

1966

# An Analysis of Achievement Test Scores for Three Groups of Lakeview High School Students

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AN ANALYSIS OF ACHIEVEMENT TEST SCORES FOR

THREE GROUPS OF LAKEVIEW HIGH SCHOOL STUDENTS

(TITLE)

BY

**JOSEPH E. SCHWALB**

**THESIS**

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF

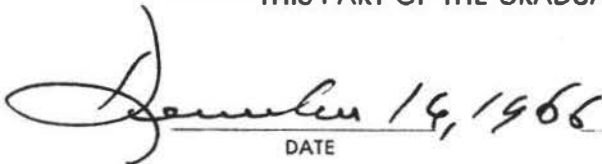
**MASTER OF SCIENCE IN EDUCATION**

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY  
CHARLESTON, ILLINOIS

**1966**

YEAR

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## ACKNOWLEDGMENTS

The writer wishes to thank the Decatur-Lakeview staff for assistance in this study.

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## CHAPTER I

### INTRODUCTION TO STUDY

Lakeview High School in Decatur, Illinois, operates under a large-small group approach in student instruction. Pupils are classified into individual help, regular, or accelerated groups. The classification is based upon previous tests of mental ability and opinions of members of the faculty. Only regular and accelerated students take part in large-small group instruction. Individual help students are placed in classes that are teacher dominated, being similar to the traditional type of classroom instruction.

This paper will give a general description of the operational procedures used at Lakeview High School, and will present an analysis of student achievement based upon the Iowa Test of Educational Development<sup>1</sup> which measures nine specific areas of achievement.

#### Statement of the Problem

The purpose of this study was to discover and describe the performance of Lakeview High School students on the Iowa Test of Educational Development and the extent to which this performance was related to the

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<sup>1</sup> Iowa Test of Educational Development (Chicago: Science Research Associates, Inc., 1960).



grouping instruction variations--Instructional Materials Center, team teaching, large-small group instruction, and ability grouping.

### Method and Treatment of Data

The Iowa Test of Educational Development measures the following areas: understanding of basic social concepts, general background in the natural sciences, correctness and appropriateness of expression, ability to do quantitative thinking, ability to interpret reading materials in the natural sciences, general vocabulary, and use of sources of information.<sup>2</sup>

Medians of scores on the Iowa Test of Educational Development were computed for the accelerated, regular, and individual help classes. The medians of freshman test scores were compared with the respective medians test scores. The comparison was made to determine significance of increase or decrease. This analysis identified areas of increase or decrease between the freshman and junior test results using only students classified in individual help, regular, or accelerated classes in all subject areas. The scores were in percentile form.

No attempt was made to determine causes of significant percentile increases or decreases. Caution should be used in interpreting the findings of this study to insure that the findings remain descriptive of a relationship, not evidence of cause and effect.

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<sup>2</sup> The Iowa Test of Educational Development: Manual for the School Administrator (Chicago: Science Research Associates, Inc., (1960), p. 5.

### Definition of Terms

Accelerated Students: Pupils ranking in the upper twenty per cent of their class.

Regular Students: Pupils ranking in the middle sixty per cent of their class.

Individual Help Students: Pupils ranking in the lower twenty per cent of their class.

### Related Study

A survey conducted by Robert Pickett entitled "Ability Grouping and Student Self-Concepts," dealt with student motivation at Lakeview.<sup>3</sup> The data of his study were obtained from a questionnaire given to the student body. The study dealt with the following questions:

1. When assigning students to specific ability groups are we not labeling this person in terms of ability and status and opening the door to reinforce that feeling?
2. What relationship is there between a student's self-concepts and the ability group to which he or she is assigned?
3. How do students at different ability levels view each other in terms of ambition, and willingness to work at their school work?

The study concluded that friction feeling did exist at Lakeview. Students tended to associate with those of their own grouping.<sup>4</sup> Pupils

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<sup>3</sup> Survey conducted by Robert Pickett, graduate student at University of Illinois in 1964. Copies of this survey may be obtained from Lakeview High School, Decatur, Illinois.

<sup>4</sup> Ibid., p. 4.

in the lower groupings looked upon students in the upper groupings as being "snobbish", also students in the upper groups "looked down" on lower grouped students.<sup>5</sup> It was also concluded that ambition or goals of a student increased in the higher ability groups.

The study concerned only Lakeview students and asked the pupils to judge themselves and the other students in terms of the three ability groups -- accelerated, regular and individual help.

<sup>5</sup> ibid., p. 6.

## CHAPTER II

### BACKGROUND AND OPERATIONAL PROCEDURES OF LAKEVIEW HIGH SCHOOL

This chapter relates the basic educational philosophy of Lakeview. Ideas, policies, and opinions are those of the Lakeview Plan and serve as a basis for teaching. No attempt has been made to show error (if any) in the program.

The central idea for the Decatur-Lakeview Plan originated from the recommendations made by J. Lloyd Trump in Images Of The Future.<sup>1;2</sup> "In actual operation of the Lakeview Plan, differences from the central idea result mainly because of building facilities. Lakeview, in general, follows Trump's theory of flexible scheduling and team teaching."<sup>3</sup>

Much planning appears to have been done in setting up the Lakeview system. The following is the 1962-63 in-service program under which the school operated. Since 1960, an in-service program has been carried out every month at Lakeview.<sup>4</sup>

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<sup>1</sup> David W. Beggs, The Decatur Lakeview Plan (New York: Bottenheim Publishing Corporation, 1962), p. 1.

<sup>2</sup> J. Lloyd Trump, Images of the Future (Urbana: University of Illinois, 1959).

<sup>3</sup> Interview with William From, Principal, Lakeview High School, August 4, 1964.

<sup>4</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

In-service programs for school year of 1962-63 are:

September -- The Decatur-Lakeview Plan  
 October -- Team teaching  
 November -- Who comes to school and why  
 December -- Multimedia teaching aids  
 January -- Accelerated and individual classes  
 February -- Programmed learning  
 March -- The drop-out and the drop-in  
 April -- Decatur-Lakeview Plan evaluation  
 May -- Examinations and their use<sup>5</sup>

The purpose of relating the planning of the program is to stress that the Lakeview Plan is not something that emerged without apparent careful study.

The Lakeview staff developed its small and large-group instructional program in several concentrated areas after three years of planning. Two summer workshops and an intensive in-service education program preceded the system's inauguration.<sup>6</sup> In setting up and executing the plan, some of the major tasks were the following:

1. To adapt the system to traditional buildings
2. To restructure faculty duties
3. To restructure classes into small and large groups
4. To obtain community cooperation
5. To solve specific operational problems<sup>7</sup>

A step-by-step approach to procedures recommended by the National Association of Secondary-School Principals Commission on Staff Utiliza-

<sup>5</sup> Lakeview Junior-Senior High School (Decatur: Decatur Public Schools, 1963), pp. 1-2.

<sup>6</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

<sup>7</sup> Beggs, loc. cit.



tion has been made by Lakeview.<sup>8</sup> In preparing for installation of various staff utilization procedures, Lakeview's faculty began a two-year study in 1958 financed by grants made through the Commission on Staff Utilization by the Ford Foundation.

Lakeview offers two main types of instruction: large and small group. Each has its distinctions and requires certain facilities.

Large-group classes at Lakeview are held in a lecture room. The room has a seating capacity of approximately two hundred and has facilities for lectures (lectern, sound system, speaker's platform, and overhead projector). No lecture lasts longer than twenty-seven minutes, since the faculty agreed that a longer lecture would exceed the attention span of an adolescent.<sup>9</sup> "It is held that large-group instruction allows teachers to give dynamic vital lectures once -- rather than the traditional five times a day. It also sets the pace of the course development; and gives factual support to the framework of generalizations and ideas."<sup>10</sup> In a large-group the student will:

1. take notes
2. see films and transparencies

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<sup>8</sup> Beggs, loc. cit.

<sup>9</sup> Ibid., p. 2.

<sup>10</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

3. take tests
4. listen to the teacher
5. receive a content background for small group instruction<sup>11</sup>

The functions of a large-group are:

1. Introduction of topics (with reasons for learning)
2. Development of background (with coordination of previous knowledge)
3. Presentation of content (with development of content)
4. Enrichment of instruction (with films, recordings, resource experts, etc.)
5. Evaluation of achievement (with testing, written idea development)<sup>12</sup>

Large-group instruction should be basically teacher dominated.

Although the learner is physically passive except for taking notes, he must be very active mentally, reacting to what he sees and hears.<sup>13</sup>

Ideas obtained in large-group sections serve as a basis for discussion in small group classes.

"Effective large-group lectures require careful study, creativity and the use of considerable time and energy. The effective speaker must keep in mind the students' past achievement and interest in the particular topic."<sup>14</sup> The Lakeview staff believes the basic purpose of large-

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<sup>11</sup> This We Believe (Decatur: Decatur Public Schools, 1963), p. 6.

<sup>12</sup> The Decatur-Lakeview Plan (Decatur: Decatur Public Schools, 1961), p. 11.

<sup>13</sup> Interview with Ed Meyer, Teacher, Lakeview High School, March 20, 1966.

<sup>14</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

group instruction is to place students in contact with the best possible teaching.<sup>15</sup> In some departmental areas in which one teacher gives all the lectures, he is given a reduced teaching schedule to enable him to prepare for lectures. In other areas teachers share the lecture responsibility, organizing the lectures into basic units of instruction. Tape recordings are made of the lectures so that students may review what was said and teachers may practice self-appraisal. All lecture tapes are placed in the Instructional Materials Center and are available to any student.

Small-group instruction requires a room large enough to seat ten to twenty students. Most rooms are equipped with tables and chairs, rather than arm-chair desks, to promote group discussion. Group sessions last fifty-four minutes, because the staff believes that student involvement cannot be achieved in less time.<sup>16</sup> "The chief function of small-group instruction is to provide for individual learning differences. The atmosphere of small-group discussion is one of speaking freely. The teacher serves the purpose of maintaining order and critically listening to the student discussion."<sup>17</sup> Listening critically means to comment and

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<sup>15</sup> Beggs, loc. cit., p. 2.

<sup>16</sup> Interview with William From, Principal, Lakeview High School, March 20, 1966.

<sup>17</sup> Interview with Ed Meyer, Teacher, Lakeview High School, March 20, 1966.



ask questions as the need arises. In a small-group the teacher is:

1. A counselor
2. A member of the group
3. An observer of moods and needs of each student
4. A source of professional communication between the teacher presenting the content in the large group and the student
5. A source of individual motivation<sup>18</sup>

In a small-group the student will:

1. Ask questions on subject matter
2. Test film content material ideas through discussion
3. Seek aid and encouragement
4. Develop individual abilities
5. Share interpretation
6. Strengthen basic skills
7. Be an active participant in group activity
8. Assume responsibility for independent effort
9. Develop the skills of critical thinking and personal communication<sup>19</sup>

The functions of small-group instruction are:

1. Discuss content presentation (By student involvement)
2. Strengthen basic skills (By speaking, writing, reading)
3. Promote group activity (By shared experiences - panel, buzz groups)
4. Add to personal development (By frequent class participation)
5. Increased individual instruction (By added teacher attention)<sup>20</sup>

In small-group classes the teacher must not be a "teller," but a gauge in judging student needs. The effective teacher must make individual prescriptions to cure learning difficulties many times each day. The teacher must distinguish between recitation and

<sup>18</sup> This We Believe, op. cit., p. 5.

<sup>19</sup> Ibid.

<sup>20</sup> The Decatur-Lakeview Plan, op. cit., p. 10.

creative discussion.<sup>21</sup>

It is held by the Lakeview staff that small-group classes represent essential education for citizenship in a democracy.<sup>22</sup> Students should learn to discuss controversial matters, to communicate effectively, to respect the opinions of others, and to deal with people whose backgrounds differ from their own. The discussions in a small-group are used to reinforce and use the knowledge acquired in large-group and independent study.

The teacher meeting with a small-group has the responsibility to observe matters that need to be presented more effectively in the large-group meeting and to help appraise the quality of small-group instruction.

The teacher tries to help stimulate independent study through small-group by scheduling occasional brief reports from students who have indications of particular interests in certain areas.<sup>23</sup>

Independent study projects may or may not be required in every subject area. Whether or not one is required depends on the desires of the teaching team. If an independent study project is required in a certain subject, its specific selection is left up to the individual student. Ideas for areas of study will often result from large and small group experiences. Independent study includes the following activities:

1. Project work--taken on by a student in relation

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Interview with Ronald Wisher, Teacher, Lakeview High School, March 20, 1966.

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23 *Ibid.*

Interview with Ed Meyer, Teacher, Lakeview High School, March 20, 1966

- to his own interests, needs and abilities.
2. Reading--materials gathered in specific and general topics.
  3. Drill and repetition--done to enforce and "know" basic facts and the use of fundamental ideas.
  4. Writing--putting ideas together and improving this communication skill.<sup>24</sup>

Projects can be assigned in every field, with the emphasis being away from display projects. The functions of independent study are:

1. Develop creative and independent thought (through producing and doing)
2. Strengthen background knowledge (through special reading, outlining, etc.)
3. Increase special talents (through concentrated effort)
4. Enlarge capacity for self-development (through personal responsibility for learning)<sup>25</sup>

Independent study should be one of the most important phases of the learning situation. During this time pupils can explore in depth those ideas and concepts presented in large and small-group. Independent study gives each student the opportunity to develop his own special interests to their highest degree. Large-group, small-group, and independent study tend to reinforce each other, by providing essential information and motivations with a minimum of faculty supervision.<sup>26</sup>

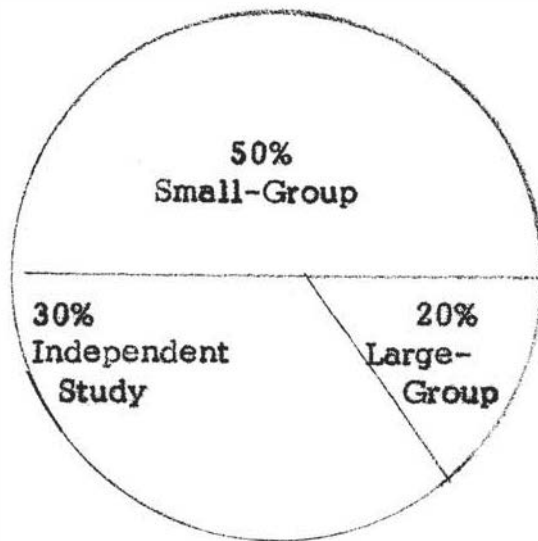
The following diagram shows how the total school day is divided between small-group, large-group, and independent study.

<sup>24</sup> This We Believe, op. cit., p. 7.

<sup>25</sup> The Decatur-Lakeview Plan, loc. cit.

<sup>26</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

Figure 1 -- Diagram of Total School Day at Lakeview



All students at Lakeview are grouped according to their ability. Criteria for grouping consists of past performance on tests of mental ability and the opinions of the teachers. The Iowa Test of Educational Development is the main test used in student grouping. The accelerated classes consist of the students who score in the top twenty per cent; and regular classes are composed of the middle sixty per cent of the class.<sup>27</sup>

In accelerated classes, students are expected to receive A's and B's; in regular classes the average grade is a C; and in individual help classes students are expected to receive D's and F's.<sup>28</sup> However, it is possible to receive an F in an accelerated class and an A in an individual help class.

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<sup>27</sup> Interview with Harold Jacobson, Guidance Counselor, Lakeview High School, March 20, 1966.

<sup>28</sup> Interview with Ronald Wisher, Teacher, Lakeview High School, September 10, 1963.

Individual help sections never participate in large-small group instruction. Individual help sections meet five times per week for fifty-four minute periods, and have special materials.

Regular and accelerated classes meet three times per week in small group classes which are fifty-four minutes each in length. Large-group classes last twenty-seven minutes and meet twice a week. Regular and accelerated students attend the same large-group lecture for a particular subject, but go to their respective classes for small-group instruction. Accelerated classes explore problems in greater depth and detail than do regular classes.<sup>29</sup>

If a student is placed in the wrong ability group due to an error in scheduling, he is placed in the proper section as soon as the matter is brought to the attention of a counselor. However, if a student is in the proper group and is achieving below his ability, re-scheduling is not automatic. The counselor will talk with the student in order to discover his difficulty. Usually, after a six-week period the counselor will re-schedule the student; if in the counselor's opinion the student cannot do the work of that level.

The teaching team works together to plan the material to be presented to the student. In almost every content area, teaching teams

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<sup>29</sup> Interview with Ronald Wisner, Teacher, Lakeview High School, March 20, 1966.



have been established. Their purposes are:

1. To bring more than one teacher together for working on a content area.
2. To allow teachers to do that at which they are the best (or to specialize in some aspect of the teaching function).
3. To give students the benefit of the professional talent of more than one instructor.<sup>30</sup>

On some teams one teacher is designated as the teacher-presenter in large-group sessions. The other members of the team have their schedule arranged so that they are present during large-group instruction. In other teams, teachers take turns presenting different units for large-group lecture.

Team meetings are held two or three times a week. During these meetings the team members plan the instruction for the following week. "It is attempted at these meetings to present to the various sections the same ideas (of an academic subject for the following week). Team teaching at Lakeview attempts to get the teachers to work together and to present the same basic facts to their respective classes."<sup>31</sup>

Large-group instruction is basic to team teaching because it provides the teaching time that makes individual and small-group instruction possible.

Team teaching must involve a spirit of cooperation among the team members. Teachers learn from each other as well as teach the members of the team.

<sup>30</sup> This We Believe, op. cit., p. 2.

<sup>31</sup> Interview with Ronald Wisher, Teacher, Lakeview High School, March 20, 1966.

Through team teaching, each teacher learns to criticize himself and fellow teachers because the situation lends itself to the development of self analysis.<sup>32</sup>

The Instructional Materials Center is the center of independent study. To become eligible for the Instructional Materials Center at Lakeview, a student must obtain the approval of five teachers. Once approval has been obtained and the principal has consented, students will have their study halls scheduled in the Instructional Materials Center. Only those students who can study under the least amount of supervision are accepted in the Instructional Materials Center. Being scheduled in the Instructional Materials Center gives students complete access to the following: library facilities, conference rooms, films, and taped large-group lectures. All of the school's resource materials are available to students in the Instructional Materials Center.

Student conduct is governed by the honor system; however, at all times a teacher has the responsibility of supervising the pupils. If a student cannot behave acceptably in this situation, he will lose Instructional Materials Center privileges for one semester and be re-scheduled to a study hall.

Students who are not in the Instructional Materials Center are scheduled to study halls, but this does not mean that they are barred from the Instructional Materials Centers. Access to the Instructional

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<sup>32</sup> Interview with Gary Lonnen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

Materials Center is obtained by these students only by a pass issued by a classroom teacher.

In general, students realize the advantages of being in the Instructional Materials Center and discipline problems are at a minimum.<sup>33</sup> It is important to note that admittance to the Instructional Materials Center is gained by the conduct of the pupil and not by ability. In short, self-directed students are not deprived of learning opportunities by those unable to assume such responsibility. Besides having the advantage of a library, the student also has a quiet place, free from distractions, to study. This quiet zone is referred to as a study carrel. These areas are individualized spaces for individual work; that is, cubicles closed on three sides separating the student from other outside activities.

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<sup>33</sup> Interview with Ronald Wisher, Teacher, Lakeview High School, September 10, 1963.



### CHAPTER III

#### METHOD AND FINDINGS OF STUDY

The purpose of this study was to discover and describe the performance of Lakeview High School students on the Iowa Test of Educational Development and the extent to which this performance was related to grouping instruction variations — Instructional Materials Center, team teaching, large-small group instruction, and ability grouping.

It is appropriate to use this test in analyzing the school because it is used by the faculty to assist in grouping students. The test measures the following nine areas: understanding of basic social concepts, general background in the natural sciences, correctness and appropriateness of expression, ability to do quantitative thinking, ability to interpret literary materials, ability to interpret reading materials in the social studies, ability to interpret reading materials in the natural sciences, general vocabulary, and use of sources of information. The test is given in the fall of each school year to freshmen and juniors.

Medians of scores of students classified in each of the accelerated, regular, or individual help classes in all subject areas were used. The students' scores on the Iowa Test of Educational Development were supplied

by Lakeview High School; the percentile scores are included in Tables I through VI of the Appendix. The scores on the nine areas of the test were placed into the sections: accelerated, regular, or individual help and medians were computed for each section's freshman and junior years. Reliability coefficients for the Iowa Test of Educational Development were obtained from the Manual for the School Administrator<sup>1</sup> and are included in Table VII of Appendix. The following formula was used to compute significance of difference between two correlated medians:

$$SE_{Mdn} = \frac{1.858Q}{\sqrt{N-1}}$$

$$SE_{Mdn} = \frac{\sqrt{SE_{Mdn1}^2 + SE_{Mdn2}^2 - 2r_{12}SE_{Mdn1}SE_{Mdn2}}}{D}$$

$$CR \text{ or } t = \frac{D}{SE_{Mdn}}$$

<sup>1</sup>Iowa Test of Educational Development: Manual for the School Administrator, op. cit., p. 19.

The following tables relate the results of the study conducted with the accelerated, regular, and individual help groups at Lakeview.

Table I. -- Significance of difference between correlated medians in the accelerated group

	<u>1961 Median</u>	<u>1963 Median</u>	<u>CR or t</u>	<u>Probability</u>
1. Understanding of basic social concepts	93.6	94.5	.89	60%
2. General background in the natural sciences	97.5	93.0	2.89	99%
3. Correctness and appropriateness of expression	95.5	92.8	1.44	80%
4. Ability to do quantitative thinking	95.3	93.3	.90	60%
5. Ability to interpret literary materials	94.5	95.0	1.74	90%
6. Ability to interpret reading materials in the social studies	93.2	93.1	.70	50%
7. Ability to interpret reading materials in the natural sciences	93.2	94.5	.90	60%
8. General vocabulary	91.4	94.5	1.79	90%
9. Use of sources of information	96.0	94.5	.89	60%

It was revealed that a significant drop in medians occurred in general background in natural sciences. The degree of significance was at the 99 per cent probability level. Significance was at the 90 per cent probability level in ability to interpret literary materials and in general vocabulary.

Table II.--Significance of difference between correlated medians in the regular group

	1961 <u>Median</u>	1963 <u>Median</u>	<u>CR or t</u>	<u>Probability</u>
1. Understanding of basic social concepts	67.0	72.9	1.16	70%
2. General background in the natural sciences	75.3	54.3	2.68	99%
3. Correctness and appropriateness of expression	69.8	70.7	.98	60%
4. Ability to do quantitative thinking	79.5	76.3	.70	50%
5. Ability to interpret literary materials	67.2	67.0	.49	30%
6. Ability to interpret reading materials in the social studies	74.5	62.0	2.32	95%
7. Ability to interpret reading materials in the natural sciences	75.1	75.0	.30	20%
8. General vocabulary	72.0	67.0	1.55	70%
9. Use of sources of information	80.7	74.3	1.53	70%

The regular section showed no significant increase. However, two significant decreases were attained. A decrease at the 99 per cent probability level occurred in general background in the natural sciences and a decrease significant at the 95 per cent probability level resulted in ability to interpret reading materials in the natural sciences.

Table III. --Significance of difference between correlated medians in the individual help section

	1961 <u>Median</u>	1963 <u>Median</u>	<u>C<sub>n</sub> or t</u>	<u>Probability</u>
1. Understanding of basic social concepts	30.5	29.5	.16	10%
2. General background in the natural sciences	44.5	34.5	.85	60%
3. Correctness and appropriateness of expression	52.0	28.2	2.09	95%
4. Ability to do quantitative thinking	44.5	32.0	2.08	95%
5. Ability to interpret literary materials	38.2	22.8	1.74	70%
6. Ability to interpret reading materials in the social studies	34.5	29.5	.82	50%
7. Ability to interpret reading materials in the natural sciences	39.5	27.8	2.45	95%
8. General vocabulary	24.5	19.5	.63	40%
9. Use of sources of information	57.0	32.0	2.66	98%

In the individual help section no significant increases were obtained. Four significant decreases occurred, three at the 95 per cent probability level and one at the 98 per cent probability level. Correctness and appropriateness of expression, ability to interpret literary materials, and ability to do quantitative thinking showed significant decreases at the 95 per cent probability level and use of sources of information showed a significant decline at the 98 per cent probability level.



## CHAPTER IV

### CONCLUSIONS OF STUDY

Lakeview offers three main types of instruction: large-group, small-group, and independent study. Large-group instruction is held in a lecture room and involves the lecture method of instruction. Small-group classes study problems and ideas obtained from large-group. Students classified in accelerated or regular mental ability groups attend the same large-group lecture for a specific subject, but go to their respective small-group classes. Small-group class size is usually limited to sixteen pupils. Independent study is carried out through the facilities of the Instructional Materials Center. Students in the Instructional Materials Center study topics in which they have interest. Individual help classes are held five times per week and are similar to the traditional type of instruction. Special materials for lower ability students are used in this type of instruction.

The Iowa Test of Educational Development is the main test used to determine grouping of students, in addition to teacher evaluation of the particular student. Certain significant results were obtained by comparing the median percentile scores of the 1961 freshman class and the same statistical measure of the 1963 junior class.

The accelerated sections showed significant decline at the 99 per cent probability level in general background in the natural sciences. General background in the natural sciences recorded a decline at the 99 per cent

probability level and ability to interpret reading materials declined at the 95 per cent probability level in the regular section. Four significant decreases occurred in the individual help section. Correctness and appropriateness of expression, ability to interpret literary materials, and ability to do quantitative thinking showed significant decreases at the 95 per cent probability level and use of sources of information showed significant decline at the 98 per cent probability level.

No attempt has been made to show cause of significant percentile increases or decreases. The findings are in no way evident of cause and effect. Possible factors resulting in the findings of the study are:

1. The Iowa Test of Educational Development is a verbal test of specific facts and does not measure concepts. The test may not be suited to the teaching approach of the school. Perhaps an evaluation should be carried out to determine if the Iowa Test of Educational Development is suited to measure the achievements of students in the Lakeview Plan.

2. Faculty members may not be fulfilling the various objectives of the Lakeview system, and may be following the traditional type of instruction. If faculty members are following traditional methods of instruction in small-group classes, no evaluation can give insight to the Lakeview system. Administrative classroom visitations might determine whether or not such practices are being followed.

3. The norms of the Iowa Test of Educational Development are derived from traditional schools, and not from schools using the teaching approach of Lakeview. This factor again shows the need to determine whether the test is appropriate for the Lakeview system.



4. Some faculty members may not be qualified to teach or may not wish to teach classes of accelerated and individual help sections. All teachers at Lakeview must have a Bachelor of Science in Education to be considered eligible for a teaching position.<sup>1</sup> If the quality of teachers is poor, better administrative screening of applicants is needed. It may be that as class ability increases, so does the desire to do a better job of teaching. If this situation does exist, the learning process will certainly be hampered for all but the top groups. Again this is an administrative consideration.

5. Students may have trouble adjusting to large-small group instruction. The Lakeview system differs greatly from traditional high school instruction. One of the greatest differences is that the student is expected to do more work on his own without teacher motivation.<sup>2</sup> Perhaps most high school students have not yet matured sufficiently to accept such responsibility. Incorporating the Lakeview system at lower educational levels might help in the transitional phase for the pupil. Or, it could be the Lakeview system is suited only for higher levels of education. Both of these ideas might be pursued further.

6. A study conducted by Pickett indicated class friction among the

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<sup>1</sup> Interview with Gary Lannen, Director of State Demonstration Center, Lakeview High School, March 20, 1966.

<sup>2</sup> Interview with Harold Jacobson, Guidance Counselor, Lakeview High School, March 20, 1966.

different ability groups. This may have affected the learning process. In addition to ability group friction, students' desire to learn improved in the higher ability groups. Perhaps labelling students as individual help, regular, or accelerated hinders motivation which is held basic to the success of any educational program. This area might be studied in greater detail to determine whether class friction and a motivation-ability group relationship exists.

The information obtained for this analysis may constitute a basis for action, or may suggest needed action. Whatever is done must be done by the teachers and administrators in the school. The following questions require careful study by those associated with Lakeview:

Is the Lakeview Plan workable? If so, is the plan being fulfilled as it was intended?

APPENDIX

TABLE 1. -- Percentile scores of individual help males

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	16	12	55	13	78	21	52	24	72	8	5	6	60	38	24	31	38	38
2	46	20	16	25	51	33	44	8	62	40	81	50	37	27	24	4	67	32
3	30	25	48	41	24	26	75	43	6	8	43	31	31	5	47	31	12	16
4	16	47	22	30	72	41	69	66	21	34	34	26	19	27	18	16	56	38
5	46	32	22	25	13	26	75	36	48	53	43	73	71	63	59	63	73	45
6	98	78	75	75	58	41	75	66	55	59	52	73	14	32	18	43	67	64
7	24	47	62	53	13	6	61	43	11	24	26	43	54	32	40	37	18	32
8	20	7	11	7	66	26	44	8	11	24	21	26	19	5	13	6	73	4
9	30	2	3	2	13	4	6	36	21	4	52	11	37	9	40	6	4	5
10	24	47	79	41	43	12	61	19	39	18	52	6	37	27	4	8	38	26

Notes:

Column one in each of the nine areas measured by the Iowa Test of Educational Development indicates the 1962 scores of the students. Column two indicates the 1964 scores recorded on the test.

TABLE 2. --Percentile scores of individual help females

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	24	20	41	16	78	71	69	73	39	18	26	26	54	12	24	16	73	52
2	53	20	41	7	30	26	75	36	39	13	52	50	19	12	56	4	67	26
3	46	40	62	59	58	50	17	8	77	40	59	37	54	51	40	43	67	26
4	20	40	79	65	66	77	44	24	55	34	43	84	66	75	53	69	78	84
5	74	32	62	25	43	71	61	19	67	13	21	20	37	27	77	43	86	52
6	30	40	79	30	66	33	75	66	48	28	34	37	60	44	59	16	59	45
7	30	40	75	70	93	65	31	43	21	53	71	31	66	69	66	69	52	38
8	16	15	22	35	30	21	26	15	4	8	34	4	31	27	18	8	31	8
9	16	12	7	41	30	16	31	50	55	24	71	15	54	27	4	16	31	21
10	30	25	34	53	51	21	37	36	39	34	26	20	60	17	24	37	52	8

TABLE 3.--Percentile scores of regular males

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	30	32	84	41	72	50	75	83	55	34	52	63	71	44	47	63	52	26
2	24	47	55	41	72	50	75	36	67	40	21	26	54	63	81	56	67	81
3	73	53	70	79	50	43	56	75	65	62	68	65	38	71	87	88	76	90
4	73	61	92	98	87	78	94	99	95	87	92	98	90	94	62	81	94	78
5	92	94	99	96	78	93	75	66	67	78	90	68	88	63	91	87	59	78
6	53	73	84	88	58	41	52	50	72	88	59	67	71	84	88	90	90	81
7	38	96	99	94	58	41	96	97	93	97	71	94	94	84	96	87	94	94
8	79	86	97	47	90	77	90	95	93	95	85	87	97	93	59	75	78	81
9	68	92	90	96	90	71	94	95	81	95	81	67	84	93	88	75	92	83
10	53	62	92	99	90	87	80	89	81	70	76	37	84	84	81	93	82	81
11	46	25	84	53	58	50	61	73	62	65	65	37	54	44	31	49	31	38
12	85	94	96	59	66	50	96	94	84	76	76	62	71	63	59	55	82	69
13	53	78	92	68	78	65	69	56	62	47	76	50	88	69	72	63	82	96
14	46	62	99	99	43	29	80	78	39	81	85	87	76	57	72	63	59	68
15	68	73	69	65	58	26	84	50	48	53	71	37	76	63	59	69	78	52
16	20	98	92	65	36	26	75	98	67	76	59	37	54	75	40	43	82	58
17	61	78	88	65	58	41	69	73	48	65	76	43	31	27	72	63	86	74
18	92	94	92	80	84	50	92	98	39	70	71	73	66	63	72	84	82	88
19	94	92	79	65	51	33	87	95	67	65	43	73	80	80	59	56	73	38



TABLE 3.--Continued

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
20	94	99	99	92	72	50	75	50	97	76	88	92	96	87	94	93	95	94
21	79	86	94	84	78	87	75	86	55	59	85	63	45	63	81	84	94	87
22	74	73	97	80	93	93	99	95	67	88	81	73	84	90	77	80	86	84
23	53	62	84	75	90	57	75	78	67	65	90	56	76	63	77	69	90	88
24	46	40	75	59	72	41	37	50	30	34	52	43	60	38	18	26	59	32
25	61	73	55	94	51	26	52	73	39	8	71	1	71	12	59	56	59	52
26	68	73	88	75	95	96	92	99	77	76	81	73	80	75	59	63	73	74
27	68	73	88	75	95	96	92	99	77	76	81	73	80	75	59	63	73	74
28	68	62	92	65	58	77	37	50	72	70	34	50	76	69	72	69	82	81
29	38	86	84	84	51	71	75	66	6	47	12	63	76	44	59	80	52	38
30	46	76	92	59	43	82	61	92	77	99	43	92	66	96	72	95	67	74
31	16	82	11	70	24	41	84	86	21	59	26	56	37	80	53	84	18	58
32	53	55	84	60	36	33	87	86	55	23	71	26	31	44	59	56	24	21
33	53	92	94	92	36	65	75	92	30	70	26	73	37	63	24	63	52	84
34	68	82	88	92	36	41	75	89	62	40	52	81	25	57	66	60	31	96
35	94	98	99	92	93	46	75	94	90	95	99	96	91	87	88	93	95	81
36	68	94	34	64	72	77	87	92	72	65	71	73	66	75	63	69	92	88

TABLE 4.--Percentile scores of regular females

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	74	73	79	75	90	82	96	86	48	81	88	56	80	93	81	80	73	84
2	94	89	97	80	51	77	96	83	87	76	85	73	94	75	85	69	94	69
3	95	82	84	65	95	87	31	24	87	61	85	73	91	84	81	69	90	69
4	46	86	79	59	90	77	69	6	62	47	76	66	71	57	59	56	38	38
5	96	92	84	92	36	41	37	36	81	65	59	50	54	63	72	63	95	81
6	61	62	97	47	78	57	80	50	67	47	88	50	91	84	85	80	90	81
7	92	78	84	84	99	96	96	92	81	65	76	31	84	69	91	75	95	85
8	74	78	62	41	84	65	96	56	67	59	76	68	34	63	96	90	90	88
9	53	67	84	47	58	33	87	86	77	65	71	68	76	57	72	69	86	88
10	38	62	55	35	66	50	61	30	55	40	76	50	66	75	40	49	67	58
11	89	82	94	80	93	87	96	78	84	81	88	94	80	90	96	93	98	89
12	38	62	79	59	72	82	69	56	39	70	52	37	84	75	81	69	86	69
13	61	62	69	41	66	77	96	99	62	53	81	73	71	63	31	75	52	58
14	64	25	55	41	58	87	75	50	39	59	65	63	71	32	53	43	67	52
15	68	82	62	80	78	82	90	94	81	53	81	73	91	80	85	84	90	81
16	53	47	75	20	78	71	84	62	48	59	81	73	60	51	59	63	59	64
17	30	47	22	20	51	50	44	15	62	34	71	8	76	38	53	21	90	32
18	74	67	96	70	66	77	80	43	84	59	93	56	96	95	81	84	86	74

TABLE 4. -- Continued

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
19	96	99	99	94	90	71	87	86	93	99	76	37	94	75	85	87	96	94
20	74	62	69	47	58	69	37	50	39	34	52	43	66	32	18	16	82	53
21	68	47	34	53	51	26	87	75	11	47	52	20	31	75	77	80	78	35
22	79	78	92	92	90	77	99	94	84	84	71	63	91	84	85	90	94	81
23	74	47	75	70	66	87	75	43	39	40	59	43	54	80	72	63	92	81
24	30	15	55	30	51	33	37	50	39	47	43	56	54	27	72	63	59	64
25	79	73	79	70	72	71	69	15	72	65	81	15	76	51	66	69	67	58
26	53	67	84	65	72	77	80	56	67	70	88	84	66	87	47	69	82	74
27	92	86	98	84	58	71	92	86	90	86	88	87	94	95	81	90	96	94
28	46	62	84	47	43	65	44	56	62	47	59	11	37	57	40	43	73	64
29	38	47	96	59	72	33	61	43	55	59	52	56	80	63	72	63	78	81
30	12	32	55	25	58	77	44	50	11	70	43	43	31	44	72	63	59	60



TABLE 5. --Percentile scores of accelerated males

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	98	99	98	92	85	97	95	99	99	99	94	98	97	91	97	99	98	
2	92	90	99	94	92	91	90	92	99	99	98	96	96	93	91	98	92	91
3	92	98	99	99	99	99	99	99	85	88	90	92	88	88	99	99	96	94
4	94	96	99	96	93	93	99	92	98	97	97	94	91	87	91	93	95	91
5	96	99	99	99	93	96	99	98	95	94	99	98	97	95	94	99	99	99
6	94	98	97	94	92	90	96	94	85	86	90	96	88	85	85	85	94	88
7	96	96	99	92	98	96	99	92	90	97	90	96	97	90	86	85	99	99
8	94	98	99	92	93	90	95	94	90	94	99	94	91	87	88	93	95	87

TABLE 6.--Percentile scores of accelerated females

Student	Social Studies Background	Natural Science Background	Correct Expression	Quantitative Thinking	Reading Social Studies	Reading Natural Sciences	Reading Literature	General Vocabulary	Use of Sources of Information									
1	94	94	95	97	90	95	83	94	93	92	93	98	96	93	94	99	99	
2	89	92	98	88	90	75	99	88	81	85	93	92	88	93	91	84	94	88
3	89	92	99	96	99	93	99	95	95	98	90	90	96	98	94	97	99	99
4	95	92	99	94	84	87	99	95	87	88	99	90	97	93	87	85	98	94
5	89	94	99	94	99	98	92	98	90	98	99	92	91	97	98	97	98	98
6	95	94	98	84	95	97	92	94	87	97	86	87	88	90	88	90	95	91
7	98	89	97	88	90	90	90	92	95	98	99	94	96	97	94	99	92	88
8	85	82	99	92	78	96	96	88	75	85	90	92	88	88	88	80	98	96
9	96	97	98	80	93	82	88	92	97	99	85	92	98	98	96	95	92	85
10	99	99	99	96	99	96	99	99	99	99	99	99	99	98	99	99	99	99

TABLE 7.--Reliability coefficients for the Iowa Test of Educational Development for form X<sup>1</sup>

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Test	Reliability Coefficient
1	.92
2	.86
3	.92
4	.86
5	.91
6	.90
7	.90
8	.93
9	.84

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1. Iowa Test of Educational Development: Manual for the School Administrator, op. cit., p. 19.

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