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INTRODUCTION

There has been an abundance of research on the subject of ability grouping. In an article entitled "The Maze of Research on Ability Grouping" (45), Harry A. Passow listed eight problems that prevent accurate generalizations from the research on ability grouping. These problems were as follows (45):

1. Variation in scope of aim and purpose
2. Differences in number of students, number of groups, and size of classes involved
3. Differences in duration
4. Differences in the means of matching experimental and control groups
5. Differences in curricula and methods of teaching
6. Differences in the deployment of teachers
7. Differences in the instruments and techniques used in evaluating changes in pupils
8. Failure to assess the effects of grouping on teachers and administrators.

Results from studies of ability grouping programs were found to be in conflict. In a study by Wallace A. Simpson (58), it was concluded that heterogeneous grouping led to a better self-concept on the part of the slow learner. In a study by Ernest Dyson (16), it was concluded that ability grouping alone did not have a significant effect on either reports of acceptance of self or academic self-concepts. Yet in another study by Marion R. Adkison (1), it was concluded that homogeneous grouping, under the conditions of the study, appeared to be detrimental to those in low status groups and has had a positive effect on those in high status
groups. Martin C. Olavarri (43) concluded that, in general, students at the lower ability levels have higher feelings of self-worth in the homogeneous classes than in the heterogeneous classes.

In spite of the wide differences in the findings of the researchers in the area of ability grouping, there appeared to be some aspects of ability grouping programs that were generally accepted as positive factors.

It has been concluded that many criteria are needed to measure ability. According to the National Education Association (40, p. 11) there was a need to use multiple factors in identifying ability:

Factors that must be considered in the identification of ability are chronological age, physical and social maturity, mental age, reading readiness, IQ, specific skills, work habits, emotional maturity, and range and level of educational achievement, to name but a few. No factor should be given isolated consideration in the attempt to identify ability. A pupil with a high IQ and a low level of social or physical maturity may be more harmed than helped by placement in a special class or by acceleration; a pupil with an "average" IQ and great creative potential may never have the opportunity to fully realize his gifts if grouped with other pupils of similar IQ. There is, unfortunately, no ideal basis on which to group children. It must be stressed, however, that where ability grouping is used, it is imperative that maximum effort be made to group children on the widest possible bases and with maximum knowledge of each pupil and his needs. (40, pp. 11-12)

Sequence of content, texts and supplementary materials, assignments and general activities should vary between ability groups if grouping is to have any purpose. According to a National Education Association research memo (40, p. 10):

In homogeneous classes: Is the school so equipped that the academically talented may have opportunity to explore beyond the curriculum demands -- are there science laboratories, is there advanced equipment, are there books beyond the reading level of whatever grade the school program terminates in; is there special equipment to facilitate the instruction of slow learners -- audio-visual devices, special books?
Scheduling should be flexible enough to allow for easy movement of students between various ability groups (40, p. 10).

Need for the Study

The various findings of studies on ability grouping did not allow for generalization from one district to another. Therefore, the ability grouping program in Des Moines was analyzed in depth in this study. The study was conducted in the light of the salient factors in the literature which were considered to be positive aspects of ability grouping. It was considered, for example, necessary to determine the extent to which the Des Moines Plan was instrumental in offering different educational treatments to the various groups involved. It was also considered necessary to try to determine the extent to which teachers found ability grouping successful as an aid to education in Des Moines.

The Problem in Des Moines

The Des Moines tracking program was the result of a recommendation by secondary principals in the spring of 1961. On November 21, 1961, a Committee on Talented Students made nine recommendations to the Des Moines Superintendent of Schools and the Board of Education. The suggestion that the recommendation made by the principals be accepted was among those nine recommendations (53, p. 1).

A tri-level tracking program was then approved by the Des Moines Board of Education in January of 1962. The plan was to be initiated in grades seven through twelve. At that time, a committee was organized to make recommendations for the implementation of the program. The program was to be implemented by the fall of 1962 (50, p. 1).
The committee described the three levels as follows (33):

1. Advanced "A"
   "A" would indicate advanced track for those pupils having high motivation, high ability, and continued superior performance.

2. General "B"
   "B" would indicate the general, regular, or middle track which would be geared to the average student. The general track pupil would be achieving at or near grade level.

3. Basic "C"
   "C" would indicate the basic course tracked to concentrate on basic fundamentals and study skills needed by those of lower ability and/or low motivation.

It was further recommended that the student's track be recorded on report cards, class lists, cumulative records and by footnotes on transcripts (34).

The committee also recommended that assignments to tracks be done by individual scheduling as opposed to block or group scheduling. Because of that recommendation, students were able to be placed in one track in language arts and in another in social studies (33).

The committee further recommended that at least two levels of instruction be offered during the same period in the same subject area. The purpose was to permit an easy exchange of students from one track to another (33).

Finally, the committee recommended that teachers not be assigned more than two ability levels at one grade level, that no instructor be given more than two grade levels, and that attempts be made to give teachers of the same track preparation time together to allow for the exchange of ideas (33).

The tracking program began on a city-wide basis in the fall of 1962 as scheduled. Only students in grades seven through twelve in social
studies and language arts classes were tracked.

As of May, 1968, there had been only two studies of the Des Moines Independent Schools' Track Program. Neither study was comprehensive in nature.

Purposes

The purposes of this study were as follows:

1. To serve as an example of one way to analyze ability grouping.
2. To determine the effectiveness with which students were being tracked or grouped in the Des Moines Plan.
3. To determine possible deviations from expected performance levels as a result of the Des Moines Plan.
4. To determine possible changes in teacher perceptions of various aspects of the Des Moines Plan.
5. To detect differences within homogeneous groups.
6. To determine the effectiveness with which materials and methods have been differentiated between the various ability groups.

There was a need at the time of this study to supply the Des Moines Board of Education with objective information about the tracking program in order to help them decide the future of the Des Moines Ability Grouping Plan.

Definition of Terms

The following terms were defined in order to aid in the interpretation of the data:

1. Ability group: pupils grouped together on the basis of one or more ability factors for the purpose of narrowing the range of
academic ability in an instructional group.

2. Track: An ability group in language arts or social studies in the Des Moines Public Schools. This should not be confused with a specialized program such as machine shop, pre-health, drafting, college bound, etc. Such programs are called "core areas" in Des Moines.

3. Advanced track: The upper ability group in the Des Moines Ability Grouping Program.

4. General track: The largest and the middle ability group in the Des Moines Ability Grouping Program. This group was termed the group that should receive the type of education usually given to heterogeneous groups.

5. Basic track: The lowest ability group in the tracking plan. This group has more ability than "Special Education" groups. Special Education groups were not considered a part of the tracking plan and were in existence before the tracking plan was formed.

6. Talented track: A small group within the advanced track. Students in this group are of greater ability than other advanced students. Since 1965, it has been considered as a program separate from the track plan.

7. Special education: A plan for a small group of students with very extreme academic limitations. The program has always been considered as separate from the track plan.

8. Most able student: A student in a given section who was picked by the classroom teacher as having the most ability in that
section for the purpose of this study.

9. Most average student: A student who was considered most representative of the typical student in a section for the purpose of this study.

10. Least able student: A student who was considered by the teacher to have the least ability in a given section for the purpose of this study.

Sources of Data

The sources of data were as follows:

1. An opinionnaire sent to a random sample of language arts and social studies teachers in the Des Moines system.

2. An opinionnaire sent to all language arts and social studies building department heads in the Des Moines system.

3. Four sets of student data sheets that included the following:
   a. Iowa Tests of Educational Development scores
   b. Iowa Tests of Basic Skills scores
   c. IQ
   d. Approximate number of visits to an advisor for discipline reasons over the past two years period
   e. Days absent during the fall semester, 1967
   f. Number of school officials aware of parent contacts for the purpose of influencing school officials to change a student's track
   g. Behavior rating by classroom teacher
   h. Work sample scores based on work samples developed by
department heads for the study

i. Social studies or language arts grade from fall semester, 1967

j. Track in which student was placed

k. Subgroup devised for the study.

The four sets of data sheets were necessary because there were four different groups of students in the study. There were two groups in social studies: one sample from grade eleven and one from grade eight. There were two groups in language arts: one sample from grade eleven and one from grade eight.

It was necessary to vary the data due to the differences in the sample groups. The four groups were available for the purpose of replication where necessary to validate possible findings.

Delimitations of the Study

The scope of this study was limited to the investigation and analysis of ability grouping in social studies and language arts in secondary schools in the Des Moines Public Schools.

The design of this study might be considered appropriate for analysis of other ability grouping programs, but the specific findings were limited to the district involved.

The factors used to determine expected performance levels and other aspects of ability were limited to selected sections of the Iowa Test of Educational Development, selected sections of the Iowa Tests of Basic Skills, IQ as measured by the Lorge-Thorndike test, grades, work samples devised by local educators, and behavior based on visits to advisors for
reasons of discipline, days absent, and teacher ratings.

Organization of the Study

The study was organized with the cooperation of the Des Moines Public School system. The data was gathered by classroom teachers, department heads, counselors, vice-principals, and advisors. Department heads were responsible for the data at the building level. Department heads were involved in a series of meetings for the purpose of organizing the data, establishing work samples, and receiving instructions on administering the gathering of work samples.

The following null hypotheses were tested:

1. There will be no significant correlations among ability factors based on standardized tests, ability factors based on local evaluation instruments, behavioral factors related to discipline, and parental pressure.

2. There will be no difference between expected and predicted performance levels based on standardized test scores, within any track.

3. There will be no significant difference between subgroups of extreme ability within the same track.

4. There will be no significant difference between groups of least ability in a given track and groups of most ability in the next lower track.

5. There will be no discernable differences in materials and methods between tracks.

6. There will be no difference in teacher opinions toward various

7. There will be no significant difference between groups of most average ability in a track and groups of most average ability in the next lower track.

Summary

The purposes of this study were to contribute to a better understanding of the ability grouping program in the Des Moines Schools, to serve as a possible guide to analysis of ability grouping, and to encourage the use of statistical analyses in decision making by school officials in Des Moines.

After five years of ability grouping, the Des Moines School Board indicated a desire to have an analysis of the tracking plan. A study of the literature led to the conclusion that generalizations from one plan to another could not be recommended.

Seven hypotheses were tested in an effort to determine how effectively Des Moines was grouping, how successful it had been, and changes that may have occurred in teacher perception of various aspects of the program.
REVIEW OF LITERATURE

In a research memo, the National Education Association (41, p. 3) annotated a list of 25 grouping practices. It was pointed out that the list of 25 was "by no means comprehensive". The list was used to serve as an illustration of the many ideas that have been advocated in ability grouping. The list, without the annotations, was as follows:

1. Grade grouping
2. Split-grade plan
3. Promotion practices
4. Multigrading
5. Ungraded and nongraded grouping
6. Dual progress plan
7. Departmentalization
8. Platoon grouping (also known as "work-study-play grouping")
9. Intra-class grouping
10. Teacher-pupil planning
11. Special grouping for the gifted
12. Opportunity room
13. Inter-classroom grouping
14. Team teaching
15. Cooperative group plan
16. Summer programs
17. Extracurricular grouping
18. Vestibule groups
19. Dalton plan
Ability grouping has been objected to on the grounds that it creates unhealthy self-concepts. It has been accused of making snobs out of students in the upper groups and placing a stigma on students in the lower groups (39, p. 76).

Using a control group, Marion R. Adkinson made a comparative study to determine the effect of grouping on attitudes of self. The findings were as follows (1):

1. Attitudes of low-ability groups in Experimental Schools and Control Schools were significantly different in many cases, but not in a majority. However, in almost all cases, Experimental Schools expressed less positive attitudes.

2. Attitudes between low-ability and high-ability grouped pupils in Experimental Schools were significantly different, determined by the group in which they were placed.

3. The difference in attitudes between high and low-ability groups was greater in Experimental School III (upper-middle socio-economic level) than in Experimental School I (upper-lower socio-economic level).

4. Attitudes between low-ability groups in Experimental Schools I and III were significantly different in approximately fifty per cent of the cases.

5. Differences in attitudes resulting from a pupil's position in intra-class grouping were not as great as inter-class differences.
6. More teachers in homogeneously grouped schools favored ability grouping (forty-four per cent of total cases) than opposed it (thirty-one per cent of total cases). All opposed were teachers of low-ability classes.

It was concluded that homogeneous grouping at the elementary level, under the conditions of the study, was detrimental to those in low groups.

However, in a study of secondary students by Martin C. Olavarri (43), it was concluded that students at the lower ability levels had higher feelings of self-worth in the homogeneous classes than in the heterogeneous classes. It was thought that this was accomplished by providing opportunities for the lower ability student to experience successes.

Ability grouping critics feared that separation was a deterrent to equal opportunity for success. These criticisms, of course, were less valid when students were grouped in only part of the school day (41, p. 6). In most of the literature, planned contacts daily for all levels of intellectual ability and among all socio-economic levels were advocated.

Ability grouping has been objected to on the grounds that only academic achievement is considered as the aim of education (17, p. 431). Proponents have stated that grouping is consistent with educational aims because it prepares all pupils to the maximum of individual needs and abilities due to the narrower range of ability (41, p. 6).

Another objection to ability grouping deals with financial and facilities problems. Only large schools can group on the basis of ability without the cost becoming prohibitive. In a study of ability grouping in North Carolina the evaluative criteria were established (55):

1. Grouping plans are formulated through a cooperative effort of school staff and administration.

2. A well thought-out philosophy of ability grouping is stated
in the form of purposes, objectives, and/or assumptions relative to ability grouping.

3. Identification and selection of students for the various groups are made on the basis of predetermined criteria; more than a single criterion is used.

4. The ability-grouping plan is flexible.

5. Daily contact is made among all socio-economic and intellectual levels of students.

6. Provision is made within the ability-grouping plan to provide for all levels of intellectual ability and student interest by: a) forming multiple sections of each subject in which ability grouping is practiced, and b) providing differentiated programs of study for each section or level.

7. Administrative attention is given to the assignment of teachers to the various groups or divisions.

8. The grading (marking) system takes into consideration the multiple standards being used in various ability groups and is uniformly administered by the staff.

9. Students, teachers, and community understand the ability-grouping plan being used.

10. The ability-grouping plan is periodically and thoroughly evaluated and altered according to findings.

As was to be expected, only the large schools were able to meet the evaluative criteria of ability grouping in most cases (55).

Selected Research Studies on Ability Grouping

In a 1966 research memo (41) summaries of 15 studies were given to exemplify the kinds of research and findings from the year 1960 through the year 1966 (41, p. 9). These 15 studies were summarized in this section as follows:

1. In 1966, Balow and Curtin (2) conducted a statistical analysis of 150 pupils which was based on pupil records. There were two groups. Group A was a heterogeneous group of pupils who ranged
in IQ from 81 to 163. Group B was a three ability level group. The three levels in group B were as follows:

1. IQ, 100-122
2. IQ, 123-141
3. IQ, 142-181

The hypothesis was that ability grouping of bright pupils by a narrow IQ range could significantly reduce the range of achievement over heterogeneous grouping. Only upper-middle-class students were used due to the area.

The results of the study indicated that grouping by a narrow range did not achieve homogeneous achievement. The average reduction in range, by comparison with the heterogeneous group, was only five per cent. In no skill area was the range significantly reduced.

2. In 1964, Borg (5) conducted a four-year study of 4,000 pupils in grades 4, 5, 6, 7, 8, and 9. There were two districts in the study. District A had a three level ability grouping program. District B had heterogeneous grouping. The grouping in district A was based on composite achievement scores.

Over 100 different comparisons were made. No clear pattern favored one system over the other. A higher proportion of the favorable comparisons for ability grouping came during the first year. No significant effect on attitude toward peers was found due to grouping. Favorable attitudes toward teachers was more predominant in slow and fast ability groups than in random groups. Slow ability groups displayed the least favorable scores on
emotional adjustment.

3. In 1966 a study was conducted by Borg and Pepich (6). There were two groups. One group consisted of slow learners in ability grouping and the other consisted of slow learners in heterogeneous grouping. Eighty pupils in the tenth grade were used the first year. Seventy-two pupils in the tenth grade were used the second year.

The groups were compared on the basis of English achievement, listening skill, study methods, participation, absences and tardiness, attitude, and self-concept.

No significant differences were found in English achievement, study habits, and listening skills. The homogeneous groups of slow learners participated more, made quality contributions and gained more favorable self-concepts.

4. In 1964, a study was conducted which involved 198 pupils. There were two schools in the study. One school was ability grouped; the other heterogeneously grouped. The grouping was based on IQ and general achievement. A sociometric questionnaire was used to examine the effects of grouping on sociometric patterns (41, p. 9).

No significant differences were found when comparing the social structure of the ability grouped with the heterogeneously grouped sixth grades. Ability grouping did not appear to limit a child in his friendship relationships. Those ability grouped were more aware of their ability.

5. In 1963, a study was conducted which involved eight sixth grade classes. Intra-classroom grouping was compared with whole-class
instruction. Differences in arithmetic achievement were tested. Experimental groups of academically talented and slow learners gained significantly over the pupils in the control group at the same ability levels (41, p. 9).

6. In 1963, Drews (15) conducted a one year study of 432 ninth grade pupils. Academically talented, average, and slow learners were compared in homogeneous and heterogeneous classes. The comparisons were made on the basis of gains in reading and language achievement, problem solving, and critical thinking. Students in the homogeneous groups were grouped on the basis of IQ, reading comprehension and language skills.

   No significant differences were found during the school year.

7. In 1963, Enzmann (19) conducted a four year study of 365 pupils successively from grades nine through twelve. All of the students were two years above grade level in achievement and had an IQ of over 118. Half were in a special arts and science curriculum for the gifted and half were in a regular curriculum.

   There was no evidence that the specifically designed curriculum assured higher academic achievement by gifted students.

8. In 1964, Frankel (20) conducted a study of academically talented. The entire student body of 158 high school pupils in a summer program for the academically talented. Significant growth was found in the areas of self-reliance and special talents. Aspirations remained constant. Self-satisfactions increased.

9. In an eight month study of grades one through three, Halliwell (27) measured the gains in achievement of primary pupils after
nongrading is adopted. This measure was compared with achievement scores of the previous year when pupils were kept in grades.

Nongraded reading scores were found to be superior at the first grade level. There were no significant differences in reading scores at the second and third grade levels. Students at the third grade level were superior in spelling. Teachers reported spending less time teaching reading under the nongraded program.

10. Hillson, Jones, Moore and Van Devender (30) concluded that pupils of all ability levels in the nongraded program achieved at a significantly higher level than similar pupils in the graded situation. The pupils in the graded situation were grouped on the basis of reading level. There were 26 pupils in each group.

11. In 1960, Mann conducted a study of 102 fifth grade pupils who had been grouped into four ability levels on the basis of IQ and reading readiness. Based on a questionnaire, the results indicated that high and low groups were more conscious of their ability than the middle two ability levels.

12. In 1962 Passow and Goldberg (46) conducted a two year study of 3,000 fifth and sixth grade pupils. Five ability levels were used. The effects on academic achievement of the presence or absence of gifted pupils in groups, and the effects of various ranges of ability within groups were measured.

Ability grouping as such did not have positive effects on academic attainment. Variations in achievement were influenced more strongly by teacher and group differences in classrooms than by ability range.
13. Passow, Goldberg, and Link (47) conducted a study involving 112 students. The study lasted three years. The students were in the study from grades seven to nine successively. All of the students were considered academically talented based on IQ, arithmetic achievement, age, teacher rating, and sex.

Acceleration achieved more gains in mathematics than enrichment or control groups. It was concluded that earlier introduction of more difficult material or increased tempo results in greater mathematical competence and in somewhat more positive attitudes toward mathematics.

14. In 1960, Porvus (53) conducted a study of 494 pupils in grades four through six. All students were either academically talented, average, or slow learners based on the arithmetic concepts sub-test of the Iowa Test of Basic Skills. A heterogeneous control group was used.

A comparison of the bright, slow, and average students showed that the academically talented profited most from ability grouping; the average child profited slightly; and the slow learners profited no more from ability grouping than they would from heterogeneous classes.

15. In 1964 Wirick and Chambers (62) conducted a study of 163 pupils in grades three to six. All the students were academically talented based on IQ. After one year in a special program for the academically talented, the mean-percentile scores of all the gifted children was exactly the same as it was at the time of initial testing.
As can be seen from the extent of the variety of findings, grouping plans varied throughout the nation. The Des Moines Plan was not like any of those in the literature in a strict sense. Although track plans were mentioned in the literature, they were like the Des Moines track plan in title only. The difference in findings from district to district could have been attributable to the differences in design of the ability groupings.

History of the Des Moines Track Program

As previously stated, the track plan grew out of a committee which was established by Superintendent John Harris in September of 1960. The purpose of the committee was to review policies and practices on instruction for talented students. Among nine suggestions by that group was the suggestion that a track plan be established. The Board of Education approved (54, p. 1).

A committee was formed to make recommendations for the implementation for the track program for the fall of 1962 in the subject areas of social science and language arts. This committee identified the tracks as "advanced", "general", and "basic". These terms were to remain as the names of the three ability levels. The code letters which were "A", "B", and "C" respectively were later changed to "A", "G", and "B" (33, p. 1).

The committee recommended certain flexibility factors in scheduling. It was recommended that students be assigned on the basis of individual scheduling for each subject area rather than in blocks. In that way, a student was able to be in the top track in social science and not in language arts. In the same spirit, it was recommended that at least two
levels of instruction in any subject area be offered during the same period. That permitted the exchange of students from one track to another (33, p. 1).

It was recommended that teachers were to be assigned to not more than two ability levels at one grade level. No teacher was to be assigned to more than two grade levels. Where possible, teachers of the same instructional level were to be given the same planning periods. Efforts were to be made to assign teachers to the levels they were most suited to (33, p. 2).

It was recommended that efforts be made to strengthen communications between schools. Elementary schools were to recommend students to tracks to the junior high schools. Junior high schools were to recommend students to tracks to the senior high schools. Careful and thorough communications with parents and students were recommended also (33, p. 2).

In a speech to the Roosevelt High School Parent Teachers Association, Paul Mitchum, who was then Assistant Superintendent of Schools, stated that the tracking program would help to build a strong instructional program for all pupils which would "provide different courses for different needs", "set tasks which pupils can do and which are challenging", "differentiate instructional materials for various needs of pupils", "differentiate teaching methods", and "improve the instructional offerings for all pupils" (37, p. 4). The talk was delivered on September 20, 1962.

On October 5, 1962, the Department of Instruction made a written statement about the track plan. Using a question-answer format, the statement was designed to clarify some of the concerns about the track plan (37, p. 1):
QUESTION: Is this the first differentiated grouping of pupils for instruction in our schools?

ANSWER: No. We have had special education for slow learners for half a century. For at least five years we have had talented student groups in four elementary school centers in fifth and sixth grades. For several years our secondary schools have experimented with groupings for high achievement pupils. In 1960-1961 East High School had approval for a two track experiment in eleventh grade English and history. In 1961-1962 Lincoln High School tried a three level track plan. For a number of years we have had some advanced mathematics classes from the eighth grade on. There have been tentative groupings in English and science.

In the same statement, many other aspects of the tracking program were discussed. Some of the important aspects are paraphrased as follows (54):

1. Talented students were to be considered a part of the advanced track rather than a separate group.

2. Many of the general track students were to be college bound. Only the most capable college bound students were to be in the advanced track.

3. Track changes would usually be made on the recommendation of the classroom teacher and implemented by the counselor.

4. Two of the most important indications that a change in track was needed were: a) marked inability of the pupil to perform the work set forth in the advanced or the general track and, b) obvious indication that the pupil can and wants to perform work set forth in the general or advanced track.

5. A student could receive any mark no matter what track the student happened to be in. However, talented students could not receive less than a "2" (a "2" in Des Moines is equal to a "B" in other systems). This was true only of talented students. Other
advanced track students could receive any grade from "1" to "5".

6. The general instructional objectives were to be the same for all tracks. The methods and materials were to differ. In some cases college texts were to be used.

7. There were cautions to be observed. Tracking was to be kept flexible. It was essential that texts and other materials were to differ. Care was to be taken that social or personal stigmas were to be guarded against. Upper ability groups were to receive more on a "qualitative" basis, but not necessarily on a "quantitative" basis.

In 1962, an underlying philosophy behind the track plan was developed for the language arts department (51). The following was stated about the advanced track language arts classes and students:

Students in the Advanced Track language arts classes are especially capable of an expanded program which will prepare them both for optimum personal satisfaction and responsible roles in the community. Because this group will need a minimum time to grasp basic grammatical and usage concepts, more time can be spent on literary appreciation, extensive reading experience, and composition. Many of this group may be encouraged in creative writing. The maturity of these individuals will enable them to work both independently and in small groups to achieve the experience and skills needed for responsibility as leaders and as contributors to groups. These students should have many experiences in oral communication, both speaking, and listening, with particular attention to critical listening; and they should develop note taking and summarizing skills. These students should be challenged to work to their capacity and should be encouraged to evaluate their own performances in relation to their potentialities.

The philosophy for the general track was to be the same as was put forth in a specific list of objectives that were in force before the track plan was implemented. In 1960, these objectives were listed as follows (13):
1. To learn to read and listen critically

2. To learn to speak and write effectively

3. To gain an understanding of the ways in which human beings act, think, and feel

4. To learn to draw inferences and deduction

5. To learn and to apply principles of logical thinking

6. To learn and to apply principles of good usage, grammar, and mechanics

7. To use literature as a source of spiritual and aesthetic satisfaction

8. To learn to appreciate vicarious experiences that literature provides

9. To develop skill in the use of reference resources

10. To learn to organize materials of oral and written expression logically and effectively

11. To improve reading skills at every level of development

12. To expand vocabulary comprehension and usage through wide and varied experiences in listening, speaking, reading, and writing

13. To speak convincingly before an audience

14. To give expression to inherent creative talent as it can manifest itself in the language arts.

The language arts philosophy for the basic track was as follows (51):

Underlying the entire philosophy for the basic track program should be a development of a sense of pride and self-respect. To carry out this philosophy, it will be necessary that the program take the pupil at the level at which he is achieving. The basic track exists to help pupils who have serious verbal limitation. Appropriate materials will be provided to help them improve in language. Teachers and pupils should recognize that growth is likely to be slow, but they should appreciate and be gratified with any progress.

The basic track program should be meaningful to pupils with regard to both their everyday experiences and to their preparation for their future. Recognizing that each year might be a
terminal year for the pupil, teachers should make each year's program as practical as possible.

There was some questioning about the grading within the tracks. As a result a committee was formed to study the grading procedures for the track plan (8). As indicated on pages 22-23 herein, the original materials on the program indicated that students could receive any grade regardless of track (54). The mood of the writing by the committee on grading was somewhat different. The policy of grading in the advanced track was as follows (8):

Students in the top group should, by virtue of their special ability, earn grades of 1 or 2. It is entirely possible (although rare) that students in this group may receive a grade of 3 or below, however, these students should be counseled and, in most cases, be reassigned to the middle group.

The following was stated about the policy of grading regarding the general track (8):

Students assigned to the middle ability group will generally earn a grade of 3, however, grades of 2 or 4 will not be rare. Under exceptional circumstances, students may receive a grade of 1. In this event, these students should be counseled and, in most cases, be reassigned to the upper ability group.

The following was stated about the policy of grading regarding the basic track (8):

Students who are assigned to the basic group should generally receive grades of 3 and 4. Students in this group may receive a grade of 2, however, these students should be counseled and consideration be given to reassignment to the middle ability group. Grades of a 5 may be assigned to students in this group, however, this should only be for those unwilling or unable to meet minimum standards for this basic ability group.

In September of 1963, John Harris, Superintendent of Des Moines Schools made the following written statement in regard to grading (29):

Any pupil in any track may receive a mark from one to five. This enables teachers of Basic Track pupils to give recognition to
effort and application and at the same time it permits teachers in the Advanced Track to assign a mark of three or four to the capable child who is failing to live up to his ability. On report cards and all official records of the school the Track is designated as well as the mark. In addition, for college entrance requirements the marks are counted in such a manner as to safeguard the record of Advanced or General Track students. In other words, for college purposes, a "one" in the Advanced Track ranks higher than a "one" in the General Track which in turn ranks higher than a "one" in the Basic Track.

The weighting mentioned by Dr. Harris was a system whereby each mark in the advanced track was considered to be one mark better for the purposes of college entrance and class standings. Marks in the general track were considered to be the same as given for the mentioned purposes. Marks in the basic track were considered to be one poorer.

After the implementation of this system, the number of failures in language arts and social sciences were lowered. This was not true for other areas. Table 1 illustrates this.

If the 1961-62 percentages had been applied to the 1963-64 school year, there would have been 206 more failures in social studies in high school in the Des Moines Public Schools. The same was essentially true for language arts (57).

**Guidelines for the selection of students**

A list of 11 items was developed to serve as guidelines for the selection of students for each track. These items were as follows (26):

1. Both objective and subjective data must be used in selecting students for each of the three tracks.

2. In general, teacher rating, subject grade and basic test data will form the basis for making selections.

3. At the completion of each semester every student's academic record should be reviewed by his teacher to determine whether or not he is properly placed. A student receiving
Table 1. Senior high school failure percentages for four school years with English and social science classes grouped by ability during the last two years

<table>
<thead>
<tr>
<th>Subject</th>
<th>1960-61</th>
<th>1961-62</th>
<th>1962-3</th>
<th>1963-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>All subjects</td>
<td>3.7</td>
<td>3.7</td>
<td>2.9</td>
<td>3</td>
</tr>
<tr>
<td>Orientation courses</td>
<td>6.6</td>
<td>5.8</td>
<td>5.5</td>
<td>11.7</td>
</tr>
<tr>
<td>Vocational courses</td>
<td>--</td>
<td>--</td>
<td>5.5</td>
<td>8.2</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>5.8</td>
<td>6.5</td>
<td>6.9</td>
<td>7.5</td>
</tr>
<tr>
<td>Industrial arts</td>
<td>5.2</td>
<td>8.2</td>
<td>6.9</td>
<td>6.1</td>
</tr>
<tr>
<td>Typing</td>
<td>4.8</td>
<td>4.6</td>
<td>4.2</td>
<td>5</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4.7</td>
<td>3.9</td>
<td>3.6</td>
<td>4.4</td>
</tr>
<tr>
<td>General commercial</td>
<td>4.8</td>
<td>4.6</td>
<td>4.2</td>
<td>4.1</td>
</tr>
<tr>
<td>Science</td>
<td>3.9</td>
<td>4.6</td>
<td>3.1</td>
<td>3.5</td>
</tr>
<tr>
<td>English</td>
<td>4.4</td>
<td>3.5</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Social science</td>
<td>3.1</td>
<td>3.3</td>
<td>1.8</td>
<td>1.7</td>
</tr>
</tbody>
</table>

4. Students chosen for track I would ordinarily be expected to be receiving grades of 1 or 2 and having test scores above the 75th percentile.

5. Students chosen for track III would ordinarily be expected to be receiving grades of 4 or 5 and having test scores below the 25th percentile.

6. Students chosen for track II would ordinarily be expected to be receiving grades of 2, 3 or 4 and fall between the 25th and 75th percentile.

7. Because judgment is subjective and measurement not totally accurate, the range of percentile ranking derived from test scores for any one track may exceed fifty. Example: In
28

track I you may have a student score at the 99th percentile on a standard test while another student may score as low as the 45th percentile.

8. Whenever it becomes extremely difficult to place a student in the proper track, the administrator and teacher-counselor should draw on all cumulative record data which gives a history of the child's physical, mental and social development.

9. At the time of promotion to junior and senior high school, the track placement should be made for each student. This designation should be carried on the Standard Test Card, Form 192 Rev.

10. It is suggested that students coming to Des Moines from untracked school systems be placed in the middle track until there is sufficient evidence obtained.

11. It is suggested that each faculty review materials which will help them become acquainted with the philosophical background for making judgments on the basis of individual differences. One set of characteristics which might aid the principal in his faculty meeting is attached. (See Appendix)

Former evaluations

Paul Mitchum, who was Assistant Superintendent of Instruction for the Des Moines Schools, developed an opinionnaire on the tracking plan. The opinionnaire was administered to the teachers of social studies and language arts in the Des Moines Schools in the 1962-63 and the 1963-64 school years. In 1962-63 there were 248 opinionnaires returned. In 1963-64, 238 were returned (36).

Teachers, according to the results of the opinionnaire, believed students were well placed in tracks in 90 per cent of the cases in 1962-63 and in 92.6 per cent of the cases in 1963-64 (36).

According to the results, 92 per cent of the teachers believed that students were achieving satisfactorily in the tracks in 1962-63 and 93.7
Seventy-seven per cent of the teachers responded positively when asked if the track plan required more intensive planning on the part of the teacher in 1962-63. Seventy-nine and eight-tenths so responded in 1963-64.

In response to the question, "Do individual differences of pupils seem more pronounced in the track plan than formerly?", 55 per cent responded "no" in 1962-63. In 1963-64 the percentages of negative responses was 61 (36).

Student leadership emerged in 77 per cent of the classes in 1962-63 and 82.8 per cent for 1963-64 (36).

In both years the majority of teachers felt that the amount of homework had decreased for the basic students, stayed the same for general students and had increased for the advanced students because of the track plan (36).

According to the teachers, pupil motivation as a result of the track plan had improved. In the 1962-63 school year 65 per cent so felt. In the 1963-64 school year 61.4 per cent so felt.

In 1962-63, 70 per cent of the teachers said they had learned more about their pupils than they had before tracking. In 1963-64, it was 75.7 per cent.

As a result of the opinionnaire, the following recommendations were made by the Director of Instruction for the 1964-65 school year (36):

1. We should continue the tracking system for 1964-65 with the same general objectives we have had for 1963-64. (i.e. - English - Social Science, three tracks, etc.)

2. Means of gathering objective data about achievement of pupils in the tracks should be established so that by the close of next year we can measure progress more explicitly than at
present.

3. Increased opportunities for in-service training of teachers in the tracked subjects should be provided, this June at the latest. Administrators and counselors should be included.

4. Increased and improved means of informing parents about the track plan should be established.

5. Continued study of and acquisition of instructional materials suitable for the several tracks should be carried out.

6. Further modifications of curriculum content for the several tracks should be made in the light of the increasing information we are gathering about pupils' ability and pupils' needs.

7. Additional efforts should be exerted at the junior high school level to modify the block schedule in favor of more individualized schedules.

8. We should study carefully the desirable and effective teaching load within the track plan both from the standpoint of pupil numbers and the range of teacher assignment from track to track.

9. We should further refine our grouping practices for pupils so that their individual needs will be met more adequately.

10. Pupils, parents, and teachers all should apply themselves to the learning opportunities and challenges inherent in the track plan. They should all resist the temptation to indulge in status seeking, unjustified anxieties, extrinsic motivation and the scholarly pursuit of meaningless goals. The only intelligent purpose of the track plan is to improve purposeful learning opportunities for our boys and girls in the Des Moines school community.

In May of 1967, the 18 secondary principals in Des Moines were polled (39). Thirteen thought teachers understood in general the track plan. None responded with a "no" to the item (38).

Twelve principals responded "yes" and one "no" when asked if parents generally understood the purposes of the track system.

Thirteen principals responded "yes" and one "no" when asked if pupils generally had a wholesome attitude toward the track plan (38).
Eleven responded "yes" and three "no" when asked if the track plan had been on an agenda of a staff meeting in their schools the past year.

When asked the question, "In which of the following respects do you think the track plan has been most successful?" the principals gave the following responses:

<table>
<thead>
<tr>
<th></th>
<th>Very successful</th>
<th>Satisfactory</th>
<th>Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective grouping</td>
<td>2</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Differentiated materials</td>
<td>1</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Differentiated teaching methods</td>
<td>1</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Reduced failures</td>
<td>6</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Challenging rapid learners</td>
<td>5</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Encouraging slow learners</td>
<td>3</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>Developing pupil leadership</td>
<td>0</td>
<td>8</td>
<td>6</td>
</tr>
</tbody>
</table>

Eleven principals rated methods as the greatest need for improvement; two rated methods as the second greatest need and three rated methods as the third greatest need (38).

Three principals rated grouping as the greatest need for improvement in the track program; two rated grouping as the second greatest need and 11 rated grouping third (38).

Two principals rated materials as the greatest need; 12 rated materials second and two rated materials third (38).

The principals were given the opportunity to respond to an open-end question. The question and responses were as follows (38).

7. Make such additional suggestions as occur to you for improvement of the track plan for 1966-67. Please use additional sheets of paper if you need to.
"Evaluation of track plan."
"Problem of grading." *1
"Tracked classes are thought of as homogeneous groups and not as individuals."
"... we balance the population in each track, thus being unfair to the tracking system."
"Need for workshop for teachers -- to understand all aspects of tracking system; to review philosophy of tracking." *5
"Because of personality conflicts basic track groups are generally unsuccessful unless handled by ... a master teacher."
"I have reclassified these (basic) students ... they are spread among the general track."
"Assigning a 'tutor' to the slow student ... successful approach to individualizing instruction."
"... students in any track are eligible for marks '1-5'."
"... be alert to tendency to alter assignments only on the basis of 'more or less of the same' according to track rather than utilizing special materials and depth as criteria."
"... reduce class size for basics and low generals." *4
"... the answer lies in what goes on when the door is closed. Most teachers have been oriented to (teaching) the 'average'. Some teachers recognize the ability, background and potential of a student. For this teacher the track plan is doing the greatest job. I would like to see the program continued."
"... More individual scheduling of 7th and 8th grade student ..."
"More differentiated materials; re-evaluate basic curriculum materials; special teachers for reading improvement instead of so much grammar; much money spent on opposite ends while the general track is just going along."
"Materials for basic basics in mathematics needed."
"... majority of our teachers do not challenge these (advanced) high groups."
"Team teaching in basic groups, not in advanced groups; basic and advanced groups should be scheduled according to needs of students but not at the expense of class size in general group."
"... the teacher is the key to the success of any plan." *3
"... track plan has cut down number of failures, but I doubt if we are actually meeting their (basic students) needs to live in our modern society."
"High schools need to give junior high schools range and mean of test scores in various tracks and amount of retracking needed during 10th grade ..."

The asterisk in the answers to items seven was used to indicate similar responses by other principals. For example, *5 meant that five other principals made similar statements.

Nine principals indicated that the advanced track was where the most
improvement in instruction had occurred as a result of tracking. Six indi-
cated that the basic track was where the most improvement had occurred.
None indicated the general track (38).

Seven principals indicated a need for tracking in other subjects.
Six indicated that they could see no such need (38).

Item 10 was open-ended. The question and a summary of the responses
were as follow (38):

10. What implications do you think the track plan has for the
training of teachers?

"Unrealistic for cadets. Teacher in training need to be exposed
to the different levels of teaching ..." *1
"... very few teachers who wish to have all basic track students."
"We must develop a better understanding of the psychology of
learning for various ability levels." *2
"Requires specialization of teachers."
"Points up need for individualizing instruction."
"Purposes and functioning of ability grouping must be clearly
understood."
"... the teaching profession requires you (teachers) to work
with all types of individuals." *2
"Teachers of advanced track must be authorities on subject mat-
ter ...: teachers of basic track must be persons with lots of
patience and ingenuity."
"So many of our teachers are not of advanced caliber ... under-
stand general pupil better."
"I doubt that colleges will ever do a satisfactory job ... strong
in-service training is needed."
"None. Well-trained teachers result in good classes." *2

As it was with item 7, the asterisk indicated that others responded in
a like manner. The numbers by the asterisks were used to indicate the num-
ber of others who so responded.

Summary

The literature on the subject of ability grouping was found to be vast
and conflicting. Research on the subject has, at times, resulted in dia-
metrically opposed conclusions.
The National Education Association (41) annotated a list of 25 grouping practices to illustrate the diversity in this area.

The primary objections to ability grouping lie in the theory that unhealthy self-concepts can develop in students as a result of such programs. The research in this area was conflicting.

There was very little evidence that ability grouping has resulted in significant growth or loss as measured by ability tests. Most ability grouping did reduce the range of differences in students, but a wide range tended to remain within groups. In one study, the decrease in range as a result of grouping was only five per cent (2).

The ability grouping plan in Des Moines began in the fall of 1962. It was the result of years of study by Des Moines school officials. In general, it consisted of three main ability groups which were called "tracks".

Since the inception of the track plan, many committees have worked on various phases of the program. Changes of a major nature have resulted such as weighted grades and limitation of ability grouping to only two subject areas. Tracking was done in only language arts and social studies.

The main purposes of ability grouping in Des Moines were said to have been (33, p. 2):

1. To build a strong instructional program for all pupils
2. To provide different courses for different needs
3. To set tasks which pupils can do and which are challenging
4. To differentiate instructional materials for various needs of pupils
5. To differentiate teaching methods
6. To improve the instructional offerings for **all** pupils.

The tracking plan apparently resulted in less failure in social stud­ies and language arts in the Des Moines Secondary Schools.

Two major evaluation instruments that have been used consisted of opinionnaires. One was sent to classroom teachers in 1962-63 and again in 1963-64; the other was sent to principals in 1966-67.

The teachers indicated a general acceptance of approval of the way the ability grouping program was functioning. The principals varied on many aspects of the program, but no general opposition was expressed.

The ability grouping program was still in effect at the time of this writing. This study was to be used as an evaluation for the purpose of aiding the Des Moines School Board in making decisions about ability group­ing in Des Moines.
Population sampled

Student population The population from which the students were drawn consisted of all of the public school students in language arts classes in grades eight and eleven in all of the secondary schools in the city of Des Moines and all of the students in social studies classes in grades eight and eleven in all of the secondary schools in the city of Des Moines. Although the same students were in both populations, the two groups were considered to be mutually exclusive and separate populations for the purposes of this study. This was possible because the ability grouping in social studies is mutually exclusive from the ability grouping in language arts.

There was careful consideration and discussion among school officials in Des Moines before the use of only grades eight and eleven was accepted. The data available in those grades were conducive to the purposes of the study. The size of the population was approximately 14,000 students. If the entire student body in grades seven to twelve had been used, the population would have been approximately 90,000 students.

The design required approximately a 10 per cent sample. A great deal of data on each student was gathered. Therefore, the use of the entire student population was prohibitive.

Teacher population This population consisted of all language arts and all social studies teachers in grades seven through twelve in the Des Moines schools. The number of teachers was approximately 600.
Department head population  This population consisted of all department heads of language arts and social studies in the Des Moines Public Schools. There were 36.

Sizes of samples

Student sample  Three students were to be selected from each social studies class in the eighth and eleventh grades and three students were to be selected from each language arts class in the eighth and eleventh grades.

At a series of meetings, it was determined that each teacher should select the most capable, the most typical, and the least capable student in each class in the study. The teachers were told to base their decisions on whatever they considered the most important ingredients for success in their discipline.

Nine groups were formed in social studies and nine groups were formed in language arts. In both cases group one consisted of all students who were perceived as most able in advanced track classes. Group two consisted of all students who were perceived as most typical in advanced track. Group three consisted of all students who were perceived as least able in the advanced track. Group four consisted of all students who were perceived as most able in the general track. Group five consisted of all students who were perceived as most typical in the general track. Group six consisted of all students who were perceived as least able in the general track. Group seven consisted of all students who were perceived as most able in the basic track. Group eight consisted of all students who were perceived as most typical in the basic track. Group nine consisted of all
students who were perceived as least able in the basic track.

In each area there were nine subgroups as described in the above paragraph. In Table 2, it can be seen that for most purposes, the eighth and eleventh grades were considered as separate groups in each discipline.

The total sample size was 1,371 students. In most cases the two main groups of language arts and social studies and the grade levels were analyzed separately. In a sense, there were four separate studies relative to the student sample. These four studies were based on the four sets of students as follows:

1. Grade eleven social studies students
2. Grade eight social studies students
3. Grade eleven language arts students
4. Grade eight language arts students.

**Teacher sample**  A 20 per cent random sample of all social studies and language arts teachers was used. The actual sample size was 135 teachers.

**Department head sample**  All department heads in language arts and social studies in the Des Moines Public Schools were used. The total number was 36.

**Devices used to gather data**

**Data from student sample**  The student sample was used to test four hypotheses. There were four data sheets developed for this purpose. One data sheet was developed for eleventh grade social studies; one was developed for eighth grade social studies; one for eleventh grade language arts; and one for eighth grade language arts.
Table 2. Sample sizes by schools, by tracks, by subgroups, and by grade levels for social studies

<table>
<thead>
<tr>
<th>Track</th>
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<th>General</th>
<th>Sub</th>
<th>Basic</th>
<th>Sub</th>
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</tr>
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Table 3. Sample sizes by schools, by tracks, by subgroups, and by grade levels for language arts

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<td>131 131 131</td>
<td>393</td>
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</table>
In addition to the data sheets, it was necessary to develop instruction sheets for lay readers so that they could score writing samples which were gathered from the language arts students.

A test was developed by the social studies department heads to serve as a work sample from the social studies students.

Instruction sheets for administering a writing sample were developed and distributed to language arts teachers. This was done with the cooperation of the department heads in each building.

Data from teachers In order to test the hypothesis that teacher opinions about various aspects of tracking had not changed, an opinionnaire which was administered in the years 1963-64 and 1962-63 was revised. The revision was necessary because it was desired that the teachers not easily recognize that they had answered the questions before, and it was desired that a minimum of confusion would result from the task. Most of the revision resulted in the changing of dates.

Data from department heads In order to test the opinions of department heads in regard to materials and methods, a rating scale was developed and administered to all department heads.

Statistical Analysis

The first hypothesis

Development The hypothesis was stated as a null hypothesis. Its purpose was to determine the extent to which national norms based on standardized tests, local measurements developed by teachers to determine the effectiveness of local objective obtainment, and certain behavioral factors related to discipline were related. The hypothesis was stated as
There will be no significant correlations among ability factors based on standardized tests, ability factors based on local evaluation instruments, and behavioral factors related to discipline.

Sample The student samples were used to test the hypothesis.

Method Four correlation matrices were developed. A separate matrix was developed for each of four student groups. These groups were eleventh grade language arts students, eighth grade language arts students, eleventh grade social studies students, and eighth grade social studies students.

Standardized test items The standardized test items for the eleventh grade social studies group consisted of Test 1 (Background in Social Studies) of the Iowa Tests of Educational Development, Test 5 (Reading in Social Studies) of the Iowa Tests of Educational Development, the composite of tests 1-8 of the Iowa Tests of Educational Development, Test W (Work-Study Skills) of the Iowa Tests of Basic Skills, Test W-1 (Map Reading) of the Iowa Tests of Basic Skills, Test W-2 (Reading Graphs and Tables), Test W-3 (Knowledge and Use of Reference Materials) of the Iowa Tests of Basic Skills, and the Lorge-Thorndike IQ.

The standardized test items for the eighth grade social studies were the same as those for the eleventh grade except that the Iowa Tests of Educational Development scores were not used for the eighth grade students.

The standardized test items for the eleventh grade language arts students included the following tests from the Iowa Tests of Educational Development:

Test 3 - Correctness of Expression
Test 7 - Reading Literature
Test 8 - General Vocabulary
Composite 1-8
Test 9 - Uses of Sources of Information.

Also included in the eleventh grade language arts standardized test items were the following tests from the Iowa Tests of Basic Skills:

Test V - Vocabulary
Test L - Language Skills
Test L-1 - Spelling
Test L-2 - Capitalization
Test L-3 - Punctuation
Test L-4 - Usage

Also included was the Lorge-Thorndike IQ.

The eighth grade language arts items were the same as the items for eleventh grade language arts except that the Iowa Test of Educational Development items were not used for the eighth grade group.

In all four groups behavior was measured by the following:

1. The number of days absent from school during the semester in the fall of 1967.

2. The estimated number of visits to the advisor because of discipline problems of all kinds over the last two years. In the case of students who were enrolled less than two years, the number was extrapolated.

3. A behavior rating by the classroom teacher.

In all four groups local norms were based on semester grades in the subject area involved and a work sample developed for this study by the
department heads of all secondary schools in Des Moines Public Schools of the subject area involved. The language arts department heads decided upon a writing sample and the social studies department heads developed a test. Both groups used Bloom's Taxonomy of Educational Objectives (4) as a basis of discussion in developing the work samples. Seven meetings were held by each group for this purpose.

In addition, parental pressure was measured in all groups. This was done by determining the number of individuals among the students' advisors, counselors, present teachers in the discipline involved, and department heads of the discipline involved who were aware of parent requests for change in track or any contacts made by the parent for the purpose of influencing the track of the student.

The second hypothesis

Development The hypothesis was stated as a null hypothesis. It was designed to determine possible deviations from expected growth in each track. The hypothesis was stated as follows:

H2 There will be no difference between observed and predicted performance levels, based on standardized tests, within any track.

Sample Only the eleventh grade language arts group was used.

Method A t test was used to measure the difference between the predictor score and the observed score in each sample.

The predictors for the language arts groups were Tests V and L of the Iowa Tests of Basic Skills which were administered to the students when they were in the eighth grade.
The observed scores for the language art group were Tests 8 and 3 of the Iowa Tests of Educational Development.

The decision to use the scores selected was based upon studies by Drahozal (14) and Rosemier (56). The social studies selections were based on personal judgment and personal interviews with Dr. Feldt (20) of the Iowa Testing Service.

The third hypothesis

Development This hypothesis was designed to test the heterogeneity of homogeneous groups. It was stated as a null hypothesis:

\[ H_3 \text{ There will be no significant difference between groups of extreme ability, based on teacher perception, within tracks.} \]

Sample The eleventh grade language arts group was used.

Method T tests were run on groups perceived as most able in a track compared with groups perceived as least able in the same track.

Measures The items of measurement were the same as those used in the first hypothesis. It was not considered necessary to use all of the items available. Therefore, some of the standardized test items were not used. Tests 7 and 9 of the Iowa Tests of Educational Development were not used in testing this hypothesis. The Language subtests numbered 1, 2, 3, and 4 were not used from the Iowa Tests of Basic Skills. These were included in the first hypothesis only.

The fourth hypothesis

Development This hypothesis was stated as a null hypothesis. It was designed to test the differences between ability groups and was considered to be closely related to the third hypothesis. It was considered
desirable to determine if differences between students in different ability
groups were less than differences within ability groups. The question of
interest was, "Will there be more significant differences in the third
hypothesis or in the fourth?". It was stated as follows:

\[ H_4 \] There will be no significant differences between groups of
least ability in each track and groups of most ability in
the track below.

**Sample**  
Eleventh grade language arts group was used.

**Method**  
T tests were run between the scores of the groups of least
ability and the groups of most ability in the lower adjoining track.

**Measures**  
The items of measure were the same as those used in the
third hypothesis.

**The fifth hypothesis**

The hypothesis was stated as a null hypothesis. It was designed to
determine whether or not materials and methods differed for the various
ability levels. It was stated as follows:

\[ H_5 \] There will be no discernible differences in materials and
methods between tracks.

**Sample**  
The department heads of social studies and language arts
served as the sample.

**Method**  
A rating scale was developed for a series of statements
about the track program. The department heads were asked to check negative
numbers from one to four for disagreement with a given statement. A nega­
tive four was the strongest measure of disagreement. Positive numbers from
one to four were used to indicate agreement with a given statement. A
positive four was the strongest measure of agreement. A zero was available for those who had no opinion on a given statement.

A t test was used to determine the difference between the negative and positive results for each statement. The value of the responses was considered in weighting the scores.

**The sixth hypothesis**

**Development** The hypothesis was developed to determine if the opinions about various aspects of the track plan possessed by Des Moines teachers has significantly changed since 1962-63. The null hypothesis was stated as follows:

H₀: There will be no differences between teacher opinions toward various aspects of tracking in 1968 and 1962.

**Sample** A 20 per cent sample of Des Moines language arts and social studies teachers was used.

**Method** A chi square was used to determine the differences between expected and observed frequencies of responses on an opinionnaire which was administered both years. The expected frequency was determined by multiplying the percentage of given response in 1962 times the number of such possible responses in 1968. For example, if 50 per cent responded yes to an item in 1962, the expected response for 1968 was determined by multiplying the number of responders to the item by 50 per cent.

**Assumptions**

The usual assumptions of randomness within groups and that variances within groups were homogeneous were made for the t tests.

The assumption of homogeneous variances was not necessary for the
non-parametric chi square tests.

Gathering the Data

**Student data**

Department heads were given the responsibility for getting the data on the student data sheets. However, various school officials within each of the 18 schools actually put the data on the sheets. Advisors, counselors, and classroom teachers were involved. It was decided at a meeting with department heads that the individuals who were to put the data on the sheets would vary from building to building and therefore, it was left up to the department heads to decide who should put each item on the sheets.

In order to avoid possible embarrassing situations for the department heads, meetings were established with building principals, advisors, and counselors. The study was explained at those meetings. When the department heads approached various school officials, they were expected because the study had been explained to the school officials.

**Other data**

Some data from teachers and department heads was solicited by mail. By the time these forms were sent, it was assumed that all those concerned were aware of the study.

It was emphasized at many of the meetings that there would be no evaluation of individual teachers and that only department heads would know who supplied various information. It was felt by the department heads that this would avoid possible bias.
Processing the Data

The information from the student data sheet was coded and transferred to data cards. Correlations, sums of squares, variances, standard deviations, and corrected sums of squares were obtained from the data processing center at Iowa State University.
FINDINGS

The findings were reported in the same order as hypothesis were tested and measures within each hypothesis were measured. Reporting of findings began with the first hypothesis which was related to correlations among standardized and localized achievement factors and behavioral factors. Reporting ended with the testing of the seventh hypothesis which tested the difference between tracks by measuring differences between groups of most average students in their respective tracks.

Correlations Among Factors

The hypothesis

The hypothesis was that there would be no significant correlations among ability factors based on standardized tests, ability factors based on local evaluation instruments, and behavioral factors related to discipline.

Four correlations matrices were developed from four groups of students. The make up of each of these groups was discussed in the previous chapter of this study. Tables 4, 5, 6, and 7 on the following pages show the results from each of these groups which were made up of the grade eight language arts group, the grade eleven language arts group, the grade eight social studies groups and the grade eleven social studies group.

Correlations of standardized items

Of course, standardized items such as Iowa Tests of Educational Development scores, Iowa Tests of Basic Skills scores, and IQ scores were highly correlated with each other in all four sample groups. This was expected
Table 4. Correlation matrix computed from a sample of 301 grade eleven language arts students in the Des Moines schools

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Table 5. Correlation matrix computed from a sample of 344 grade eight language arts students in the Des Moines schools

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Table 6. Correlation matrix computed from a sample of 347 grade eleven social studies students in the Des Moines schools

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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.295 -.248 -.278 -.298 -.305 -.294 -.269 -.252 1.000</td>
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<tr>
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<td>-.193 -.197 -.223 -.225 -.255 -.184 -.224 -.181 .272 1.000</td>
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</tr>
<tr>
<td>Dis. (Te.)</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>.374  .368 .425 .400 .378 .361 .395 .392 -.247 -.216 1.000</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Parent P.</td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>-.035 -.012 -.013 -.006 .003 -.012 -.016 -.005 -.025 .055 -.182 1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Dept. Test</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.623  .554 .626 .607 .551 .560 .582 .588 -.297 -.235 .317 -.009 1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-.548 -.490 -.526 -.445 -.416 -.415 -.468 -.446 .300 .184 -.392 .018 -.381 1.000</td>
<td></td>
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</tr>
</tbody>
</table>
Table 7. Correlation matrix computed from a sample of 341 grade eight social studies students in the Des Moines schools.

<table>
<thead>
<tr>
<th></th>
<th>ITBS W</th>
<th>ITBS W-1</th>
<th>ITBS W-2</th>
<th>ITBS W-3</th>
<th>IQ</th>
<th>ABS.</th>
<th>DIS. (AD)</th>
<th>DIS. (TE)</th>
<th>PAR.</th>
<th>DEPT</th>
<th>GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS W</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITBS W-1</td>
<td>.911</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITBS W-2</td>
<td>.909</td>
<td>.757</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITBS W-3</td>
<td>.927</td>
<td>.777</td>
<td>.786</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>.761</td>
<td>.686</td>
<td>.692</td>
<td>.730</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absences</td>
<td>-.200</td>
<td>-.169</td>
<td>-.149</td>
<td>-.235</td>
<td>-.149</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dis. (Ad.)</td>
<td>-.314</td>
<td>-.305</td>
<td>-.278</td>
<td>-.316</td>
<td>-.231</td>
<td>-.141</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dis. (Te.)</td>
<td>.348</td>
<td>.257</td>
<td>.326</td>
<td>.387</td>
<td>.276</td>
<td>-.134</td>
<td>-.328</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent P.</td>
<td>-.045</td>
<td>-.072</td>
<td>-.046</td>
<td>-.003</td>
<td>.017</td>
<td>.040</td>
<td>.057</td>
<td>.019</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Departmental Test</td>
<td>.638</td>
<td>.607</td>
<td>.561</td>
<td>.560</td>
<td>.516</td>
<td>-.089</td>
<td>-.326</td>
<td>.312</td>
<td>-.072</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>-.319</td>
<td>-.244</td>
<td>-.293</td>
<td>-.329</td>
<td>-.289</td>
<td>.100</td>
<td>-.270</td>
<td>-.013</td>
<td>-.290</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>
and not considered of particular note.

In the eleventh grade language arts group, r values ranged from a low .664 between the Iowa Tests of Basic Skills Test L-2 and Iowa Test of Educational Development Test 8 and a high of .890 between the Iowa Tests of Educational Development Test 8 and the Iowa Tests of Educational Development Composite. Since there were 301 in the sample, an r value of only .113 was needed for significance at the alpha level of .05.

In the eighth grade language arts group, values of r among the standardized items ranged from a low of .697 to a high of .928. With 343 degrees of freedom, an r value of between .098 and .113 would be considered significant at the .05 level.

In the eleventh grade social studies group, values of r among the standardized items ranged from a low of .700 to a high of .919. With 346 degrees of freedom, an r value of between .098 and .113 would be required for significance.

In the eighth grade social studies group, values of r among the standardized items ranged from a low of .686 to a high of .927. With 340 degrees of freedom an r value of between .098 and .113 would be considered significant.

The r values among the standardized items were common knowledge from the literature and were not considered valuable measures to test the hypothesis. As stated above, they were all significant.

Correlations of behavioral items

In the grade eleven language arts group, discipline problems as measured by the number of visits to the advisor for discipline matters over a
two year period had a correlation of -.207 with discipline as measured by rating by the classroom teacher. Since the number of visits to advisor was a measure of poor behavior and teacher rating was a measure of good behavior, a negative correlation was an indication that students who did poorly in one area tended to do poorly in the other. In the eighth grade language arts group, these two factors produced a r value of -.332. In the eleventh grade social studies group, these two factors produced an r value of -.216. In the eighth grade social studies group, these two factors produced an r value of -.328. Because all of the groups had between 300 and 400 subjects, an r value between .113 and .098 was needed for significance at the .05 level. All of the values were significant.

As seen in Table 4, in the eleventh grade language arts group, visits to the advisor and number of days absent in the fall semester of 1967 produced an r value of .319. In the eighth grade language arts group, Table 5, these two factors produced a r value of .438. In the eleventh grade social studies group, Table 6, these two factors produced an r value of .272. In the eighth grade social studies group, Table 7, these two factors produced an r value .141. All the above values were significant at the .05 level.

In the eleventh grade language arts group, teacher ratings had positive correlation with days absent of .033. This value was not significant. In the grade eight language arts group, these two factors produced an r value of -.332; in grade eleven social studies the r value was -.247; and -.134 in the grade eight social studies group. The latter three values were significant at the .05 level.
Days absent and standardized scores  In the eleventh grade language arts group and with every other group, negative correlations were found between days absent and every standardized test measure used in the study.

In the eleventh grade language arts group, the smallest correlation was between absences and IQ. This value was -.106. The largest value was between absences and the Iowa Tests of Educational Development Test 3. That value was -.263. With 300 degrees of freedom a value of -.113 was needed for significance. The 11 achievement scores correlated significantly with the number of days absent. The IQ value was not significant at the .05 level when compared with days absent.

In the grade eight language arts group, the smallest correlation between days absent and standardized scores was between days absent and Test V of the Iowa Tests of Basic Skills. That value was -.199. The largest r value was between days absent and IQ. That value was -.260. All correlations between days absent and standardized measures were significant at the .05 level of significance.

In the eleventh grade social studies group, the smallest correlation was between Test V of the Iowa Tests of Educational Development. That value was -.248. The largest r value was between Test W-1 of the Iowa Tests of Basic Skills. That value was -.305. All of the correlations between days absent and standardized measures were significant. All were negative.

In the eighth grade social studies group, the smallest correlation was between days absent and the W-2 of the Iowa Tests of Basic Skills. That value was -.149. The correlation between days absent and IQ was also -.149. The largest r value was between days absent and test W-3 of the
Iowa Tests of Basic Skills. That value was -.235. All of the values between days absent and standardized measures were significant at the .05 level.

**Visits to advisors and standardized measures** In all four groups, discipline visits to advisors and standardized measures correlated significantly. In all cases, the correlations were negative. The smallest correlation was in the grade eleven language arts group. That r value was between visits to advisors and test L-1 of the Iowa Tests of Basic Skills. That value was -.126. The largest value was in the grade eight language arts group and was between visits to advisors and test L-4 of the Iowa Tests of Basic Skills.

**Teacher ratings and standardized measures** Teacher ratings of behavior correlated higher with standardized measures than did the other two measures of behavior. In all cases and in all groups, the r values between standardized test scores and teacher ratings of behavior were significant. These values ranged from .205 to .505. In all cases the values were positive since teachers were asked to rate the students on a scale where a value of 8 was a measure of perfect behavior and 1 was the lowest or poorest measure of behavior. Therefore, a negative correlation indicated that better behavior varied directly with better achievement as measured by standardized tests.

**Parental pressure and other measures**

Parental pressure as measured by the number of school personnel aware of parental influence to change a student's track correlated significantly with only two standardized measures in the grade eleven language arts
group; one standardized measure in the grade eight language arts group; none in the grade eleven social studies group; and none in the grade eight social studies group. That many findings of significance was no greater than would be expected by chance alone at the .05 level.

**Local measures and other measures**

In the grade eleven language arts group, the writing sample correlated significantly with all standardized measures. These r values ranged from .492 to .648. In the same group, the writing samples correlated -.174 with IQ, -.130 with discipline visits to advisors and .249 with teacher ratings of behavior. These three measures were relatively low, but significant at the .05 level.

In the grade eight language arts group, the writing sample correlated significantly with all standardized measures. These r values ranged from .609 to .692. These values were significant. The r values with relation to the behavioral measures were slightly larger than those found in the grade eleven language arts group.

In the grade eleven social studies group, the local departmental test correlated significantly with all standardized measures. These r values ranged from .551 to .626. The departmental test correlated with behavioral factors significantly, but at a lower figure than the standardized measures.

In the eighth grade social studies group, the departmental test correlated from .516 to .638 with the standardized measures. Although findings relative to discipline visits to the adviser and teacher ratings were significant and similar to those in other groups, the correlation with days absent was not significant. That r value was .089.
Grades and other measures

In all groups but the grade eight social studies groups, the $r$ values resulting from grades and standardized measures were consistently between .5 and .7. In the grade eight social studies group the range was from .244 to .329.

In the grade eleven language arts group and the grade eight language arts group, grades correlated higher with teacher ratings of behavior than did any other factor. This was not true of the social studies groups.

Rejection of the hypothesis

Because the number of significant correlations among the various factors were far greater than could be expected from chance alone, the null hypothesis was rejected. Technically, the null hypothesis was rejected due to the significance of the correlations. The sizes of the samples were large enough so that rather low correlations were statistically significant at the .05 level.

Differences Between Expected and Observed Performance Levels

The second hypothesis was that there would be no significant differences between expected and observed performance levels.

The reasoning underlying the selections of predictors and observed performance levels was explained on page 45 of this study.

In the advanced track language arts group, the gain in percentile rank from the eighth grade to the eleventh grade was far too small to be significant. With the use of the Iowa Test of Basic Skills Test V and the Iowa Tests of Educational Development Test 8, the gain in percentile rank was 1.18. With the use of tests L and 3, the gain was 1.42.
Table 8. Differences between expected and observed performance levels in the advanced track language arts group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS V (expected)</td>
<td>8</td>
<td>77.34</td>
<td>67</td>
</tr>
<tr>
<td>ITED 8 (observed)</td>
<td>11</td>
<td>78.52</td>
<td>67</td>
</tr>
<tr>
<td>ITBS L (expected)</td>
<td>8</td>
<td>74.73</td>
<td>67</td>
</tr>
<tr>
<td>ITED 3 (observed)</td>
<td>11</td>
<td>76.16</td>
<td>67</td>
</tr>
</tbody>
</table>

Table 9. Differences between expected and observed performance levels in the general track language arts group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS V (expected)</td>
<td>8</td>
<td>53.12</td>
<td>185</td>
</tr>
<tr>
<td>ITED 8 (observed)</td>
<td>11</td>
<td>53.45</td>
<td>185</td>
</tr>
<tr>
<td>ITBS L (expected)</td>
<td>8</td>
<td>48.52</td>
<td>185</td>
</tr>
<tr>
<td>ITED 3 (observed)</td>
<td>11</td>
<td>49.03</td>
<td>185</td>
</tr>
</tbody>
</table>

In the general track language arts, no significant differences existed between the factors used to measure expected performance and the factors used to measure observed performance.

In the basic track language arts group the difference between ITBS V and ITED 8 was not significant. It was only .06. The difference between test L and test 3 was greater than any difference found in any of the
Table 10. Differences between expected and observed performance levels in the basic track language arts group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS V (expected)</td>
<td>8</td>
<td>23.18</td>
<td>49</td>
</tr>
<tr>
<td>ITED 8 (observed)</td>
<td>11</td>
<td>23.24</td>
<td>49</td>
</tr>
<tr>
<td>ITBS L (expected)</td>
<td>8</td>
<td>19.71</td>
<td>49</td>
</tr>
<tr>
<td>ITED 3 (observed)</td>
<td>11</td>
<td>15.47</td>
<td>49</td>
</tr>
</tbody>
</table>

groups used to measure differences between observed and expected performance. The difference was 4.24. Although this was not significant at the .05 level, it represented the largest change and it was a negative change.

In the advanced track social studies group there was no significant difference between the expected and observed values. The numerical difference was only .68.

In the general track social studies group there was no significant difference between the expected and observed values. The numerical differences were .97.

Table 11. Differences between expected and observed performance levels in the advanced track social studies group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS W (expected)</td>
<td>8</td>
<td>81.74</td>
<td>96</td>
</tr>
<tr>
<td>ITED 5 (observed)</td>
<td>11</td>
<td>82.42</td>
<td>96</td>
</tr>
</tbody>
</table>
Table 12. Differences between expected and observed performance levels in the general track social studies group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS W (expected)</td>
<td>8</td>
<td>52.27</td>
<td>194</td>
</tr>
<tr>
<td>ITED 5 (observed)</td>
<td>11</td>
<td>51.30</td>
<td>194</td>
</tr>
</tbody>
</table>

Table 13. Differences between expected and observed performance levels in the basic track social studies group based on national norm percentile ranks

<table>
<thead>
<tr>
<th>Test</th>
<th>Grade</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITBS W (expected)</td>
<td>8</td>
<td>22.05</td>
<td>57</td>
</tr>
<tr>
<td>ITED 5 (observed)</td>
<td>11</td>
<td>26.58</td>
<td>57</td>
</tr>
</tbody>
</table>

In the social studies group as in the language arts group, the basic track was found to have the greatest difference between expected and observed performance levels. Again, that value proved not to be significant. The t value was less than one due to the large variances within the groups. In the social studies basic track group, the variance for ITBS W was 170.77 and the variance for ITED 5 was 369.75.

Failure to reject the hypothesis

Because none of the differences between expected and observed performance levels was significant, the second null hypothesis could not be rejected. It could not be said that any of the tracks produced negative or
positive deviations from expected performance levels.

Differences Between Groups of Extreme Ability Within Tracks

The third hypothesis was that there would be no significant differences between groups of extreme ability within tracks.

Groups 1 and 3 -- the advanced track

Group 1 was composed of 22 grade eleven language arts students who were perceived by their classroom teachers as being the most able students in their respective classes. Group 3 was composed of 24 grade eleven language arts students who were perceived by their classroom teachers as being the least able students in their respective classes. Both groups were in the advanced track.

The difference between the means based on test 3 of the Iowa Tests of Educational Development produced a t value of 4.6447. The test was considered to be a one-tailed test because it was assumed that the most able group would have the largest mean score. A value of 1.714 was considered significant at the .05 level of significance with 23 degrees of freedom.

With t values greater than four on the eighth test of the Iowa Tests of Educational Development, the composite of the Iowa Tests of Educational Development, and test 5 of the Iowa Tests of Basic Skills all were significantly different at the .05 level.

Test L of the Iowa Tests of Basic Skills produced a t value of 3.919 which was significant at the .05 level.

The differences in IQ between the groups was significant and produced a t value of 2.4176.

Group 3 missed a significantly greater number of days of school. That
Table 14. Mean scores from standardized test of extreme ability groups within the grade eleven advanced track language arts group

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 1</th>
<th>N</th>
<th>Group 3</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational Development^a</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>4.6447b</td>
<td>89.45</td>
<td>22</td>
<td>61.29</td>
<td>24</td>
</tr>
<tr>
<td>Test 8</td>
<td>4.8178b</td>
<td>91.82</td>
<td>22</td>
<td>65.96</td>
<td>24</td>
</tr>
<tr>
<td>Composite</td>
<td>4.6548b</td>
<td>92.14</td>
<td>22</td>
<td>67.96</td>
<td>24</td>
</tr>
<tr>
<td>Iowa Test of Basic Skills^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>4.2298b</td>
<td>88.82</td>
<td>22</td>
<td>68.67</td>
<td>24</td>
</tr>
<tr>
<td>Test L</td>
<td>3.9190b</td>
<td>84.59</td>
<td>22</td>
<td>69.13</td>
<td>24</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td>2.4176b</td>
<td>119.41</td>
<td>22</td>
<td>111.25</td>
<td>24</td>
</tr>
</tbody>
</table>

^aReported in percentile ranks based on national norms.

^bSignificant at the .05 level.

Group averaged 5.50 days in the semester compared to 2.32 for group 1. The t value produced by that difference was 3.0170.

The 22 students in group 1 had no visits at all to the advisor for disciplinary reasons. Although group 3 averaged only .75 visits over a two year period, that difference produced a t value of 2.4785 which was significant at the .05 level of significance.

Group 1 received a significantly better behavioral rating by the classroom teachers than did group 3. The t value produced by that difference was 4.1357. The value was significant at the .05 level.

The value for parental pressure was derived from the number of people
aware of parental pressure among the advisor, teacher, department head and counselor. Therefore, each student had a possible value of five on this factor if the "other" blank was used. However, the space for "other", was never used so a value of four was the most any student received. The means for the two groups were low. Group 1 averaged only .045 and group 3 averaged only .083. The difference between the values produced a t value of 0.4029 which was not significant.

The differences in the means produced by the writing samples was not significant at the .05 level. The difference between the means produced a t value of 1.5332. A value of 1.714 was necessary at the .05 level with 23 degrees of freedom.

The difference in grades produced the greatest t value. The best possible grade in the Des Moines System was a 1 and the failing grade was

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 1</th>
<th>N</th>
<th>Group 3</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>3.0170a</td>
<td>2.32</td>
<td>22</td>
<td>5.50</td>
<td>24</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>2.4785a</td>
<td>0.00</td>
<td>22</td>
<td>.75</td>
<td>24</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>4.1357a</td>
<td>8.45</td>
<td>22</td>
<td>6.50</td>
<td>24</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>0.4029</td>
<td>.045</td>
<td>22</td>
<td>.083</td>
<td>24</td>
</tr>
<tr>
<td>Writing sample</td>
<td>1.5332</td>
<td>120.82</td>
<td>22</td>
<td>109.67</td>
<td>24</td>
</tr>
<tr>
<td>Grade</td>
<td>10.1947a</td>
<td>1.14</td>
<td>22</td>
<td>2.92</td>
<td>24</td>
</tr>
</tbody>
</table>

*aSignificant at the .05 level.
Group 1 averaged a grade of 1.14. The grade point average of group 3 was 2.92. The difference between the means produced a t value of 10.1947 which was, of course, significant.

**Groups 4 and 6 -- the general track**

Group 4 was composed of 61 grade eleven general track students who were perceived by their classroom teachers as the most able students in their respective classes. Group 6 was composed of 62 grade eleven general track students who were perceived by their classroom teachers as the least able students in their respective classes. With 60 degrees of freedom, a value of 1.671 was required for significance at the .05 level. A one-tailed t value was used for the same reasons indicated in the measures between the extreme groups in the advanced track.

The three tests used in the Iowa Tests of Educational Development produced significant differences between the means of the two groups. The t value that resulted from the difference between the means on the third test was 11.5587. The t value that resulted from the difference between the means on the eighth test was 9.2064 and the difference in the means on the composite was 10.3874. As previously stated a value of 1.671 was required for significance.

The vocabulary and language sections of the Iowa Test of Basic Skills were used. The means differed significantly on both tests. Test V resulted in a t value of 7.9251 and test L resulted in a t value of 11.7119.

Group 4 had an average IQ of 110.03 compared to group 6 which had an average of 95.10. The resulting t value was 7.7752.

There was a significant difference between the means on each of the
three measures of behavior. Group 4 missed an average of 3.25 days in one semester. Group 6 averaged 8.02 days during the same semester. That difference resulted in a t value of 4.1011 which was significant. Group 4 averaged .262 visits to the advisor for discipline reasons over a period of two years while group 6 averaged 3.14. That difference resulted in a t value of 3.6105 which was significant. The teacher ratings were significantly better for group 4 when compared to group 6. Group 4 averaged 7.89 compared to group 6 which averaged 5.44. The resulting t value was 7.7802.

Although the scores for parental pressure were very small, a significant value of t resulted. The average number of school officials aware of parental pressure for group 4 was .016 compared to group 6 which had an

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 4</th>
<th>N</th>
<th>Group 6</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational Development^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>11.5587^b</td>
<td>73.43</td>
<td>61</td>
<td>29.48</td>
<td>62</td>
</tr>
<tr>
<td>Test 8</td>
<td>9.2064^b</td>
<td>73.43</td>
<td>61</td>
<td>37.50</td>
<td>62</td>
</tr>
<tr>
<td>Composite</td>
<td>10.3874^b</td>
<td>72.80</td>
<td>61</td>
<td>34.68</td>
<td>62</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>7.9251^b</td>
<td>71.51</td>
<td>61</td>
<td>39.26</td>
<td>62</td>
</tr>
<tr>
<td>Test L</td>
<td>11.7119^b</td>
<td>72.95</td>
<td>61</td>
<td>30.89</td>
<td>62</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td>7.7752^b</td>
<td>110.03</td>
<td>61</td>
<td>95.10</td>
<td>62</td>
</tr>
</tbody>
</table>

^aReported in percentile ranks based on national norms.
^bSignificant at the .05 level.
average of .145. The resulting t value was 2.0941.

The average score on the writing sample for group 4 was 106.52. The average score on the writing sample for group 6 was 79.76. The resulting t value was 6.6676.

As with the advanced track, the grade averages produced the greatest t value of all of the measures. Group 4 had a grade average of 1.54 compared to group 6 which had a grade average of 3.73. The resulting t value was 16.8073.

Table 17. Mean scores on behavior factors, parental pressure, writing samples, and grades of extreme ability groups within the grade eleven general track language arts group

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 4</th>
<th>N</th>
<th>Group 6</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>4.1011a</td>
<td>3.25</td>
<td>61</td>
<td>8.02</td>
<td>62</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>3.6105a</td>
<td>.262</td>
<td>61</td>
<td>3.14</td>
<td>62</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>7.7802a</td>
<td>7.89</td>
<td>61</td>
<td>5.44</td>
<td>62</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>2.0941a</td>
<td>.016</td>
<td>61</td>
<td>.145</td>
<td>62</td>
</tr>
<tr>
<td>Writing sample</td>
<td>6.6676a</td>
<td>106.52</td>
<td>61</td>
<td>79.76</td>
<td>62</td>
</tr>
<tr>
<td>Grade</td>
<td>16.8073a</td>
<td>1.54</td>
<td>61</td>
<td>3.73</td>
<td>62</td>
</tr>
</tbody>
</table>

*aSignificant at the .05 level.

Groups 7 and 9 -- the basic track

Group 7 was composed of 16 grade eleven basic track students who were perceived by their classroom teachers as the most able students in their
respective classes. Group 9 was composed of 17 grade eleven basic track students who were perceived by their classroom teachers as the least able students in their respective classes. With 16 degrees of freedom a t value of 1.746 was necessary for significance at the .05 level. A one-tailed t value was used for the same reasons indicated in the measures of the extreme groups in the advanced track; the group perceived as most able was surely expected to score better than the least able.

The three tests from the Iowa Tests of Educational Development resulted in significant differences between the two groups. Group 7 averaged 24.81 and group 9 averaged 7.06 on test 3. The resulting t value of 3.991 was significant. On test 8, group 7 averaged 34.75 and group 9 averaged 14.06. The t value of 3.4739 was significant. On the composite, group 7 averaged 28.00 and group 9 averaged 10.06. The t value was 3.4916 and was significant at the .05 level. As noted previously, significant differences were found on these three measures between extreme groups in both the advanced and general tracks.

On test V of the Iowa Tests of Basic Skills, group 7 averaged 35.44 compared to 15.00 for group 9. The t value was 3.5488. It was significant. On test L, group 7 scored an average of 29.44 and group 9 scored 13.00. The t value of 3.9184 was significant.

On the IQ scores, there was a significant difference between the groups. Group 7 averaged 88.13 and group 9 averaged 75.41. The t value was 2.6018.

There were no significant differences between the groups on any of the three behavioral factors. Group 7 averaged 1.06 visits to the advisor; group 9 averaged 0.824. The t value was 0.4183. Group 7 averaged 6.31
Table 18. Mean scores from standardized tests of extreme ability groups within the grade eleven basic track language arts group

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 7</th>
<th>N</th>
<th>Group 9</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational Development^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>3.9910^b</td>
<td>24.81</td>
<td>16</td>
<td>7.06</td>
<td>17</td>
</tr>
<tr>
<td>Test 8</td>
<td>3.4939^b</td>
<td>34.75</td>
<td>16</td>
<td>14.06</td>
<td>17</td>
</tr>
<tr>
<td>Composite</td>
<td>3.4916^b</td>
<td>28.00</td>
<td>16</td>
<td>10.06</td>
<td>17</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>3.5488^b</td>
<td>35.44</td>
<td>16</td>
<td>15.00</td>
<td>17</td>
</tr>
<tr>
<td>Test L</td>
<td>3.9184^b</td>
<td>29.44</td>
<td>16</td>
<td>13.00</td>
<td>17</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td>2.6108^b</td>
<td>88.13</td>
<td>16</td>
<td>75.41</td>
<td>17</td>
</tr>
</tbody>
</table>

^aReported in percentile ranks based on national norms.
^bSignificant at the .05 level.

days absent; group 9 averaged 5.76. The t value was 0.2793. Group 7 averaged 6.94 on the teacher rating; group 9 averaged 6.53. The t value was 0.6311. The basic track differed from the general and advanced track in the area of behavioral factors. In the general and advanced tracks the groups of extreme ability did differ significantly on behavioral factors.

On parental pressure, the scores were small and not significantly different. Group 7 averaged .188 and group 9 averaged .235. The t value was 0.2444.

The two groups were significantly different on the writing sample. Group 7 averaged a score of 75.31 compared to 46.41 for group 9. The t
Table 19. Mean scores on behavior factors, parental pressure, writing samples, and grades of extreme ability groups within the grade eleven basic track language arts group

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 7</th>
<th>N</th>
<th>Group 9</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>0.2793</td>
<td>6.31</td>
<td>16</td>
<td>5.76</td>
<td>17</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>0.4183</td>
<td>1.06</td>
<td>16</td>
<td>.824</td>
<td>17</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>0.6311</td>
<td>6.94</td>
<td>16</td>
<td>6.53</td>
<td>17</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>0.2444</td>
<td>.188</td>
<td>16</td>
<td>.235</td>
<td>17</td>
</tr>
<tr>
<td>Writing sample</td>
<td>3.9870*</td>
<td>75.31</td>
<td>16</td>
<td>46.41</td>
<td>17</td>
</tr>
<tr>
<td>Grade</td>
<td>4.6656*</td>
<td>2.56</td>
<td>16</td>
<td>3.76</td>
<td>17</td>
</tr>
</tbody>
</table>

*Significant at the .05 level.

The grade point average for group 7 was 2.56. For group 9 it was 3.76. The resulting t value was 4.6656 and was significant at the .05 level.

Rejection of the hypothesis

The hypothesis that there would be no difference between groups of extreme ability based on teacher perception was rejected because of the significant differences between groups on the vast majority of factors in all tracks.
Differences Between Groups of Least Ability and Groups of Most Ability in the Track Below

The fourth hypothesis was that there would be no significant differences between groups of least ability in a track and groups of most ability in the track immediately below.

Groups 3 and 4 — the advanced and general tracks

Group 3 was composed of 24 grade eleven language arts students who were in the advanced track and who were perceived as the least able students in their respective classes. Group 4 was composed of 61 grade eleven language arts students who were perceived by their classroom teachers as being the most able in their respective classes. Group 4 was from the general track.

A two-tailed t test was used because it was not known which group would score better on the measures used and a difference in either direction was of interest. With 40 degrees of freedom a t value of 2.021 was required for significance at the .05 level.

On the tests in the Iowa Tests of Educational Development, none of the differences was significant. On test 3, group 3 averaged 61.29 compared to group 4 which averaged 73.43. Although the general track group had a higher average, the difference was not significant. The t value was 1.9313. It would have been significant had a one-tailed test been used.

On test 8, group 3 averaged 65.96 and group 4 averaged 73.43. The general track group was again superior on this measure. The t value was 1.2955.

On the composite, group 3 averaged less than group 4 again. Group 3 averaged 65.96; group 4 averaged 72.80.
The t value was 0.9424. On all three of the measures in the Iowa Tests of Educational Development, the general track group perceived as most able scored better than the advanced track group perceived as least able.

Neither measure on the Iowa Tests of Basic Skills resulted in a significant difference between the groups. On test V, group 3 averaged 68.67; group 4 averaged 71.51. The t value was 0.5573. On test L, group 3 averaged 69.13; group 4 averaged 72.95. The resulting t value was 0.8353.

The average IQ of group 3 was 111.25; the average IQ of group 4 was 110.03. The resulting t value of 0.4853 was not significant. This was the only measure on the standardized measures that resulted in a higher average for the advanced track group.

Table 20. Mean scores from standardized tests of the ability group perceived as least able in the advanced track and the ability group perceived as most able in the general track

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 3</th>
<th>N</th>
<th>Group 4</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>1.9313</td>
<td>61.29</td>
<td>24</td>
<td>73.43</td>
<td>61</td>
</tr>
<tr>
<td>Test 8</td>
<td>1.2955</td>
<td>65.96</td>
<td>24</td>
<td>73.43</td>
<td>61</td>
</tr>
<tr>
<td>Composite</td>
<td>0.9424</td>
<td>67.69</td>
<td>24</td>
<td>72.80</td>
<td>61</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>0.5573</td>
<td>68.67</td>
<td>24</td>
<td>71.51</td>
<td>61</td>
</tr>
<tr>
<td>Test L</td>
<td>0.8353</td>
<td>69.13</td>
<td>24</td>
<td>72.95</td>
<td>61</td>
</tr>
<tr>
<td>Lorge-Thorndike</td>
<td>0.4853</td>
<td>111.25</td>
<td>24</td>
<td>110.03</td>
<td>61</td>
</tr>
</tbody>
</table>

<sup>a</sup>Reported in percentile ranks based on national norms.
The difference in days absent approached, but did not reach, significance. Group 3 missed an average 5.50 days in one semester compared to 3.25 days for group 4. The resulting t value was 2.3193. Group 3 averaged .75 visits to the advisor for disciplinary reasons over a two year period. Group 4 averaged .262 visits. The t value of 1.4602 was not significant. Group 3 received an average rating of 6.50 by the classroom teachers. Group 4 received an average rating of 7.89. The resulting t value was 3.1334. This value was significant at the .05 level of significance.

There was no significant difference between groups on the measure used for parental pressure. Group 3 averaged .083 on this measure; group 4 averaged .016. The resulting t value was 0.7957. It was not significant.

Group 3 averaged 109.67 on the writing sample; group 4 averaged

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 3</th>
<th>N</th>
<th>Group 4</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>2.3193a</td>
<td>5.50</td>
<td>24</td>
<td>3.25</td>
<td>61</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>1.4602</td>
<td>.75</td>
<td>24</td>
<td>.262</td>
<td>61</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>3.1334a</td>
<td>6.50</td>
<td>24</td>
<td>7.89</td>
<td>61</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>0.7957</td>
<td>.083</td>
<td>24</td>
<td>.016</td>
<td>61</td>
</tr>
<tr>
<td>Writing sample</td>
<td>0.5009</td>
<td>109.67</td>
<td>24</td>
<td>106.52</td>
<td>61</td>
</tr>
<tr>
<td>Grade</td>
<td>7.4877a</td>
<td>2.92</td>
<td>24</td>
<td>1.54</td>
<td>61</td>
</tr>
</tbody>
</table>

*aSignificant at the .05 level.
106.52. The resulting t value was 0.5009. The value was not significant.

The largest t value resulted in the grade average. The grade point average for group 3 was 2.92; for group 4 it was 1.54. The resulting t value was 7.4877. It was significant.

Groups 6 and 7 -- the general and basic tracks

Group 6 was composed of 62 grade eleven language arts students who were in the general track and who were perceived as the least able students in their respective classes. Group 7 was composed of 16 grade eleven language arts students who were perceived by their classroom teachers as the most able in their respective classes. They were from the basic track.

On the tests in the Iowa Tests of Educational Development, none of the differences was significant. On test 3, group 6 averaged 29.49; group 7 averaged 24.81. The t value was 0.9333. On test 8, group 6 averaged 37.50; group 7 averaged 34.75. The difference was not significant. On the composite, group 6 averaged 34.68; group 7 averaged 28.00. The difference was not significant. The t values were 0.4457 for test 8 and 1.2382 for the composite.

On test V of the Iowa Tests of Basic Skills, group 6 averaged 39.26. Group 7 averaged 35.44. The t value of 0.6349 was not significant. On test L, group 6 averaged 30.89; group 7 averaged 29.44. The t value of 0.3234 was not significant.

Group 6 had an average IQ score of 95.10. The average IQ score for group 7 was 88.13. The t value of 1.5313 was not significant.

Group 6 averaged 8.03 days absent; group 7 averaged 6.31. The resulting t value of 0.9903 was not significant.
Group 6 averaged 3.14 visits to the advisor. Group 7 averaged 1.06. The t value of 2.3585 approached, but did not reach, significance.

The group in the basic track (group 7) received a significantly higher rating from the teachers on behavior. Group 7 received a rating average of 6.94 compared to group 6 which averaged 5.44. The t value of 2.7262 was significant at the .05 level.

The parental pressure measure was not significantly different between the two groups. Group 6 had an average of .145 compared to group 7 which had an average of .188. The t value was 0.2893.

On the writing sample, group 6 averaged 79.76 and group 7 averaged 75.31. The t value was 0.6592.

Table 22. Mean scores from standardized tests of the ability group perceived as least able in the general track and the ability group perceived as most able in the basic track

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 6 N = 62</th>
<th>Group 7 N = 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational Develop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>0.9333</td>
<td>29.48</td>
<td>24.81</td>
</tr>
<tr>
<td>Test 8</td>
<td>0.4457</td>
<td>37.50</td>
<td>34.75</td>
</tr>
<tr>
<td>Composite</td>
<td>1.2382</td>
<td>34.68</td>
<td>28.00</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>0.6849</td>
<td>39.26</td>
<td>35.44</td>
</tr>
<tr>
<td>Test L</td>
<td>0.3234</td>
<td>30.89</td>
<td>29.44</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td>1.5313</td>
<td>95.10</td>
<td>88.13</td>
</tr>
</tbody>
</table>

*aReported in percentile ranks based on national norms.*
Table 23. Mean scores on behavior factors, parental pressure, writing samples, and grades of the ability group perceived as the least able in the general track and the ability group perceived as the most able in the general track

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 6</th>
<th>Group 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>0.9903</td>
<td>8.02</td>
<td>6.31</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>2.3585&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.14</td>
<td>1.06</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>2.7262&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.44</td>
<td>6.94</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>0.2893</td>
<td>0.145</td>
<td>0.188</td>
</tr>
<tr>
<td>Writing sample</td>
<td>0.6592</td>
<td>79.76</td>
<td>75.31</td>
</tr>
<tr>
<td>Grade</td>
<td>5.7184&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3.73</td>
<td>2.56</td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant at the .05 level.

There was a significant difference between the groups on the grade point averages. Group 6 averaged 3.73 on grade point. Group 7 averaged 2.56 on grade point. The t value was 5.7184.

Failure to reject the null hypothesis

Because there were few significant differences, the null hypothesis could not be rejected on the basis of the ability and achievement measures.

Behavior factors and grades did differ and the hypothesis (as it related to visits to advisors, teacher ratings, and grades) was rejected.
Discernible Differences in Materials and Methods Between Tracks

The hypothesis

The hypothesis was that there would be no discernible differences in materials and methods between tracks. A seven item opinionnaire was sent to all social studies and language arts department heads in the Des Moines School System. The department heads were asked to respond to each statement by checking a plus four for items with which they strongly agreed and a minus four for items with which they strongly disagreed. Negative and positive threes, twos, and ones were provided on the opinionnaires for milder feelings. A zero was provided for neutral opinions.

Frequency counts

In frequency counts only, seven teachers disagreed with the statement "I believe that textbooks and supplementary materials differ between tracks". The teachers who agreed with the statement numbered 22. These frequency counts were for the statement only as it related to the advanced and general tracks as shown in Table 24. On the same statement as it related to the general and basic tracks, four teachers disagreed with it and 23 agreed with it.

In response to the statement "I believe that daily assignments differ between tracks", teachers strongly agreed as measured by frequency counts. Between the advanced and general tracks, only one disagreed compared to 23 who agreed. As it related to difference between the general and basic tracks, only one disagreed compared to 25 who agreed.

In response to the statement, "I believe that requirements to pass differ between tracks" as it related to differences between the advanced
Table 24. Frequencies of responses by department heads to statements relating to differences between the advanced and general tracks

<table>
<thead>
<tr>
<th>Statement</th>
<th>Degree of disagreement</th>
<th>Degree of agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-4  -3  -2  -1  0</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>I believe that textbooks and supplementary materials differ between tracks</td>
<td>4  1  2  0  0</td>
<td>2  5  5  10</td>
</tr>
<tr>
<td>I believe that daily assignments differ between tracks</td>
<td>0  1  0  0  0</td>
<td>4  10  4  10</td>
</tr>
<tr>
<td>I believe that requirements to pass differ between tracks</td>
<td>0  1  0  1  3</td>
<td>1  6  4  13</td>
</tr>
<tr>
<td>I believe that reading and research requirements differ between tracks</td>
<td>0  0  0  0  1</td>
<td>1  5  6  15</td>
</tr>
<tr>
<td>I believe that subject or departmental objectives differ between tracks</td>
<td>0  1  0  0  4</td>
<td>1  9  6  8</td>
</tr>
<tr>
<td>I believe that content structure differs between tracks</td>
<td>1  1  0  0  1</td>
<td>1  6  10  9</td>
</tr>
<tr>
<td>I believe that sequence, when compared with official courses of study,</td>
<td>2  1  2  0  3</td>
<td>5  4  6  6</td>
</tr>
</tbody>
</table>
Table 25. Frequencies of responses by department heads to statements relating to differences between the general and basic tracks

<table>
<thead>
<tr>
<th>Statement</th>
<th>Degree of disagreement</th>
<th>Degree of agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-4 -3 -2 -1 0 1 2 3 4</td>
<td></td>
</tr>
<tr>
<td>I believe that textbooks and supplementary materials differ between tracks</td>
<td>2 1 0 0 1 0 5 5 13</td>
<td></td>
</tr>
<tr>
<td>I believe that daily assignments differ between tracks</td>
<td>0 1 0 0 1 2 3 5 15</td>
<td></td>
</tr>
<tr>
<td>I believe that requirements to pass differ between tracks</td>
<td>0 3 0 0 2 2 1 5 15</td>
<td></td>
</tr>
<tr>
<td>I believe that reading and research requirements differ between tracks</td>
<td>0 1 1 1 0 2 4 6 12</td>
<td></td>
</tr>
<tr>
<td>I believe that subject or departmental objectives differ between tracks</td>
<td>0 2 1 2 0 4 4 6 9</td>
<td></td>
</tr>
<tr>
<td>I believe that content structure differs between tracks</td>
<td>1 0 3 0 1 2 4 4 13</td>
<td></td>
</tr>
<tr>
<td>I believe that sequence, when compared with official courses of study, differs between tracks</td>
<td>2 0 2 0 1 3 7 4 9</td>
<td></td>
</tr>
</tbody>
</table>
and general tracks two disagreed and 24 agreed. As the statement related to differences between the general and basic tracks, three disagreed and 18 agreed.

As it related to differences between the advanced and general track, the statement, "I believe that reading and research requirements differ between tracks" was agreed with 27 times compared with zero who disagreed. On the same statement as it related to the difference between the general and basic tracks, three disagreed and 24 agreed.

In response to the statement, "I believe that subject or departmental objectives differ between tracks" as it related to differences between the advanced and general tracks, one disagreed and 24 agreed. Four were neutral. Four was the greatest number of neutral responses to any one item. As the same statement related to the general and basic tracks, five disagreed and 23 agreed.

Two disagreed with the statement, "I believe that content structure differs between tracks" as it related to differences between the advanced and general track. In response to the same question, 26 agreed. As it related to differences between the general and basic tracks, four disagreed and 23 agreed.

In response to the statement, "I believe that sequence, when compared with official courses of study, differs between tracks", five disagreed and 23 agreed as the statement related to differences between the advanced and general tracks. In response to the same statement four disagreed compared to 23 who agreed when the statement was related to the differences between the general and basic tracks.
Weighted measures

When the factors were weighted by multiplying the number of responses by the corresponding weight of agreement or disagreement, the balance of the comparisons was even more pronounced.

The weighted measure for disagreement with the statement "I believe that textbooks and supplementary materials differ between tracks" when related to the difference between the advanced and general track was 23, compared to a weighted measure of 67 for agreement. For the same statement as it related to the general and basic track differences, the disagreement measure was 14 compared to 77 for the agreement measure.

In regard to the statement, "I believe that daily assignments differ between tracks", the weighted score was three in both the case where it was related to the differences between the advanced and general track and to the general and basic track. The agreement measures with the statement were 76 and 83 respectively.

In all of the statements in which the responses were weighted, the agreements with the statements produced much greater weighted scores. As can be seen in Tables 26 and 27, the differences were great enough that statistical analysis was unnecessary.

When the responses of the department heads were weighted in regards to the differences between textbooks and supplementary materials between the advanced and general tracks, the negative responses produced a weighted score of 23. The positive responses produced a weighted score of 67. It was on this measure that the negative responses came the closest to being equal to the positive responses. On the other six items measured, the differences between the positive and negative responses were even greater.
Table 26. Weighted measures of positive and negative responses by social studies and language arts department heads to statements regarding differences between the advanced and general tracks

<table>
<thead>
<tr>
<th></th>
<th>Weighted negative response</th>
<th>Weighted positive response</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>22</td>
<td>67</td>
</tr>
<tr>
<td>b</td>
<td>3</td>
<td>76</td>
</tr>
<tr>
<td>c</td>
<td>4</td>
<td>77</td>
</tr>
<tr>
<td>d</td>
<td>0</td>
<td>89</td>
</tr>
<tr>
<td>e</td>
<td>3</td>
<td>59</td>
</tr>
<tr>
<td>f</td>
<td>7</td>
<td>79</td>
</tr>
<tr>
<td>g</td>
<td>15</td>
<td>55</td>
</tr>
</tbody>
</table>

a - I believe that textbooks and supplementary materials differ between tracks.

b - I believe that daily assignments differ between tracks.

c - I believe that requirements to pass differ between tracks.

d - I believe that reading and research requirements differ between tracks.

e - I believe that subject or departmental objectives differ between tracks.

f - I believe that content structure differs between tracks.

g - I believe that sequence, when compared with official courses of study, differs between tracks.
Table 27. Weighted measures of positive and negative responses by social studies and language arts department heads to statements regarding differences between the general and basic tracks

<table>
<thead>
<tr>
<th></th>
<th>Weighted negative response</th>
<th>Weighted positive response</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>14</td>
<td>83</td>
</tr>
<tr>
<td>b</td>
<td>3</td>
<td>79</td>
</tr>
<tr>
<td>c</td>
<td>6</td>
<td>76</td>
</tr>
<tr>
<td>d</td>
<td>10</td>
<td>66</td>
</tr>
<tr>
<td>e</td>
<td>10</td>
<td>74</td>
</tr>
<tr>
<td>f</td>
<td>12</td>
<td>65</td>
</tr>
<tr>
<td>g</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a - I believe that textbooks and supplementary materials differ between tracks.

b - I believe that daily assignments differ between tracks.

c - I believe that requirements to pass differ between tracks.

d - I believe that reading and research requirements differ between tracks.

e - I believe that subject or departmental objectives differ between tracks.

f - I believe that content structure differs between tracks.

g - I believe that sequence, when compared with official courses of study, differs between tracks.
The item that produced the greatest difference between negative and positive weighted response was the statement, "I believe that reading and research requirements differ between tracks". The weighted positive score was 89 compared to the negative score which was zero.

As can be seen on Table 26, the department heads indicated strongly and consistently from measure to measure that the Des Moines Independent School System has succeeded in giving students in the advanced track a different educational experience than students in the general track in regards to textbooks, supplementary materials, daily assignments, requirements to pass, reading and research requirements, subject and departmental objectives, content structure, and sequence.

As indicated in Table 27, department heads expressed, as a group, the belief that the Des Moines schools had succeeded in giving a different educational treatment to the students in the general track and the basic track. This was based on the same items indicated in the preceding paragraph.

**Rejection of the null hypothesis**

The hypothesis that there would be no discernible differences in materials and methods between tracks was rejected because of the opinions of all social studies and language arts department heads in the Des Moines schools.

On each of the seven statements between the advanced and general tracks most department heads responded that they felt that the Des Moines schools were successful in making different kinds of materials and methods available to students who were in different tracks. This was one of the
original purposes of the track plan.

Differences in Teacher Opinions Towards Various Aspects of Tracking in 1968 and 1963

The hypothesis

The sixth hypothesis was that there would be no difference in teacher opinions towards various aspects of tracking in 1968 and 1963.

In order to test this hypothesis, an opinionnaire that was sent to all language arts and social studies teachers in the city in 1963 was disguised in such a way as to avoid any obvious indication that it had been sent to teachers before. The disguised version of the opinionnaire was sent to a 20 per cent random sample of all language arts and social studies teachers in 1968.

A chi square was used to analyze the statistical differences between the 1963 and the 1968 responses.

Differences in sample sizes

In 1963 there were 192 teachers in the sample who taught in the basic track classes. In 1968 there were 53. In 1963 there were 506 teachers in the sample who taught in the general track. In 1968 there were 146 teachers in the sample who taught in the general track. In the advanced track in 1963 there were 218 teachers in the sample. In 1968 there were 61. It was felt that, for the purposes of this study, a 20 per cent sample would be satisfactory, while in 1963 all language arts and social studies teachers were surveyed.

In order to determine the number of "expected" responses for use in
the chi square analysis, it was necessary to determine the percentage of those who responded in a given way to an item on the opinionnaire. It was then necessary to determine the number of teachers who would have responded in a like manner, had the sample sizes been the same. This was done by multiplying the percentage of responders times the number in the 1968 sample. For example, if there were 192 teachers in the 1963 sample and 96 responded "yes" to a given item, it would represent 50 per cent. If on the same item there were 48 teachers in the 1968 sample, the "expected" frequency could for "yes" responders would be 24 or 50 per cent.

Placement of pupils in tracks

On the average, fewer teachers felt that pupils were well placed in 1968 than so felt in 1963. Had the percentage of teachers who taught in the basic track responded the same as they did in 1963, the number who responded "yes" to the statement, "I believe my pupils in these tracks are generally well placed" would have been 27. The actual number was 23 of the 28 respondents. This represented a significant drop. However, it still represented a large majority.

The number of teachers who felt that students were generally well placed was significantly fewer than expected according to the 1963 results. However, 80 per cent still responded that students were generally well placed.

There was also a decrease in the number of "yes" responders in the advanced track between 1963 and 1968. However, the difference between the expected and observed frequency counts was not significant.
Table 28. Actual and expected responses to the statement "I believe pupils in these tracks are generally well placed" by a .20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Yes</td>
<td>23</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>5</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>General&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Yes</td>
<td>41</td>
<td>48</td>
<td>89</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>11</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>52</td>
<td>52</td>
<td>104</td>
</tr>
<tr>
<td>Advanced&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Yes</td>
<td>26</td>
<td>30</td>
<td>56</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>10</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>36</td>
<td>36</td>
<td>72</td>
</tr>
</tbody>
</table>

<sup>a</sup>Significant at the .01 level.

<sup>b</sup>Not significant.

Table 29. Percentage of "yes" responders to the statement, "I believe pupils in these tracks are generally well placed" in 1963 and in 1968

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent</td>
<td>95</td>
<td>82</td>
<td>93</td>
<td>80</td>
<td>84</td>
<td>73</td>
</tr>
</tbody>
</table>
Pupil achievement within tracks

The expected frequency counts differed significantly from the observed frequency counts in all tracks relative to the responses to the statement, "I believe my pupils are achieving satisfactorily".

In the basic track, 85 per cent of the teachers in the 1963 sample responded that they believed that pupils were achieving satisfactorily. Those responses made the expected frequency count for 1968 equal to 24. Only 18 so responded. Four negative responses were expected and ten were received on the 1968 opinionnaires. The difference was significant at the

Table 30. Actual and expected responses to the statement "I believe my pupils are achieving satisfactorily" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Yes</td>
<td>18</td>
<td>24</td>
<td>42</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>General</td>
<td>Yes</td>
<td>45</td>
<td>50</td>
<td>95</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>52</td>
<td>52</td>
<td>104</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>30</td>
<td>33</td>
<td>63</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>35</td>
<td>35</td>
<td>70</td>
</tr>
</tbody>
</table>

aSignificant at the .01 level.
bSignificant at the .05 level.
.01 level of significance.

In the general track, 50 or 95 per cent "yes" responses were expected. Eighty-seven per cent or 45 "yes" responses were observed. The difference between the expected and observed frequency counts was significant at the .01 level.

In the basic track in 1963, there were 93 per cent "yes" responses compared to 86 per cent in 1968. The expected frequency count was 33 "yes" responses and two "no" responses. The observed was 30 "yes" and five "no" responses. The difference between expected and observed was significant at the .05 level.

Table 31. Percentage of "yes" responders to the statement, "I believe my pupils are achieving satisfactorily" in 1963 and in 1968

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent</td>
<td>85</td>
<td>64</td>
<td>97</td>
</tr>
</tbody>
</table>

Teacher planning

Only in the advanced track was there a difference in the expected and observed responses to the statement, "The track plan requires more intensive teacher planning". In 1963, 96 per cent of the responders indicated that the track plan required more intensive planning for advanced track teachers. In 1968, 67 per cent of the advanced track teachers thought that the track plan required more intensive teacher planning.
Table 32. Actual and expected responses to the statement "The track plan requires more intensive teacher planning" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Yes</td>
<td>19</td>
<td>27</td>
<td>41</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>7</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>26</td>
<td>26</td>
<td>52</td>
</tr>
<tr>
<td>General</td>
<td>Yes</td>
<td>24</td>
<td>28</td>
<td>52</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>21</td>
<td>17</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>45</td>
<td>45</td>
<td>90</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>24</td>
<td>32</td>
<td>56</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>9</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>33</td>
<td>33</td>
<td>66</td>
</tr>
</tbody>
</table>

*aNot significant.

*bSignificant at the .01 level.

In the basic and general tracks, the percentage of teachers who responded that the track plan required more intensive planning decreased. In 1963, 63 per cent of the responders indicated that they believed that the track plan required more teacher planning in the general track. That percentage dropped to 53 per cent in 1968. In 1963, 84 per cent of the responders indicated that they believed that the track plan required more intensive teacher planning in the basic track. In 1968, the percentage of teachers who responded "yes" dropped to 73 per cent. Neither change was significant.
Table 33. Percentage of "yes" responders to the statement, "The track plan requires more intensive teacher planning" in 1963 and in 1968

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent</td>
<td>84</td>
<td>73</td>
<td>63</td>
</tr>
</tbody>
</table>

**Individual differences within tracks**

In the basic track, there was an increase in the percentage of teachers who responded that individual differences were more pronounced. The teachers responded equally for "yes" and "no" to the statement in 1968.

In the general track, there was a significant increase in the per cent of teachers who felt that individual differences were more pronounced, but those who so responded were still in the minority.

In the advanced track there was a reverse in the trend of the other two tracks. A significant per cent of teachers did not respond that individual differences were more pronounced. On this statement, the two lower tracks started below 50 per cent and moved toward center; the advanced track started above 50 per cent in 1963 and moved toward center. The 1968 result was almost perfect disagreement among teachers in all tracks in regards to the statement.
Table 34. Actual and expected responses to the statement "Individual differences seem more pronounced in the track plan" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools.

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Yes</td>
<td>14</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>14</td>
<td>17</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>General</td>
<td>Yes</td>
<td>20</td>
<td>13</td>
<td>33</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>29</td>
<td>36</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>49</td>
<td>49</td>
<td>98</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>15</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>19</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>34</td>
<td>34</td>
<td>68</td>
</tr>
</tbody>
</table>

*aNot significant.

*bSignificant at the .05 level.

Table 35. Percentage of "yes" responders to the statement, "Individual differences seem more pronounced in the track plan" in 1963 and in 1968.

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>1963</td>
<td>1968</td>
<td>1963 1968</td>
</tr>
<tr>
<td>Per cent</td>
<td>38</td>
<td>50</td>
<td>27  41</td>
</tr>
</tbody>
</table>
Pupil leadership within tracks

As stated previously, one of the primary objectives of the tracking plan was to allow students of lower ability to emerge as student leaders.

In 1963, most teachers responded that student leadership emerged in tracks. The 1968 results were much the same. There was a slight increase in the number of teachers per capita who responded positively in the 1968 sample.

In all tracks, in both years, the majority of teachers responded that they felt that leadership emerged in their classes.

In terms of percentages, 61 per cent so felt in both 1963 and 1968 in basic track; 78 per cent so felt in 1963 and 77 per cent in 1968 in the

Table 36. Actual and expected responses to the statement "Pupil leadership emerges in my classes" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Yes</td>
<td>17</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>11</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>General</td>
<td>Yes</td>
<td>40</td>
<td>41</td>
<td>81</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>52</td>
<td>52</td>
<td>104</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>30</td>
<td>28</td>
<td>58</td>
</tr>
<tr>
<td>Track</td>
<td>No</td>
<td>3</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>33</td>
<td>33</td>
<td>66</td>
</tr>
</tbody>
</table>

^aNot significant.
Table 37. Percentage of "yes" responders to the statement, "Pupil leadership emerges in my classes" in 1963 and in 1968

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per cent</td>
<td>61</td>
<td>61</td>
<td>78</td>
</tr>
</tbody>
</table>

**Homework within tracks**

There were no significant differences in the 1963 and 1968 responses to the statement dealing with the amount of homework done by students within each track.

In the basic track the vast majority responded that students did either the same amount of homework or less. However, in 1963, 42 per cent responded that the students in this lower track actually did more homework as a result of tracking. In 1968, the number who so responded resulted in a per cent of 29. The drop was not significant at the .05 level.

Seventy per cent of the teachers who responded indicated that they felt that students in the general track did the same amount of homework in the track plan as in other grouping plans in 1968. In 1963, 73 per cent so responded.

In both years, teachers were almost equally divided between the responses that students in the advance track did more homework and the
Table 38. Actual and expected responses to the statement "Compared to other grouping plans, pupils in their homework do:" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools.

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>More</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Less</td>
<td>14</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Same</td>
<td>8</td>
<td>11</td>
<td>29</td>
</tr>
<tr>
<td>General</td>
<td>More</td>
<td>7</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Less</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Same</td>
<td>32</td>
<td>33</td>
<td>65</td>
</tr>
<tr>
<td>Advanced</td>
<td>More</td>
<td>15</td>
<td>16</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Less</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Same</td>
<td>13</td>
<td>12</td>
<td>25</td>
</tr>
</tbody>
</table>

*Not significant.*

Table 39. Responses, in percentages to the statement, "Compared to other grouping plans, pupils in their homework do:" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More</td>
<td></td>
<td>22</td>
<td>19</td>
<td>21</td>
<td>15</td>
<td>56</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less</td>
<td></td>
<td>36</td>
<td>52</td>
<td>6</td>
<td>15</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same</td>
<td></td>
<td>42</td>
<td>29</td>
<td>73</td>
<td>70</td>
<td>41</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
responses that students did the same amount of homework. In both years only three per cent indicated that they felt that students in the advanced track did less homework.

**Pupil motivation within tracks**

In terms of pupil motivation, teachers who responded that there were more pupils motivated as a result of tracking have decreased in per cent in all tracks. Those who indicated that motivation has diminished have increased.

Table 40. Actual and expected responses to the statement, "Pupil motivation as a result of tracking has:" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic a</td>
<td>Improved</td>
<td>8</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Diminished</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Stayed same</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>General a</td>
<td>Improved</td>
<td>6</td>
<td>22</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Diminished</td>
<td>8</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Stayed same</td>
<td>29</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>Advanced b</td>
<td>Improved</td>
<td>22</td>
<td>27</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Diminished</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Stayed same</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>

^aSignificant at the .01 level.

^bSignificant at the .05 level.
Teachers who responded that there was less motivation as a result of tracking had increased in terms of percentages. In the basic track, there was an increase from 12 per cent to 48 per cent. In the general track, there was from 12 to 19 per cent. In the advanced track, there was an increase from two to ten per cent.

Only in the advanced track in 1968 did the majority of teachers respond that there was an increase in motivation as a result of tracking.

In the basic track, half of the teachers indicated that there was less motivation as a result of tracking. Of course, the other half either felt there was no loss in motivation or an increase.

Table 41. Responses, in percentages, to the statement, "Pupil motivation as a result of tracking has:" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1963</td>
<td>65</td>
<td>50</td>
<td>86</td>
</tr>
<tr>
<td>1968</td>
<td>32</td>
<td>14</td>
<td>71</td>
</tr>
<tr>
<td>Improved</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diminished</td>
<td>12</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Stayed same</td>
<td>23</td>
<td>38</td>
<td>12</td>
</tr>
</tbody>
</table>

Knowledge of pupils

Teachers who responded that they learned more about pupils as a result of tracking were in the majority in all three tracks in 1963.

Teachers who responded that they learned more about pupils as a result
Table 42. Actual and expected responses to the statement, "I learn more about my pupils as a result of tracking" by a 20 per cent random sample of social studies and language arts teachers in the Des Moines schools

<table>
<thead>
<tr>
<th>Track</th>
<th>Response</th>
<th>Actual</th>
<th>Expected</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>Yes</td>
<td>21</td>
<td>23</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>General</td>
<td>Yes</td>
<td>24</td>
<td>29</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>25</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>49</td>
<td>49</td>
<td>98</td>
</tr>
<tr>
<td>Advanced</td>
<td>Yes</td>
<td>22</td>
<td>24</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>33</td>
<td>33</td>
<td>66</td>
</tr>
</tbody>
</table>

^Not significant.

of tracking were in the majority in the advanced and basic tracks in 1968. In the general track in 1968, 25 responded that they did not learn more about students as a result of tracking; 24 responded that pupils did learn more.

In all tracks, the percentage of responders who indicated that they learned more about their students as a result of tracking decreased between 1963 and 1968. However, none of the changes was statistically significant.
Table 43. Percentage of "yes" responders to the statement, "I learn more about my pupils as a result of tracking" in 1963 and in 1968

<table>
<thead>
<tr>
<th>Tracks</th>
<th>Basic</th>
<th>General</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1963</td>
<td>1963</td>
<td>1963</td>
<td>1963</td>
</tr>
<tr>
<td>Per cent</td>
<td>82</td>
<td>59</td>
<td>73</td>
</tr>
<tr>
<td>Year 1968</td>
<td>1968</td>
<td>1968</td>
<td>1968</td>
</tr>
<tr>
<td>Per cent</td>
<td>75</td>
<td>49</td>
<td>67</td>
</tr>
</tbody>
</table>

Strengths of the track program

Three parts of the opinionnaire did not lend themselves to statistical analysis. They were open-ended and results were extremely varied. Only rough categorizations or groupings of such responses were possible.

When asked to indicate the strengths of the tracking program, the most common responses were toward the ideas that tracking benefited the more able student, made selection of materials and assignments easier, and made teaching methods more specialized.

To a lesser degree, benefits to the basic students were indicated. However, a number of respondents did indicate that tracking gave the basic student a greater chance for success. This response was partially borne out by the fact that the number of failures decreased in social studies and language arts courses after tracking -- the same was not true of the other disciplines.

The range of responses to the item related to the strengths of the track program transversed the spectrum from extreme disapproval to complete acceptance.
Limitations of the track program

The second of the open-ended statements which could not be treated statistically was, "The limitations of our track program are:"

As with the other open-ended statements, the responses were varied. Two ideas were frequently present in the responses. These were basically as follows:

1. It creates a caste system with advanced students often feeling more superior than they are and basic students feeling more inferior than they are.

2. Basic track is loaded with discipline problems. There was a good deal of comment about peer grouping combined with the idea that many lower ability students were also discipline problems.

Other less commonly mentioned limitations of tracking were lack of leadership for lower groups, too much parental pressure, lack of in-service, racial segregation, large class sizes, poor materials, and there were others that were infrequent enough to be possible personal complaints rather than general objections to the Des Moines Plan.

Suggestions for improvement of tracking

The last of the open-ended statements was, "My suggestions for improving the track program are:"

The response to this part were even more diverse than the other open-ended statements. Some requested more tracks while others desired less. Some felt a need to combine the advanced and general tracks; some wanted the general and basic combined. Some wanted rigid, inflexible criteria for grouping; others flexibility. Some wanted teacher judgment to carry more
weight; some wanted only objective test scores used. Some wanted teachers rotated from track to track; others suggested specialization. Some wanted more factors considered in grouping; others only one specific item.

Some of the grouping plans suggested were as follows:

1. A pass-fail system for advanced and basic with a pass equal to a 1 and a fail equal to a 2 in advanced while a pass would equal a 3 and a fail a 4 in basic. In both cases, the students would always be passed on. Only a general student who would be graded under the existing plan, could fail for the purposes of repeating a course.

2. Allow no students to go to a lower track.

3. Replace the basic track with a strong remedial program.

4. Allow each school to develop its own plan of grouping.

5. Have a "mixer" once a week where different ability groups mingle.

6. Enforce the current track plan so no school could deviate.

7. Decrease class sizes under the present plan.

8. Provide better materials under the present plan.

9. Increase and improve in-service plans.

10. Improve methods of placement.

11. Eliminate tracking.

Rejection of the sixth hypothesis

In the area of teacher perception about the placement of students in tracks there was a significant drop in the per cent of teachers who responded that students were generally well placed in the basic and general track. In all tracks there was a significant drop in the per cent of
teachers who responded that they believed that students were achieving satisfactory. There was a significant drop in the percentage of advanced track teachers who responded that the track plan required more intensive teacher planning. In the general and advanced tracks, there was a significant difference in the number of teachers who responded that individual differences were more pronounced. The per cent of teachers in the general track who so responded increased while the percent in the advanced track also increased. There was a significant change in the per cent of teachers who responded that pupil motivation had improved, diminished, or stayed the same. In all tracks the per cent of teachers who responded that pupil motivation had increased as a result of tracking declined.

There were no significant changes in the percentage of teachers who responded that they believed that students were generally well placed in the advanced track. In the basic and general tracks there was no significant change in the responses related to whether or not tracking required more intensive teacher planning. In the basic track, there was no significant change in responses related to tracking's effect on the pronouncement of individual differences. In all tracks, there were no significant changes in the responses to the statement on pupil leadership emerging in classes. In all tracks, there were no significant changes in the responses to the statement, "Compared to other grouping plans, pupils in their homework do:" In all tracks there were no significant changes in the responses to the statement, "I learn more about my pupils as a result of tracking". Changes resulted in by the open-ended responses were not measured statistically.

There were 11 significant differences or changes in teachers'
responses between the years 1963 and 1968. There were 24 possibilities of significant changes. Among the 13 items, which did not result in significant changes, there were changes generally toward a more negative outlook toward tracking. However, the majority of respondents still tended to respond favorably toward the various aspects of tracking.

Because there were many significant differences between the 1963 responses and the 1968 responses, the null hypothesis was rejected.

Differences Between Groups of Average Ability Between Tracks

The seventh hypothesis was that there would be no significant differences between groups of average ability between tracks. This hypothesis was designed to determine the differences between the typical advanced track student and the typical general track student. It also determined the differences between the typical general track student and the typical basic track student.

Groups 2 and 5 -- the advanced and general tracks

Group 2 was composed of 21 advanced track students who were perceived by their respective classroom teachers as being representative of the typical or "most average" advanced track student. Group 5 was composed of 62 general track students who were perceived by the respective classroom teachers as being representative of the typical or "most average" general track student.

It was possible to use a one-tailed test because it was considered a known fact that the average advanced track student would be more able on the factors considered than would the average general track student. With 40 degrees of freedom, a t value of 1.684 was necessary for significance at
the .05 level of significance.

On the third test of the Iowa Tests of Educational Development, the mean for group 2 was 79.24 compared to 44.56 for the general track group. The resulting t value was 8.0499. It was, of course, significant.

The t value resulting from the differences between the two means on test 8 of the Iowa Tests of Educational Development was 7.4773. It was significant. The t value from the composite was 8.2016 which was also significant.

On the vocabulary and language sections of the Iowa Tests of Basic Skills, the t values were greater than six. With 1.684 necessary for

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 2</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N = 21</td>
<td>N = 62</td>
</tr>
<tr>
<td>Iowa Tests of Educational Development&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td>8.0499&lt;sup&gt;b&lt;/sup&gt;</td>
<td>79.24</td>
<td>44.56</td>
</tr>
<tr>
<td>Test 8</td>
<td>7.4773&lt;sup&gt;b&lt;/sup&gt;</td>
<td>78.95</td>
<td>49.76</td>
</tr>
<tr>
<td>Composite</td>
<td>8.2016&lt;sup&gt;b&lt;/sup&gt;</td>
<td>81.71</td>
<td>45.65</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td>6.2904&lt;sup&gt;b&lt;/sup&gt;</td>
<td>75.24</td>
<td>48.90</td>
</tr>
<tr>
<td>Test L</td>
<td>6.1848&lt;sup&gt;b&lt;/sup&gt;</td>
<td>70.81</td>
<td>42.19</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td>4.7539&lt;sup&gt;b&lt;/sup&gt;</td>
<td>111.76</td>
<td>100.66</td>
</tr>
</tbody>
</table>

<sup>a</sup>Reported in percentile ranks based on national norms.

<sup>b</sup>Significantly different at the .05 level.
significance at the .05 level, the values were highly significant.

The average IQ as measured by the Lorge-Thorndike Test was 111.76 for the advanced track group and 100.66 for the general track group. The resulting t value was 4.7539. It was statistically significant.

Table 45. Mean scores on behavior factors, parental pressure, writing samples, and grades of the ability group perceived as most typical in the advanced track and the ability group perceived as most typical in the general track

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 2</th>
<th>Group 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 21</td>
<td>N = 62</td>
<td></td>
</tr>
<tr>
<td>Behavioral factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days absent</td>
<td>0.1507</td>
<td>3.67</td>
<td>3.55</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>0.5296</td>
<td>.238</td>
<td>.339</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>3.3521a</td>
<td>7.905</td>
<td>6.774</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>0.9810</td>
<td>.095</td>
<td>.032</td>
</tr>
<tr>
<td>Writing sample</td>
<td>4.5331a</td>
<td>111.81</td>
<td>86.77</td>
</tr>
<tr>
<td>Grade</td>
<td>4.4473a</td>
<td>2.05</td>
<td>2.73</td>
</tr>
</tbody>
</table>

aSignificantly different at the .05 level.

Of the three measures of behavior, only teacher rating resulted in a significant difference between the general and advanced track group. The advanced track group was perceived as being better in classroom behavior than was the general track group. The t value was 3.3521. Both groups received average ratings which were on the positive or favorable side.

The difference between the two groups in the writing sample and in
grades was significant. The t value for writing sample was 4.5331. The t value for grade was 4.4473. In both cases the advanced group was more able.

Parental pressure resulted in no significant difference. It was small for both groups. The average number of school officials who were aware of parental contacts for the purpose of influencing the student's track was only .095 for the advanced group and .032 for the general track group.

**Groups 5 and 8 -- the general and basic tracks**

Group 5 was composed of 62 general track students who were perceived by their respective classroom teachers as being the most typical in their respective classes. Group 8 was composed of 16 basic track students who were perceived by their respective classroom teachers as being the most typical in their respective classes. Group 8 was composed of 16 basic track students who were perceived as being most typical in their respective sections.

With 40 degrees of freedom, a t value of 1.684 was necessary for significance with an alpha of .05. Every measure on the standardized tests resulted in a t value greater than necessary for significance.

The differences between the typical students in the general track and the typical basic track students on the Iowa Tests of Educational Development were great enough to create a t value of more than seven in all cases.

The lowest t value from the standardized measures was from the Lorge-Thorndike IQ scores. That t value was 4.7539 and was highly significant.

There were no significant differences between the groups in the behavioral factors. Visits to advisors for the purpose of discipline approached but did not reach significance.
Table 46. Mean scores from standardized tests of the ability group perceived as most typical in the general track and the ability group perceived as most typical in the basic track

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure</th>
<th>t</th>
<th>Group 5 N = 62</th>
<th>Group 8 N = 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Tests of Educational Development^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 3</td>
<td></td>
<td>5.6335b</td>
<td>44.56</td>
<td>15.06</td>
</tr>
<tr>
<td>Test 8</td>
<td></td>
<td>6.0600b</td>
<td>49.76</td>
<td>21.50</td>
</tr>
<tr>
<td>Composite</td>
<td></td>
<td>5.5456b</td>
<td>47.65</td>
<td>17.75</td>
</tr>
<tr>
<td>Iowa Tests of Basic Skills^a</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test V</td>
<td></td>
<td>7.1104b</td>
<td>48.90</td>
<td>19.63</td>
</tr>
<tr>
<td>Test L</td>
<td></td>
<td>7.0349b</td>
<td>42.19</td>
<td>17.13</td>
</tr>
<tr>
<td>Lorge-Thorndike IQ</td>
<td></td>
<td>4.1867b</td>
<td>100.66</td>
<td>88.56</td>
</tr>
</tbody>
</table>

^aReported in percentile ranks based on national norms.
^bSignificantly different at the .05 level.

There was a significant difference between the groups in the writing samples. The average score for the general track group was 86.77 compared to 69.00 for the basic track group. The t value of 3.003 was significant.

The difference in grades was significant at the .05 level. The average grade for the general track group was 2.73. It was 3.00 for the basic track group. The t value was 1.7624.
Table 47. Mean scores on behavior factors, parental pressure, writing samples, and grades of the ability group perceived as most typical in the general track and the ability group perceived as most typical in the basic track

<table>
<thead>
<tr>
<th>Measure</th>
<th>t</th>
<th>Group 5</th>
<th>Group 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral factors</td>
<td></td>
<td>N = 62</td>
<td>N = 16</td>
</tr>
<tr>
<td>Days absent</td>
<td>1.2818</td>
<td>3.55</td>
<td>5.31</td>
</tr>
<tr>
<td>Visits to advisor</td>
<td>1.6210(^a)</td>
<td>.339</td>
<td>5.313</td>
</tr>
<tr>
<td>Teacher rating</td>
<td>0.8689</td>
<td>6.774</td>
<td>6.375</td>
</tr>
<tr>
<td>Parental pressure</td>
<td>1.1320</td>
<td>.032</td>
<td>.188</td>
</tr>
<tr>
<td>Writing sample</td>
<td>3.0033(^a)</td>
<td>86.77</td>
<td>69.00</td>
</tr>
<tr>
<td>Grade</td>
<td>1.7624(^a)</td>
<td>2.73</td>
<td>3.00</td>
</tr>
</tbody>
</table>

\(^a\)Significantly different at the .05 level.

Rejection of the null hypothesis

Most of the factors in the study resulted in significant differences between groups. Because the typical student in the upper tracks consistently averaged significantly better than those in the track immediately below, the hypothesis that there would be no differences was rejected.

Summary

The first hypothesis was that there would be no significant correlations among ability factors based on standardized tests, ability factors as measured by local evaluation instruments, and behavioral factors related to discipline. The hypothesis was rejected because correlation matrices showed far more significant correlations than could be expected by chance.
The second hypothesis was that there would be no significant differences between expected and observed performance levels. There were no significant differences between observed and expected performance levels of students in ability groups. Therefore, the null hypothesis could not be rejected.

The third hypothesis was that there would be no significant differences between groups of extreme ability within tracks. The t tests resulted in significant values in the vast majority of cases. Therefore, the third hypothesis was rejected.

The fourth hypothesis was that there would be no significant differences between groups of least ability in a track and groups of most ability in the track immediately below. Because there were few significant differences, the fourth hypothesis could not be rejected on the basis of ability and achievement measures. However, behavior factors were not so clear cut. Only teacher rating was significantly different for the groups, but "visits to advisor" was very close to the significance level. Grades differed significantly.

The fifth hypothesis was that there would be no discernible differences in materials and methods between tracks. It was tested by the use of an opinionnaire sent to department heads. Based on the judgments of the department heads, the null hypothesis was rejected. On both frequency counts and weighted measures, the department heads responded in each of seven categories that materials and methods differed between the tracks.

The sixth hypothesis was that there would be no differences in teacher opinions about tracking in 1968 and 1963. An opinionnaire which had
been sent to all language arts and social studies teachers in 1963 was revised and altered. It was sent to a 20 per cent random sample of language arts and social studies teachers. The results were, in 11 cases, significantly different. In 13 cases the results were not statistically significant. Since 11 differences were many more than could be expected by chance alone, the null hypothesis was rejected. Some open-ended items were on the opinionnaire which were not submitted to statistical analysis. The results of those items revealed a variety of opinions and suggestions related to the Des Moines Track Plan.

The seventh hypothesis was that there would be no significant differences between groups of average ability between tracks. In every case between any track differences were significant on ability and achievement measures. The null hypothesis was rejected.
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Purposes

Because the literature on ability grouping was conflicting and because ability grouping plans differed from district to district in both techniques and purposes, it was decided that the Des Moines Track Plan would be evaluated. It was hoped that the methods employed in this dissertation could serve as one technique for evaluation and analysis of ability grouping plans.

It was a purpose of this study to determine the effectiveness with which students were being grouped. It was also a purpose to determine the deviations from expected performance levels that could be attributed to the tracking plan.

Another purpose was to determine possible changes in teacher perceptions of various aspects of the Des Moines Plan since an earlier evaluation. This was decided upon with full knowledge of the high regard indicated towards tracking in a 1963 opinionnaire.

The final purposes of the plan were to detect differences within the homogeneous groups created by the tracking system and to determine the effectiveness with which materials and methods had been differentiated between the various ability groups. The differences within groups were measured from extreme to extreme within a given group.

At the time of the study there was a need to supply the Des Moines Board of Education with objective information about the tracking program. That information was to be used to aid the Board of Education in making
decisions as to the future of the Des Moines Track Plan.

**Experimental design**

Terms were defined. A variety of sets of data was used to test seven null hypotheses. There were 1365 students in the sample used for testing the first hypothesis.

The first hypothesis was that there would be no significant correlations among ability factors based on standardized tests, ability factors based on local evaluation instruments, and behavioral factors related to discipline. Four correlation matrices were developed. These were developed from a group composed of grade eleven social studies students, a group composed of grade eight social studies students, and a group composed of grade eleven language arts students, and a group composed of grade eight language arts students. The groups ranged in size from 315 to 363. The items measured included standardized tests, behavioral measures, and local measures. There was also a measure of parental pressure. Technically, the null hypothesis was based on significance or non-significance in the correlations. However, the sizes of correlations were also of interest.

The second hypothesis was that there will be no difference between observed and predicted performance levels, based on standardized tests, within any track. The sample consisted of the grade eleven language arts group. The sample size was 315 students. Test V (vocabulary) of the Iowa Tests of Basic Skills was used as a predictor for test 8 of the Iowa Tests of Educational Development and test L (language) of the Iowa Tests of Basic Skills was used as a predictor for test 3 of the Iowa Tests of Educational Development. The selections were based on interviews and unpublished data
of the Iowa Testing Service.

The third hypothesis was that there will be no significant difference between groups of extreme ability, based on teacher perception, within tracks. Technically it was designed to look at the difference between the most extreme group in a given track on the side of high ability to the most extreme group of low ability in the same track. The results, from a practical point of view, indicated the extreme ability levels a teacher in a given track could expect. The sample was the same as for the second hypothesis. Tests 3, 8, and composite were used from the Iowa Tests of Educational Development in testing this hypothesis. The vocabulary and language sections of the Iowa Tests of Basic Skills were used. The Lorge-Thorndike IQ, number of days absent, number of visits to the advisor for discipline reasons, teacher ratings, parental pressure based on number of school officials aware of pressure, a writing sample, and grade averages were also used. A t test was used in each case to determine differences.

The fourth hypothesis was that there will be no significant differences between groups of least ability in each track and groups of most ability in the track below. The same group and measures were used as for the third hypothesis, but different subgroups were compared.

The fifth hypothesis was that there will be no discernible differences in materials and methods between tracks. An opinionnaire was sent to each of 36 department heads in the Des Moines System. A weighted rating scale was developed for a series of statements related to differences between the program and materials in the various tracks. A t test was used in each case to determine differences in results between tracks.

The sixth hypothesis was that there will be no differences between
teacher opinions toward various aspects of tracking between the years 1963 and 1968. A 20 per cent random sample was used. The total population was all of the language arts and social studies teachers in the Des Moines System.

The seventh hypothesis was that there will be no significant differences between groups of typical or average students between tracks. Students in the eleventh grade language arts group who were perceived as most representative of the typical student in their respective classes by their classroom teachers. The t test was used to measure differences between various subgroups.

Results

The first hypothesis was rejected. On the four correlation matrices it was found that there were many more significant correlations than could be expected by chance alone. It was found that behavior was related to achievement to a low but significant degree.

The second hypothesis could not be rejected. There were no significant differences between expected and observed performance levels in any of the three ability groups.

The third hypothesis was rejected. In each track it was found that the groups of extreme ability were significantly different. The findings were based on 12 measures in each track. In the advanced track significant differences occurred in ten of the 12 measures. Only parental pressure and the writing sample measures did not result in significant differences between the two extreme groups in the advanced track. In the general track all 12 measures resulted in significant differences. In the basic track
significant differences were found in eight of the 12 measures. There were
no significant differences between the extreme ability levels in the basic
track on the three behavioral measures and on the parental pressure measure.

Because there were few significant differences between groups of lowest
ability in one track and groups of greatest ability in the track immi-
mediately below, the fourth hypothesis could not be rejected. Only three
of the measures were significantly different between the lowest advanced
group and the highest general group. Two of those were from the three
measures of behavior -- days absent and teacher rating. The other was
test average. Between the least able group from the general track and
the most able from the basic track, three measures were also significantly
different. Two of these were also behavioral factors -- visits to the ad-
visor for discipline reasons and teacher rating. The third in this case
was again grade average.

The fifth hypothesis was rejected. On six items, teachers who re-
sponded that there were differences between the advanced and general tracks
were significantly greater in number than were those who responded that
the method or technique did not differ between the tracks. The same was
true of the differences in methods and materials between the general and
basic tracks. The results were significantly different when the statisti-
cal analysis was based on frequency counts of positive or negative response
or when based upon weighted measures resulting from intensity of the posi-
tive or negative response.

The sixth hypothesis was rejected. There were significant differences
or changes in teachers' responses between the years 1963 and 1968 in 11
areas. Thirteen areas did not result in significant differences between
responses in 1963 compared to 1968. Since 11 differences at the .05 level represented far more than could be expected by chance alone from 24 measures, the null hypothesis could be rejected. Even though the trend was toward a more negative perception of tracking, the majority of teachers still made favorable responses towards the different aspects of the tracking program in most cases.

The seventh hypothesis was rejected. Advanced and general track groups perceived as representative of typical or average students in each of the tracks differed on nine of the 12 measures. The groups did not differ significantly on the measures of days absent, number of visits to advisor and parental pressure. Between the general and basic tracks there were significant differences between groups based on nine of the 12 measures. There was no significant difference on days absent, teacher rating, and parental pressure.

**Limitations of the study**

The scope of this study was limited to the investigation and analysis of ability grouping in the social studies and language arts in secondary schools in the Des Moines Independent School District.

The design of the study might be considered appropriate for analysis of other ability grouping programs, but the specific findings were limited to the district involved.

The factors used to determine expected performance levels and other aspects of ability were limited to selected parts of the Iowa Tests of Educational Development, selected parts of the Iowa Tests of Basic Skills, IQ as measured by the Lorge-Thorndike Test, grades, behavior as perceived by
classroom teachers, work samples devised by local educators, and behavior based on visits to advisors for disciplinary reasons, and days absent.

Discussion and Conclusions

The rejection of the seventh hypothesis indicated that the tracks by and large did differ in the ability and achievement of the students who made up the groups. It was concluded that students were grouped effectively. The lack of differences between groups of least ability in the advanced track and of most ability in the general track and between groups of least ability in the general track and of most ability in the basic track did not adversely influence the decision that grouping had been carried out effectively. These extreme groups were made up of students who would appear in the tail of a normal curve that one could expect in any of the ability groups. It was interesting that the groups of extreme ability were much the same in ability and achievement measures, but they differed in behavioral measures. For example, group 3 (those perceived as least able in the advanced track) did not differ from group 4 (those perceived as most able in the general track) on any of six standardized measures of ability and achievement. However, on two of the three behavioral measures, those who were in the lower ability group (but whose ability was equal to those at the lower tail of the upper ability group) actually demonstrated better behavior than did the group in the upper ability group. The same was found between the general and basic track. The observation that those who are put into a position of being the top of a lower group tend to demonstrate better behavior could not be ignored.

It was concluded from the great differences between groups of extreme
ability in the same tracks, that teachers could expect to have to make adjustments for individual intellectual capabilities even in "homogeneous" groups. Students within the same tracks varied in behavior as well as in academic achievement.

There was no evidence that ability grouping in the Des Moines system either added to growth as measured by standardized tests or detracted from it. Students in each track did not deviate from expected performance levels.

Although Des Moines teachers did not view tracking as favorably in 1968 as they appeared to in 1963, as a group they tended to be in agreement as to the use of tracking in the system. A majority of teachers still felt that students were well placed in all tracks. The research tended to bear out their opinions. The majority responded that students were achieving satisfactorily in all tracks. The evidence from the standardized measures did not conflict with this either. However, as stated above, there was no evidence that there was any exceptional growth either. The majority responded that pupil leadership emerged in all groups. This was one of the major goals of the tracking when it was originated. It was planned that students of lower ability who did not exert leadership would do so if they were placed at the top of a lower ability group.

The evidence previously mentioned about groups of equal ability in different tracks also tended to influence the conclusion that pupil leadership could be obtained in all ability groups. If students at the top of the basic and general tracks behaved better than their equals who were placed at the bottom of a more demanding ability group, it could result in a very favorable conclusion about ability grouping. It was not concluded
from the results of this study that there was a definite cause and effect relationship, but the evidence was strong enough to lead to a recommendation for further study on that single aspect of this study.

There was evidence that teachers were mainly critical of ability grouping because of a feeling that it had a detrimental effect on the self-images of those in the lower ability groups. To a lesser degree, teachers felt that there was a false and detrimental effect on the self-images of those in the upper groups. There was one outstanding condition of teacher perceptions about tracking -- they disagreed about methods of improvement of the system.

In summary, it was illustrated by the conflicts in the literature that conclusions about the Des Moines Plan could not be derived without a specific analysis of the Des Moines Plan. Differences in the literature were attributed to various factors such as differences in grouping plans. It was for these reasons the study of the Des Moines Track Plan was considered necessary.

Recommendations for Additional Research

It was recommended that a single study be made to determine differences in behavior and adjustment of students of like attributes who are placed in different ability groups. There was evidence in this study that those who were placed at the top of a lower ability group tended to adjust better to school than did those who were of equal ability but at the bottom of a higher ability group.

It was also recommended that more studies be made about the relationships between localized measures and standardized measures in a given discipline.
BIBLIOGRAPHY


January 1962.


APPENDIX A. DATA SHEETS
DATA FOR TRACKING STUDY
DES MOINES INDEPENDENT SCHOOLS
GRADE 11
LANGUAGE ARTS

1. CIRCLE ONE: [Advanced Track]
   [General Track]
   [Basic Track]

2. STUDENT'S NAME: ____________________________
   (last) (first) (middle)

3. NAME OF SCHOOL: ____________________________

4. SELECTED IDED PERCENTILES

   Test Number (section) | Percentile Rank
   ----------------------|-------------------
   3                     |                   
   7                     |                   
   8                     |                   
   Composite 1-9         |                   

5. SELECTED ITBS PERCENTILES (Converted to National Norms)

   Test Section | Percentile Rank
   --------------|-------------------
   V - Vocabulary|                   
   L - Language Skills|                   
   L1: Spelling   |                   
   L2: Capitalization|                   
   L3: Punctuation|                   
   L4: Usage      |                   

6. Latest Lorge-Thorndike I.Q. (Total only) _______

7. Number of DAYS absent first semester 1967-68 _______

8. SEX M F (Circle one)

9. BEHAVIOR
   a. Estimated number of visits to the adviser because of discipline problems of all kinds - 10th and 11th grade combined _______.
   b. Behavior rating by classroom teacher (Circle One)

   Very poor behavior 1 2 3 4 5 6 7 8 9
   Average
   Very good behavior

10. Can any of the following recall a contact from the parent(s) to request a change in track? (The contact need not have been made to this person. The question: "Are any of the following persons aware of any such contacts to the school or central office past or present?")

   (check proper response)

   YES  NO
   Adviser
   Counselor
   Present Lang. Arts Teacher
   Dept. Head (Lang. Arts)
   Other

11. WORK SAMPLE ________________

12. First semester lang. arts grade ______
DATA FOR 
TRACKING STUDY 
DES MOINES INDEPENDENT SCHOOLS 

LANGUAGE ARTS 
GRADE 8

1. CIRCLE ONE: 
   Advanced  high average low  
   General  high average low  
   Basic  high average low

2. STUDENT'S NAME 
   (last)  (first) (middle)

3. ITBS PERCENTILE RANKS

   TEST
   V - Vocabulary
   L - Language Skills
   L1: Spelling
   L2: Capitalization
   L3: Punctuation
   L4: Usage

4. LATEST LARGE-THORNDIKE I.Q. (Total only) 

5. NUMBER OF DAYS ABSENT FIRST SEMESTER 1967-68 

6. SEX: M  F

7. BEHAVIOR: 
   a. Approximate number of visits to adviser due to discipline 
      problems. Combine both 7th and 8th grades
   b. Rating by classroom teacher CIRCLE ONE:
      1 2 3 4 5 6 7 8 9
      Very poor behavior  Average  Very good behavior

8. Can any of the following persons recall any contacts made by parents(s) 
   to request a change in track? The contact need not have been made 
   to the person. The question: "Are any of the following persons aware of 
   any contacts made by parents to any school officials for the purpose of a 
   change in track for the student?"
   check proper response
   YES  NO
   Adviser
   Counselor
   Teacher
   Other

9. WORK SAMPLE: 

10. FIRST SEMESTER  GRADE 1967-68
DATA FOR TRACKING STUDY
DES MOINES INDEPENDENT SCHOOLS
SOCIAL STUDIES
GRADE 11

1. CIRCLE ONE:  
   Advanced Track
   high low average
   1 2 3

   General Track
   high low average
   4 5 6

   Basic Track
   high low average
   7 8 9

2. STUDENT'S NAME: ________________________________ (last) (first) (middle)

3. ITED PERCENTILE RANKS

   Test Number    Percentile Rank
   1              ________
   5              ________
   Composite 1-6  ________

4. ITBS PERCENTILE RANKS
   (Converted to National Norms)

   Test          Converted Percentile Rank
   W - Work-Study Skills
   W1: Map Reading  ________
   W2: Reading Graphs and Tables  ________
   W3: Knowledge and Use of Reference Materials  ________

5. Latest Lorge-Thorndike I.Q. (Total only) ________

6. Number of DAYS absent first semester 1967-68 ________

7. SEX  M  F

8. BEHAVIOR:  
   a. Approximate number of visits to adviser due to discipline problems. Combine both 7th and 8th grades ________.
   b. Rating by classroom teacher (circle one)

   1 2 3 4 5 6 7 8 9
   Very poor behavior  Average  Very good behavior

9. Can any of the following persons recall any contacts made by parent(s) to request a change in track? The contact need not have been made to the person. The question: "Are any of the following persons aware of any contacts made by parents to any school officials for the purpose of a change in track for the student?"

   (Check proper response)
   YES NO
   Adviser
   Counselor
   Teacher
   Other ________

10. WORK SAMPLE  ________

11. First Semester Grade 1967-68 ________
DATA FOR
TRACKING STUDY
DES MOINES INDEPENDENT SCHOOLS

SOCIAL STUDIES
GRADE 8

1. CIRCLE ONE: high average low high average low high average low
   1  2  3  4  5  6  7  8  9

2. STUDENT’S NAME: ____________________________
   (last)  (first)  (middle)

3. ITBS PERCENTILE RANKS

   Test                        Percentile Ranks
   W - Work-Study Skills
   W1: Map Reading
   W2: Reading Graphs
       and Tables
   W3: Knowledge and Use
       of Reference
       Materials

4. Latest Lorge-Thorndike I.Q. (Total only) _______

5. Number of DAYS absent first semester 1967-68 ______

6. SEX    M   F

7. BEHAVIOR: a. Approximate number of visits to adviser due to discipline
       problems. Combine both 7th and 8th grades ________

   b. Rating by classroom teacher (circle one)

   1  2  3  4  5  6  7  8  9
   Very poor behavior  Average  Very good behavior

8. Can any of the following persons recall any contacts made by parent(s) to
   request a change in track? The contact need not have been made to the person.
   The question: "Are any of the following persons aware of any contacts made
   by parents to any school officials for the purpose of a change in track for
   the student?"
   (Check proper response)
   YES   NO
   Adviser
   Counselor
   Teacher
   Other ________

9. WORK SAMPLE: ________

10. FIRST SEMESTER GRADE 1967-68 ________
APPENDIX B. INSTRUCTIONS TO DEPARTMENT HEADS
TO: High School Language Arts Department Heads  
FROM: Paul Devin - Phone 284-7046  
SUBJECT: INSTRUCTIONS FOR GATHERING DATA FOR TRACKING STUDY

If you have any questions, please call me.

Let me emphasize again that the validity of the results of this study will depend heavily on the care and honest objectivity used in gathering the data.

STUDENT CODE NUMBER:
1. In the first square put the building number:
   H1 - East       H4 - North
   H2 - Hoover     H5 - Roosevelt
   H3 - Lincoln    H6 - Tech

2. In the second square put the teacher number:
   These numbers are assigned by the department head. **I don't want to know who the teachers are**, but when I ask for a teacher by number, I want the department head to be able to locate that teacher.

3. In the third box, put the period number when the student has language arts.

4. In the fourth box, put the test group number:
   1 - advanced track/high
   2 - advanced track/average
   3 - advanced track/low
   4 - general track/high
   5 - general track/average
   6 - general track/low
   7 - basic track/average
   8 - basic track/low
   9 - basic track/low

5. In the fifth box, indicate race: 0=White 1=Nonwhite
   **EXAMPLE [H3 03 4 4 1]** This student goes to Lincoln. His language arts teacher has been assigned number 3 by the head of the department. He has language arts fourth period. He is in the general track and considered the most capable student in the room. He is not white.

**ITEM 1:** Circle the appropriate word and number under the proper track. As you will recall from our meetings, the position within the track is based upon those things the teacher considers important when assigning grades.

**ITEM 4:** Use only percentile ranks. The standard score will not help us.

**ITEM 5:** **IMPORTANT!!** It is regrettable that the ITBS (our predictor for expected performance level) has percentiles based on state norms while the ITED (our observed performance level) has percentiles based on national norms. I have been able to obtain a conversion table for the ITBS. This will require extra work, but it must be done.

As you can see by the enclosed conversion table, a GE of 92 on Test V would be marked as a percentile rank of 75 on the data sheet. A GE of 114 on L2 would yield a percentile of 94, etc. **- If you have questions, call me.**
ITEM 6: We will use only the total score. If the Lorge-Thorndike is not available, another I.Q. may be substituted. If this is done, however, please indicate the name of the test.

ITEM 9: a. It is not necessary that the adviser make a detailed study of each student. We will accept his best "guestimate." This will not require a great deal of time. There should be about thirty for each adviser. The department head may want to warn the adviser to expect a similar visit from the head of the social studies department.

b. Language arts teachers should circle appropriate number.

ITEM 10: I hope that those who need to help in this, see the need for it and understand our good intentions. They should be informed that memory alone will suffice, because conversations that cannot be recalled probably represented very little in the way of persuasion.

ITEM 11: This will be done later. Leave it blank.

ITEM 12: Note the semester grade.
TO: High School Language Arts Department Heads  
FROM: Paul Devin - Phone 284-7046  
SUBJECT: INSTRUCTIONS FOR GATHERING DATA FOR TRACKING STUDY

If you have any questions, please call me.

Let me emphasize again that the validity of the results of this study will depend heavily on the care and honest objectivity used in gathering the data.

STUDENT CODE NUMBER:
1. In the first square put the building number:
   H1 - East
   H2 - Hoover
   H3 - Lincoln
   H4 - North
   H5 - Roosevelt
   H6 - Tech

2. In the second square put the teacher number:
   These numbers are assigned by the department head. I don't want to know who the teachers are, but when I ask for a teacher by number, I want the department head to be able to locate that teacher.

3. In the third box, put the period number when the student has language arts.

4. In the fourth box, put the test group number:
   1 - advanced track/high
   2 - advanced track/average
   3 - advanced track/low
   4 - general track/high
   5 - general track/average
   6 - general track/low
   7 - basic track/high
   8 - basic track/average
   9 - basic track/low

5. In the fifth box, indicate race: 0=White 1=Nonwhite

EXAIlŒLE 1 H3 1 03 I 4 14 1 This student goes to Lincoln. His language arts teacher has been assigned number 3 by the head of the department. He has language arts fourth period. He is in the general track and considered the most capable student in the room. He is not white.

ITEM 1: Circle the appropriate word and number under the proper track. As you will recall from our meetings, the position within the track is based upon those things the teacher considers important when assigning grades.

ITEM 4: Use only percentile ranks. The standard score will not help us.

ITEM 5: IMPORTANT!! It is regrettable that the ITBS (our predictor for expected performance level) has percentiles based on state norms while the ITED (our observed performance level) has percentiles based on national norms. I have been able to obtain a conversion table for the ITBS. This will require extra work, but it must be done.

As you can see by the enclosed conversion table, a GE of 92 on Test V would be marked as a percentile rank of 75 on the data sheet. A GE of 114 on L2 would yield a percentile of 94, etc. - If you have questions, call me.
ITEM 6: We will use only the total score. If the Lorge-Thorndike is not available, another I.Q. may be substituted. If this is done, however, please indicate the name of the test.

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b. Language arts teachers should circle appropriate number.

ITEM 10: I hope that those who need to help in this, see the need for it and understand our good intentions. They should be informed that memory alone will suffice, because conversations that cannot be recalled probably represented very little in the way of persuasion.

ITEM 11: This will be done later. Leave it blank.

ITEM 12: Note the semester grade.
APPENDIX C. INSTRUCTIONS TO LAY READERS
INSTRUCTIONS FOR READERS

I. Become familiar with these terms:

ORGANIZATION: High. The paper starts at a good point, has a sense of movement, gets somewhere, and then stops. The paper has a plan that the reader can follow; he is never in doubt as to where he is or where he is going. Sometimes there is a little twist near the end that makes the paper come out in a way that the reader does not expect, but it seems quite logical. Main points are treated at greatest length or with greatest emphasis, others in proportion to their importance.

Average. The organization of this paper is standardized and conventional. There is usually an introduction, three main points each treated in one paragraph, and a conclusion that often seems tacked on or forced. Some trivial points may be treated in greater detail than important points, and there is usually some deadwood that might better be cut out.

Low. This paper starts anywhere and never gets anywhere. The main points are not clearly separated from one another, and they come in a random order—as though the student had not given any thought to what he intended to say before he started to write. The paper seems to start in one direction, then another, then another, until the reader is lost.

IDEAS: High. The student has given some thought to the topic and has written what he really thinks. He discusses each main point long enough to show clearly what he means. He supports each main point with arguments, examples, or details; he gives the reader some reason for believing it. His points are clearly related to the topic and to the main idea or impression he is trying to get across. No necessary points are overlooked and there is no padding.

Average. The paper gives the impression that the student does not really believe what he is writing or does not fully understand what it means. He tries to guess what the teacher wants and writes what he thinks will get by. He does not explain his points very clearly or make them come alive to the reader. He writes what he thinks will sound good, not what he believes or knows.

Low. It is either hard to tell what points the student is trying to make or else they are so silly that he would have realized that they made no sense if he had only stopped to think. He is only trying to get something down on paper. He does not explain his points; he only writes them and then goes on to something else, or he repeats them in slightly different words. He does not bother to check his facts, and much of what he writes is obviously untrue. No one believes this sort of writing—not even the student who wrote it.

MECHANICS: High. Almost without exception, the errors (if any) are subject to opinion. The student is not afraid of using different forms of punctuation. Usage is appropriate, spelling excellent, and the handwriting is at least very readable.

Average. When this writer experiments with uncommon usage or punctuation, it becomes obvious to the reader that the writer is on unfamiliar ground. Uncommon words are misspelled.

Low. This writer has combined a lack of skill and carelessness. He not only does not know how to punctuate, spell, and use words, but seems not to care about appropriate mechanics.
Wording: High. The writer uses a sprinkling of uncommon words or of familiar words in an uncommon setting. He shows an interest in words and in putting them together in slightly unusual ways. Some of this experiments with words may not quite come off, but this is such a promising trait in a young writer that a few mistakes may be forgiven. For the most part he uses words correctly, but he also uses them with imagination.

Average. The writer is addicted to tired old phrases and hackneyed expressions. If you left a blank in one of his sentences, almost anyone could guess what word he would use at that point. He does not stop to think how to say something; he just says it in the same way as everyone else. A writer may also get a middle rating on this quality if he overdoes his experiments with uncommon words: if he always uses a big word when a little word would serve his purpose better.

Low. The writer uses words so carelessly or inexacty that he gets far too many wrong. These are not intentional experiments with words in which failure may be forgiven; they represent groping for words and using them without regard to their fitness. A paper written entirely in a childish vocabulary may also get a low rating, even if no word is clearly wrong.

Flavor: High. The writing sounds like a person, not a committee. The writer seems quite sincere and candid, and he writes about something he knows—often from personal experience. You could not mistake this writing for the writing of anyone else. Although the writer may play different roles in different papers, he does not put on airs. He is brave enough to reveal himself just as he is.

Average. The writer usually tries to appear better or wiser than he really is. He tends to write lofty sentiments and broad generalities. He does not put in the little homely details that show that he knows what he is talking about. His writing tries to sound impressive. Sometimes it is impersonal and correct but colorless; without personal feeling or imagination.

Low. The writer reveals himself well enough but without meaning to. His thoughts and feelings are those of an uneducated person who does not realize how bad they sound. His way of expressing himself differs from standard English; but it is not his personal style; it is the way uneducated people talk in his neighborhood. Sometimes the unconscious revelation is so touching that we are tempted to rate it high on flavor, but it deserves a high rating only if the effect is intentional.

II. Read the paper through without marking. Take three minutes at the very maximum.

III. Without looking at the paper again, circle the appropriate numbers.

IV. Make sure the student number is on the card.

V. Make sure your number is on the card.

VI. Do not total.

"Taken from Wilhelms' (Ed.) Evaluation as Feedback and Guide, ASCD 1967 Yearbook Committee, NEI, Washington, D.C."
APPENDIX D. OPINIONNAIRE
TO ALL TEACHERS IN THE TRACK PLAN: (English - Social Science) We need your response to the following statements to help us improve the track plan of organization. Please use the extra paper to extend your comments if you need to. Please return your replies to the office of secondary education before Wednesday, June 5, 1963. Thank you.

<table>
<thead>
<tr>
<th>School</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BASIC</td>
</tr>
<tr>
<td></td>
<td>Number of classes</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. I teach in these tracks:
   - Number of classes

2. I believe my pupils in these tracks are generally well placed: (circle answer)
   - Yes No

3. I believe my pupils are achieving satisfactorily.
   - Yes No

4. The track plan requires more intensive teacher planning.
   - Yes No

5. Individual differences of pupils seem more pronounced in the track plan.
   - Yes No

6. Pupil leadership emerges in my classes.
   - Yes No

7. Compared to other grouping plans, pupils in their homework do
   - More
   - Less
   - Same
8. Pupil motivation as a result of tracking has

<table>
<thead>
<tr>
<th></th>
<th>BASIC</th>
<th>GENERAL</th>
<th>ADVANCED Including Talented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved</td>
<td>Improved</td>
<td>Improved</td>
<td>Improved</td>
</tr>
<tr>
<td>Diminished</td>
<td>Diminished</td>
<td>Diminished</td>
<td>Diminished</td>
</tr>
<tr>
<td>Stayed the same</td>
<td>Stayed the same</td>
<td>Stayed the same</td>
<td>Stayed the same</td>
</tr>
</tbody>
</table>

9. I learn more about my pupils as a result of tracking

<table>
<thead>
<tr>
<th></th>
<th>BASIC</th>
<th>GENERAL</th>
<th>ADVANCED Including Talented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

10. The strengths of our track program are:

11. The limitations of our track program are:

12. My suggestions for improving the track program are:
**TO:** Departmental Chairmen, Social Science and Language Arts  
**FROM:** Paul Devin  
**SUBJECT:** THE TRACKING STUDY

Please return your replies to the office of secondary education before Wednesday, June 5, 1968.

If you strongly agree with the statement, check the +4 block; if you strongly disagree, check the -4.

<table>
<thead>
<tr>
<th>Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4</td>
</tr>
</tbody>
</table>

1. I believe that textbooks and supplementary materials differ between:
   a. The general and basic track --------
   b. The advanced and general track ------

2. I believe that daily assignments differ between:
   a. The general and basic track --------
   b. The advanced and general track ------

3. I believe that requirements to pass differ between:
   a. The general and basic track --------
   b. The advanced and general track ------
differ between:

a. The general and basic track

b. The advanced and general track

4. I believe that reading and research requirements differ between:

a. The general and basic track

b. The advanced and general track

5. I believe that subject or departmental objectives differ between:

a. The general and basic track

b. The advanced and general track

6. I believe that content structure differs between:

a. The general and basic track

b. The advanced and general track

7. I believe that sequence, when compared with official courses of study, differs between:

a. The general and basic track

b. The advanced and general track

May 24, 1968
APPENDIX F. SCORING CARDS FOR LAY READERS
<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Average</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>45</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Ideas</td>
<td>45</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Mechanics</td>
<td>36</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Wording</td>
<td>18</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Flavor</td>
<td>9</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Score 1
Score 2
Total \[ \div 2 = \]
OBJECTIVE I: EVALUATING SOURCES OF INFORMATION

Examples:

1. In which of the following sources would you be able to find the best answer to the questions?

   (A) Goode's World Atlas
   (B) Webster's New Collegiate Dictionary
   (C) An American history textbook

   ( ) 1. What does Jacksonian democracy mean?
   ( ) 2. Does Portland, Oregon, have more rain than Chicago, Illinois?
   ( ) 3. What does justice mean?
   ( ) 4. What was the route of the Oregon Trail?

2. Suppose you have been given an assignment to write a term paper. Below are listed a number of possible subjects. Under each one are listed three references which might give information about your topic. If this material were available, which would you consider the most reliable for giving a true picture of events as they actually happened?

   (A) is to be used for the most reliable source
   (B) is to be used for the next most reliable source
   (C) is to be used for the least reliable source

   Topic: The destruction of Hiroshima by an atomic bomb

   ( ) 1. News item in the New York Times
   ( ) 2. Army Signal Corps photographs
   ( ) 3. Memoirs of the bombing plane's pilot written on the 10th anniversary of the event.

   Topic: The discovery of gold in California

   ( ) 1. A news item in the San Francisco Chronicle in September, 1848.
   ( ) 2. The account of the gold rush as told by Zane Grey, a Western novelist.
   ( ) 3. An account written by the San Francisco Chronicle in September 1939, on the ninety-first anniversary of the discovery, including an exact reprint of the original 1848 account.
Topic: Patrick Henry's "Liberty or Death" Speech given on the spur of the moment

( ) 1. A movie dramatizing the speech.
( ) 2. An account written by Patrick Henry twenty-five years later.
( ) 3. An account written by an eyewitness while Henry was speaking.

Topic: President Lincoln's motives in issuing the Emancipation Proclamation of January 1, 1863

( ) 1. A poem written by Walt Whitman, a contemporary Northern poet.
( ) 2. The news story that appeared in a Confederate newspaper, the Virginia Gazette, for January 10, 1863.
( ) 3. The account of the Proclamation that Gideon Welles, Lincoln's secretary of the navy, wrote in his diary.
OBJECTIVE II: DISTINGUISHING BETWEEN STATEMENTS OF FACT AND STATEMENTS OF OPINION

Directions: In the list below, some of the sentences are statements of fact and others are statements of opinion. Indicate whether you believe each statement to be a fact or an opinion by placing the proper letter in the space provided for it. Do not try to decide if each statement is true or false, but only whether it should be classified as a statement of fact or opinion.

F = Fact
O = Opinion

( ) 1. The Democratic party has done more for this country than the Republican party has.

( ) 2. In 1939 there were two World Fairs held in the United States.

( ) 3. No war has ever accomplished any good for the world.

( ) 4. Scientific research often results in the production of new products.

( ) 5. Dictators are never happy men.

( ) 6. The depression which began in 1929 was one of the most severe in the history of the country.

( ) 7. The Indians are better off today than they were before the white men came to America.

( ) 8. The border between the United States and Canada is not fortified.

( ) 9. Congress would be more efficient if the terms of Congressmen were lengthened.

( ) 10. Some voters would like to see the terms of Congressmen lengthened.
OBJECTIVE IV: DISTINGUISHING BETWEEN STATEMENTS OF FACT AND STATEMENTS OF MOTIVE

Our reading materials in social studies contain many statements of fact, telling us that various events took place. But those same materials also contain statements of motive or purpose, where the writer is giving his idea as to "why" something happened.

Directions: Place the number of the correct answer in the space provided.

( ) 1. Which one of the following is a statement of motive?

(1) Italy is exposed to attack from the sea, (2) Many American Presidents have been military men, (3) In 1849 many gold-seekers flocked to California, (4) The Panama Canal was constructed to shorten sea voyages, (5) Modern bombers are adapted to a wide cruising range.

( ) 2. Which one of the following is a statement of motive?

(1) Japan invaded China in 1932 to gain more territory, (2) China proved very difficult for Japan to penetrate after the invasion, (3) The United States Supreme Court has not always consisted of nine justices, (4) After the Washington Disarmament Conference of 1922, the United States navy was not built up to full treaty strength, (5) Marco Polo traveled through China to the court of Kublai Khan.

( ) 3. Which one of the following is a statement of motive?

(1) Industries are strictly regulated in dictator nations, (2) Women's suffrage was made effective by an amendment to the Constitution, (3) Much of northern Mexico is a desert region, (4) Alaskan bases are necessary to the defense of the United States, (5) In 1915 the Allies borrowed money from the United States to carry on their war.
OBJECTIVE VI: OPEN-MINDEDNESS

Directions: Underscore one of the first five words in each of the following statements which you think makes the truest statement.

Examples: All, Most, Many, Some, No
dogs are larger than cats
All, Most, Many, Some, No persons on earth have taken a trip to the moon and back

1. All, Most, Many, Some, No Americans are better people than those of other countries.

2. All, Most, Many, Some, No modern ways of doing things are better than those of the past.

3. All, Most, Many, Some, No Democrats are more patriotic than Republicans.

4. All, Most, Many, Some, No wars in which the United States has taken part have been to promote selfish interests.

5. All, Most, Many, Some, No people who live in slum areas are naturally careless and untidy.

6. All, Most, Many, Some, No democratic governments are better than any other kind.

7. All, Most, Many, Some, No poor people work harder than rich people.

8. All, Most, Many, Some, No foreigners want to come to the United States because they can make more money here.

9. All, Most, Many, Some, No people are happier today than those of the past.

10. All, Most, Many, Some, No immigrants who have come to the United States from Southern Europe make less desirable citizens than those who have come from northern Europe.
OBJECTIVE VII: DETERMINING THE DIFFICULTY OF PROOF

Directions: In each of the following questions there is one of the five items which would be more difficult to prove than the other four. Place the number of that item in the space provided.

1. Which of the following would be the most difficult to prove true or false? (1) Many medieval manuscripts were written in Latin, (2) The area of Alaska is greater than that of Texas, (3) Cleveland held two terms in office as President of the United States, (4) The "elastic clause" of the federal Constitution has provoked much controversy, (5) The Russian economic system is doomed to failure.

2. Which of the following would be most difficult to prove true or false? (1) The federal budget did not balance in 1937, (2) The Treaty of Versailles caused most of the trouble in Europe between 1920 and 1939, (3) Georgia is well suited for cotton-raising, (4) Cuba's standing army is smaller than China's, (5) The Reconstruction period after the Civil War worked great hardship on the South.

3. Which of the following would be the most difficult to prove true or false? (1) Washington was unpopular with some groups by the end of his second administration, (2) Jefferson was born in Virginia, (3) Theodore Roosevelt was the youngest President to take office, (4) Soil erosion is the greatest problem of the Midwest, (5) California once called itself the "Bear Flag Republic".

4. Which of the following would be most difficult to prove true or false? (1) Overexpansion of the railroads caused the panic of 1857, (2) The Union Army was larger than the Confederate army in the Civil War, (3) Woodrow Wilson was once president of Princeton University, (4) Many Americans do not like anti-Semitism, (5) Abraham Lincoln was born in 1809.

5. Which of the following would be most difficult to prove true or false? (1) Some Arab countries have had European advisors, (2) A clause of the Treaty of Versailles laid the blame for starting World War I on Germany, (3) Some Democrats did not approve of Franklin D. Roosevelt's New Deal policies, (4) The Marshall plan to aid Europe after World War II did not offer to include Poland, (5) The "cold war" beginning after World War II was deliberately planned by Russia.
Directions: Place the number of the item which most correctly completes each of the following statements in the space provided.

( ) 1. To locate the page in a text that gives information about Jackson's inauguration one should use the (1) bibliography (2) appendix (3) index (4) table of contents (5) preface.

( ) 2. The appendix will usually be found in which part of a book? (1) before the preface (2) back (3) middle (4) front (5) after the title page.

( ) 3. The part of a textbook which contains copies of documents, lists of presidents, etc., is called the (1) glossary (2) index (3) preface (4) table of contents (5) appendix.

( ) 4. To determine whether an American history book contains a chapter titled "The American Revolution" one should (1) read the index (2) go through the book page by page (3) read the summaries (4) read the table of contents (5) read the index.

( ) 5. A list of references is called the (1) bibliography (2) autobiography (3) biography (4) encyclopedia (5) appendix.


( ) 7. To compare the state government with the national government means to (1) select items which show the differences and likenesses between state and national government (2) select items that will show only the likenesses (3) select items that will bring out the qualities of state and national government (4) describe each (5) discuss each.

( ) 8. Which of the following statements would be the most difficult to prove as true or false about Mr. Jones who is a candidate for the State Legislature? (1) He was a city mayor, (2) He voted in favor of the Republican candidate for President in the last election, (3) He is 40 years old, (4) He is a very large man, (5) He is a married man.