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ABSTRACT

Over the last 10 years, declining school enrollments resulted in nearly 30,000 school closures nationwide. Little research has been done, however, on the effects of closing a high school. This report interprets data gathered both before and after the closing of Wheaton Warrenville High School in a large Chicago suburban school district to determine the impact of the school closure on (1) student achievement, (2) student attitudes, and (3) parent attitudes. Data interpretation shows that the school closure did not have any measurable impact on student grades or achievement as measured by standardized tests, nor did it affect such student personality characteristics as self-confidence, sense of efficacy, and self-concept. Parent attitudes, however, reflected many negative perceptions of the school closure's effect on the school community and on the academic achievement of the students. These negative opinions can be partly attributed to parents' lack of access to factual data, to the degree of controversy reported by the press, and to the perceptions of what they believed to be the community consensus. Appended are 8 references, 28 tables, and 8 figures. (IW)

The Effect of Closing a High School on Parent Attitudes, Student Attitudes, and Student Achievement(1)

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I. Introduction

Due to a general decline in the number of schoolaged children over the last ten years there has been a marked increase in the number of schools that have been closed for economic reasons. Indeed, some estimates have placed the number of schools closed since 1959 at around 29,000 nationwide. (U.S. Department of Education, 1981). Although to date most of these closures are predominately at the elementary level, because of population demographics the number of high school students in the 1990's is expected to decline rapidly, thus necessitating a substantial reduction as well in the number of high schools that will be needed.

Although the fact that there will be fewer high school students in the future and, therefore, more school closings are likely, there has been little systematic examination of the effects of closing a high school on parent attitudes, student attitudes, and student achievement. For example, a search of the E.R.I.C. data base yielded only 15 studies dealing even in a broad way with the topic, and none reported any solid long term studies based on empirical data. The dearth of information is so profound that in a recent court attempt to block the closing of a high school (Committee of Ten vs Community Unit School District 200, Wheaton, Illinois, 1984) the six attorneys and ten expert witnesses in education involved had to rely on subjective evidence, data from the closing of elementary buildings, and personal estimates to predict the effects of closing a high school building.

Given the policy and political implications of closing a high school building, it seems useful to begin to capture and analyze existing data and begin to systematically study the problem. Thus, the purpose of this paper is to begin this examination by studying one large, rich student attitude and achievement data base that was gathered both before and after the closing of a high school in a large Chicago suburban district.

II. Historical Backgrounds

District 200, the focal point of this case study, is a large K-12 suburban Chicago school district with a student enrollment of 10,000 who are served by approximately 600 teachers at 17 different school sites. The school community, which is made up of approximately 75,000 residents, is reasonably homogeneous, with a minority population of less than 5%, however, it does encompass two different incorporated cities, small segments of other municipalities, and a large amount of unincorporated land. The chief source of employment could be described as white collar technical and sales, with the average education level of the residents being about 14 years. (High school plus two years of college.) The communities are generally conservative, republican dominated and have been supportive of the schools until recently when three straight property tax referendum rate increases have been soundly defeated.

Since 1977, the district has encountered financial difficulties chiefly due to inflation factors, dwindling enrollment, and increased labor costs. In 1978, the district responded by closing two elementary and one junior high school, and reducing the educational programs offered in some areas to offset the deficit. In 1982, it again became apparent to the school board that the financial picture was no better and, in addition, enrollment projections indicated the District would have surplus capacity for at least the next ten years, especially at the high school level.

In the spring of 1982, therefore, the school board embarked on a course that would eventually lead to the closure of one of the district's high schools, one junior high school, and one elementary school, and a conversion to a middle school (grades 6-8) organizational structure. Although the board was unanimous in their opinion that a high school should be closed, the particular choice of plants to close was a bitter source of controversy. After numerous public meetings and studies were completed, the School Board, on a six to one margin, voted to close Wheaton Warrenville High School. The decision, which was covered extensively by the media, was not well received by the Wheaton Warrenville high school community and naturally they posited numerous reasons why the choice was inappropriate ranging from "the continuation of a historic and systematic discrimination against the Warrenville community" to the lack of available student parking at one of the high schools that remained open. Shortly after the decision was announced a group of parents, chiefly from the school's booster club, formed a group called "Citizens United for Education" (CUE)

to protest the closure of the school. Through a provision in the Illinois state law which allows a citizen's group to file for the formation of a new school district from an existing unit district, CUE gathered the necessary signatures from the registered voters in the old high school attendance area (75% of the eligible voters signed the petition) and filed a detachment petition with the elected, administrative body specified by state law to have jurisdiction concerning these affairs (Regional Board of School Trustees). The intent of the petition was to divide the District along the old high school boundary lines into two separate K-12 school districts. Through a favorable ruling of the Regional School Board, the CUE faction hoped to form their own school district with the Wheaton Warrenville building serving as the high school and thus prevent its closure. Prior to the hearing before the Regional Board began, however, CUE filed an injunction in District Court to block the planning and implementation of the District's reorganization plan. Although the presiding judge ruled in favor of the District and against issuance of the injunction, the court proceedings were reported extensively by the media and were an intense political issue in the entire school district.

In the spring of 1983 shortly before Wheaton Warrenville High School was officially closed and then converted to a middle school, the hearing before the Regional Board of School Trustees began, accompanied by tremendous media coverage, high expectations by parents of the former students of Wheaton Warrenville that their school would remain open for the fall semester, and, at least initially, huge partisan crowds.

After thirty six (36) hearing dates, the presentation of thirty seven (37) witnesses, the introduction of two hundred and forty nine (249) exhibits, 4000 pages of transcripts, and countless hours of preparation, the Regional Board ruled five to two to disallow the detachment petition. Predictably, within a month CUE filed an appeal which was subsequently also denied. As of this writing a second appeal has been filed with the Illinois Appellate Court, and the ruling is expected sometime within the next few months.

While the legal proceeding were drawing most of the public's attention, the District's administration and school board quietly planned and implemented a massive conversion program. Numerous committees were established to handle the various problems associated with the closing of a school ranging from a committee dealing with school colors to a committee concerned with the movement of furniture. As evidence of the success of this program, the District has now operated three full years with one less high school with no major incidents that can be directly attributed to the school's closure.

The purpose of the foregoing discussion is not to present a detailed description of the events that surrounded the closure of one of the District's high schools, but rather to give the reader a feeling of the context of the study, and, indeed, the magnitude of the treatment (i.e., the severity of the events surrounding school closure). It is important to understand the amount of disruption the school closing process caused in a given community to evaluate its impact on subsequent outcome variables in the same sense that a pharmacist must take into consideration the dosage level of a given drug on the subsequent

effect the active ingredient might have. In the particular case described in this paper the disruption caused by the political factors associated with the closure was severe and not likely to be exceeded in other cases. In contrast, the steps taken to operationalize the closing decision apparently went smoothly and caused little community concern. To evaluate the generalizability of the findings one can probably assume that this case study represents the worst case scenario and that in almost all other school closing cases the disruptive effect will be less and, therefore, the outcome variables will be less effected. That is, one can assume that in most cases the impact of a school closure on the outcome variables (student achievement, student attitude, and parent attitude in this study) will be of less magnitude than in the situation described in this paper.

III. IMPACT ON PARENT ATTITUDES

To determine the impact of the school closings (at all three levels) on student attitudes, parent attitudes, and student achievement several separate studies were undertaken. Although there were some common themes across the three investigations, they were basically done independently. The study investigating the effect of the school closings and subsequent district reorganization on parent attitudes is reported in this portion of the paper while the effect on student attitudes and student achievement are discussed in latter sections.

Instrumentation

In January of 1984, the Board of Education commissioned a parent survey to be undertaken during the Spring and appointed a school board member to meet with the district's Director of Research and Evaluation and Superintendent to establish a general list of possible topics around which a parent survey could be constructed. As a result of two meetings in February, three draft surveys were constructed and one commercially published instrument was identified for possible use. These four instruments were distributed to all school board members for their comments, and on March 5th, a special meeting of the school board was held to revise the draft surveys. The comments of the school board members were then integrated into a set of three questionnaires each designed for a particular organizational level (elementary, middle school, high school). No changes were made in the nationally published instrument. The final instruments, as described below, consisted of a mixture of closed-ended, multiple choice responses as well as open-ended questions that called for a written response.

1. Parent Opinion Inventory Part A

A nationally published instrument, by the National Study of School Evaluations, was identified for administration to parents at all grade levels. It consisted of closed-ended, Likert type questions organized around 11 themes (intra-student body relations, school information services, parent involvement, educational objectives, intra-school problems, school program factors, degree of innovation, student activities, support services, auxiliary services, and general psychological climate). Parents were asked to respond via five levels of agreement/disagreement to 53 basic statements concerning District 200. This instrument has been widely used throughout the United States and has good overall reliability (Cronback's alpha=.85).

2. Parent Opinion Inventory Part B (three versions)

A set of three instruments (elementary, middle school and high school versions) was designed to assess specific aspects of the recent school reorganization program. The questions on each version focused on the parents' perception of the effect of reorganization on their child's academic achievement, their child's participation in extracurricular activities, their child's participation in leadership roles, family relationships, school morale, transportation services, etc. Also included in the surveys were three open-ended questions which asked the parents (1) What was good about the district?, (2) What were the District's weaknesses?, and (3) How could the District improve?

Sampling Procedure

In February, approximately 500 parents were polled at each level via a systematic selection method whereby every 6th (or 8th, 10th, etc. depending on the number of parents desired in the sample) parent was selected from an alphabetized student name list starting at a random point. This method was chosen for three reasons: (1) it was easier to undertake and, hence, less subject to selection error typical of random sampling techniques; (2) it provided greater information per unit cost than random sampling; and (3) it spread the sample more uniformly over the entire population and provided more information about the population than an equivalent amount of data contained in a simple random sample. As can be seen from Table 1, which describes the sample distribution, the actual sample selected at each school was proportional to the number of students attending each school. Therefore, it seems reasonable to believe that the selected sample was representative of the parents of the district as a whole.

Mailing Procedure

To insure that a reasonably high response rate was obtained, four steps were taken. One, the cover letters which accompanied the survey were individually addressed and signed. Two, the composition of the cover and follow-up letters incorporated the most recent research findings and suggestions on increasing the response rates. Three, each return envelope (but not survey) was coded such that follow-up contacts were possible and, importantly, the parents knew that an unreturned survey would elicit a follow-up letter. Four, a reminder postcard was sent to nonrespondents two weeks after the initial mailing, and a second survey and letter were sent to nonrespondents after the fourth week. The efficacy of the follow-up letters can be demonstrated by the fact that after the initial mailing the response rate was about 35%, but after the postcard was sent the response rate jumped to 60%, then to about 80% after the second follow-up letter was mailed.

Representativeness of Parent Responses

The whole purpose of obtaining an adequate return sample is to be assured that the average value for the entire population can be accurately estimated from the average value of the sample. Two factors play an important role in the confidence of this estimation procedure and need to be addressed. First, given that it is unlikely that everyone will return the survey, it is important to examine the characteristics of the nonreturn population. One way of attacking this problem is to examine the response rate of a particular unit (grade, school, etc.) in comparison to expected return rates. Tables 1-3 present the return rates for three different comparisons units:

current school, current grade level, and former school. As can be seen from Table 1, the response rate was good with each current school being adequately represented. Response rates over the grade levels were reasonably well balanced with the exception of a slight decline at the 11th and 12th grade levels. At those two levels one would need an additional 12 surveys to make them comparable to the 9th and 10th grades. To determine the impact of the lower response rate at the upper grade levels the mean values for the survey questions across grade levels were examined. The results of this analysis did not indicate the existence of substantial differences in average responses across grade levels, therefore, the impact of a lower response rate at the upper grade levels on the overall high school averages seems insignificant.

If one views the results in terms of their representativeness of last year's school configuration, then a more important impact of differential return rates is evidenced. By examination of the representativeness of of returns from last year's (1982-83) schools as presented in Table 3, it can be observed that the response from former Monroe and Wheaton-Warrenville parents (both schools were closed) is below the other two schools and thus introduces a potential bias in the overall averages in terms of representativeness of last year's schools not this year's schools. From examination of the averages for each question from former Monroe and Wheaton Warrenville high school parents were less positive than the remaining schools (see later dis-

cussion). To estimate the impact of this bias on the overall middle school and high school averages, the means were recalculated based on the assumption that a proportional number had been received from each school. That is, 20 more middle school surveys and 14 more high school surveys with the same average scores as from the surveys from former Monroe and Wheaton Warrenville parents were added to the overall totals. The impact of this adjustment was to change the overall average 0.01 of a point per question in the negative direction at both the middle school and high school level (i.e., an overall average response to a question would be 3.01 not 3.00 if the adjustment was made). Given the relatively small magnitude of the response bias, and the fact that it impacted the representativeness of the surveys in terms of last year's school buildings not this year's building distribution, it was not included in preparation of the tables.

A second way of estimating the impact of nonresponders on the overall average is to examine the average response to a series of questions over time. Theoretically, nonresponders are most similar in beliefs to those parents who needed extensive encouragement (i.e., follow-up letters) to return their surveys and have returned their surveys only after several weeks have passed. If, indeed, this is the case, then one can examine the average responses at the end of a given time period to see if any trends emerge. For instance, a downward trend at the end of the data collection would indicate nonresponders would have more negative opinions than the typical parent. An upward trend after 30-40 days have elapsed would indicate a more positive

attitude than the overall average. Figure 1 plots the average score to two scales (Education, General Psychological Climate) from the NSSE instrument over time. As can be seen from examination of these plots, there does not appear to be any systematic change in respondents' attitudes over time. This indicates that the average response from the typical nonresponder would have been quite similar to the average response of those parents who did return the survey. Thus, there is no evidence to suggest that the lack of response from 20% of the sample parent population biased the overall results in any significant way.

A second way of estimating whether the mean values from the survey responses are good estimates of the mean values of the entire parent population (i.e., if everyone had filled out a survey) is to examine the standard error of the mean which in this particular sample was around 0.04. Given the relatively small standard error of the mean, one can be reasonably confident that the sample mean reflects the opinion of most parents within the district.

Results

Questionnaires from 363 elementary school parents, 375 middle school parents, and 374 high school parents were returned and usable for the study. Although the initial analysis was broken down into five sections: overall elementary results; overall middle school results; overall high school results; an analysis of the open-ended questions; and a comparison of responses between parents whose children were involuntarily transferred and those whose children were not transferred; only the latter component is reported in this paper. (See Ebmeier, 1984, for a detailed report on the other dimensions.)

For purposes of this study, transferred students were defined as those students who were involuntarily moved from one building to another without changing organizational level (i.e., going from elementary to middle school). Nontransferred students were those children who were attending the same building as in the previous year. For this analysis, then, all kindergarten, sixth, seventh, and ninth grade students' parent responses were excluded as well as responses from parents whose children were new to the district in 1983-84. Factors upon which the two groups were compared include the questions from Part B of the parent survey and the eleven subscales from Part A of the survey (Intra-student body relationship, school information services, parent involvement, educational objective, intra-school problems, school program factor, degree of innovation, student activities, support services, auxiliary services, psychological climate).

The comparison of the mean response value, probability level, and a determination of significant differences is presented in Tables 4-6. From examination of the means and probabilities associated with the transferred and nontransferred parent responses, it is evident that there are more significant differences as one progresses from the elementary to high school level. As an example, at the elementary level there was only one significant difference between the two groups, while at the middle school there were six important differences and 18 significant differences at the high school level. If one could characterize the differences at the middle school level, they might be mostly related to intra-student body relationships, general

psychological climate and factors related to the educational program. In contrast, at the high school level, the differences tended to be generalized to all scales with the exception of those scales or questions that were clearly distinct from the school reorganization process (school information services, degree on innovation, value of the seven period day).

IV. IMPACT ON STUDENT ATTITUDES

Instrumentation

In a manner analogous to the development of the parent surveys, the Board of Education commissioned that a student survey be undertaken in the Spring of 1984. As a result of several meetings with the Board, two draft surveys were constructed and two commercially published instruments were distributed to all school board members for their comments, and on March 5th, a special meeting of the school board was held to revise the draft surveys. The comments of the school board members were then integrated into a set of two questionnaires, each designed for a particular organizational level (middle school and high school). No changes were made in the nationally published instruments. The final instruments are described below.

1. Student Opinion Inventory Part A

This instrument, published by National Study of School Evaluations, was identified for administration to students at grade levels 6-12. It consisted of closed-ended, Likert-type questions organized around six themes (student-teacher relationships, student-administrator relationships, student-counselor relationships, student reaction to the curriculum and instructional services, and school image). Students were asked to respond via five levels of agreement/disagreement to 34 basic statements concerning District 200. The instrument has been widely used throughout the United States and has good overall reliability.

2. Student Opinion Inventory Part B (two versions)

This set of two instruments (middle school and high school versions) was designed to assess specific aspects of the recent school reorganization program. The questions on each version focused on the students' perception of the effect of reorganization on their academic achievement, their participation in extracurricular activities, their participation in leadership roles, family relationships, school morale, transportation services, etc.

3. School Attitude Measure

The School Attitude Measure, published by Scott Foresman, was the third set of measures selected for administration to grades 6-12 students. This instrument is designed to examine several dimensions of student attitude and is composed of five scales linking these attitudinal dimensions to school behavior and outcomes. These central ideas are summarized in the description of each scale below:

Scale A: Motivation for Schooling

The statements in this scale are concerned with the way students' total school experience can influence how hard they want to work in school, how highly they value school, and how much they want to pursue further schooling.

Scale B: Academic Self-Concept/Performance Based

The statements in this scale are concerned with the way students' feelings about their academic abilities contribute to their success or lack of success in school.

Scale C: Academic Self-Concept/Reference Based

The statements in this scale are concerned with how students think other people (teachers, family, friends) feel about the students' school performance and ability to succeed academically.

Scale D: Student's Sense of Control Over Performance

The statements in this scale are concerned with students' feelings about being able to exercise control over situations that affect them at school and to take responsibility for the outcome of relevant school events (grades, promotions, etc.).

Scale E: Student's Instructional Mastery

The statements in this scale are concerned with specific skills that all students need in order to organize school life and to succeed in school. They ask students to try to report the state of their actual school skills.

Sample Selection

In February, the Board of Education indicated that the target group for obtaining opinions should be students between the sixth and twelfth grades inclusively. Consequently, in May of 1984, all students in the middle and high schools were asked to complete the Student Opinion Inventory Part B which dealt with the student's perception of of specific aspects of the recent school reorganization program. In contrast to the mass administration of the Student Opinion Inventory Part B, the other two student surveys were given to a random sample of students. This sampling procedure was undertaken for three reasons; one to reduce the disruptive effect of having everyone complete all the surveys; two, to contain the costs; and, three to ensure that the sampling procedure was identical to the procedure used in previous years and thus insure comparability of data over time.

For the last two years, the Student Opinion Inventory Part A has been administered to a random sample (33%) of all twelfth grade students as part of the regular high school testing program. During the spring of 1984, in addition to a one-third sampling of the twelfth grade, the other three grades were also included (33% sample). At the middle school level, a random sample of ten percent of the students completed the instrument as was the case during the previous school year. Similarly, the School Attitude Measure has historically been administered, as part of the regular high school testing program, to a random sample (33%) of all tenth and twelfth grade students. During the spring of 1984, this instrument was again given to a random sample (33%) of tenth and twelfth grade students in a similar manner to previous years. At the middle school level, a random sample of ten

percent of the students completed the School Attitude Measure as was the case during the previous school year.

To summarize, during the 1983-84 school year, all 6th through 12th grade students completed Part B of the Student Opinion Inventory, a random sample (33%) of students in grades 9-12 completed Part A of the Student Opinion Inventory, a random sample (33%) of 10th and 12th grade students completed the School Attitude Measure, and a ten percent random sample of middle school students completed both Part A of the Student Opinion Inventory and the School Attitude Measure. Exclusive of the Student Opinion Inventory Part B, which had not been previously given, all the other student attitude instruments were administered in a manner consistent with practice in previous years.

Results

Attitude questionnaires from students in grades six through twelve were used for the analysis which is broken down into three sections: overall reactions of students toward themselves, school, and specific aspects of the recent school reorganization program; a comparison of student attitudes in District 200 over time; and a comparison of attitude responses between students who were involuntarily transferred and those who were not relocated.

Tables 7-24 display the overall opinions of students across the grade levels toward the school reorganization and various school programmatic factors. Although it is difficult to adequately summarize the results, several of the major trends are noted below.

..... Student morale this year in comparison to last year was rated as higher by 6th, 7th and 9th grade students but lower than last year by 10, 11th, and 12th grade students. A significant downward trend at each organizational level

(middle school and high school) occurred as the grade level increased. Interestingly, when 12th grade students were asked to blindly evaluate the school morale dimension (i.e. school image in Table 24) over a two year period without the benefit of hindsight, they reached the same conclusion that morale was lower.

..... The reported participation in extracurricular activities paralleled the school morale findings with the 6th, 7th, and 9th grade students indicating increased participation this year while the 8th, 11th, and 12th grade students reported a drop in participation rates. Again as the student grade level increased, the level of reported participation compared to the previous year decreased.

..... With the exception of grades seven, nine, and ten, most students reported that their grades were higher than last year. At the high school level, the higher the grade level the higher the reported grades this year in comparison to last year.

..... In general, students felt that the courses they were taking this year were more difficult than the courses they took last year. Predictably, ninth grade students reported the greatest increase in difficulty compared to their work in the previous grade.

..... Students at all grade levels reported a decrease in the number of times they have served in leadership capacities compared to the previous year. Expectedly, the greatest decrease occurred at the seventh grade level where students had recently moved from the sixth grade level in an elementary school to the middle school structure.

..... The majority of students reported that making friends with students who attended a different school the previous year was relatively easy.

The second phase of this analysis focuses on a historical comparison of student attitudes. Table 23 compares the scores of students over the last two years at the middle school level with the higher the mean score, the more positive the response. From examination of this table, it is reasonably clear that the greatest impact of the school

reorganization, at the middle school level, was on eighth grade attitudes with relatively little impact at the sixth and seventh grade levels. Significant decreases in eighth grade students' attitudes occurred on the Student-Teacher Relationship scale, the Student-Participation scale, the Curriculum and Instruction scale, and the School Image scale while attitudes improved on the Self-Concept/Performance scale.

The high school students' attitudes at the tenth and twelfth grade levels as compared to previous years declined in all areas (except the Student-Counselor Relationship scale). As can be seen from Table 24 student attitudes generally are the lowest they have been for the last three or four years, and, with the exception of twelfth grade school motivation and twelfth grade self-concept/referenced, the differences between the 1982-83 and 1983-84 school year are statistically significant (0.05 probability level).

The last part of this section focuses on a comparison of responses from transferred and nontransferred students. As previously defined, transferred students were defined as those students who were involuntarily moved from one building to another without changing organizational level (i.e., going from elementary to middle school). Nontransferred students were those children who were attending the same building as in the previous year. For this analysis, then, all sixth, seventh, and ninth grade students' responses were excluded as well as responses from students who were new to the district in 1983-84. Factors upon which the two groups were compared include the questions

from Part B of the student survey, the six scales from Part A of the survey (Student-Teacher Relationships, Student-Administrator Relationships, Student-Counselor Relationships, Student Participation, Curriculum and Instruction, and School Image), and the five scales from the School Attitude Measure (School Motivation, Self-Concept/Performance, Self-Concept/Referenced, Sense of Control, and Instructional Mastery).

From examination of the means and probabilities associated with the transferred and nontransferred student responses as presented in Tables 23 and 24, it is evident that there are clearly more significant differences at the high school level than at the middle school level. As an example, at the middle school level there were only three significant differences between the two groups while at the high school level thirteen significant differences were present. If one could describe the differences at the middle school level they were mostly associated with student morale, (which was significantly higher for transferred students) and two areas (grades and leadership opportunities) in which the transferred students' attitudes were lower than the nontransferred students. In contrast, at the high school level, the differences tended to be generalized to all scales with two exceptions. First, those questions that were clearly distinct from the school reorganization process (value of the seven period day and the frequency of talking to a counselor) tended to show little differences in opinions between the two groups. And finally, those scales which tended to measure individual personality dimensions (self-concept, sense of control, instructional mastery) were reasonably impervious to the effect of the school reorganization process.

V. IMPACT ON STUDENT GRADES

To examine the impact of the school reorganization on the course grades of high school students who were transferred to another attendance site, historical grading patterns were examined and compared to student marks obtained after the closing of one high school. Weighted grade point average was selected as the unit of measurement because that metric reflected both the grade obtained and the course difficulty factor (Weighted GPA=course difficulty factor x grade obtained). Tables 25 and 26 present the weighted grade point averages across grades and schools for the 1982-83 and 1983-84 school years respectively and, as can be observed from these tables, the averages across the schools are very close. Expectedly, the weighted grade point averages tend to increase as the grade levels increase; thus, a simple comparison of grade point averages from one grade to another would lead to inaccurate conclusions regarding the effect of the transfer. Because of this GPA inflation over the grade levels, Analysis of Covariance was used to mathematically adjust the 1983-84 grade point average by using a student's previous grade point average (1982-83) as the covariate. Table 27 presents the results of such an analysis by examining the adjusted mean scores of transferred and nontransferred students by grade level. As can be observed by examination of Table 26, the average nonadjusted grade point averages of the nontransferred students are slightly higher, however, when previous grades are taken into consideration (adjusted mean as found in Table 27) most

of the difference evaporates. For instance, the difference in mean grade point average between the transferred and nontransferred 10th grade students is 0.08 points (Table 2) before taking into account the grades these students earned as ninth graders. After the adjustment, however, the actual difference decreases to 0.03. As can be observed from Table 27, there were no statistically significant differences (p.05) between the weighted grade point averages of transferred and nontransferred students when their grade average was adjusted to compensate for marks obtained at the previous grade level.

VI. EFFECTS ON STANDARDIZED TEST SCORES

Elementary Results

For the last five consecutive years the 1978 version of the Metropolitan Achievement Test has been administered to all K-8 students in the district. To assess the impact of the school closures at these levels and also to serve as a basis of comparison for the high school standardized test results, scores across the years were examined. Table 28 addresses this question by presenting the mean NCE (Normal Curve Equivalent) of the students in District 200 who were involuntarily transferred from one building to another without changing organizational level (i.e., going from elementary to middle school). In addition, the total District NCE scores are included as a reference point. As can be observed from Table 28, scores from transferred students in current grade levels one, five, and eight were significantly higher after the transfer. In contrast, student scores in grade two were significantly lower after being transferred, while the

scores of students in grades three and four did not change appreciably. Although the score changes are important, it is possible that they are only reflective of the general progress children make in District 200 as they move through the grade levels. To examine this possibility, the overall district average NCE scores were examined as students move from one grade level to another. (In general, NCE scores are established such that if a student makes normal progress in school the NCE scores from year to year will be relatively constant.) As can be observed from Table 28, with the exception of the transition between kindergarten and first grade, the NCE scores in District 200 are relatively stable. Thus, the significant change in scores at grades two, five, and eight cannot be attributed to normal growth patterns. In contrast, the increase in transferred students' scores between kindergarten and first grade seems to be consistent with the patterns typically found at those levels and thus not directly attributable to the reorganization process itself. From examination of all the data in Table 28 it appears that the net effect of reorganization on K-5 students who were transferred is slightly positive as evidenced by one significantly lower score (grade 2) but two significantly higher scores (grades 5 and 8). Interestingly, these results parallel the findings of Paolicchi (1981) who examined the effect of building closure on academic scores for students who formerly attended one of three District 200 elementary buildings that were closed in 1979.

High School Results

To estimate the proficiency of students in grades 9-12 in various subject areas, all students have for the last five years taken a series of nationally standardized tests in April. To increase the

efficiency of the program and to contain the costs, a matrix sampling procedure has been employed whereby tests have been administered to random samples of students.

To insure that the tests matched the curriculum, department chairpersons reviewed the available instruments and selected the nationally published standardized test that most closely measured what they believed to be the taught curriculum. This resulted in the selection of seven tests (math, written expression, science, social studies, spelling, vocabulary, and reading) from four different publishers. In addition to selecting the tests, the department chairpersons also identified the grade levels at which the tests should be administered.

In the spring all high school students are administered one or more of the tests during a 100-minute testing session. To maintain motivation, students were clustered (with few exceptions) into groups of 25 students with two teacher proctors as opposed to mass testing in the gym.

As can be observed from Figures 3-6, which compare the results over the last four years, the 83-84 scores were higher in eight areas and lower in eight areas than last year's scores (prior to the high school closure). From examination of the relative distribution of the scores (i.e., percent of students in each stanine category), there is little change from last year, which indicates that the differences this year are probably just due to normal score fluctuations. That is, this year's overall scores were virtually equivalent to the scores obtained the previous year.

To determine the overall impact on academic achievement of transferring high school students from one school to another school, test scores of transferred and non-transferred students were compiled separately. Figures 7A-7C displays the results of these calculations by plotting the raw scores obtained by both groups as they moved from one grade level to the next. Please note that the graphs are drawn based on raw scores not percentile ranks. Since the tests at each grade level are composed of a differing number of questions, the slope of the lines in Figures 7A-7C has nothing to do with relative achievement. That is, just because students answered fewer questions correctly at the 9th grade in 82-83 than in the 10th grade in 83-84, it does not mean that students knew less in 83-84. The interpretation of the graphs should be made in terms of the relative slope of the transferred students in comparison to the non-transferred students. One would expect the two lines to be relatively parallel if the transfer had no effect, but to cross or diverge significantly if the scores have been affected. From examination of the patterns in Figures 7A-7C it appears that the transferred students' scores in comparison to the non-transferred students' scores improved in five areas (written expressions at three grade levels, science at one grade level, and social studies at one grade level), declined in four areas (math at three grade levels and reading at one grade level), and remained relatively unchanged in one area (science). Thus the overall effect of the transfer on academic scores seems to be neither positive nor negative.

Given that the largest single impact of the reorganization was to transfer the entire student body of Wheaton Warrenville High School to

other school sites, it seemed appropriate to examine their scores on the academic tests this year in comparison to previous year. To facilitate this analysis the scores of all former Wheaton Warrenville students were compiled and a median score calculated. These results along with the median scores from previous years are presented in Figures 8A-8C. Although the interpretation of the results of the calculations displayed in Figures 8A-8C is difficult, the overall pattern does not indicate that the former Wheaton Warrenville students obtained scores this year (while attending different high schools) that were significantly different than their classmates had obtained while at Wheaton Warrenville in previous years.

VII. CONCLUSIONS AND DISCUSSION

Given the massive amount of data presented in the tables and figures it is difficult to briefly summarize the results and the reader is referred to the original source documents for a more detailed interpretation (Ebmeier, H. 1984a, 1984b, 1984c, 1984d). The purpose of this section rather is to discuss the major thematic results that emerged from this study and to explore the possible causitive mechanisms that might have produced these results.

The first theme that seems to emerge from the extant data is the relative stability of student achievement. The closure of schools did not have any measurable impact on student grades or achievement as measured by standardized tests. Other studies (Paolicchi, 1982) have come to the same conclusion and indeed the finding seems predictable. Given that transferred students were exposed to basically the same

curriculum, teachers, course requirements and expectations it would be unlikely that significant differences in achievement would occur. While one might argue that student and parent attitudes (indirectly) might influence student motivational factors and thus achievement results, the linkages between the two for most students seem to be weak and temperal in nature.

A second theme centers around the participation rates of students in extracurricular activities. From examination of the data it is reasonable clear that a student's perception of their participation rates is heavily dependent on the circumstances involved in addition to whether they were transferred to another school. For instance, students moving from the elementary to middle school or middle school to the high school reported higher participation rates than the previous years. In contrast, after the sixth or ninth grade, students indicated that they were less involved in extracurricular activities than they were the previous year. Because of this normal waning of participation rates across grade levels it is difficult to assess the overall impact of school closure other than to say that transferred students in general report lower participation rates than non-transferred students. Part of this lower reported participation rate may be due to bus transportation difficulties typically encountered by transferred students (i.e., they generally are further from the school than non-transferred students). For instance, when students were asked, "If you could walk to school, how would it affect your rate of participation in extracurricular activities?" almost fifty percent of the students stated that it would increase their participation rates.

Naturally when consolidation of schools occurs there is a concom-

itant decrease in the total number of available slots for student participation especially if there is a quota establishing the number of students that can participate in a given extracurricular activity (e.g. only a limited number can play on the basketball team). Thus, between the two factors, it is predictable that student participation rates in general would decline slightly with the greatest decrease being evidenced in those extracurricular activities that have pre-established limits regarding the number of participants.

A third theme that evolved from this study focuses on student attitudes toward the school consolidation proces. These are interesting in the sense that they can be factored into two distinct reaction patterns. First when transferred students are asked questions that are clearly related to the school closing (i.e., a comparison of morale this year to last year) and importantly external to the student's own self, they generally respond in a negative fashion. In contrast the responses to questions that are more personal in nature (e.g., the student's own self concept) tend to be unaffected by the school closing issue. In effect, transferred students are stating that in their opinion the school closings have generally affected the other students in a negative way but have not impacted them personally. Part of this response pattern is probably caused by a mental set established by the parents, affected community members and the negative press which eminated from the decisions whereby students feel that the expected response is in a negative direction. If less turmoil surrounded the school closure, the strength of the negative response would probably be reduced. Secondly, from examination of the data it is clear that high school students were affected in a more

negative way than middle school students (where transferred and non-transferred students attitudes were not significantly different). Given the much stronger bonding between an individual student and a particular school that exists at the secondary level this finding is not surprising. This bonding is undoubtedly attributable to the competitive athletic teams, clubs, other school fundtions, and maturity factors, and suggest that a possible mechanism to ease the transition would be to take whatever steps necessary to recreate this bond between the student and his/her new school.

The last major theme that developed from this study deals with parent attitudes toward the school closure. Similar to the student attitude results, parents of high school students had the most negative feelings followed by middle school parents. Importantly, the magnitude of the difference was great with parents of high school student's who had been transferred reporting significantly more negative feeling to almost all categories of questions than the parents of non-transferred students which was in sharp contrast to their colleagues at the elementary level where few significant differences existed between the responses on transferred and non-transferred sutdent's parents. One interesting aspect of the study was comparing the opinions of the parents regarding the effect of reorganization on grades and academic achievement of ther offspring with the actual grades obtained that same year. Although the parents felt that their children were receiving lower marks in actuality the grades were the same or slightly higher than the previous year. In part this illustrates the potentially damaging effect of negative publicity - parents and students seemingly tend to overgeneralize the negative reactions

of a few commonly stating that although they were not affected by the school closings, almost everyone else was deeply impacted.

To summarize, although the data reported here is from one school district and thus overgeneralization should be avoided, it appears that school closures have little effect on student achievement or internal personality characteristics (e.g., self-confidence, sense of efficacy, self concept). The extent people believe school closures have had a damaging effect on the school community as a whole is, however, another matter and apparently survey respondents, whether they are parents or students, will reflect what they believe to be the community consensus. The more difficult and devisive the school closure appears to have been the more negative the overall responses. How disruptive the process is in reality is probably less important to the opinion formation process since most school patrons have little access to factual data other than that received through publications by the school board or press.

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Table 1

Sampling Distribution and Response Rate Across Schools

Level	School	Oct. 1, 1983 Enrollment	Surveys Sent	Percent of School Enrollment Sent	Surveys Returned due to Address Changes	Surveys Returned	Return Rate(1)
Elementary							
	Bower	301	31	10%	1	21	70%
	Emerson	369	34	9%	0	28	82%
	Hawthorne	299	29	10%	0	25	86%
	Holmes	319	32	10%	0	29	90%
	Lincoln	479	47	10%	1	37	80%
	Longfellow	354	34	10%	2	25	78%
	Lowell	522	59	11%	1	37	64%
	Madison	346	37	11%	1	29	80%
	Pleasant Hill	289	33	11%	1	21	66%
	Sandburg	420	50	12%	1	43	88%
	Whittier	372	40	11%	2	30	79%
	Wiesbrook	342	32	9%	0	20	63%
	Total	4412	458	10%	10	363(2)	81%
Middle School							
	Edison	711	145	20%	4	106	75%
	Franklin	609	151	25%	4	107	73%
	Wheaton Warrenville	977	215	22%	4	150	71%
	Total	2297	511	22%	12	375(2)	75%
High School							
	Central	1689	263	16%	3	195	75%
	North	1447	238	16%	1	166	70%
	Total	3136	501	16%	4	374(2)	75%

(1) Percent Return = $\frac{\text{Number Returned}}{\text{Number Sent - Returned for Address Problems}}$

(2) Includes cases where no school was indicated (Elementary=18, Middle School=12, High School=13)

Table 2

Response Rate Across Grade Level[2]

Grade Level	Enrollment Oct. 1, 1983[1]	Surveys Returned	Percent Returned of School Enrollment
K	706	54	8%
1	755	52	7%
2	692	63	9%
3	712	61	9%
4	682	63	9%
5	667	52	8%
6	633	97	15%
7	787	126	16%
8	836	141	17%
9	811	113	14%
10	804	93	12%
11	747	77	10%
12	754	79	10%

(1) Does not include special education

(2) Please note that a different percentage of surveys was sent to each organizational level, therefore, the percentage returned of school enrollment should be different across organizational level.

Table 3

Response Rate Across Former School (1982-83)[1]

Level/School	Oct. 1, 1982 Enrollment	Surveys Returned	Returned Surveys as a Percent of Enrollment in 82
Elementary (K-5)			
Bower	239	13	5%
Emerson	313	16	5%
Hawthorne	289	24	8%
Holmes	358	25	7%
Jefferson	248	16	6%
Lincoln	467	32	7%
Longfellow	300	17	6%
Lowell	482	27	6%
Madison	296	23	8%
Pleasant Hill	261	14	5%
Sandburg	358	28	8%
Whittier	359	30	8%
Wiesbrook	306	19	6%
Jr. High School (7-8th Grade)			
Edison	542	79	15%
Franklin	584	95	16%
Monroe	553	62	11%
High School (9-11th Grade)			
Central	767	94	12%
North	869	85	10%
Wheaton Warrenville	715	58	8%

(1) Please note that a different percentage of surveys was sent to each organizational level, therefore, the percentage returned of school enrollment should be different across organizational level.

Table 4

A Comparison of Elementary Parent Responses
from Transferred and Non-Transferred Students

Topic	Means Non-Transferred	Means Transferred	Probability Level (1)	Conventional Significant Difference (2)
Subscales from Part A				
Intra-student Body Relationships	2.17	2.34	.09	No
School Information Services	2.26	2.40	.34	No
Parent Involvement	2.37	2.54	.17	No
Educational Objectives	2.34	2.23	.22	No
Intra-school Problems	2.32	2.45	.17	No
School Program Factors	2.27	2.12	.15	No
Degree of Innovation	2.59	2.55	.63	No
Student Activities	2.51	2.51	.93	No
Support Services	2.32	2.14	.06	No
Auxiliary Services	2.68	2.57	.24	No
General Psychological Climate	2.02	2.05	.75	No
Questions from Part B				
4. How would you describe your child's morale this year in comparison to last year?	2.67	2.97	.11	No
5. What overall effect has the school reorganization had on your child?	2.95	2.54	.01	Yes
6. What overall effect has the school reorganization had on the quality of education in District 200?	3.06	2.88	.23	No
7. What overall effect has the school reorganization had on family relationships?	2.97	2.82	.18	No
8. Compared to last year, how would you characterize your own involvement in school activities?	2.85	2.68	.29	No
9. When your child finishes the fifth grade, do you think he will be ready for middle school?	2.53	2.40	.48	No

(1) An estimation if there was a real difference if everyone had been surveyed.
A value of 0 indicates that one can be 100% sure that if every parent was polled there would have been a difference.
A value of 1.0 indicates that the groups are identical in their opinion.
A value of .50 indicates a 50/50 chance that if everyone was polled there would have been a real difference.

(2) A .05 level was used as the criteria(a commonly employed cutoff in social science work).

Table 5

A Comparison of Middle School Parent Responses from Transferred and Non-Transferred Students

Topic	Means Non-Transferred	Means Transferred	Probability Level (1)	Conventional Significant Difference (2)
Subscales from Part A				
Intra-student Body Relationships	2.47	2.76	.01	Yes
School Information Services	2.41	2.73	.03	Yes
Parent Involvement	2.84	3.04	.10	No
Educational Objectives	2.49	2.70	.01	Yes
Intra-school Problems	2.77	2.86	.77	No
School Program Factors	2.35	2.62	.01	Yes
Degree of Innovation	2.72	2.76	.12	No
Student Activities	2.65	2.80	.11	No
Support Services	2.45	2.63	.06	No
Auxiliary Services	2.67	2.68	.91	No
General Psychological Climate	2.31	2.60	.01	Yes
Questions from Part B				
4. How would you describe your child's morale this year in comparison to last year?	2.81	3.13	.07	No
5. What overall effect has the school reorganization had on your child?	3.07	3.24	.18	No
6. What overall effect has the school reorganization had on the quality of education in District 200?	3.04	3.36	.01	Yes
7. What overall effect has the school reorganization had on relationships between parent groups?	3.19	3.45	.06	No
8. What overall effect has the school reorganization had on family relationships?	3.09	3.15	.52	No
9. Compared to last year, how would you characterize your own involvement in school activities?	3.25	3.34	.51	No
10. What effect has the movement of sixth grade students from the elementary school into the middle school had on the overall quality of education for sixth grade students?	2.88	3.13	.17	No
11. What effect has the creation of a middle school had on the overall quality of education received in grades six through eight?	3.01	3.13	.38	No

(1) An estimation if there was a real difference if everyone had been surveyed. A value of 0 indicates that one can be 100% sure that if every parent was polled there would have been a difference. A value of 1.0 indicates that the groups are identical in their opinion. A value of .50 indicates a 50/50 chance that if everyone was polled there would have been a real difference.

(2) A .05 level was used as the criteria (a commonly employed cutoff in social science work).

Table 6

A Comparison of High School Parent Responses from Transferred and Non-Transferred Students

Topic	Means Non-Transferred	Means Transferred	Probability[1] Level	Conventional Significant Difference[2]
Subscales from Part A				
Intra-student Body Relationships	2.35	2.62	.01	Yes
School Information Services	2.50	2.71	.06	No
Parent Involvement	2.73	3.38	.01	Yes
Educational Objectives	2.51	2.81	.01	Yes
Intra-school Problems	2.86	3.04	.02	Yes
School Program Factors	2.39	2.68	.01	Yes
Degree of Innovation	2.66	2.74	.33	No
Student Activities	2.35	2.60	.01	Yes
Support Services	2.50	2.78	.01	Yes
Auxiliary Services	2.75	3.13	.01	Yes
General Psychological Climate	2.49	2.86	.01	Yes
Questions from Part B				
5. How valuable is the seven period day?	2.39	2.29	.53	No
6. How would you describe your child's morale this year in comparison to last year?	2.91	3.73	.01	Yes
7. What overall effect has the school reorganization had on your child?	3.06	3.68	.01	Yes
8. What overall effect has the school reorganization had on the quality of education in District 200?	3.01	3.79	.01	Yes
9. What overall effect has the school reorganization had on positive relation relationships between parent groups?	3.14	3.80	.01	Yes
10. What overall effect has the school reorganization had on family relationships?	2.98	3.35	.01	Yes
11. What overall effect has the school reorganization had on parental involvement in the school?	2.90	3.72	.01	Yes
12. How would you evaluate the transportation system (buses) in comparison to last year?	3.27	3.64	.02	Yes
13. In comparison to last year, how satisfied are you with the extra curricular activities program available to your child?	3.05	3.38	.01	Yes
14. What overall effect has the school reorganization had on the academic achievement of your child?	2.95	3.33	.01	Yes

(1) An estimation if there was a real difference if everyone had been surveyed. A value of 0 indicates that one can be 100% sure that if every parent was polled there would have been a difference. A value of 1.0 indicates that the groups are identical in their opinion. A value of .50 indicates a 50/50 chance that if everyone was polled there would have been a real difference.

(2) A .05 level was used as the criteria (a commonly employed cutoff in social science work).

Table 7

Percent of Responses to Each Question Alternative

Question: How would you describe student morale this year in comparison to last year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Much higher this year	25.6%	23.7%	11.1%	16.1%	5.7%	4.4%	2.2%
2. A little higher this year	37.6	32.9	24.4	25.2	18.4	13.9	9.9
3. About the same	23.7	23.9	26.1	29.5	25.1	28.2	27.8
4. A little lower this year	7.7	13.2	23.1	16.9	28.4	30.8	33.6
5. Much lower this year	5.3	6.3	15.4	12.4	22.4	22.6	26.5
Average Response	2.29	2.45	3.07	2.84	3.43	3.53	3.72

Table 8

Percent of Responses to Each Question Alternative

Question: How would you describe the extent (amount) of your participation in extra-curricular activities this year in comparison to last year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Much higher this year	28.1%	20.3%	10.0%	27.1%	8.5%	6.9%	5.6%
2. A little higher this year	27.6	24.6	14.0	25.9	24.1	15.4	13.5
3. About the same this year	28.1	28.4	32.6	30.8	37.4	41.7	42.6
4. A little lower this year	9.3	12.1	17.3	8.5	16.8	18.0	19.1
5. Much lower this year	6.9	14.6	26.1	7.7	13.2	18.0	19.1
Average Response	2.39	2.76	3.35	2.43	3.02	3.24	3.32

Table 9

Percent of Responses to Each Question Alternative

Question: How would you describe the grades you are receiving this year in comparison to those you received last year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Much higher this year	17.2%	7.9%	14.6%	8.5%	9.6%	8.8%	9.5%
2. A little higher this year	35.0	27.9	31.4	24.1	27.5	30.1	29.9
3. About the same this year	30.2	33.8	28.6	32.7	31.1	34.2	37.0
4. A little lower this year	11.5	22.1	17.7	25.2	22.5	19.4	17.6
5. Much lower this year	6.2	8.4	7.7	9.6	9.3	7.5	6.0
Average Response	2.54	2.95	2.72	3.03	2.94	2.86	2.80

Table 10

Percent of Responses to Each Question Alternative

Question: How would you describe the difficulty of your courses this year in comparison to last year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Much harder this year	25.2%	21.2%	12.5%	34.2%	21.3%	22.8%	6.4%
2. A little harder this year	50.0	56.7	46.5	51.3	50.5	44.9	32.8
3. About the same this year	15.6	14.3	24.9	9.7	23.0	24.2	34.1
4. A little easier this year	5.8	5.5	11.5	2.9	4.2	5.8	18.0
5. Much easier this year	3.4	2.4	4.6	1.8	1.0	2.3	8.6
Average Response	2.12	2.11	2.49	1.86	2.13	2.19	2.89

Table 11
Percent of Responses to Each Question Alternative

Question: How would you describe the number of times you have been a leader in activities of classes this year in comparison to last year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Many more this year	8.2%	4.4%	6.9%	4.7%	4.9%	3.7%	5.4%
2. A few more this year	19.6	15.6	18.7	17.8	16.0	14.3	19.0
3. About the same this year	36.7	37.0	48.7	49.2	53.7	56.1	51.2
4. A few less this year	16.5	17.3	11.4	15.4	11.4	12.5	11.7
5. Many less this year	19.0	25.7	14.4	12.9	14.0	13.5	12.7
Average Response	3.18	3.44	3.07	3.14	3.13	3.17	3.07

Table 12
Percent of Responses to Each Question Alternative

Question: How easy or hard do you think it is to make friends with students who attended a different school than you did last fall?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Very hard	6.0%	3.4%	3.1%	2.8%	4.2%	3.7%	2.4%
2. Hard	9.9	8.3	9.3	7.7	9.0	9.0	9.5
3. Average	32.4	31.7	39.6	33.9	34.1	34.8	36.6
4. Easy	33.4	35.8	29.5	36.4	34.1	33.5	34.2
5. Very easy	18.3	20.7	18.5	19.2	18.6	19.0	17.4
Average Response	3.48	3.62	3.51	3.61	3.53	3.55	3.54

Table 13

Percent of Responses to Each Question Alternative

Question: What method of transportation do you most often use to get from your home to school?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Walk	25.9%	22.4%	27.0%	20.1%	18.7%	11.7%	12.7%
2. School Bus	58.3	61.7	58.2	59.4	53.7	40.5	23.4
3. Car	12.1	11.5	10.1	19.0	26.4	47.2	63.2
4. Other	2.7	3.9	3.5	1.5	1.2	0.6	0.6

Table 14

Percent of Responses to Each Question Alternative

Question: Generally, how long does it take you to get to school?

Response	Grade Level						
	6	7	8	9	10	11	12
1. 0-10 minutes	38.8%	36.3%	39.8%	41.9%	43.8%	56.7%	65.0%
2. 11-20 minutes	41.2	41.1	39.5	42.1	41.2	34.7	27.5
3. 21-30 minutes	14.5	16.8	15.5	12.3	13.0	6.5	4.9
4. 31-40 minutes	3.9	4.2	3.7	2.2	1.7	2.1	1.5
5. Longer than 40 minutes	1.5	1.7	1.5	1.5	0.3	0.0	1.1

Table 15

Percent of Responses to Each Question Alternative

Question: How many times have you talked to your counselor this year about the courses you are taking?

Response	Grade Level						
	6	7	8	9	10	11	12
1. None	79.4%	73.5%	57.9%	6.5%	16.7%	5.6%	13.4%
2. One	12.6	16.1	26.4	22.8	31.8	26.7	21.3
3. Two	3.1	5.1	10.8	37.7	27.1	33.6	27.8
4. Three	1.5	2.1	2.4	22.5	15.3	19.2	17.5
5. Four or more	3.4	3.1	2.4	10.5	9.1	15.0	20.0
Average Response	1.37	1.45	1.64	3.07	2.68	3.11	3.09

Table 16

Percent of Responses to Each Question Alternative

Question: How many times have you talked to your counselor this year about personal problems?

Response	Grade Level						
	6	7	8	9	10	1	12
1. None	81.2%	80.7%	82.1%	84.3%	86.5%	86.6%	80.4%
2. One	8.4	9.8	8.2	10.9	6.4	5.4	8.0
3. Two	4.3	3.5	3.5	3.4	2.9	4.2	4.9
4. Three	1.4	1.3	2.3	0.3	1.2	0.6	2.6
5. Four or more	4.8	4.6	3.9	1.1	3.0	3.3	4.1
Average Response	1.40	1.39	1.37	1.22	1.27	1.28	1.41

Table 17

Percent of Responses to Each Question Alternative

Question: Who has the greatest influence on the type of courses you sign up to take each year?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Parents	63.7%	67.5%	68.1%	67.7%	60.6%	58.9%	49.5%
2. Other students	17.9	26.1	16.1	15.5	17.9	14.2	21.7
3. Counselors	0.9	1.2	2.7	13.1	16.3	22.1	25.1
4. Teachers	16.2	4.8	13.0	3.2	5.0	4.5	3.4
5. Principals	1.4	0.4	0.1	0.5	0.2	0.4	0.3

Table 18

Percent of Responses to Each Question Alternative

Question: If you could walk to school, how do you think it would affect your rate of participation in extra-curricular activities?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Increase dramatically	22.0%	18.8%	18.2%	24.2%	29.2%	17.4%	16.5%
2. Increase some	23.9	25.0	25.5	44.2	34.2	39.1	34.8
3. Stay the same	38.3	36.8	38.3	29.0	33.6	41.1	43.0
4. Decrease some	10.2	10.8	8.1	1.2	1.1	1.2	3.2
5. Decrease dramatically	5.6	8.6	9.9	1.4	1.9	1.2	2.5
Average Response	2.53	2.65	2.65	2.11	2.12	2.29	2.40

Table 19

Percent of Responses to Each Question Alternative

Question: If you could walk to school, do you think you would ask your teachers for help before and after school more often than you do now?

Response	Grade Level						
	6	7	8	9	10	11	12
1. Yes	58.9%	58.3%	63.1%	78.6%	83.1%	78.5%	69.0%
2. No	40.3	41.3	36.5	21.4	16.9	21.5	31.0

Table 20

Percent of Responses to Each Question Alternative

Question: How valuable is the seven period day?

Response	Grade Level			
	9	10	11	12
1. Very valuable	20.2%	18.9%	19.3%	7.6%
2. Valuable	41.4	38.7	27.6	29.7
3. Uncertain	25.9	21.3	25.5	18.2
4. Not valuable	6.8	11.8	18.1	25.8
5. Definitely not valuable	5.7	9.3	9.5	18.7
Average Response	2.36	2.53	2.70	3.18

Table 21

A Comparison of Student Attitudes
Over a Two Year Period
on Various Dimensions

(The higher the score the more positive the response)

Subscale	School Year 1982-83	School Year 1983-84	Probability Level	Significant Difference between 82-83 and 83-84
Student Teacher Relationships				
Grade 6	3.28	3.14	0.06	No
7	3.72	3.62	0.37	No
8	3.91	3.29	0.01	Yes
Student Administrator Relationships				
Grade 6	3.29	3.05	0.07	No
7	2.96	2.93	0.81	No
8	3.19	2.71	0.01	Yes
Student Counselor Relationships				
Grade 6	-	-	-	-
7	3.24	3.10	0.39	No
8	3.12	2.80	0.08	No
Student Participation				
Grade 6	3.28	3.14	0.09	No
7	3.18	3.33	0.14	No
8	3.33	3.02	0.01	Yes
Curriculum and Instruction				
Grade 6	3.61	3.38	0.01	Yes
7	3.26	3.37	0.27	No
8	3.57	3.07	0.01	Yes
School Image				
Grade 6	3.70	3.59	0.30	No
7	3.73	3.54	0.85	No
8	3.75	3.02	0.01	Yes
School Motivation				
Grade 6	36.13	35.32	0.14	No
7	42.91	43.40	0.50	No
8	41.92	41.80	0.83	No
Self-concept/Performance				
Grade 6	37.37	36.23	0.04	Yes
7	40.10	40.61	0.48	No
8	39.24	40.85	0.02	Yes
Self-concept/Referenced				
Grade 6	38.39	38.69	0.56	No
7	42.38	43.45	0.08	No
8	42.56	41.29	0.95	No
Sense of Control				
Grade 6	37.69	38.59	0.20	No
7	44.25	43.38	0.27	No
8	42.98	43.89	0.24	No
Instructional Mastery				
Grade 6	40.10	39.68	0.45	No
7	44.31	43.95	0.61	No
8	44.22	43.78	0.55	No

(1) A value of 0 indicates that a real difference exists. A value of 1 indicates no difference.

(2) A .05 level was used as the criteria (a commonly employed cutoff in social science work).

(3) The neutral response is 3 and 37.5 (6th grade) or 42.5 (7-8th grade)

Table 22

A Comparison of Student Attitudes
Over the Last Three Years on Various Dimensions
(The higher the score, the more positive the response)

Scale	Grade Level			
	9	10	11	12
Student Teacher Relationships				
81-82				3.67
82-83				3.87
83-84	3.57	3.63	3.50	3.47
Student Administrator Relationships				
81-82				3.13
82-83				3.26
83-84	2.93	2.85	2.73	2.65
Student Counselor Relationships				
81-82				3.38
82-83				3.44
83-84	3.75	3.29	3.43	3.40
Student Participation Relationships				
81-82				3.36
82-83				3.31
83-84	3.15	3.17	3.20	3.18
Curriculum and Instruction				
81-82				3.44
82-83				3.58
83-84	3.60	3.58	3.43	3.29
School Image				
81-82				3.67
82-83				3.85
83-84	3.66	3.56	3.39	3.41
School Motivation				
80-81		57.62		57.41
81-82		59.05		57.49
82-83		58.63		56.93
83-84		56.52		55.76
Self-concept/Performance				
80-81		53.13		56.44
81-82		53.44		56.38
82-83		54.41		55.93
83-84		52.73		54.35
Self-concept/Referenced				
80-81		52.74		55.03
81-82		51.32		54.67
82-83		53.26		54.71
83-84		50.99		53.72
Sense of Control				
80-81		62.72		64.61
81-82		63.98		62.65
82-83		62.97		63.30
83-84		60.59		60.19
Instructional Mastery				
80-81		56.17		57.69
81-82		57.00		56.91
82-83		56.54		57.64
83-84		54.82		54.88

(1) A value of 3.0 or 50 represents the middle point in the scale

(2) The neutral response is 3 or 50

Table 23

A Comparison of Middle School Student Responses
Transferred and Non-Transferred Students

8th Grade

Topic	Means Non-Transferred	Means Transferred	Probability[1] Level	Conventional[2] Significant Difference
Subscale from Part A (Higher the score, the more positive the response)				
Student Teacher Relationships	3.37	3.16	.36	No
Student Administrator Relationships	2.76	2.61	.55	No
Student Counselor Relationships	2.82	2.75	.80	No
Student Participation Relationships	3.06	2.94	.50	No
Curriculum and Instruction	3.13	2.95	.42	No
School Image	3.09	2.89	.38	No
School Motivation	40.85	41.48	.57	No
Self-concept/Performance	41.90	41.61	.78	No
Self-concept/Referenced	42.38	40.75	.12	No
Sense of Control	43.97	44.55	.66	No
Instructional Mastery	43.97	44.09	.89	No
Subscales from Part B (Lower the score, the more positive the response)				
6. How would you describe student morale this year in comparison to last year?	3.23	3.02	.01	Yes
7. How would you describe the extent (amount) of your participation in extracurricular activities this year in comparison to last year?	3.38	3.35	.77	No
8. How would you describe the grades you are receiving this year in comparison to those you received last year?	2.64	2.84	.02	Yes
9. How would you describe the difficulty of your courses this year in comparison to last year?(3)	2.49	2.56	.34	No
10. How would you describe the number of times you have been a leader in activities or classes this year in comparison to last year?	2.89	3.16	.01	Yes
11. How easy or hard do you think it is to make friends with students who attended a different school than you did last year?(3)	3.52	3.53	.84	No
14. How many times have you talked to your counselor this year about the courses you are taking?(3)	1.66	1.62	.59	No
15. How many times have you talked to your counselor this year about personal problems?(3)	1.53	1.39	.07	No

(1) A value of 0 indicates that a real difference exists. A value of 1 indicates no difference.

(2) A .05 level was used as the criteria (a commonly employed cutoff in social science work)

(3) Reverse for interpretation - The lower the mean, the less frequency or more difficulty.

Table 24

A Comparison of High School Student Responses
Transferred and Non-Transferred Students

Topic	Means Non-Transferred/Transferred	Probability Level (1)	Conventional Significant Difference (2)
Subscales from Part A (Higher the score, the more positive the response)			
Student Teacher Relationships	3.63	3.39	.01	Yes
Student Administrator Relationships	2.78	2.65	.05	Yes
Student Counselor Relationships	3.49	3.21	.01	Yes
Student Participation Relationships	3.31	2.94	.01	Yes
Curriculum and Instruction	3.49	3.36	.02	Yes
School Image	3.62	3.20	.01	Yes
School Motivation	56.54	55.60	.38	No
Self-concept/Performance	53.75	53.31	.66	No
Self-concept/Referenced	52.88	51.42	.13	No
Sense of Control	60.55	60.23	.74	No
Instructional Mastery	55.28	54.21	.20	No
Questions from Part B (Lower the score, the more positive the response)			
5. How valuable is the seven period day?	2.83	2.72	.11	No
6. How would you describe student morale this year in comparison to last year?	3.39	3.91	.01	Yes
7. How would you describe the extent (amount) of your participation in extracurricular activities this year in comparison to last year?	3.02	3.50	.01	Yes
8. How would you describe the grades you are receiving this year in comparison to those you received last year?	2.75	3.15	.01	Yes
9. How would you describe the difficulty of your courses this year in comparison to last year?(3)	2.32	2.43	.03	Yes
10. How would you describe the number of times you have been a leader in activities or classes this year in comparison to last year?	2.96	3.39	.01	Yes
11. How easy or hard do you think it is to make friends with students who attended a different school than you did last year?(3)	3.66	3.40	.01	Yes
14. How many times have you talked to your counselor this year about the courses you are taking?(3)	2.97	2.88	.16	No
15. How many times have you talked to your counselor this year about personal problems?(3)	1.34	1.24	.03	Yes

(1) A value of 0 indicates that a real difference exists. A value of 1 indicates no difference.

(2) A .05 level was used as the criteria (a commonly employed cutoff in social science work).

(3) Reverse for interpretation - The lower the mean the less frequency or more difficulty.

TABLE 25

WEIGHTED GRADE POINT AVERAGES

ACROSS BUILDINGS AND GRADES

BUILDING	GRADE LEVEL	YEAR 82-83	YEAR 83-84
NORTH	9	3.50	---
	10	3.59	3.56
	11	3.64	3.66
	12	---	3.80
	Total	3.58	3.67
CENTRAL	9	3.53	---
	10	3.53	3.50
	11	3.66	3.58
	12	---	3.80
	Total	3.57	3.64
WHEATON WARRENVILLE	9	3.48	---
	10	3.45	---
	11	3.67	---
	12	---	---
	Total	3.53	

TABLE 26

WEIGHTED GRADE POINT AVERAGES

ACROSS TRANFERRED CONDITIONS (2)

YEAR	GRADE LEVEL	STATUS	MEAN
82-83	9	Transferred (1)	3.45
		Not Transferred	3.61
	10	Tranferred	3.54
		Not Transferred	3.62
	11	Transferred	3.73
		Not Transferred	3.77
83-84	10	Transferred	3.46
		Not Transferred	3.58
	11	Tranferred	3.57
		Not Transferred	3.64
	12	Transferred	3.78
		Not Transferred	3.80

(1) Students who were transferred the following year

(2) Students not having GRAs for both years were excluded from the analysis

Table 27

Weighted Grade Point Averages
Across Transferred Conditions
1983-84

Grade Level	Condition	Adjusted Mean(1)	Probability Level(2)	Significant Difference(3)
10	Not Transferred	3.52	0.16	No
	Transferred	3.55		
11	Not Transferred	3.61	0.36	No
	Transferred	3.63		
12	Not Transferred	3.80	0.32	No
	Transferred	3.81		
Total	Not Transferred	3.64	0.14	No
	Transferred	3.66		

(1) Taking into consideration each student's weighted GPA the previous year (1982-83)

(2) An estimation of the magnitude of difference between the two means. A value of 1.0 would indicate that no difference between the two means exists. A value of 0 indicates that one can be 100% sure that the difference is a true difference.

(3) A 0.05 level was used as the criteria (a commonly used cutoff in social service work).

Table 28

Comparison of Transferred Students' NCE Composite Score Over Two Years

Grade Level 1982-83	Grade Level 1983-84	Category	NCE Composite 1982-83	NCE Composite 1983-84	Probability[1] Level	Significant[2] Difference
K	1	Transferred	55.21	65.13	0.001	Yes
		Total District	62.08	70.08		
1	2	Transferred	73.78	65.38	0.001	Yes[3]
		Total District	70.01	70.09		
2	3	Transferred	60.46	63.06	0.109	No
		Total District	68.01	66.04		
3	4	Transferred	60.16	60.03	0.942	No
		Total District	67.04	65.06		
4	5	Transferred	58.68	64.01	0.036	Yes
		Total District	66.09	67.05		
7	8	Transferred	70.65	72.48	0.001	Yes
		Total District	67.03	67.02		

(1) An estimation of the magnitude of difference between the two means. A value of 1.0 would indicate that no difference between the two means exist. A value of 0 indicates that one can be 100% sure that the difference is a true difference.

(2) A 0.05 level was used as the criteria (a commonly used cutoff in social science work).

(3) Mean NCE score went down between the two years

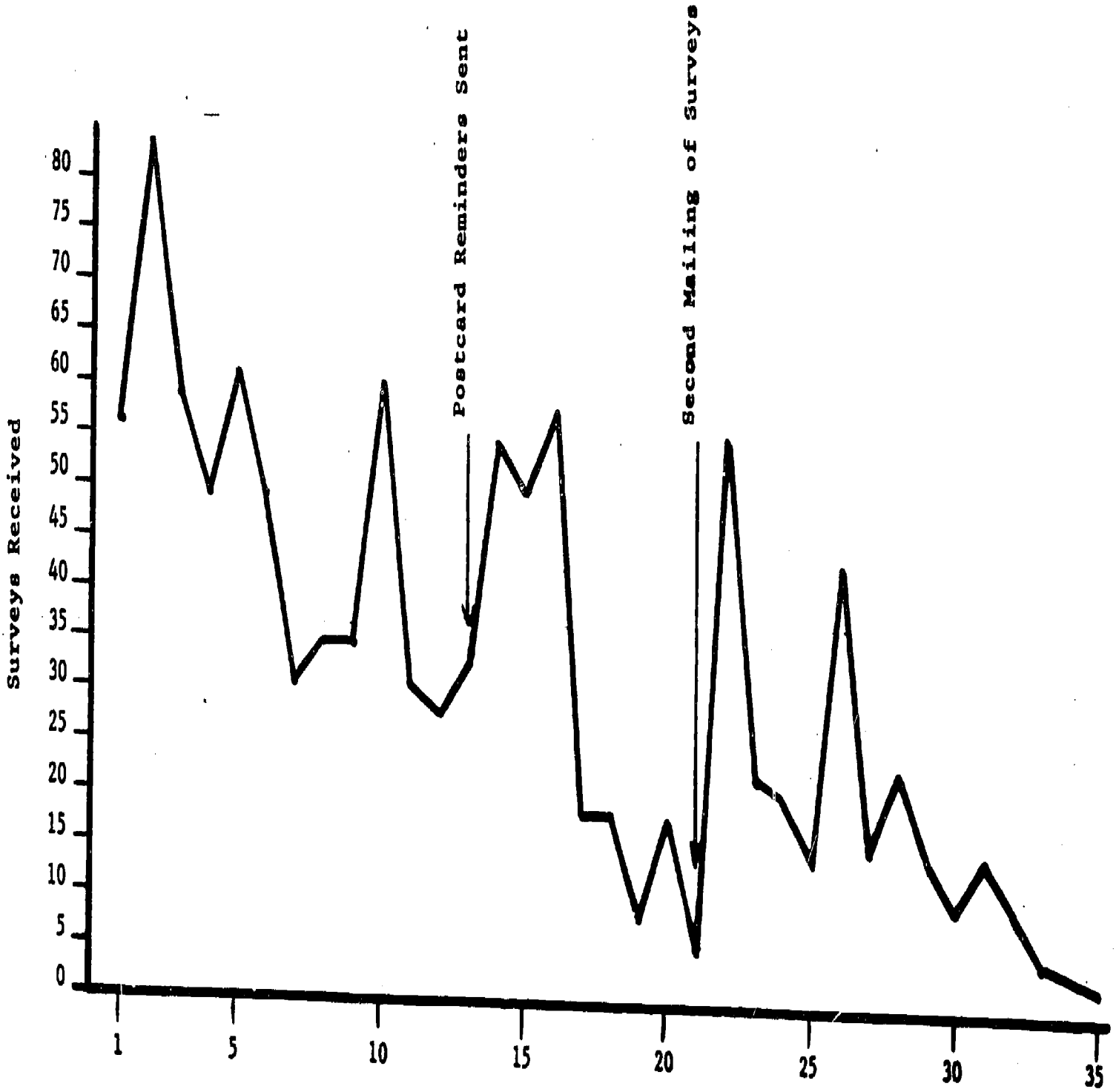


Figure 1

Survey Return Rate Over Time

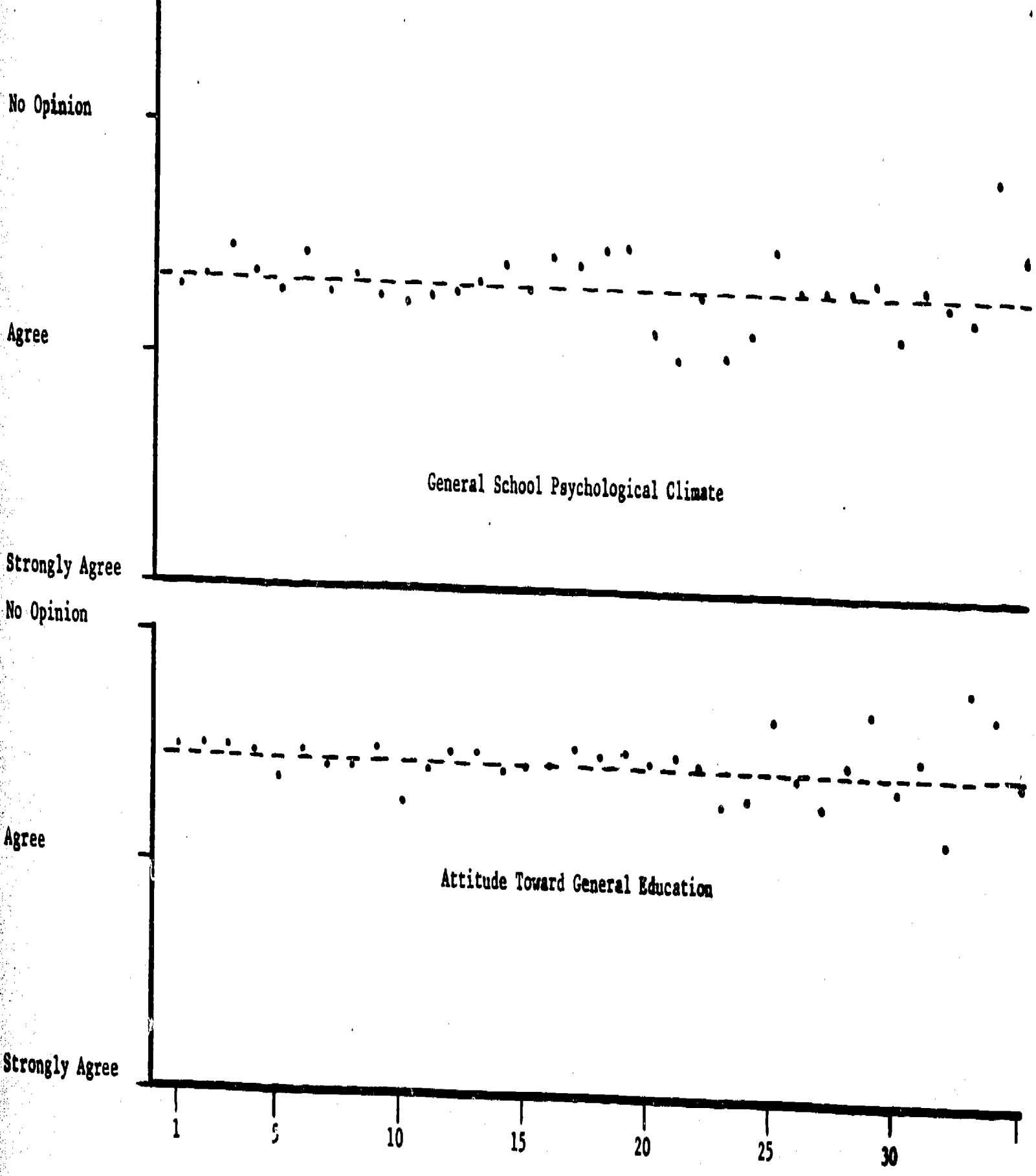


Figure 2

Average Response Rate on Two Scales Over Time

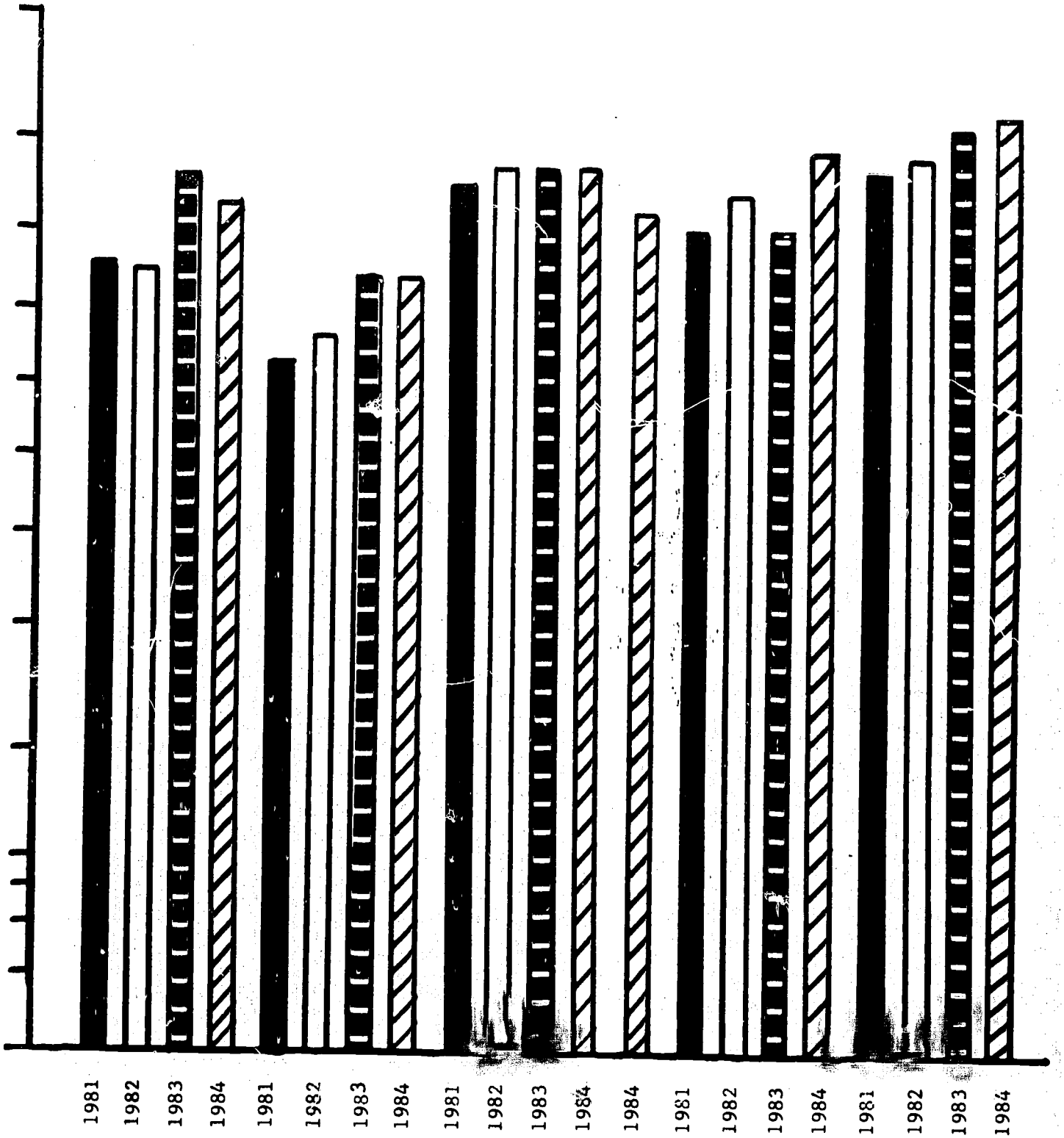


Figure 3

Percentile Rank Scores of Median Scores

Grade 9

District 200

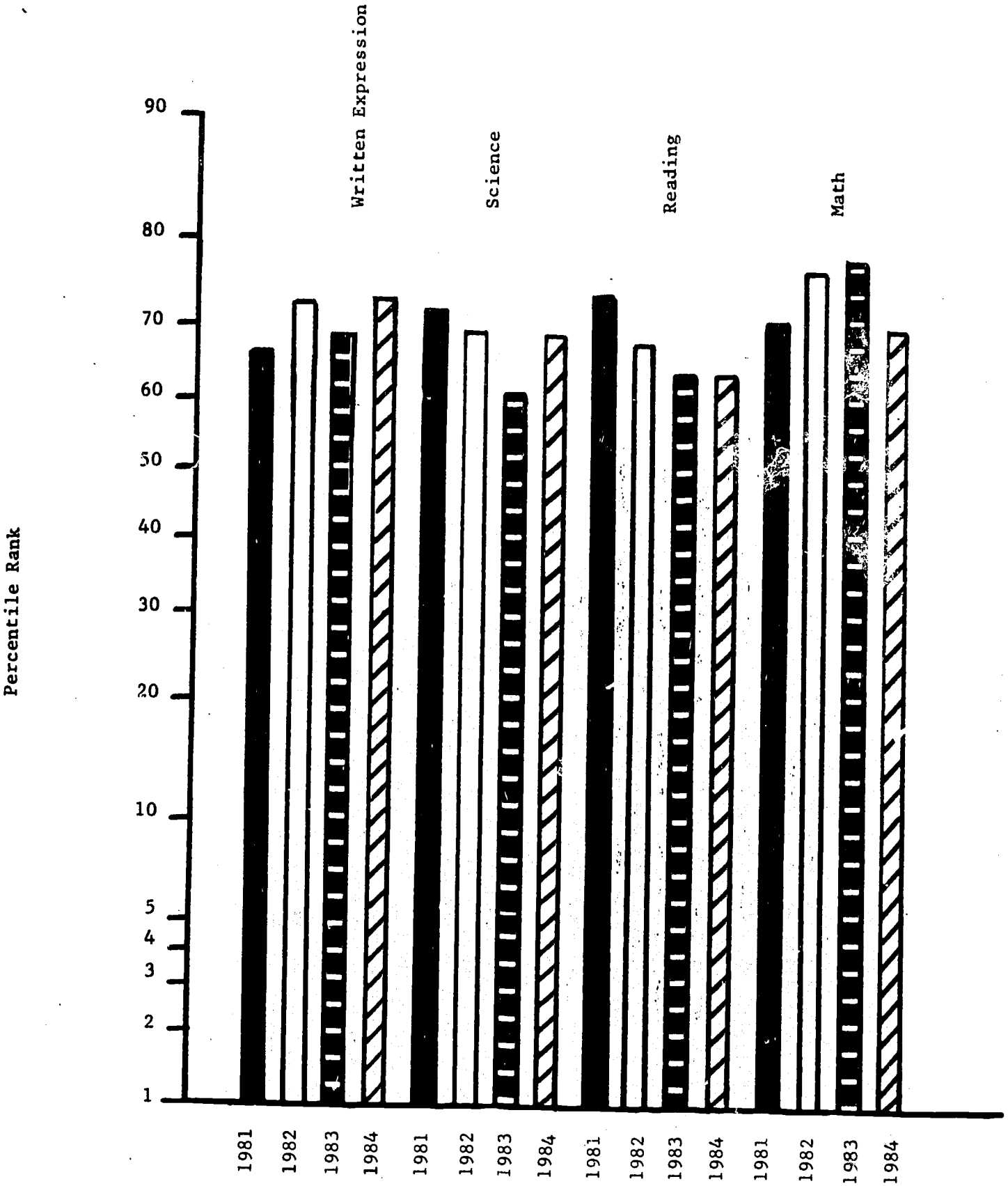


Figure 4

Percentile Rank Scores of Median Scores

Grade 10

District 200

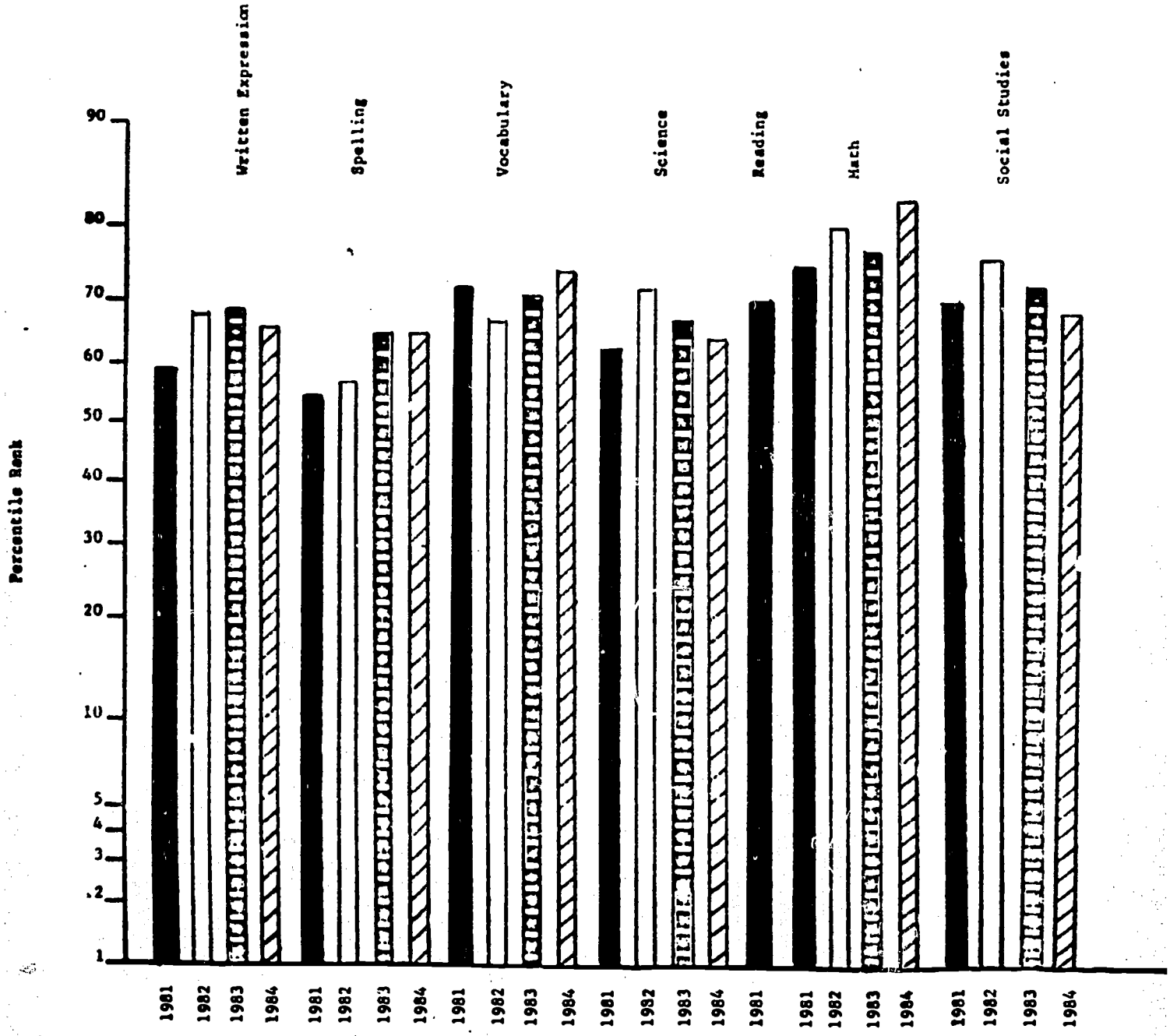


Figure 5

Percentile Rank Scores of Median Scores

Grade 11

District 200

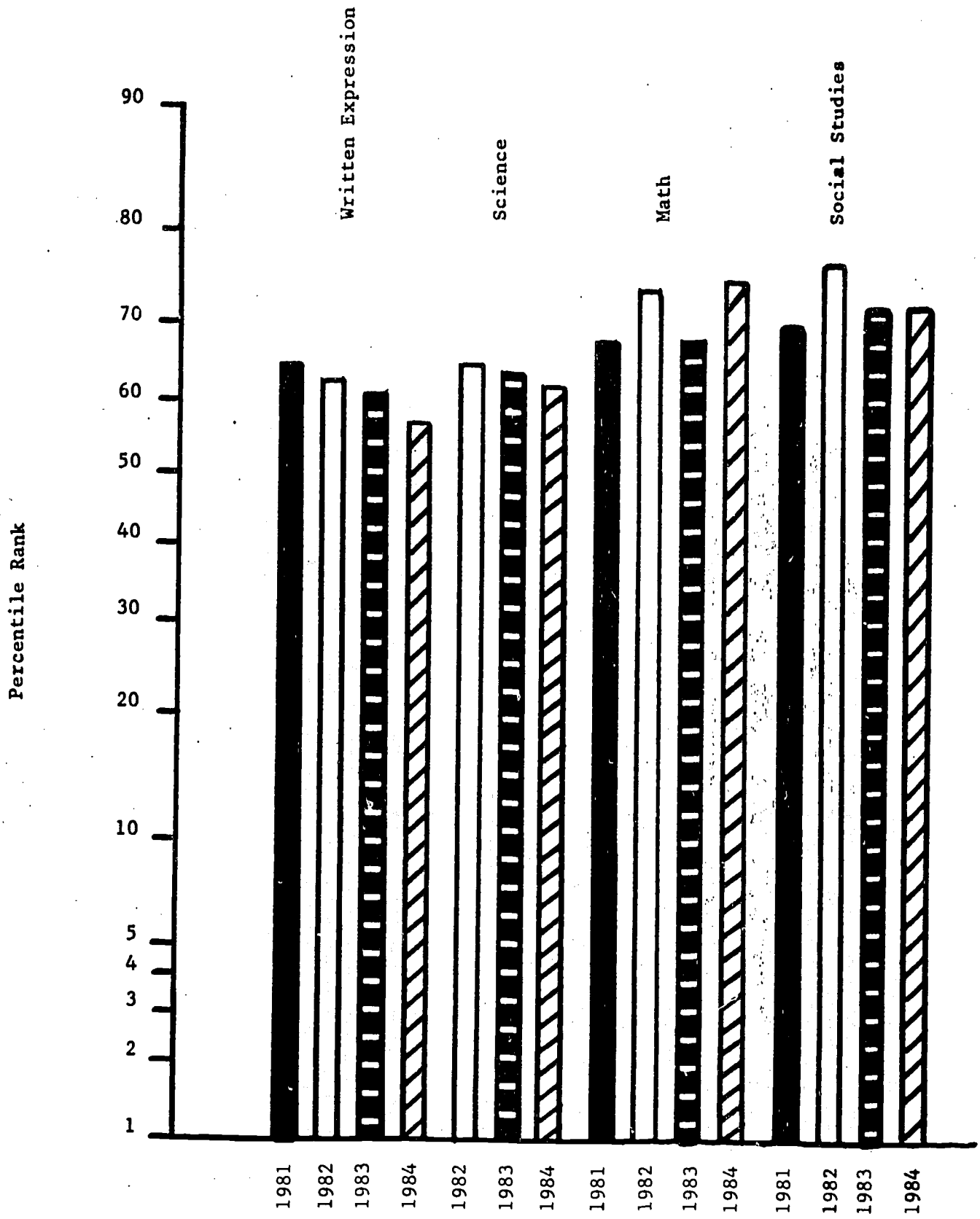


Figure 6
Percentile Rank Scores of Median Scores
Grade 12
District 200

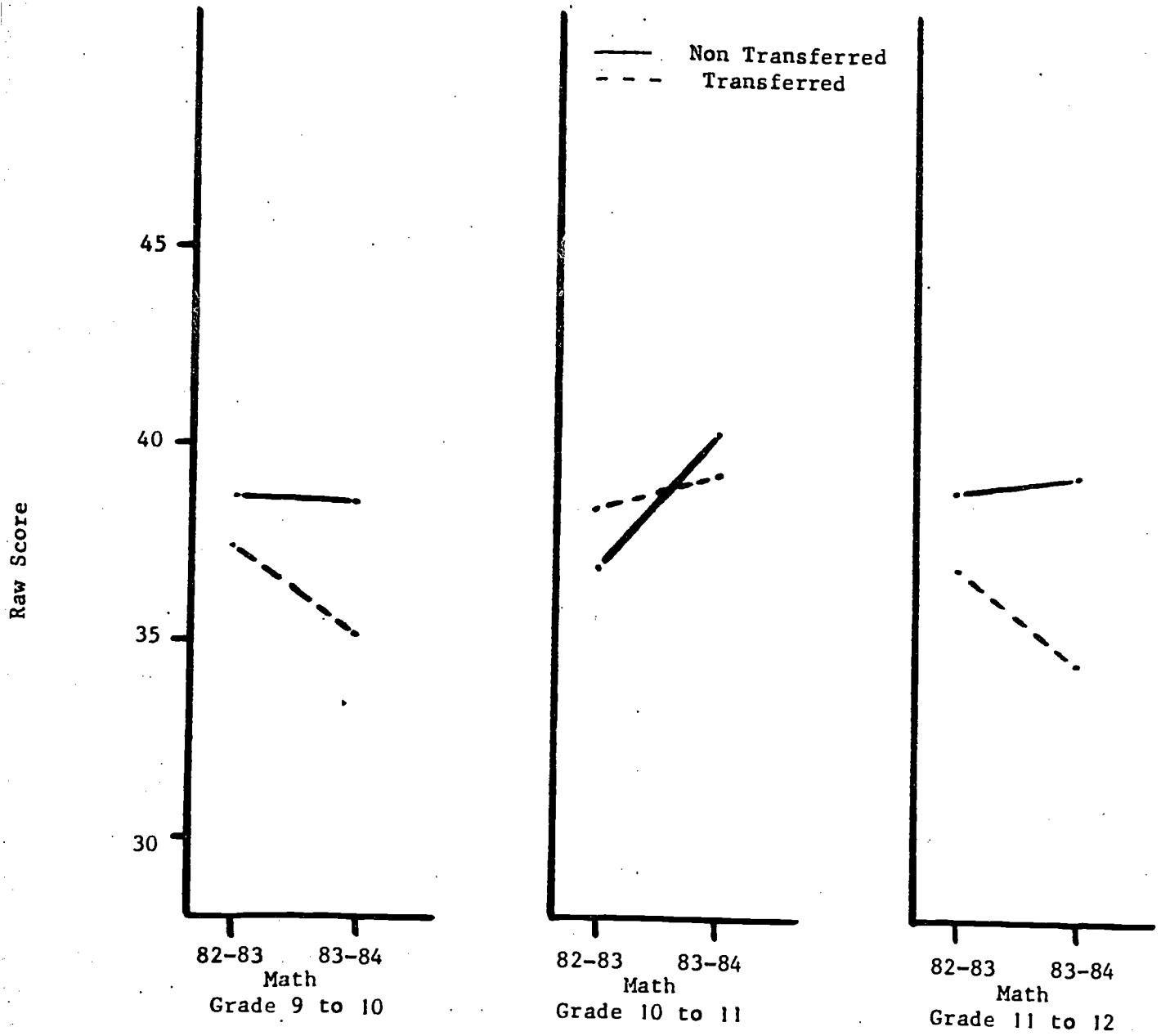


Figure 7A

Comparison of the Raw Scores between Transferred and Non-Transferred Students

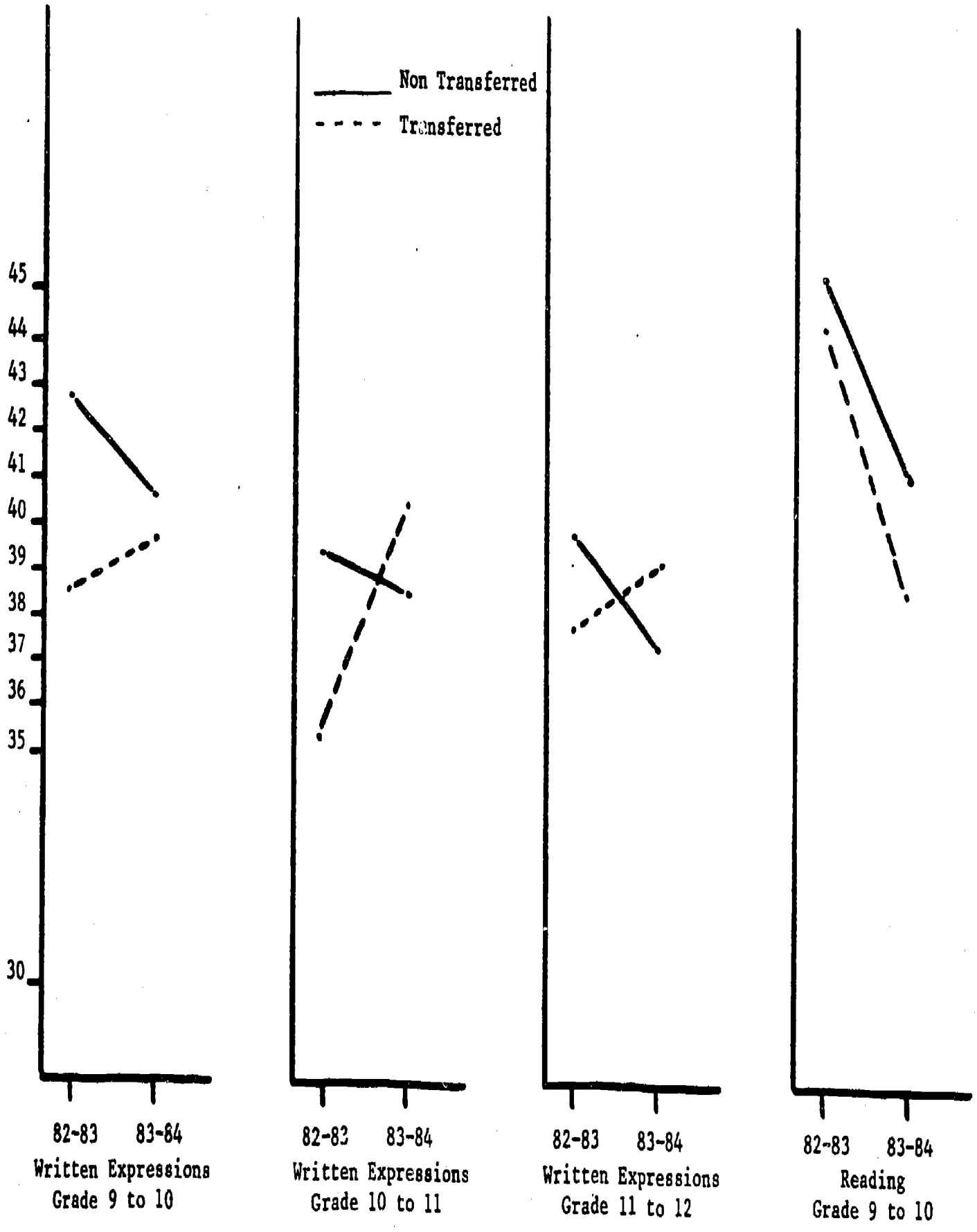


Figure 7B

Comparison of the Raw Scores between Transferred and Non-Transferred Students

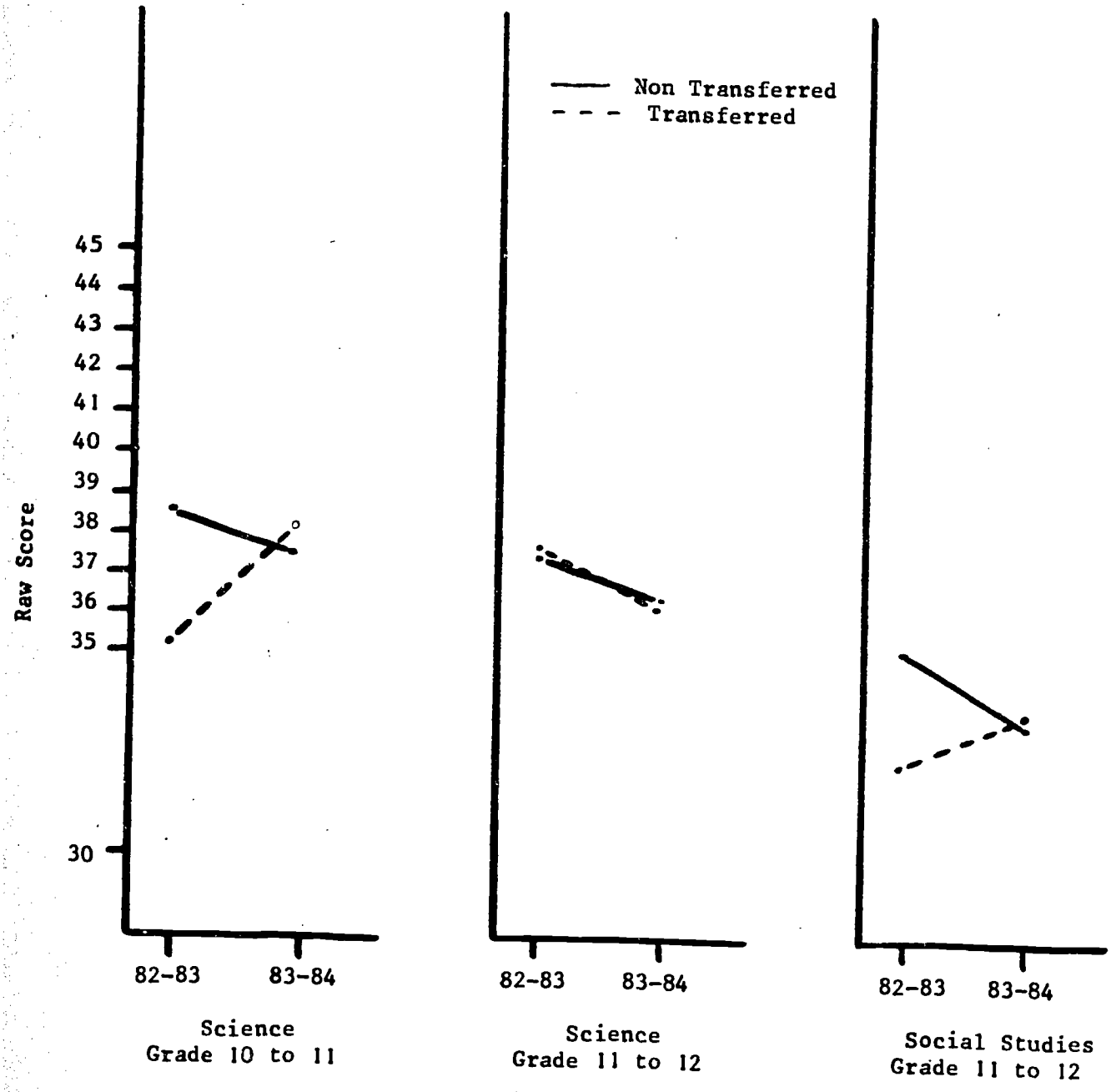


Figure 7C

Comparison of the Raw Scores between Transferred and Non-Transferred Students

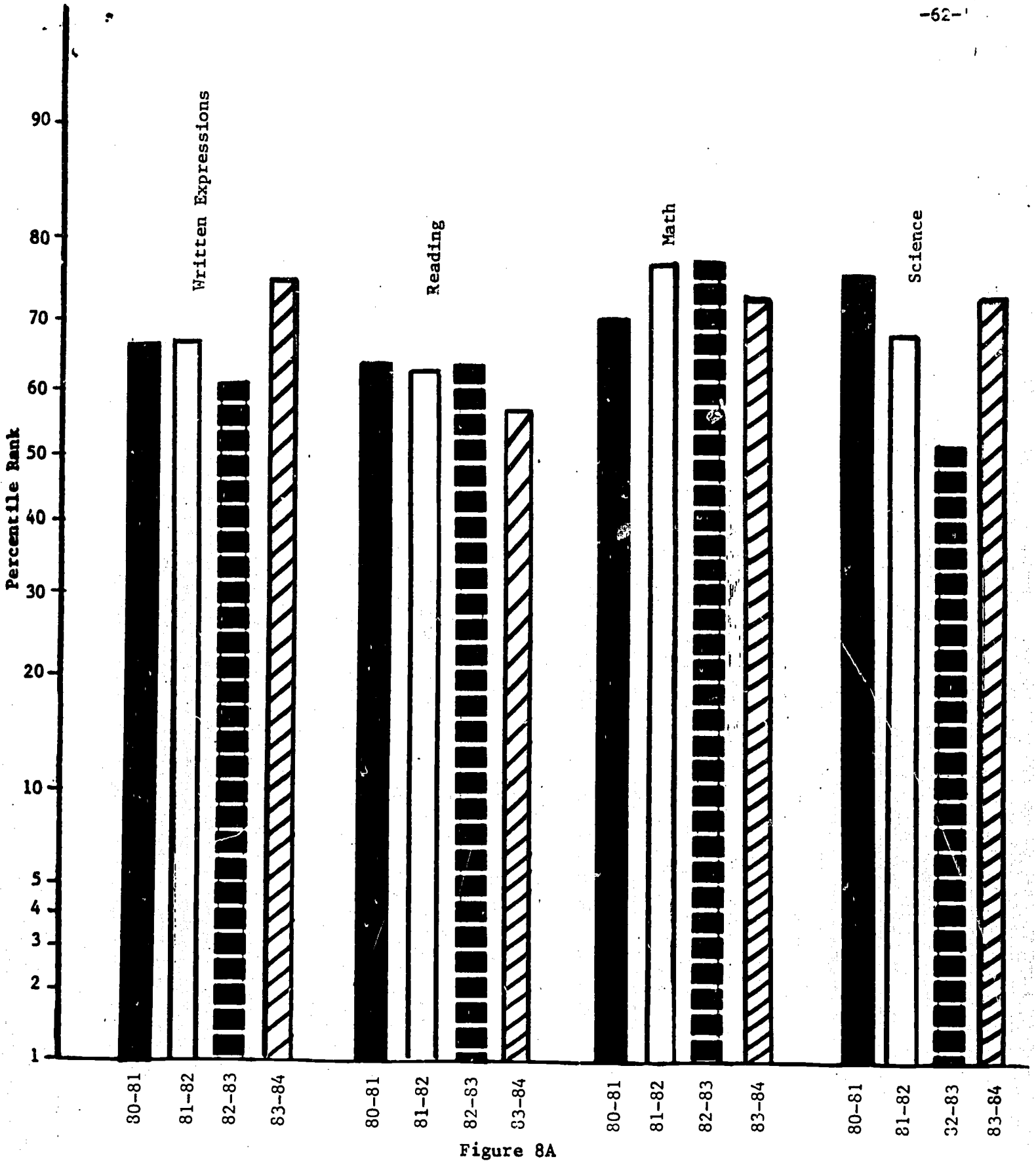
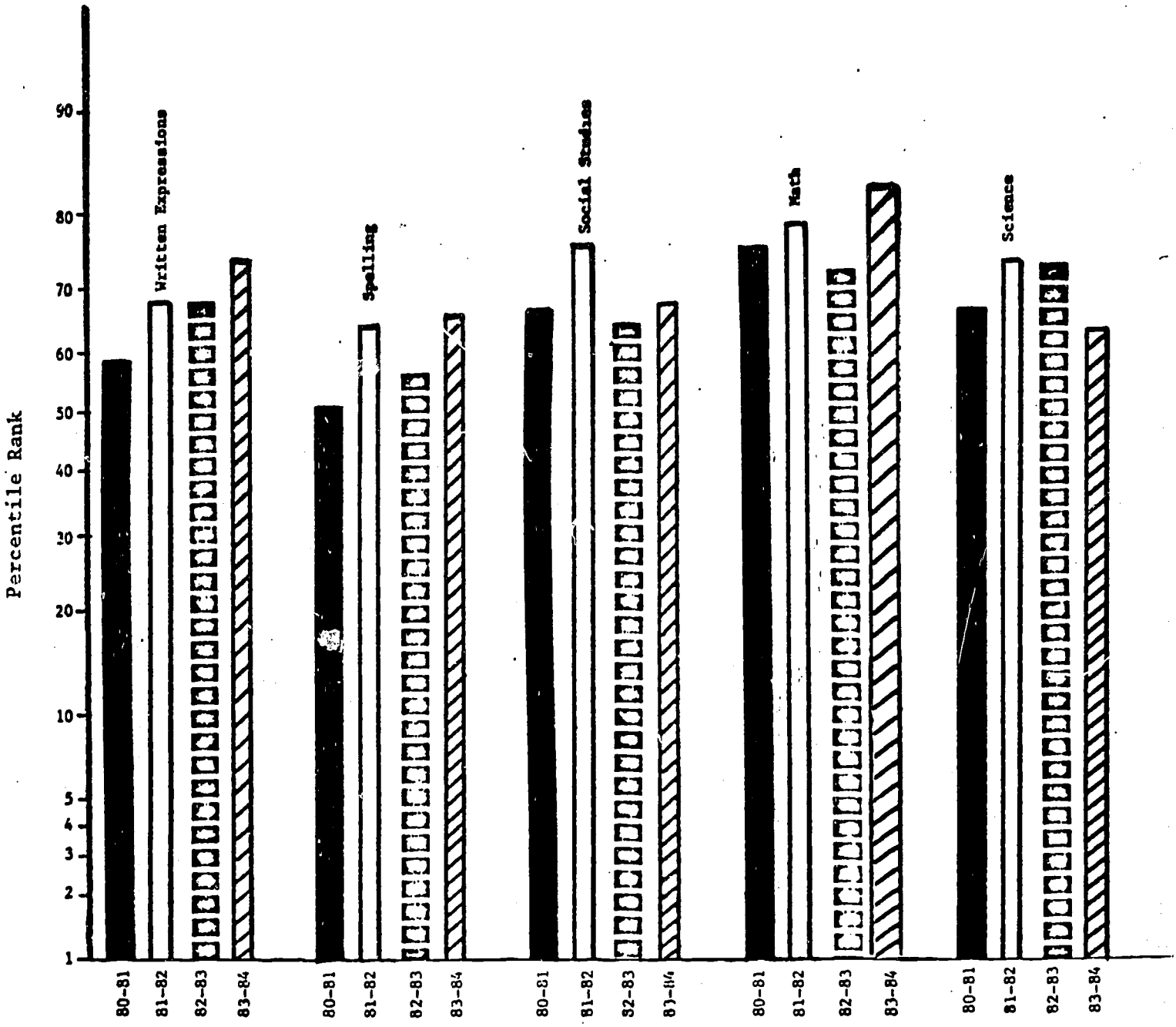


Figure 8A

Wheaton-Warrenville Median Scores Between 80-84

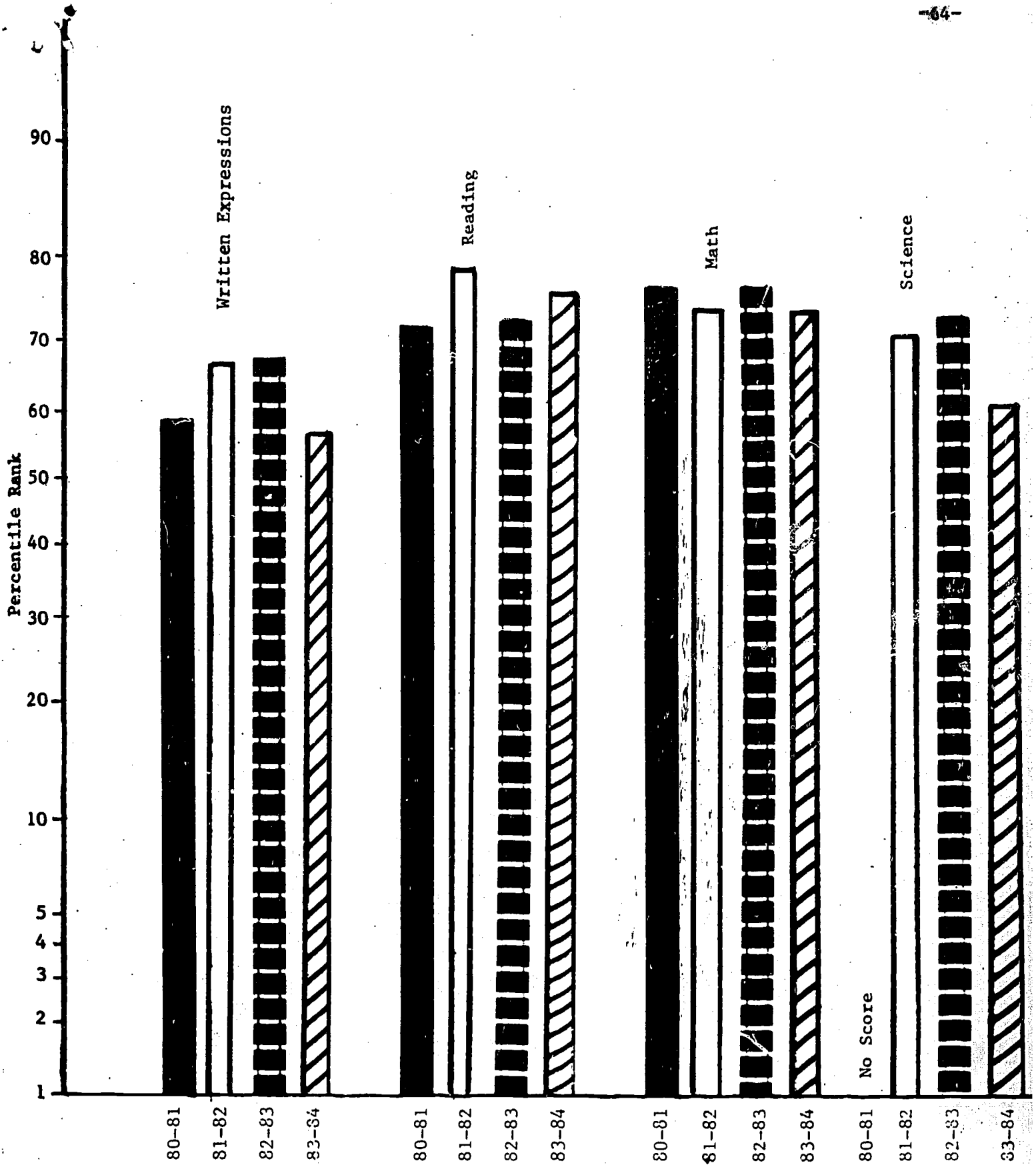
Grade 10



Wheaton-Warrenville Median Scores Between 80-84

Grade 11

Figure 8B



Wheaton-Warrenville Median Scores Between 80-84

Grade 12

Figure 8C