A Research Study Of The Effects Of Behavioral Group Counseling Upon College Freshmen

Donald Harvey Argue
University of the Pacific

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A RESEARCH STUDY OF THE EFFECTS OF
BEHAVIORAL GROUP COUNSELING UPON COLLEGE FRESHMEN

A Dissertation
Presented to
the Faculty of the Graduate School
University of the Pacific

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

by
Donald Harvey Argue
June 1969
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DONALD HARVEY ARGUE
1969
This dissertation, written and submitted by

Donald Harvey Argue

is approved for recommendation to the
Graduate Council, University of the Pacific.

Department Chairman or Dean:

[Signature]

Dissertation Committee:

[Signature]

[Signature]

[Signature]

Dated 7 May, 1969
A RESEARCH STUDY OF THE EFFECTS OF
BEHAVIORAL GROUP COUNSELING UPON COLLEGE FRESHMEN

Abstract of Dissertation

It was the purpose of this study to consider the effects of behavioral group counseling on freshmen who enter Bethany Bible College, Santa Cruz, California, with 10th high school grade point averages. The data was collected and considered in three areas: (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The researcher was concerned specifically with: (1) discovering if behavioral group counseling will significantly improve academic achievement, (2) analyzing the relationship of the size of high school from which the subjects graduated and academic achievement, (3) comparing male-female academic achievement, (4) assess the academic achievement of students involved in this study with similar students who in the successive years 1963-1967 entered Bethany Bible College, and (5) analyzing the data as it may be applied to group counseling future freshmen at Bethany Bible College.

An analysis of variance three-way research design was selected. This design allowed for the planning and analysis of the three independent variables which were: (1) behavioral group counseling or lack of behavioral group counseling, (2) sex, and (3) size of high school from which the student graduated. The dependent variable was the first semester grade point average received by the subjects involved in the study.

The entering freshmen at Bethany Bible College during the fall semester of 1968 with high school grade point averages of 2.5 or below were divided into four research groups of twenty-four subjects per group. The four groups were treated in the following manner:

Group #1. This group was divided into three subgroups of eight students per group. The investigator met each subgroup for one hour of counseling per week for eleven continuous weeks. During these sessions, every verbalized comment by a member of the group that was positive in regard to his own self-concept was immediately positively reinforced.

Group #2. This group was divided and treated in the same manner as Group #1 with the exception of a change in the reinforcement schedule from continuous to partial.

Group #3. This group met once a week for coffee and discussion. Reinforcement was not consciously given to the subjects by the researcher.

Group #4. This group never met with the researcher.

The conclusions drawn from the analysis of variance research design indicate that significance at the .05 level existed only in the high school size variable. Subjects from the medium and large high school achieved at a significantly higher level than those from small high schools. Although the behavioral group counseling did not prove to have significance with the analysis of variance design, using a chi square analysis, the data indicate that there was a significant positive difference in the number of achievers who were part of the counseled groups as compared with subjects who were not counseled. Also, a significant positive difference appeared between those who received the counseling group counseling. In this study and previous noncounseled freshmen at Bethany Bible College.

The findings of this study strongly suggest the need to undertake research to: (1) discover in closer terms what really happens as a result of behavioral group counseling techniques, (2) further establish this counseling technique by using the approach in other possible group settings, and (3) determine if this counseling approach would prove significant in a longitudinal study with subjects from freshman through senior year.
DEDICATION

This dissertation is dedicated to Doctor Jack Kough of Morgan Hill, California. Doctor Kough was the man who made my graduate work possible.
ACKNOWLEDGEMENTS

This dissertation only became a reality with the encouragement and help of a number of people.

Pat Argue, my wonderful wife has been by my side all the way. She has provided my best reinforcement.

The members of the committee for the dissertation are to be recognized as scholars and fine friends. I especially want to acknowledge the help of my chairman, Doctor Gleason. Another member of the committee, Doctor Heath Lowry was my constant guide and for this I am very grateful.

Miss Edith Abraham, my capable secretary is also deeply appreciated. She is to be recognized as a scholar in her own science.
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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

I. INTRODUCTION

Behavioral counseling on the traditional counselor-client, one-to-one basis has been researched and studied for several years. Recently some investigators, such as Krumboltz\(^1\) and Thoresen,\(^2\) have been endeavoring to apply basic behavioral counseling techniques to the group setting.

Colleges with a liberal admissions policy often allow freshmen to enter with low high school grade point averages. These freshmen present a potential opportunity for implementation of group counseling. To provide trained counselors on the traditional one-to-one basis for all such freshmen may be financially impractical. Group counseling with these freshmen could allow one trained counselor to have many more clients than would be possible with the traditional approach.


average, Bethany Bible College, located in Santa Cruz, California, maintains a liberal admissions policy. The college is church related and operated by the Assemblies of God denomination. Bethany Bible College was founded in 1919 by the Reverend and Mrs. Robert J. Craig as part of the ministry of Glad Tidings Mission in San Francisco.\(^3\) Founded as a short-term Bible training extension of the mission, it was known as Glad Tidings Bible Training School. The school was open to any individual who desired Bible training; however, it was specifically started to train the new converts who attended the mission.\(^4\)

In 1922 the school was incorporated and the name changed to Glad Tidings Bible Institute.\(^5\) In 1944 the two-year training program that had been in existence since the founding of the school was expanded to a three-year program and the curriculum further standardized.\(^6\) Any person who desired to attend the institute was encouraged to apply, regardless of academic preparation.

In 1950 the present campus in Bethany Park was ac-


\(^4\)Ibid.

\(^5\)Ibid.

\(^6\)Ibid.
quired, and the institution moved to Santa Cruz. With the completion of necessary planning and approval, on September 3, 1955, the institute was incorporated under the name of Bethany Bible College and granted the status of a four-year, degree-granting college. The development of the four-year collegiate program led to accreditation by the Accrediting Association of Bible Colleges in October, 1959. The school was accredited by the Western Association of Schools and Colleges in January, 1966.

The college has evolved from a small, informal training class at a mission to a four-year, degree-granting accredited college. With this evolvement, entrance requirements have changed. However, a student today need only be a high school graduate to apply for admission. Requirements are not strictly stipulated regarding high school major or grade point average received. Thus, each year the freshman class contains many students with low high school grade point averages who find the academic work at Bethany Bible College difficult and do not maintain the minimum grade point average required to stay enrolled. The freshman

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7 Ibid.
8 Ibid.
9 Ibid.
classes also contain those students who enter the college with low high school grade point averages but are able to maintain a grade point average high enough to stay enrolled.

The 1968-1969 edition of the Bethany Bible College Bulletin states the following relative to educational requirements for admission:

All applicants are required to be graduates of a high school with a record of satisfactory level of achievement. In conventional grading systems, a "C" average is considered the minimum. The Admissions Committee will handle on an individual basis those with nonstandard high school evaluations. Applicants who present an academically unfavorable high school record may: (1) be denied admission, or (2) be admitted with restrictions and on academic probation. In this latter case, the probation may be lifted by satisfactory achievement, just as in other cases of academic probation.10

This admissions policy has developed as a result of the evolvement of the college and the desire of the church to retain a college that will accept its youth.11

II. THE PROBLEM

Statement of the Problem

It was the purpose of this study to consider the effects of behavioral group counseling on freshmen who enter Bethany Bible College with low high school grade point

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10 Ibid., p. 19.

11 Ibid.
averages. The data were collected and considered in three areas: (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The freshmen involved in the research study were randomly selected from those students entering the college during the fall semester of 1968 with high school grade point averages of 2.5* or below.

The researcher also compared the grade point averages of the subjects involved in this study with similar subjects who entered Bethany Bible College as freshmen during the fall semesters from 1963 through 1967.

Significance of the Study

This study was felt to be important for the following reasons:

1. Considerations related to church support and affiliation require Bethany Bible College to maintain an open door admissions policy to all church related high school graduates.

2. Studies related to the entering freshmen in the Bible college setting with a low high school grade point average have been virtually nonexistent. Insofar as this researcher has been able to determine, this is the only research study attempted that dealt with entering Bible college freshmen with low grade point averages who were exposed to behavioral group counseling.

3. Because of the financial difficulties in providing

* 2.5 grade point average is based on a 4 point scale. A=4, B=3, C=2, D=1, and F=0.
trained counselors for all incoming freshmen who have low high school grade point averages, this study may give insight to the manner in which one counselor in a Bible college may work with many groups of students instead of working with the smaller case load that would be considered with the traditional one-to-one counseling approach.

4. This study may be of help to the forty-eight Bible colleges accredited by the Accrediting Association of Bible Colleges which all face the same basic problem of an open door admission policy.

III. PURPOSES OF THE STUDY

It was the purpose of this study to consider the effects of behavioral group counseling on freshmen who enter Bethany Bible College with low high school grade point averages. The data were collected and considered in three areas: (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The researcher was concerned specifically with: (1) discovering if behavioral group counseling will significantly improve academic achievement, (2) analyzing the relationship of the size of high school from which the subjects graduated and academic achievement, (3) comparing male-female academic achievement, (4) assess the academic achievement of students involved in this study with similar students who in the successive years 1963-1967 entered Bethany Bible College, and (5) analyzing the data as it may be applied to group counseling future freshmen at Bethany Bible College.
Research Design

In order to collect these data, the investigator, with the assistance of Gerald Nelson, Assistant Professor of Educational Research and Statistics at the University of the Pacific, first designed the research procedure and selected the statistical method to be used. An analysis of variance three-way design* was selected since this type of design allows three independent variables to be considered in relation to the dependent variable. In this study, the dependent variable was the first semester grade point average received by the subjects involved in the study. These subjects were all enrolled in their first semester of college study at Bethany Bible College.

The independent variables considered in this study include: (1) behavioral group counseling or lack of behavioral group counseling, (2) sex, and (3) size of high school from which the student graduated.

Fred N. Kerlinger states that the analysis of variance three-way design is a valid approach in behavioral research. Kerlinger comments:

One of the most significant and revolutionary developments in modern research design and statistics is the planning and analysis of the simultaneous operation

*The research design is graphically presented on the next page.
THREE-WAY ANALYSIS OF VARIANCE DESIGN**


**This research design and statistical approach was selected upon the advice of Gerald Nelson, Ph. D., Assistant Professor of Research and Statistics at the University of the Pacific.

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<thead>
<tr>
<th></th>
<th>Group #1</th>
<th>Group #2</th>
<th>Group #3</th>
<th>Group #4</th>
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TABLE I
and interaction of two or more variables. Scientists have long known that variables do not act independently. Rather, they often act in concert.12

Procedure

The investigator divided the freshman class of 1968 at Bethany Bible College into two categories: (1) those with high school grade point averages above 2.5 (based on a 4 point scale), and (2) those with high school grade point averages below 2.5.

The selection of a 2.5 grade point average as the break between the two groups was decided upon after the researcher reviewed the academic achievements of five entering freshman classes at Bethany Bible College. The five freshman classes were from the fall of 1963 through the fall of 1967.* A total of 990 freshmen were reviewed in two areas: (1) their high school grade point average, and (2) their grade point average at the end of their first semester at Bethany Bible College. From this review a trend became apparent. Students entering Bethany Bible College with a high school grade point average of 2.5 or below had a high rate of academic difficulty as compared with those students


* The table on the next page presents a profile on the freshman classes 1963-1967.
FRESHMAN WHO ENTERED BETHANY BIBLE COLLEGE WITH HIGH SCHOOL GRADE POINT AVERAGES OF 2.5 OR BELOW FROM THE FALL SEMESTER OF 1963 THROUGH 1967

**KEY:**
1. TABLE I IS BASED UPON FALL SEMESTER GRADE POINT AVERAGES.
2. ALL GRADE POINT AVERAGES ARE FIGURED OUT ON A FOUR POINT SCALE: A=4, B=3, C=2, D=1, AND F=0.

* Freshman with high school G.P.A. below 2.5 who achieved the minimum G.P.A. of 1.75.

**TABLE II**

<table>
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<td>'66-'67</td>
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<td>'67-'68</td>
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<table>
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<tr>
<th>Year</th>
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<td>'63-'64</td>
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<tr>
<td>'64-'65</td>
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<td>'65-'66</td>
<td>197</td>
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<tr>
<td>'66-'67</td>
<td>226</td>
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<tr>
<td>'67-'68</td>
<td>223</td>
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entering with high school grade point averages above 2.5. From 1963 through 1967, 46% (461 of 990) of those students entering Bethany Bible College as freshmen had high school grade point averages of 2.5 or below.

Description of Research Groups

The entering freshmen at Bethany Bible College during the fall semester of 1968 with high school grade point averages of 2.5 or below were randomly placed into four groups. For the study, these four groups each contained twenty-four subjects and were treated in the following manner:

Group #1. This group was divided into three subgroups of eight subjects per group. The researcher met each subgroup for one hour of counseling per week for eleven continuous weeks.* During these sessions, every verbalized comment by a member of the group that was positive in regard to his own self-concept was immediately positively reinforced by the researcher with a positive verbal comment such as, "very good" or "excellent." These three subgroups were reinforced on a continuous schedule.

Group #2. This group was divided and treated in the same manner as Group #1 described above, except for one difference, that being a change in the schedule of positive reinforcement. Group #1 received reinforcement on a continuous schedule. Group #2 received partial reinforcement. Therefore, not every verbalized response by a member of the group that was positive regarding his self-concept was positively reinforced. The researcher positively reinforced approximately one in every two positive statements given by a member of this group.

*The total of eleven one-hour sessions was arrived at by reviewing seventy-two group counseling studies.
Group #3. This group contained twenty-four subjects who met once a week with the researcher to talk and have coffee. A direction was not given by the researcher regarding the things to be talked about in the sessions. Each session was open to any thought the subjects wanted to discuss. Reinforcement was not consciously given to the subjects by the researcher.

Group #4. This group contained twenty-four subjects who never met as a group with the researcher. These subjects were randomly placed in this group.

IV. ASSUMPTIONS AND LIMITATIONS

The assumptions upon which this research study is based follow.

Assumptions

1. Students entering Bethany Bible College with high school grade point averages below 2.5 may have academic difficulties.

2. The research study took place in a Bible college which may be different from a liberal arts college or university in the following ways: (1) a Bible college has the basic objective to prepare students for church or Christian ministries, (2) this objective is carried out through a program of Biblical and practical education, and (3) it is anticipated that a student who attends a Bible college has a religious commitment.

3. Students involved in the behavioral group counseling sessions may change their self-concept which change could affect their academic work at Bethany Bible College.

4. The data thus collected from the study may be of value to other colleges with open door admission policies, especially Bible colleges.

This investigation is also based upon certain limitations which follow.
Limitations

1. Those set by the consideration of certain variables that may not be considered in the research design. These variables could include health of the subjects, time of group meetings, members of groups that may have personality conflicts, and any number of other variables that could affect a study of this nature.

2. Those inherent in the nature and scope of the randomly selected groups.

3. Those resulting from analyzing only the student's high school grade point average, sex, and size of high school from which he graduated.

4. Those resulting from selecting the first semester grade point average of academic work at Bethany Bible College as the dependent variable.

5. Those set by the investigator's concern to have the subjects achieve the minimum 1.75 grade point average required to stay enrolled as a student at Bethany Bible College.

6. Those inherent in the nature of this research study.

7. Those inherent in applying the results of this study to similar Bible colleges.

8. Those affected by the individual bias of the researcher.

V. DEFINITIONS OF TERMS

The following definitions of terms will be used throughout the study:

1. Behavioral Group Counseling: An approach to counseling, using basic operant conditioning principles. The adjective "behavioral" does not imply that there are other kinds of counseling that should be categorized as "nonbehavioral counsel-
ing." The term is used as a reminder that all counseling is designed to affect the behavior of the client. In this sense, all counseling is behavioral counseling. It may be further added that this is an approach to group counseling that consists of whatever ethical activities a counselor undertakes in an effort to help the client engage in those types of behavior which will lead to a resolution of the client's problems.

2. **Bible College**: A Bible institute-college is an educational institution whose principal purpose is to prepare students for church vocations or Christian ministries through a program of Biblical and practical education.

3. **Extinction**: Method by which there is no reinforcement.

4. **Grade Point Average**: The average of grades received by the student in academic work. At Bethany Bible College A=4.0 points, B=3.0 points, C=2.0 points, D=1.0 point, and F=0 points.

5. **Open Door Admissions Policy**: Bethany Bible College, as a church-related college, will admit any person who has graduated from a high school or has the equivalent of a high school education. A high school grade point average of 2.0 or better is recommended but not required. Regardless of the high school major, if the subject can meet the spir-

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16 Michael and Meyerson, op. cit., p. 389.
itual and conduct requirements, he will be considered for admission.17

6. Random Sampling: "That method of drawing a portion (or sample) of a population...so that each member of the population...has an equal chance of being selected."18

7. Reinforcement: The law of reinforcement states that a reinforcer which follows a behavior increases the probability of the occurrence of that behavior.19 Events which strengthen behavior by adding to it.20

8. Continuous Reinforcement: Method by which every relevant verbal response is reinforced.21

9. Partial Reinforcement: Reinforcement that is not given on a regular schedule. Resists extinction more effectively, or extinguishes more slowly.22

10. Self-concept: An organized, fluid but consistent conceptual pattern of perceptions or characteristics and relationships of the 'I' or the 'me', together with values attached to these concepts.23

18 Kerlinger, op. cit., p. 52.
21 Michael and Meyerson, loc. cit.
VI. SUMMARY

Chapter I of this report has given an introduction to the dissertation, stated the problem, specified the significance of the study, elaborated on the purposes of the study, outlined the assumptions and limitations upon which the research is based, and has defined the important terms used in the report.

Four additional chapters complete the remainder of the study. They are as follows: (1) Chapter II: Review of the Literature Related to this Study, (2) Chapter III: Description of the Design and Procedure of the Study, (3) Chapter IV: Presentation of the Collected Data as Revealed by the Investigation, and (4) Chapter V: Conclusions Based Upon the Investigation and Recommendations for Further Study.
CHAPTER II

REVIEW OF THE LITERATURE RELATED TO THIS STUDY

The literature pertinent to this study was reviewed in four specific areas: (1) that which related to size of high school and grades received in high school as a predictor of college grades, (2) that which dealt with behavioral group counseling, (3) that which dealt with group dynamics and group operant conditioning, and (4) the research relative to the adjustment of the self-concept through small group behavioral counseling.

I. SIZE OF HIGH SCHOOL AND GRADES RECEIVED AS A PREDICTOR OF COLLEGE GRADES

The college academic achievement of students from high schools of different sizes has often been the subject of educational research. As early as 1917 Pittinger \(^1\) reported a study, and a careful review of the literature has led the researcher to a number of other studies related to this general area. These researches have reported inconsistent findings. An interpretation of these inconsistent findings,

\(^1\)B. F. Pittinger, "The Efficiency of College Students as Conditioned by Age at Entrance and Size of High School," National Society for the Study of Education Yearbook, 1917, Part II.
cies is difficult because of wide variations in experimental
design and statistical sophistication. Thus, of the twenty
studies reviewed by Hoyt\textsuperscript{2} in 1959, only six controlled
academic ability, only seven analyzed data for the two sexes
separately, and only four reported tests of significance.

Regarding the basic question of comparing performance
of students in college from high schools of different size,
Bertrand,\textsuperscript{3} Douglas,\textsuperscript{4} Dwyer,\textsuperscript{5} Jackson,\textsuperscript{6} and Pettengill\textsuperscript{7} found
no differences in college grades among students from differ-
ent size high schools.

\textsuperscript{2}Donald P. Hoyt, "Size of High School and College

\textsuperscript{3}J. R. Bertrand, "Relation Between Enrollment of High
Schools from which Students Graduated and Academic Achieve-

\textsuperscript{4}H. R. Douglass, "Relation of the Pattern of High
School Credits to Scholastic Success in College," \textit{North

\textsuperscript{5}P. S. Dwyer, "Some Suggestions Concerning the Re-
relationship Existing Between Size of High School Attended and

\textsuperscript{6}G. I. Jackson, "The Influence of the High School
Upon Success in the University of Nebraska," (unpublished
thesis, University of Nebraska, 1926).

\textsuperscript{7}T. E. Pettengill, "Size of High School and Predictive
Value of Class Rank and Aptitude Test Rank," \textit{Journal of
American Association of College Registrars}, Vol. 9, 1934,
pp. 190-193.
Benz,8 Bledsoe,9 Pittinger,10 Stalnaker,11 Thornberg,12 and Upshall13 reported that graduates from large schools made the best scholastic records in college. Ayres,14 Saupe,15 and Seyler16 accorded this honor to graduates of

10B. F. Pittinger, op. cit.
small schools. Feder,\textsuperscript{17} Garnett,\textsuperscript{18} and Manson\textsuperscript{19} found that graduates from medium-sized schools made the highest grades in college. However, most of these studies failed to report tests of significance, so presumed contradictions may simply represent fluctuations due to sampling errors.

**High School Rank**

The question also appears concerning rank in the graduating class and if rank should be interpreted differently, depending upon the size of the high school involved. Bertrand,\textsuperscript{20} Pettengill,\textsuperscript{21} Seyler,\textsuperscript{22} and Stalnaker\textsuperscript{23} reported higher average ranks for those from larger schools, while Gray\textsuperscript{24} reported no difference. Other investigators

\textsuperscript{17}D. D. Feder, "Factors Which Affect Achievement and its Prediction at the College Level," \textit{Journal of American Association of College Registrars, Vol. 15, 1940, pp. 107-118.}


\textsuperscript{19}Grace Manson, "An Investigation of Some Problems Involved in Student Selection at the University of Michigan," (unpublished manuscript, University of Michigan, 1927).

\textsuperscript{20}Bertrand, \textit{op. cit.}

\textsuperscript{21}Pettengill, \textit{op. cit.}

\textsuperscript{22}Seyler, \textit{op. cit.}

\textsuperscript{23}Stalnaker, \textit{op. cit.}

also considered the differences in the size of the correlation between high school rank and grade point average, with Gray\textsuperscript{25} and Pettengill\textsuperscript{26} finding the correlations to be homogeneous among groups representing high schools of different sizes, and Clark\textsuperscript{27} finding a higher correlation for the group from large high schools. Gray\textsuperscript{28} examined differences in grade point average when high school rank was controlled. Under this condition, students from larger schools made better grades than those from medium or small schools if the high school rank was above fifty. Aiken states:

One of the most valid predictors of achievement in college is the average grade in high school. Studies in Utah, Florida, Georgia and elsewhere indicate that, in spite of differences in computational procedure and varying standards and sizes of high schools, the high school average grade forecasts college grades better than aptitude tests or any other college entrance requirement. This is not particularly surprising, however, because high school grades presumably represent a better sample of past achievement and motivation than any of the other predictor variables; and this seems to compensate somewhat for their inexactness. Nevertheless, it is possible that a good predictor may be improved by standardizing the method of computation and by taking into account other sources of variation which may affect its validity, such as rank

\textsuperscript{25}Ibid.
\textsuperscript{26}Pettengill, op. cit.
\textsuperscript{27}E. L. Clark, "Selection of Freshmen at Northwestern University College of Liberal Arts," \textit{Educational Record}, Vol. 8, 1927, pp. 122-128.
\textsuperscript{28}Gray, op. cit.
in high school graduating class. There is some disagreement, but the majority of investigators find that the size of high school graduating class is not related to freshman year performance.

Summary

The authorities who have been reviewed relative to the relationship of high school grades and college achievement appear to be in agreement that high school grades serve as fair to good predictors of college achievement. Size of high school from which students graduate has also been considered for differences in college achievement. Although the studies are not consistent, it would appear that graduates of larger high schools perform at a higher academic level in the freshman year of college.

II. BEHAVIORAL GROUP COUNSELING

Behavioral counseling on the traditional counselor-client, one-to-one basis has been researched and studied for several years. Recently some investigators have been endeavoring to apply basic behavioral counseling techniques to


30 Ibid., p. 57.
Reinforcement

A basic psychological variable which this investigation utilizes as an experimental counseling technique is reinforcement which is defined by Skinner\(^{31}\) as, "...events which strengthen behavior." English and English\(^{32}\) list "the strengthening of something by adding to it" as the preferred, albeit general meaning. Travers states:

The law of reinforcement states that a reinforcer which follows a behavior increases the probability of the occurrence of that behavior...reinforcement is defined as a condition that increases the probability that the response reinforced will occur.\(^{33}\)

Krumboltz\(^{34}\) defines a reinforcer as "...any stimulus contingent on a response which results in an increased frequency of that response...."

Reinforcement procedures, primarily verbal, have


been systematically reviewed by Krasner,35 Salzinger,36 and Greenspoon.37 There exists ample evidence that the probability of making a verbal response can be changed through the introduction of various stimuli subsequent to the emitted response. Greenspoon38 has stated, "...most of the research has demonstrated the phenomenon of verbal conditioning." Such studies have demonstrated that what one person says and does can influence the verbal behavior of another in an orderly, predictable and lawful fashion.

Generalization or Transfer Problem

An early and rather typical experiment was that of Greenspoon39 where college sophomores were instructed to say words individually and not to use sentences, phrases or numbers. During the first twenty-five minutes, four contingent stimuli were introduced—a verbal stimulus ("mm-hmm" and


38Greenspoon, op. cit., p. 546.

39Ibid.
"huh-uh"), a visual stimulus (a five-watt red light flash), and an auditory stimulus (a 190-cycle tone). The two conditioned response classes were a plural noun and a response class comprised of all verbal responses except plural nouns. The effects of all contingent stimuli were significantly demonstrated: more plural nouns were emitted in the experimental group than in the control group. Lacking in this study is any evidence that the use of these contingent stimuli could alter subsequent behavior in an independent situation.

Krasner,40 in presenting the counselor and therapist as someone who operates with a process which is lawful, predictable and directive, and someone who has available to him a series of reinforcement techniques, acknowledges the therapist as one who manipulates and controls the therapy situation by his knowledge and use of learning techniques in a social reinforcement situation. However, such knowledge and use is relatively restricted by the general lack of experimental research which demonstrates the efficacy of verbal conditioning procedures to "life-outside".41


41Ibid., p. 40.
Greenspoon calls the matter of generalization of the response "a critical issue in evaluating any conditioning procedures." He believes that demonstration of generalization of verbal responses has not been very conclusive. One of the problems in considering generalization of effect is the question of degree. Greenspoon discusses experimental evidence of simple generalization tasks where the post situation involves identical or very similar tasks and conditions, while Krasner views it as a problem of demonstrating differential behavior changes on dissimilar, independent criteria.

The present study represents an experimental approach to show effects of treatment generalization or transfer on achievement in college grades.

One of the few studies done on the problem of generalization was approached by Ullmann, Krasner and Collins using neuropsychiatric patients who were receiving group therapy. During storytelling sessions, emotional words were reinforced and ratings were made by the group therapist.

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42 Greenspoon, op. cit., p. 531.
43 Ibid.
44 Krasner, op. cit.
before and after the independent experimental storytelling session. The personally reinforced patients who received "mm-hmm" and head nods during four sessions showed significant gains in adequacy of interpersonal relationships manifested in group therapy. The impersonally reinforced patients and the control patients showed no significant gains. The group therapist was unaware of which patients participated in the experiment and which ones served as control subjects. One of the problems of this study is failure to control for the positive effect of "personally" attending to individuals. Furthermore, the atypical nature of the population restricts the extent to which results may be considered.

The studies of Rogers and Williams are typical of many verbal conditioning studies in that both failed to demonstrate generalization or transfer effects although significant verbal conditioning results were obtained. Rogers used thirty-six undergraduate students enrolled in a Psychology 1 class at Stanford in what was termed a "quasi-therapy" setting. Significant increments in a verbal re-

\[\text{footnotes}
\begin{itemize}
\item[48] Rogers, op. cit.
\end{itemize}\]
spouse class labeled negative self-reference were found, while positive and ambiguous self-reference responses failed to increase significantly. No significant correlations were found between several post-test measures and the extent of verbal conditioning. Rogers concludes that his investigation demonstrated behavior change in the interview only and that perhaps Winder\textsuperscript{49} may be correct in stating that psychotherapy is a somewhat inefficient process of getting the client to talk differently and little else.

The study by Rogers\textsuperscript{50} is characteristic of several which have utilized somewhat ambiguous or overly simplified criteria. The present study has sought to demonstrate very specific, concrete generalization effects of treatment procedures administered during interviews to the behavior of subjects outside of the interview. It should be noted that, with the exception of Schroeder\textsuperscript{51} and Thoresen\textsuperscript{52}


\textsuperscript{50}Rogers, \textit{op. cit.}


few, if any, investigations have utilized this type of external criteria.

**Type of Reinforcing Stimuli**

Positive reinforcement is defined by Skinner\(^5\) as stimuli which, when presented, increases the frequency of an operant. An operant is an emitted response and represents behavior which occurs without any eliciting stimuli. Operants usually carry the implication that they operate on the environment and that the critical events are the environmental consequences of the behavior. A positive reinforcer then is a stimulus event which is associated with a preceding behavior whose probability of future occurrence is thereby increased.

In this investigation, verbal positive reinforcers\(^5\) were used to increase the frequency of the responses. Krasner\(^5\) and Salzinger\(^5\) provide substantial evidence that reinforcers, such as "mm-hmm," "ah-huh," "right," "fine," and "good," condition certain operants effectively. An early study by Verplanck\(^5\) also used "paraphrasing" and "repeti-

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5\(^3\) Skinner, *op. cit.*

5\(^4\) Krasner, *op. cit.*

5\(^5\) Salzinger, *op. cit.*

tion" of subject responses to good effect. Other general types of reinforcers are gestural, including head nodding, smiling, and forward body movement. While no attempt was made to systematically control nonverbal reinforcement in this investigation, it was recognized that gestural cues would be emitted along with positive verbal reinforcement. Indeed, the effectiveness in large part of any interpersonal relationships, such as doctor and patient or counselor and student, is due to the presence of one person listening, paying attention, and showing interest in another person. These generalized reinforcers consist of a complex of verbal and nonverbal cues which are essential in any naturalistic setting.

Social Reinforcers

At present no effective procedures appear to be available which provide substantial evidence about what types of social reinforcers are most effective with what types of individuals. A well-designed study by Cieutat\(^57\) utilized a four-way analysis-of-variance approach (similar to the design of this study) in determining the interactive effects of sex of experimenter, sex of subject, type of reinforcement

and replication. Groups of four subjects were reinforced for speaking by use of nonverbal cues: head nods, looking at the subject when he spoke, forward body posture and smiles. The results indicate that the same sex experimenter was more effective in increasing verbal behavior during the acquisition.

**Schedule of Reinforcement**

It was recognized that the reinforcement schedule to be used was a critical variable in this investigation. In any counseling or therapy situation, the timing of counselor behavior cues relative to client responses is of major import. How should the counselor time his reinforcing responses?

Ferster and Skinner⁵⁸ provide detailed evidence of the effectiveness of intermittent reinforcement schedules with infrahuman organisms. Krasner⁵⁹ cites several studies where intermittent schedules of a ratio and interval type have been successfully applied with verbal behavior.

Michael and Meyerson⁶⁰ distinguish between the ex-

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⁵⁹ Krasner, op. cit.
tremes of continuous reinforcement where every relevant response is reinforced and extinction where no responses receive reinforcement. These extremes are contrasted to intermittent reinforcement where responses are reinforced after a defined period of time (interval), after a defined number of responses (ratio) or both. They note, furthermore, that a variable interval schedule leads to the greatest persistence of responses in subsequent nonreinforced situations. Greenspoon⁶¹ concluded from his review of verbal conditioning research that the intermittent schedule produces the greatest resistance to extinction.

This investigation provided experimental subjects with positive verbal reinforcers for emitting responses that are positive, relative to their self-concept and to their potential college achievement. The counselor was required to make rather quick decisions about whether the response was within the relevant response class during the interview and, as a result, may have failed to reinforce all such responses.

The Small Group Variable

Wrenn⁶² has recently commented that, "...it seems

⁶¹Greenspoon, op. cit.
⁶²Wrenn, op. cit., p. 130.
clear that the counselor must accept responsibility for using wisely what might better be called 'planned group experiences.' He believes that small group experiences will provide "the opportunity for the student to learn from other students." Krasner identified the "extension of verbal conditioning techniques to group situations" as a needed direction for future investigation. Greenspoon states:

...this area of research in verbal conditioning may become one of the most important contributions to the understanding of the verbal behavior of the human because so much of his verbal behavior occurs in the presence of groups of people.

Individuals in a group possess the potential of functioning effectively as reinforcers of relevant responses as well as serving as influential social models.

Skinner commented on extending the analysis of individual behavior to understanding social phenomena. He postulated that the same principles probably operate in a group as with an individual influencing behavior. Tyler recently reviewed the research literature and concluded that

63 Krasner, op. cit., p. 42.
64 Greenspoon, op. cit., p. 546.
65 Skinner, op. cit., p. 289.
no research basis presently exists to justify individual (dyadic) counseling over small group counseling.

Summary

Literature has been reviewed in this section relating to reinforcement, generalization, type of reinforcing stimuli, social reinforcers, schedule of reinforcement, and the small group variable to group counseling. It would appear from the literature that behavioral group counseling is an established approach to therapy.

III. GROUP DYNAMICS AND GROUP VERBAL OPERANT CONDITIONING

To maximize the possible effectiveness of small groups, the relevant research literature, primarily from group dynamics and group verbal operant conditioning research, was reviewed.

Levin and Shapiro\(^6\) indicated that no broad program of research devoted to the study of operant conditioning in a group setting has yet been undertaken. While studies abound in verbal conditioning and in small group behavior, surprisingly few studies have combined both approaches.

Greenspoon\textsuperscript{68} reasons that one cause for this state of affairs is the increased complexity of variables operating in the group setting.

Despite the aforementioned paucity of reported studies dealing with group operant conditioning, some have been reported. McBrearty, Marston and Kanfer\textsuperscript{69} conducted two experiments using subjects from elementary psychology classes who were divided into four groups, two observation groups, and two participant groups. Both participant groups were verbally conditioned for human responses by use of "good." Besides demonstrating verbal conditioning for an operant in a group setting, this investigation is noteworthy because neither set of groups proved significantly different in conditioning for the operant although the observation groups did not directly receive verbal reinforcement. It is not clear, however, that a collection of psychology students gathered together on one occasion constitutes a group.

Bachrach, Candland and Gibson\textsuperscript{70} discussed group rein-

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\textsuperscript{68}Greenspoon, \textit{op. cit.}


forcement of an individual response. After commenting that reinforcement will be differential for group members and on the value of using a natural setting or "representative design" to study such behavior, they present data on three-person groups where two of the persons were experimenters and only one was an actual subject. Noteworthy to the present investigation is their recognition of procedural difficulties in any design which seeks to experimentally investigate group reinforcement variables in a natural setting using a human as the programmer:

A new apparatus, whether human, electrical, or mechanical, always has 'bugs' in the system, and some time must be spent in the elimination of those features which are sources of variation in the data. When the apparatus is a human experimenter, the task of correcting the apparatus so that it follows its assigned program faithfully is impossible.\(^{71}\)

Richard\(^{72}\) states that "the group situation offers some reinforcement value." He points out that often an individual as a result of group membership acquires reinforcing properties not otherwise possessed. In his study he demonstrated significant operant conditioning for personal reference responses. Again no generalization of condition-

\(^{71}\)ibid., p. 268.

ing effect was demonstrated. Although the studies are few in number, the phenomenon of verbal operant conditioning in a group setting has been experimentally established. A basic problem with most of the above investigations is that subjects were randomly collected for a particular experiment and labeled a group. No general agreement presently exists as to what constitutes a group as differentiated from a collection of individuals.

A small group is defined as any number of persons engaged in interaction with each other in single face-to-face meetings or series of meetings... in which each member receives some impressions or perceptions of each other even if only to recall that the other person was present.73

Since the size of the group has at least potential implications for effecting behavioral changes in group members, it was considered here. Again, it seems that the problem of size is specifically relevant to the specific outcome criterion involved. In "conjunctive task" requirements, where all members must successfully participate to achieve, where perfect correspondence of outcomes prevails, minimum size is vital.74 The larger the group, the less


probable is the achieving of the coordination required of perfect correspondence.\textsuperscript{75}

Hare\textsuperscript{76} conducted an exhaustive review of small group research. He concludes that small groups of about five in size appear optimal, although four or six are only somewhat less optimal because of the possible even split on controversial issues. This investigation employed small groups of eight, the total population evenly divided for sex, which permitted treating sex as an experimental, main effect variable.

Summary

The literature relative to group dynamics and group operant conditioning has been reviewed. This review has indicated that a broad program of research devoted to the study of operant conditioning in a group setting has yet to be undertaken. Studies abound in verbal conditioning and in small group behavior; however, few studies have combined both approaches. Although the studies are few in number, the phenomenon of verbal operant conditioning in a group setting has been experimentally established.

\textsuperscript{75}ibid., p. 201.

IV. THE ADJUSTMENT OF THE SELF-CONCEPT THROUGH SMALL GROUP BEHAVIORAL COUNSELING

There appears to be a paucity of literature available relative to this area of adjusting the self-concept through small group behavioral counseling. However, the literature indicates that a great deal of interest is being directed toward the study of the changes that take place in behavior through adjusting the individual's self-concept.

Theorists Lundholm, Snygg and Combs, Rogers, and Sarbin have viewed the self-concept as central to man's behavior. The self-concept formulation has been applied with increasing frequency to educational theory and practice. To what extent does a child's conception of himself affect his adjustment to school, or vice versa?


Experimenters Coopersmith and Fink have obtained positive relationships between the self-concept and academic achievement. Bruck and Bodwin, and Walsh have postulated that deficiency in self-esteem may be a significant determinant of underachievement.

The following statement reviews three studies regarding self-esteem or self-concept.

A crucial inquiry facing educators is why some students are positively oriented toward academic pursuits while others of ostensibly comparable ability and background are negatively inclined. Differences in academic motivation may partially be attributed to differences in self-concept. Levy (1956) had demonstrated that an individual may view his town, church, school, etc., in much the same light in which he perceives himself. Therefore, a child's conception of school might fundamentally be an extension of his self-concept.

What relationship exists between an individual's self-appraisal and others' evaluation of him? Brockett and his six colleagues (1966), reasoning from the

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symbolic-interactionist theory of Mead (1934), attempted to relate evaluation of significant others (parents, experts, and counselors) to self-perception of ability and school achievement. They found that positive communication from parents relative to a child's ability led to a significant increment in both self-perception of ability and grade-point average.

Although research has indicated a positive relationship between self-concept and school achievement, the relationship between self-concept and intellectual ability appears considerably more tenuous.86

Ludwig and Maehr conclude that theories differ in their postulates and corollaries relative to the self-concept. However, they conclude that the self is a product of social reaction and that the concept of self has a predictable effect on behavior.

A cursory survey of the research literature dealing with the self-concept is sufficient to force one to conclude that self theories differ in their postulates and corollaries to an alarming extent. However, amid this diversity, there seem to be two assumptions that are basic to all current theories of self. One assumption is that the concept of self is a product of social reaction. More specifically, in line with the earlier theorizing of Mead (1934) and Sullivan (1953), it is generally assumed that development and change in the concept of self are direct functions of the response of significant others. The second major assumption is that the concept of self has a predictable effect on behavior generally. In some theories, such as those of Rogers (1951, 1959) and Combs and Snigg (1959), the concept of self is the primary motivational construct. Most, if not all, theories suggest that an individual's concept of self is directly related to certain behavioral consequences.

The first assumption, at least in its general outline,

86Williams, op. cit., pp. 478-479.
has substantial empirical support. Aside from countless correlational studies, there is increasing experimental evidence that provides a more trustworthy basis for this first assumption. A series of studies initiated by Videbeck (1960) and continued by Maehr, Mensing, and Nafzger (1962) and Haas and Maehr (1965) has rather thoroughly demonstrated that the concept of self does vary predictably with the reaction of significant others. Similarly, studies testing various aspects of dissonance theory (e.g., Bergin, 1962), interpersonal congruency theory (e.g., Backman, Secord, and Pierce, 1963; Secord, Backman, and Eachus, 1964), and general social interaction theory (e.g., Gergen, 1965) provide evidence which may be interpreted as supportive of this general assumption. It must be added, however, that although these studies essentially confirm the general proposition that the concept of self is subject to change in response to the reaction of significant others, many important questions remain unanswered, and new ones have subsequently arisen.

The evidence for the second assumption has typically been more anecdotal than experimental. For example, in several of the studies reviewed by Wylie (1961) measures of self-regard were structured as the independent variable and, in turn, related to a selected measure of another type of behavior. Almost without exception, however, these studies failed to define unambiguously antecedents and consequents. Few studies are available which demonstrate clearly that the concept of self or a cognate variable is the antecedent and that a presumed outcome is indeed the consequent.

The literature, both past and present, gives great importance to the power of the individual's self-concept. In the present study, the researcher discovered a paucity, if not a complete lack, of reported data dealing directly with changing the self-concept through behavioral group

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counseling.

Summary

The literature relative to the adjustment of the self-concept through small group behavioral counseling has been reviewed. The researcher has concluded that a paucity of literature is available relative to the area of adjusting the self-concept through small group behavioral counseling. The experts reviewed give great importance to the power of the individual's self-concept. The literature indicates interest is being directed toward the study of the changes that take place in behavior through adjusting the self-concept.

V. SUMMARY

The researcher has concluded, after reviewing the literature, that: (1) size of high school and grades received serve as fair to good predictors of college grades, (2) behavioral group counseling is an established approach to therapy; however, studies concerning the changing or manipulating of self-concepts through behavioral group counseling are almost nonexistent, (3) the individual's self-concept is a strong motivating force in his personality and behavior, (4) studies need to be considered where changing the individual's self-concept through behavioral group
counseling for academic motivation (achievement) is the goal, and (5) such studies will contribute valuable data for educational counseling.

The literature and research which were pertinently related to this investigation have been reviewed in Chapter II. This review was undertaken in four specific areas:

1. Size of high school and grades received as a predictor of college grades.
2. Behavioral group counseling.
3. Group dynamics and group operant conditioning.
4. The research relative to the adjustment of the self-concept through small group behavioral counseling sessions.

The research design and the procedure which were used in the present study will be presented in Chapter III.
CHAPTER III

DESCRIPTION OF THE DESIGN AND PROCEDURE OF THE STUDY

In order to collect data concerning freshmen students entering Bethany Bible College with low high school grade point averages, the research design was developed and proceeded as described in this chapter.

I. RESEARCH DESIGN

The investigator, with the assistance of Gerald Nelson, Assistant Professor of Educational Research and Statistics at the University of the Pacific, first designed the research procedure and selected the statistical method to be used. The research design was devised to assess the effect of behavioral group counseling on a randomly selected portion of the 1968 freshman class at Bethany Bible College.

An analysis of variance three-way design* was selected since this type of design allowed three independent variables to be considered in relation to the dependent variable. In this study the dependent variable was the first semester grade point average received by the subjects.

*Table #1, located in Chapter I, presents a graphic consideration of the analysis of variance design used in this research study.
involved in the study. These subjects were all enrolled in their first semester of college work at Bethany Bible College.

Fred N. Kerlinger states that the analysis of variance three-way design is a very valid approach in behavioral research. Kerlinger comments:

One of the most significant and revolutionary developments in modern research design and statistics is the planning and analysis of the simultaneous operation and interaction of two or more variables. Scientists have long known that variables do not affect independently. Rather, they often act in concert.

The independent variables considered in this study include: (1) behavioral group counseling or lack of behavioral group counseling, (2) sex, and (3) size of high school from which the student graduated.

II. PROCEDURE

The investigator divided the freshman class of 1968 at Bethany Bible College into two categories: (1) those with high school grade point averages above 2.5 (based on a 4 point scale), and (2) those with high school grade point averages below 2.5.

The selection of a 2.5 grade point average as the

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break between the two groups was decided upon after the researcher reviewed the academic achievements of five entering freshman classes at Bethany Bible College. The five freshman classes were from the fall of 1963 through the fall of 1967.* A total of 990 freshmen were reviewed in two areas: (1) their high school grade point average, and (2) their grade point average at the end of their first semester at Bethany Bible College. From this review a trend became apparent. Students entering Bethany Bible College with a high school grade point average of 2.5 or below had a high rate of academic difficulty as compared with those students entering with high school grade point averages above 2.5. From 1963 through 1967, 46% (461 of 990) of those students entering Bethany Bible College as freshmen had high school grade point averages of 2.5 or below.

Description of Research Groups

The entering freshmen at Bethany Bible College during the fall semester of 1968 with high school grade point averages of 2.5 or below were randomly placed into four groups. For the study, these four groups each contained twenty-four subjects. None of the subjects in the study

*Table #2, located in Chapter I, presents a profile of the entering classes at Bethany Bible College for the years 1963 through 1967.
were informed that they were part of a research project.

The four groups were treated in the following manner:

**Group #1.** This group was divided into three subgroups of eight subjects per group. The researcher met each subgroup for one hour of counseling per week for eleven continuous weeks. During these sessions, every verbalized comment by a member of the group that was positive in regard to his own self-concept was immediately positively reinforced by the researcher with a positive verbal comment such as, "very good" or "excellent." These three subgroups were reinforced on a continuous schedule.

**Group #2.** This group was divided and treated in the same manner as Group #1 described above, except for one difference, that being a change in the schedule of positive reinforcement. Group #1 received reinforcement on a continuous schedule. Group #2 received partial reinforcement. Therefore, not every verbalized response by a member of the group that was positive regarding his self-concept was positively reinforced. The researcher positively reinforced approximately one in every two positive statements given by a member of this group.

**Group #3.** This group contained twenty-four subjects who met once a week with the researcher to talk and have coffee. A direction was not given by the researcher regarding the things to be talked about in the sessions. Each session was open to any thought the subjects wanted to discuss. Reinforcement was not consciously given to the subjects by the researcher.

**Group #4.** This group contained twenty-four subjects that never met as a group with the researcher. These subjects were randomly placed in this group.

**Description of Activity in Group Meetings**

The subgroups of Groups #1 and #2 met with the investigator for eleven one-hour sessions. These sessions were held once a week over an eleven-week period. Attendance at
the subgroup meetings was required as the groups were considered to be an extension of the Freshman Orientation class which is mandatory for all freshmen.

For the subgroups meetings the faculty lounge was used, and coffee was available. The eight members of each subgroup sat around a large table with the researcher at the head of the table. At the first meeting of the subgroups, the subjects were told that the meetings would be casual and they were free to drink coffee and relax. The subjects were instructed to talk freely about any area of academic life or student life that they felt presented a problem. Each session was opened by the researcher with a statement such as, "Well, how are things today?" or "Anybody having a problem?" The subjects were encouraged to talk, and the positive reinforcement comments by the instructor followed when appropriate.

Group #3 contained twenty-four subjects who met once a week as a group with the researcher. These sessions were very informal, and the conversation was not necessarily opened by comments from the researcher. Attendance was required as this group was also considered to be an extension of the Freshman Orientation class.

Group #4 contained twenty-four subjects who never met as a group with the researcher. These subjects never re-
ceived knowledge that they were part of a group or a research study.

III. METHOD USED IN GATHERING AND COMPUTING THE DATA RELATIVE TO THE DEPENDENT VARIABLE

At Bethany Bible College the method used for evaluating a student regarding his academic progress is based upon his accumulative grade point average. Therefore, this investigation used the semester grade point averages of the subjects involved as the dependent variable of the study.

The semester grade point averages of the subjects involved in the research study were calculated. These grade point averages were placed in the appropriate cells of the analysis of variance research design. These data were then punched onto International Business Machines cards. Each student in the study was represented by one International Business Machines card which carried information concerning: (1) identification number of subject, (2) sex, (3) size of high school graduated from, (4) research group of which subject was a part, and (5) fall semester grade point average. These punched International Business Machines cards were fed into the computer located on the Davis campus of the University of California. This computer had been programmed to receive the analysis of variance three-way
design. Thus the data upon which the research study was based were collected and computed.

IV. TREATMENT OF COMPUTED DATA

The computed data were treated in accord with the analysis of variance research design. In this type of design, two or more independent variables may vary independently or interact with each other to produce variation in the dependent variable.²

Factorial analysis of variance is the statistical method that analyzes the independent and interactive effects of two or more independent variables on a dependent variable.³

It was the purpose of this study to consider the effects of behavioral group counseling on freshmen who enter Bethany Bible College with low grade point averages. The data were collected and treated in three areas (independent variables): (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The interaction of the three mentioned independent variables was also considered.

The data were gathered through the implementation of the analysis of variance three-way research design. The

²Ibid.
³Ibid.
data were then analyzed to:

1. Discover if behavioral group counseling had an effect upon the academic achievement of randomly selected freshmen.

2. Measure the possible academic differences between males and females involved in the study.

3. Assess the possible academic differences of students who attended small, medium, and large high schools.

The data were also analyzed considering the interaction effects of the independent variables to:

1. Discover if academic achievement significantly differed between males and females who were exposed to behavioral group counseling.

2. Assess if academic achievement significantly differed between graduates of small, medium, and large high schools who were exposed to behavioral group counseling.

3. Measure the possible academic differences of males and females who attended small, medium, and large high schools.

4. Treat the triple interactions of behavioral counseling by sex and by high school size for an effect upon academic achievement.

The data were also analyzed considering the freshmen involved in this study with similar freshmen at Bethany Bible College for the years 1963-1967 to:

1. Discover if those subjects involved in this study differed significantly in academic achievement with similar freshmen during the years 1963-1967.

2. Assess if those subjects involved in this study who were exposed to behavioral group counseling differed significantly in academic achievement with similar freshmen during the years 1963-1967.
3. To measure the possible academic differences of those subjects involved in this study who were not exposed to behavioral group counseling with similar freshmen during the years 1963-1967.

Data were also analyzed with a chi square statistical approach to:

1. Discover if students exposed to the behavioral group counseling achieved a minimum 1.75 grade point average at a higher rate than the noncounseled students.

2. Measure any difference that might appear between subjects in this study who were exposed to counseling and similar subjects who were freshmen during 1963 through 1967.

The profile on the freshmen used for comparison with this study can be found in Chapter I.

V. SUMMARY

Chapter III has discussed the design of the study and presented the procedures used. It has noted the sources from which the data were gathered and the method used in collecting them. The manner of treating and analyzing the collected data has also been outlined. Chapter IV will discuss the analysis and findings of the collected data.
CHAPTER IV

PRESENTATION OF THE COLLECTED DATA AS REVEALED BY THE INVESTIGATION

It was the purpose of this study to consider the effects of behavioral group counseling on freshmen who enter Bethany Bible College with low high school grade point averages. The data were collected and considered in three areas: (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The data were examined through the implementation of the analysis of variance three-way research design to:

1. Discover if behavioral group counseling had an effect upon the academic achievement of randomly selected freshmen.
2. Measure the possible academic differences between males and females involved in the study.
3. Assess the possible academic differences of students who attended small, medium, and large high schools.

The data were also analyzed considering the interaction effects of the independent variables to:

1. Discover if academic achievement significantly differed between males and females who were exposed to behavioral group counseling.
2. Assess if academic achievement significantly differed between males and females who were exposed to behavioral group counseling.
3. Measure the possible academic differences of males
and females who attended small, medium, and large high schools.

4. Treat the triple interactions of behavioral group counseling by sex and by high school size for an effect upon academic achievement.

The data were also analyzed considering the freshmen involved in this study with similar freshmen at Bethany Bible College for the successive years 1963 through 1967 to:

1. Discover if those subjects involved in this study differed significantly in academic achievement with similar freshmen during the years 1963 through 1967.

2. Assess if those subjects involved in this study who were exposed to behavioral group counseling differed significantly in academic achievement with similar freshmen during the years 1963 through 1967.

3. To measure the possible academic differences of those subjects involved in this study who were not exposed to behavioral group counseling with similar freshmen during the years 1963 through 1967.

Data were also analyzed with a chi square statistical approach to:

1. Discover if students exposed to the behavioral group counseling achieved a minimum 1.75 grade point average at a higher rate than the noncounseled students.

2. Measure any difference that might appear between subjects in this study who were exposed to group counseling and similar subjects who were freshmen during 1963 through 1967.

In order to make an analysis of the data, the investigator first treated the findings as described in Chapter III. From his findings and the assistance of the Inter-
national Business Machines computer located on the Davis campus of the University of California, he prepared a number of tables which have been included in this chapter. The tables are analyzed and explained in the following pages.

The dependent variable in this research study was the grade point average received at the end of the first semester of the freshman year by the subjects involved in the investigation. Therefore, in the discussion that follows the means of the cells and other parts of the design will be given as grade point averages. These grade point averages are based on a 4 point scale.

I. ANALYSIS OF VARIANCE PRESENTATION

The analysis of variance three-way design was selected since this type of design allowed the three independent variables to be considered simultaneously in relation to the dependent variable. Kerlinger\(^1\) states that differences in phenomena should be studied. The analysis of variance design used in this study allowed the investigator to plan and analyze the simultaneous operation and interaction of the independent variables and discover if the variances

were statistically significant.

Analysis of Table III: Analysis of Variance Table

Table III was completed as a printout by the International Business Machines computer. The variables are listed as follows:

1. "I" Variable - Groups #1 through #4
2. "J" Variable - Male-Female
3. "K" Variable - Size of High School

Variance in the "I" variable did not prove to be significant. The "I" variable represented the mean grade point averages of those students who were randomly assigned to Group #1 which received behavioral counseling with continuous reinforcement, Group #2 which received behavioral counseling with partial reinforcement, Group #3 which met once a week with the researcher, and Group #4 which never met with the researcher.

Variance in the "J" variable did not prove to be significant. The "J" variable represented the mean grade point averages of forty-eight males versus forty-eight females who were part of the study.

Variance in the "K" variable did prove to be significant at the P .05 level. This variable represented grade point averages of the students from various size high schools. The sizes of high schools were considered as small (below
### Analysis of Variance Table

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>SS</th>
<th>Mean Sq.</th>
<th>$F$ Test</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Variable</td>
<td>3</td>
<td>1.8324</td>
<td>0.6108</td>
<td>1.35</td>
<td>N.S.</td>
</tr>
<tr>
<td>J Variable</td>
<td>1</td>
<td>0.0187</td>
<td>0.0187</td>
<td>0.0413</td>
<td>N.S.</td>
</tr>
<tr>
<td>K Variable</td>
<td>2</td>
<td>3.0447</td>
<td>1.5223</td>
<td>3.365</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>I x J</td>
<td>3</td>
<td>0.6182</td>
<td>0.2261</td>
<td>0.499</td>
<td>N.S.</td>
</tr>
<tr>
<td>I x K</td>
<td>6</td>
<td>5.4228</td>
<td>0.9048</td>
<td>1.99</td>
<td>N.S.</td>
</tr>
<tr>
<td>J x K</td>
<td>2</td>
<td>0.9311</td>
<td>0.4656</td>
<td>0.91</td>
<td>N.S.</td>
</tr>
<tr>
<td>I x J x K</td>
<td>6</td>
<td>5.1328</td>
<td>0.8555</td>
<td>1.89</td>
<td>N.S.</td>
</tr>
<tr>
<td>Within</td>
<td>72</td>
<td>32.5679</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>49.3288</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- **I Variable** - Groups 1-4
- **J Variable** - Male/Female
- **K Variable** - Size of High School
- **DF** - Degrees of Freedom
- **SS** - Sum of Squares
- **Mean Sq.** - Mean Squares
- **F Test** - Test for Significance of Variance
- **N.S.** - Not Significant
- **<** - Significant at .01 or .05 Level

**Table II**
800), medium (800-1,200), and large (1,200+).

With the application of Duncan's Multiple-Range Test, the researcher was able to determine which specific means of the "K" variable differed significantly. The difference between the mean of the small high school subjects (1.64) and the mean of subjects from medium size high schools (2.07) was significant at the .05 level. In comparing the other combinations of the means in the "K" variable, none of the comparisons proved to be significant at the .05 or .10 level.

The interaction of variable "I" and variable "J" did not produce a variance statistically significant. Therefore, the academic achievement of males and females did not differ significantly in the four groups.

Variables "J" and "K" did not have a significant variance in their interaction. Thus, in comparing high school size for male-female achievement, the interaction was not significant enough to indicate sex difference.

The triple interaction of "I", "J", and "K" variables of Groups #1-#4, sex and size of high school, did not produce a significant variance. Therefore, each of these three independent variables did not have a significant effect or

interaction on the other variables.

II. MEANS OF INDEPENDENT VARIABLES

The analysis of variance design allowed the differences among phenomena to be studied. Data produced by such a design also gave information relative to the means of the independent variables.

Analysis of Table IV: Group Means

The population of ninety-six was randomly divided into four groups of twenty-four subjects per group. These groups were treated as described in Chapter III of this study.

Group #1 received behavioral group counseling with continuous reinforcement. The mean grade point average of 2.02 was the highest of the four groups.

Group #2 received behavioral group counseling with partial reinforcement. The mean grade point average was 1.73.

Group #3 met with the researcher on a weekly schedule. This group was not divided into subgroups and did not receive intentional counseling. The mean grade point average for the group was 1.92.

Group #4 never met with the researcher. The mean grade point average of 1.68 was the lowest of the four groups. It would appear that the researcher just meeting
<table>
<thead>
<tr>
<th>GROUP #1</th>
<th>GROUP #2</th>
<th>GROUP #3</th>
<th>GROUP #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.02</td>
<td>1.73</td>
<td>1.92</td>
<td>1.68</td>
</tr>
</tbody>
</table>

TOTAL N = 96 SUBJECTS
GROUP #1 = 24 SUBJECTS
GROUP #2 = 24 SUBJECTS
GROUP #3 = 24 SUBJECTS
GROUP #4 = 24 SUBJECTS

GRAND MEAN 1.835

TABLE IV
with the first three groups affected their grade point means.

Analysis of Table V: Male-Female Means

This table presents the male mean of 1.85 and the female mean of 1.82. These means represent all forty-eight males and forty-eight females involved in the study. A difference of .03 separated the means with a grand mean of 1.835.

Analysis of Table VI: Size of High School Means

Table VI presents a breakdown of the academic performance of subjects from various size high schools. Each size of high school was represented with thirty-two subjects.

The small high school subjects achieved the lowest mean score of 1.64. Although there are differing opinions presented in the literature, this lower mean score appears to be consistent with most previous studies.

The subjects from medium size high schools received the highest grade point average of 2.07.

A grade point average of 1.79 achieved by the subjects from large high schools placed them just about halfway between the two other means. It is interesting to note that the total spread from low to high mean was only .43. This represents less than one-half of a grade point.
**MALE - FEMALE MEANS**

<table>
<thead>
<tr>
<th>MALE</th>
<th>FEMALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.85</td>
<td>1.82</td>
</tr>
</tbody>
</table>

**TOTAL N = 96 SUBJECTS**
- MALE = 48 SUBJECTS
- FEMALE = 48 SUBJECTS

**GRAND MEAN 1.835**

*Table V*
SIZE OF HIGH SCHOOL GRADUATED FROM MEANS

<table>
<thead>
<tr>
<th>SMALL - 800 AND BELOW</th>
<th>MEDIUM - 800-1200</th>
<th>LARGE - 1200 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.64</td>
<td>2.07</td>
<td>1.79</td>
</tr>
</tbody>
</table>

GRAND MEAN 1.835

TABLE VI
Analysis of Table VII: Male-Female Means for Groups #1-#4

This table presents the achievement of males and females in each of the four treatment groups. The total spread from high mean to low mean for all of the groups is only .49 which is not statistically significant. However, with a grade point average of 1.75 as the cutoff for remaining in school, the spread from 1.53 to 2.02 has importance.

In Group #1 the sexes performed at the same level of 2.02. This mean was the highest of the four groups.

Group #2 presented a spread between male and female achievement of .17. This difference is rather small, with the females receiving the higher mean.

Group #3 male and females performed within .01 of each other. With means of 1.91 for the males and 1.92 for the females, the difference is negligible.

In Group #4 the difference between the means was the greatest of all four groups. With a spread of .29, the males were high with 1.82 and the females low with 1.53.

Analysis of Table VIII: Size of High School and Group Means

Each of the four treatment groups contained twenty-four subjects who were evenly divided from small, medium, and large high schools. A mean spread of 1.09 is presented with subjects from medium and large high schools performing at the highest levels.
## Male - Female Group Means

<table>
<thead>
<tr>
<th>Group #1</th>
<th>Group #2</th>
<th>Group #3</th>
<th>Group #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALE</td>
<td>2.02</td>
<td>1.64</td>
<td>1.91</td>
</tr>
<tr>
<td>FEMALE</td>
<td>2.02</td>
<td>1.81</td>
<td>1.92</td>
</tr>
</tbody>
</table>

Each group contained 24 subjects - 12 male - 12 female

*Table IV*
SIZE OF HIGH SCHOOL GRADUATED FROM GROUP MEANS

<table>
<thead>
<tr>
<th></th>
<th>GROUP # 1</th>
<th>GROUP # 2</th>
<th>GROUP # 3</th>
<th>GROUP # 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALL 800 &amp; BELOW</td>
<td>1.94</td>
<td>1.71</td>
<td>1.20</td>
<td>1.71</td>
</tr>
<tr>
<td>MEDIUM 800 - 1200</td>
<td>2.08</td>
<td>1.94</td>
<td>2.29</td>
<td>1.97</td>
</tr>
<tr>
<td>LARGE 1200 +</td>
<td>2.03</td>
<td>1.52</td>
<td>2.26</td>
<td>1.35</td>
</tr>
</tbody>
</table>

Each group contained 24 subjects
8 from small high schools
8 from medium high schools
8 from large high schools

TABLE VIII
In Group #1 only .09 separates the high and low means. This difference is not large enough to be statistically or professionally significant.

Group #2 presents a variance of .42, with the subjects from the large high schools performing at the lowest level. This low mean from the large high school group is opposite the trend that is apparent in all of the groups.

In assessing Group #3, it is apparent that the largest mean spread between small, medium, and large high schools is present, with subjects from the small high schools receiving a mean of 1.20 and subjects from the medium size high schools receiving a mean of 2.29. This amounts to a spread of 1.29 which is statistically significant within the three scores.

Group #4 appears to be similar to Group #2. The subjects from the large high schools received the lowest mean while those from the small and medium schools performed in a range that is fairly close to the other scores.

Analysis of Table IX: Size of High School and Sex Means

This table presents the findings relative to the forty-eight male and forty-eight female subjects who were randomly divided into small, medium, and large high schools. In each size high school there were sixteen males and sixteen females. Considering all three school sizes, the fe-
MALE - FEMALE SIZE OF HIGH SCHOOL GRADUATED FROM MEANS

<table>
<thead>
<tr>
<th></th>
<th>SMALL 800 &amp; BELOW</th>
<th>MEDIUM 800 - 1200</th>
<th>LARGE 1200 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALE</td>
<td>1.52</td>
<td>2.16</td>
<td>1.86</td>
</tr>
<tr>
<td>FEMALE</td>
<td>1.76</td>
<td>1.98</td>
<td>1.72</td>
</tr>
</tbody>
</table>

48 MALE SUBJECTS - 48 FEMALE SUBJECTS

32 SUBJECTS FROM SMALL HIGH SCHOOLS
32 SUBJECTS FROM MEDIUM HIGH SCHOOLS
32 SUBJECTS FROM LARGE HIGH SCHOOLS

TABLE IX
males had a mean average of 1.80 and the males 1.84. This variance is not significant.

From the table it is apparent that the overall scores from the medium and large high schools were the highest. Although the females from the small high schools scored somewhat higher than the males, the trend is rather consistent.

Analysis of Table X: Cell Means

This table presents the means of the twenty-four cells of the design. Table I, located in Chapter I of this study, presents the design in three dimensions and may be helpful in analyzing this table.

A variance of 1.57 can be observed from the highest to the lowest mean. The grand mean of the entire design was 1.835.

As previously stated in this chapter, the only variance that is statistically significant is the mean grade point average for those subjects from different size high schools. However, the other variances may be professionally significant to administrators at Bethany Bible College and will be discussed in Chapter V.

III. COMPARISON WITH FRESHMEN FROM 1963 THROUGH 1967

In Chapters I and II of this report, the freshmen
### Cell Means

<table>
<thead>
<tr>
<th>Group</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>2.06</td>
<td>1.81</td>
</tr>
<tr>
<td>#2</td>
<td>1.11</td>
<td>2.31</td>
</tr>
<tr>
<td>#3</td>
<td>0.91</td>
<td>1.49</td>
</tr>
<tr>
<td>#4</td>
<td>2.01</td>
<td>1.42</td>
</tr>
</tbody>
</table>

- **Small High Schools** 800 & Below
- **Medium High Schools** 800 - 1200
- **Large High Schools** 1200 +

Each cell contained 4 subjects
Total N = 96 subjects
Grand mean 1.835

**Table X**
that entered Bethany Bible College in the successive years 1963 through 1967 are described. It is the purpose of this part of the report to compare the subjects involved in this study with the previous freshmen.

During the successive years of 1963 through 1967, a total of 990 freshmen entered the college. Of this total, 461 or 46% entered with high school grade point averages of 2.5 or below. Only 39% or 184 of the 461 achieved the minimum grade point average of 1.75 necessary to stay enrolled in the college.

Analysis of Table XI: Comparison of Groups #1, #2, #3 and #4 with Freshmen 1963 Through 1967

Table XI presents a breakdown of the percentage of the subjects in each group who achieved a grade point average of 1.75 or above. The table also compares this study as a whole with the years 1963 through 1967.

Groups #1 and #2 received behavioral group counseling on a continuous and partial reinforcement schedule respectively. In Group #1, 70% achieved 1.75 or above while 58.3% of Group #2 achieved 1.75 or above for an average between the two groups of 64.58%. When this achievement by 64.58% of the two groups is compared with the 39% achievement of similar freshmen for the successive years 1963 through 1967, the data appear to be significant. The in-
Comparation of groups #1, #2, #3, and #4, with similar freshmen who entered Bethany in the years 1963-1967

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>70%</td>
</tr>
<tr>
<td>#2</td>
<td>58.3%</td>
</tr>
<tr>
<td>#3</td>
<td>50%</td>
</tr>
<tr>
<td>#4</td>
<td>33%</td>
</tr>
<tr>
<td>Groups #1 &amp; #2</td>
<td>68.5%</td>
</tr>
<tr>
<td>Groups #3 &amp; #4</td>
<td>53.3%</td>
</tr>
<tr>
<td>Total of #1, #2, #3, #4</td>
<td>39%</td>
</tr>
</tbody>
</table>

| Freshmen 1965-1967 with H.S. GPA of 2.5 or below who achieved 1.75 or above at B.B.C. | N = 46 |
| 184 at 1.75 or above |

Table XI
crease for Groups #1 and #2 is 64.48% above the 39% of similar previous freshmen (1963-1967) who scored at 1.75 or above.

In Group #3, 50% of the subjects achieved at 1.75 or above. This is a 28% increase over the 39% of the previous freshmen.

Group #4 registered 33% of the subjects at 1.75 or above. This is a 15% drop from the 39% of the previous freshmen.

It appears from the data presented on Table XI that Groups #1, #2 and #3 which received personal attention from the investigator improved their grade point averages significantly above the similar freshmen from 1963 through 1967. Group #4 that did not receive personal contact from the investigator performed fairly close to what previous groups of freshmen had been doing.

Analysis of Table XII: Present Study Compared with Successful Years 1963 Through 1967

This table presents a breakdown of the years 1963, 1964, 1965, 1966, and 1967 as they compare with the groups involved in this study. The table also presents a comparison year by year with Groups #1 and #2 and Group #4.

The table shows that subjects in Groups #1 and #2 of this study who received behavioral counseling achieved con-
PRESENT STUDY COMPARED YEAR BY YEAR FOR YEARS 1963 - 1967

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
<th>Group Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present Study</td>
<td>63.3%</td>
<td>N=96, 51 at 175 or above</td>
</tr>
<tr>
<td>Groups 1 &amp; 2</td>
<td>64.5%</td>
<td>N=48, 31 at 175 or above</td>
</tr>
<tr>
<td>Group 4</td>
<td>33%</td>
<td>N=24, 9 at 175 or above</td>
</tr>
<tr>
<td>'63-'64</td>
<td>39%</td>
<td>N=63, 25 at 175 or above</td>
</tr>
<tr>
<td>'64-'65</td>
<td>41%</td>
<td>N=95, 39 at 175 or above</td>
</tr>
<tr>
<td>'65-'66</td>
<td>38%</td>
<td>N=93, 39 at 175 or above</td>
</tr>
<tr>
<td>'66-'67</td>
<td>38%</td>
<td>N=101, 39 at 175 or above</td>
</tr>
<tr>
<td>'67-'68</td>
<td>40%</td>
<td>N=107, 44 at 175 or above</td>
</tr>
</tbody>
</table>

**Table XII**
siderably above any of the previous five years of similar freshmen. It appears that the previous freshmen were rather consistent in the percentage who achieved the minimum grade point average. Group #4 which never was seen by the researcher as a group appears to have achieved at about the same level as the previous freshmen.

The data received from this research appear to be statistically significant in only one area of the analysis of variance design. However, when the data from the present study are compared with data from previous freshmen, the data appear to have professional significance.

IV. CHI SQUARE ANALYSIS

Chi square ($X^2$) is a statistical approach that can be used to "deal with data expressed in frequencies or categories such as passed or failed, yes or no, above average, or below average, and other similar categories." In the present study, the investigator wished to consider whether the subjects exposed to behavioral group counseling differ significantly in academic achievement from subjects that did not receive counseling. The comparisons that follow all had $X^2$'s that were significant at the .05 level. This

---

would seem to indicate that the subjects involved in the group counseling achieved at a higher rate than the non-counseled subjects.

In comparing counseled Group #1 with noncounseled Group #4, the $X^2 = 5.43$ which is significant at the .05 level.

Group #1 (continuous reinforcement) and Group #2 (partial reinforcement) were compared with noncounseled Group #4. The $X^2 = 5.095$ which is significant at the .05 level.

Group #1 of the present study was compared with similar freshmen for the successive years 1963 through 1967. The $X^2 = 4.11$ which is significant at the .05 level.

Groups #1 and #2 were also compared with similar freshmen for the years 1963-1967. The $X^2 = 4.11$ which is significant at the .05 level.

The analysis of variance research design did not produce data that indicated a significance in the interaction or variance of Group #1 through Group #4. With the $X^2$ method of analysis, two categories were established. These categories were: (1) achieved at grade point average of 1.75 or above, and (2) did not achieve the minimum grade point average. The $X^2$ data seem to indicate that there was a significant positive difference in the number of achievers
who were part of the counseled groups as compared with subjects who were not counseled. Also, a significant positive difference appeared between those who received counseling in this study and previous noncounseled freshmen.

V. SUMMARY

This chapter has presented data analyzed in four general areas:

1. Analysis of variance design.
4. Chi square comparison.

In analyzing the data, the researcher, with the aid of the International Business Machines computer, first considered the analysis of variance design. Of the three independent variables and the interaction between them, only high school size proved to be statistically significant.

The chapter also presented an analysis of the means of the independent variables. These means were a result of the computation needed to figure the analysis of variance design. The interaction within the independent variables was not significant except with high school size.

Also presented in the chapter was a comparison of the subjects involved in the present study with similar
freshmen who entered Bethany Bible College in the successive years 1963 through 1967. The subjects of the present study who received behavioral group counseling achieved at a significant level above the similar freshmen from the previous five years. Subjects from this study who met with the investigator but did not receive behavioral counseling also achieved at a higher level than previous freshmen. However, subjects involved in this study who did not receive behavioral counseling or special attention from the researcher achieved in a manner similar to the freshmen of 1963 through 1967.

A chi square comparison was also made. The data received appear to indicate that there was a significant positive difference in the number of achievers who were part of the counseled groups as compared with subjects who were not counseled. Also, a significant positive difference appeared between those who received counseling in this study and previous noncounseled freshmen at Bethany Bible College.

The last chapter of this report will present the conclusions based upon the investigation. It will also offer recommendations for further research in the areas related to this study.
CHAPTER V

CONCLUSIONS BASED UPON THE INVESTIGATION AND RECOMMENDATIONS FOR FURTHER RESEARCH

The current research study investigated and collected data concerning freshmen who entered Bethany Bible College with low high school grade point averages. The data were collected and considered in three areas: (1) effect of behavioral group counseling, (2) size of high school from which the student graduated, and (3) male-female achievement. The data were examined through the implementation of the analysis of variance three-way research design. This research design was organized and conducted according to the procedure outlined in Chapter III.

The analysis of variance research design produced data that were also analyzed as they compared with data from freshmen who entered Bethany Bible College during the successive years (1963 through 1967). This comparison was made by a percentage analysis and also application of chi square statistical techniques.

Various conclusions and recommendations were drawn from this study in terms relative to the assumptions and limitations stated in Chapter I of this report. These are discussed and outlined in the two divisions which follow.
I. CONCLUSIONS DRAWN FROM THE INVESTIGATION

The following conclusions were drawn as a result of the study. They are outlined under four subheadings: (1) conclusions from analysis of variance research, (2) conclusions relative to specific achievement of subjects according to variables considered, (3) conclusions based on comparison of academic achievement by subjects involved in the present study with similar freshmen from the years 1963 through 1967, and (4) chi square analysis.

Conclusions from Analysis of Variance Research

In his investigation, the researcher drew the following conclusions from the data gathered and examined through the analysis of variance design. The analysis of variance design allowed three independent variables to be considered simultaneously in relation to the dependent variable. With the simultaneous operation and interaction of the independent variables being considered, variances within the variable or between variables were observed and calculated to be significant or nonsignificant.

This study considered three independent variables. They were: (1) counseled or noncounseled subjects, (2) male-female achievement, and (3) achievement according to size of high school from which the subject graduated. The dependent variable in this study was the grade point average.
received by the subjects at the end of the 1968 fall semester at Bethany Bible College.

Only one variance proved to be significant at the .05 level. This significant variance was found to exist in the academic achievement of subjects from different size high schools. In this study the subjects who graduated from larger high schools (800+) achieved at a significantly higher rate than those who graduated from smaller schools. This finding seems to be consistent with many previous studies.¹

Significant variances were not found in the four groups that were counseled or noncounseled. Males and females also achieved very closely so that the variance was not significant.

The interaction of the three variables did not produce variances that were significant. Table III, located in Chapter IV, presents the variances as they were calculated.

Summary of analysis of variance conclusions. With only one variance at a statistically significant level, it would appear that the behavioral group counseling did not have significant effect. However, it is the opinion of the researcher that the counseling did achieve part of the

desired goal. This opinion will be elaborated upon later in this chapter when the chi square results are considered.

Conclusions Relative to Specific Achievement According to Variables

The analysis of variance design allowed the differences among phenomena to be studied. Data produced by such a design also gave information relative to the achievement of the independent variables.

The population was randomly divided into four groups of twenty-four subjects per group. Group #1, which received behavioral group counseling on a continuous schedule, received the highest mean grade point average of 2.02. The other groups were lower, especially Group #4 which never met with the researcher and received a mean grade point average of 1.68. In the opinion of the investigator, something took place in the counseling sessions that had a positive effect upon the mean grade point averages of the subjects involved.

Male-female means did not differ significantly. Males received a mean grade point average of 1.85 and females received a mean grade point average of 1.82. The researcher feels the closeness of the two means is due to true random selection of subjects for the study.

As previously mentioned in this chapter, the mean
grade point averages for students from larger high schools was highest. This appears to be consistent with much of the literature and perhaps is due to the fact that the larger high schools usually have better facilities and a broader curriculum. Students graduated from the larger high schools may be better equipped for academic achievement in college.

Conclusions Based on Comparison of Subjects Involved in the Present Study with Similar Freshmen at Bethany Bible College During Successive Years 1963-1967

During the successive years 1963 through 1967, 990 freshmen entered Bethany Bible College. Of this total, 461 or 46% entered with high school grade point averages of 2.5 or below. Only 39%, or 184 of the 461, achieved the minimum grade point average of 1.75 needed to stay enrolled in the college.

In the present study, all the subjects involved were randomly selected from those students who entered the college with high school grade point averages of 2.5 or below during the fall semester of 1968. Groups #1 and #2 received behavioral group counseling on a continuous and partial reinforcement schedule respectively. In Group #1, 70% achieved a grade point average of 1.75 or above while 58% of Group #2 achieved 1.75 or above for an average between the two groups of 64.5% achieving at the 1.75 level or higher. This is
an increase for Groups #1 and #2 of 64.4% above the 39% who achieved grade point averages of 1.75 or above with similar freshmen during the years 1963 through 1967.

Group #4 of the present study registered 33% of the subjects achieving at 1.75 or above. This group never met with the researcher and was similar to previous freshmen in achievement.

It would appear that behavioral group counseling had a definite effect upon the number of subjects in each group who would achieve a grade point average of 1.75 or above. This may be due only to the fact that the subjects in the groups were met by the researcher for one hour per week for eleven weeks. Group #3 of the present study met with the researcher on a weekly basis but did not receive intentional counseling. However, Group #3 had 50% of the group achieving at a grade point average of 1.75 or above, which is an increase of 28% over the 39% achievement of the previous freshmen.

Conclusions Based on Chi Square Analysis

The analysis of variance design allowed the simultaneous action and interaction of the variables to be observed. The data thus produced gave the variances within the variables and between the variables. One of the purposes for this research was to study the possible effects of
behavioral group counseling relative to the number of subjects who could achieve at the minimum grade point average of 1.75 or above. The use of a chi square ($X^2$) analysis allowed this to be figured from the data received through the research design.

Chi square allows data to be expressed in frequencies or categories such as achievers or nonachievers. Two by two chi square comparison tables were calculated comparing Groups #1, #2, #3, and #4 of this study with similar freshmen from 1963 through 1967. From these comparisons it became apparent that those subjects who received behavioral group counseling achieved a grade point average of 1.75 or above more often than those who were not exposed to the counseling. In comparing the counseled groups of the present study with previous freshmen, positive $X^2$'s at the .05 level in the direction of behavioral group counseling were received.

The chi square analyses indicate the value of exposing freshmen to behavioral group counseling. A significant number of freshmen in the present study achieved at the 1.75 grade point average or above as they are compared with freshmen from previous years. This significance in achievement has definite meaning in considering what approach should be taken in counseling future freshmen at Bethany.
II. RECOMMENDATIONS FOR FURTHER STUDY

The researcher believes that this investigation has indicated the need for further study in the area of behavioral group counseling of Bible college freshmen. Due to the paucity of group counseling studies that have taken place using a Bible college population, it is hoped that the findings of this study will help motivate others to conduct research in similar colleges, especially Bible colleges. The researcher further hopes that the findings of this current investigation may have touched particular areas of interest relative to Bible college freshmen. The following specific suggestions are deemed by the investigator as being most important:

1. Research be done to discover in clearer terms what really happens as a result of the counseling sessions. Does change take place because of an improved self-concept or just because a counselor has shown interest in a group of subjects?

2. Depth studies be conducted on a two or more semester basis using the counseling approach of this present study, such as a longitudinal study covering a class from freshman year through senior year.
3. Further group counseling studies be made replacing the counselor with a selected upper-class student.

4. A follow-up study of the ninety-six subjects involved in the present study.

5. Research on the feelings of the subjects which were involved in this study. What did the subjects think or feel was happening in or as a result of the sessions?

6. Investigate behavioral group counseling as defined in this current study in two separate Bible colleges, the populations being similar in size and background and the sessions being held during the same year.

7. Conduct a study in which some type of test for evaluation of the self-concept could be given to the subjects involved. This test should be administered before subjects are exposed to the group counseling and after the counseling sessions are concluded.

8. Research be attempted where the effects of behavioral group counseling could be compared with groups of students representing those who enter college with high school grade point averages below 2.5 and those entering with grade point averages above 2.5.

III. SUMMARY

The current study has answered certain questions about the effect of behavioral group counseling on freshmen
at Bethany Bible College. It is hoped that this information will prove to be valuable to other colleges, especially those who are members of the Accrediting Association of Bible Colleges. Other Bible colleges appear to have a similar problem with freshmen achievement and may profit by the findings of this study.

However, other unanswered questions have been exposed by this investigation which was conducted for one semester in one Bible college. The total area of counseling college freshmen with the approach used in the current study has seen a paucity of research as evidenced by the limited number of reported studies. It is hoped that this study will be only the beginning of numerous other studies dealing in the area of behavioral counseling college freshmen. These research efforts should explore, analyze, and evaluate the entire behavioral group counseling process. Investigations are particularly needed as they relate to the long-term effects of behavioral group counseling.

The results of this study should be of interest to administrators of colleges where a portion of their entering students come from backgrounds that do not promise high academic achievement in college. With effort being made to recruit college students from urban centers and minority races, many students may be available; but often they do not
have the academic preparation. Perhaps this study may be of help in counseling such students.

The results of this study have indicated that freshmen at Bethany Bible College with low high school grade point averages who were exposed to behavioral group counseling achieved the minimum 1.75 grade point average or above more often than similar students who did not receive the counseling. With the approach to counseling used in this study, one counselor was able to counsel forty-eight students per week. The counselor used only six hours of his weekly time schedule, and the counseled students achieved significantly more often than noncounseled students. This is compared with a traditional one-to-one counseling approach where a counselor would be involved in forty-eight hours of counseling per week if he were to spend one hour with each subject.
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