents mean differences that were found to be statistically significant in Paired T-Test Samples.