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A Comparative Study of the Effectiveness of the Small-group Method and command Method of Teaching a Physical Education Activity Course

Edward Rhudy

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SMALL-GROUP
METHOD AND
COMMAND
METHOD OF
TEACHING

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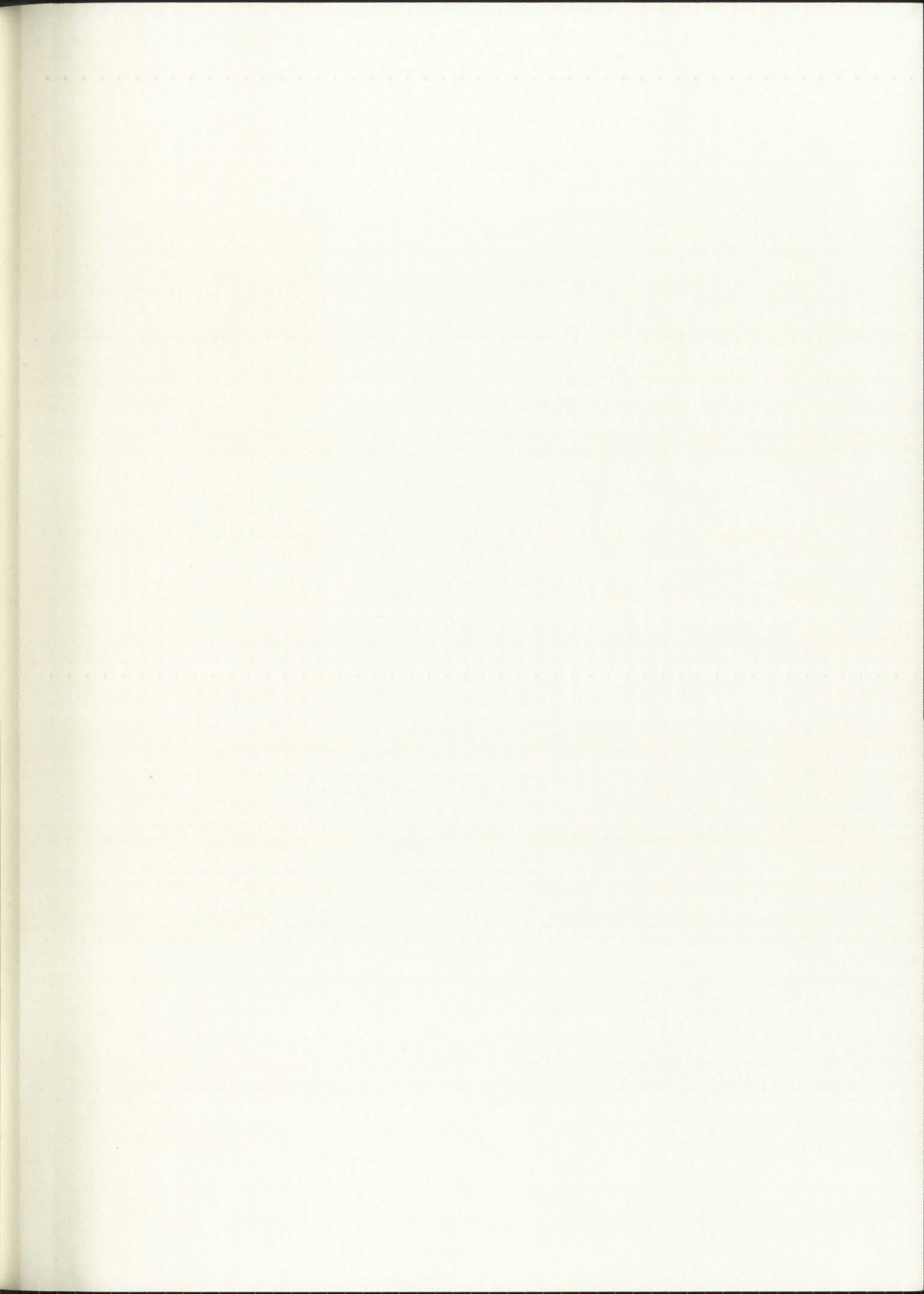
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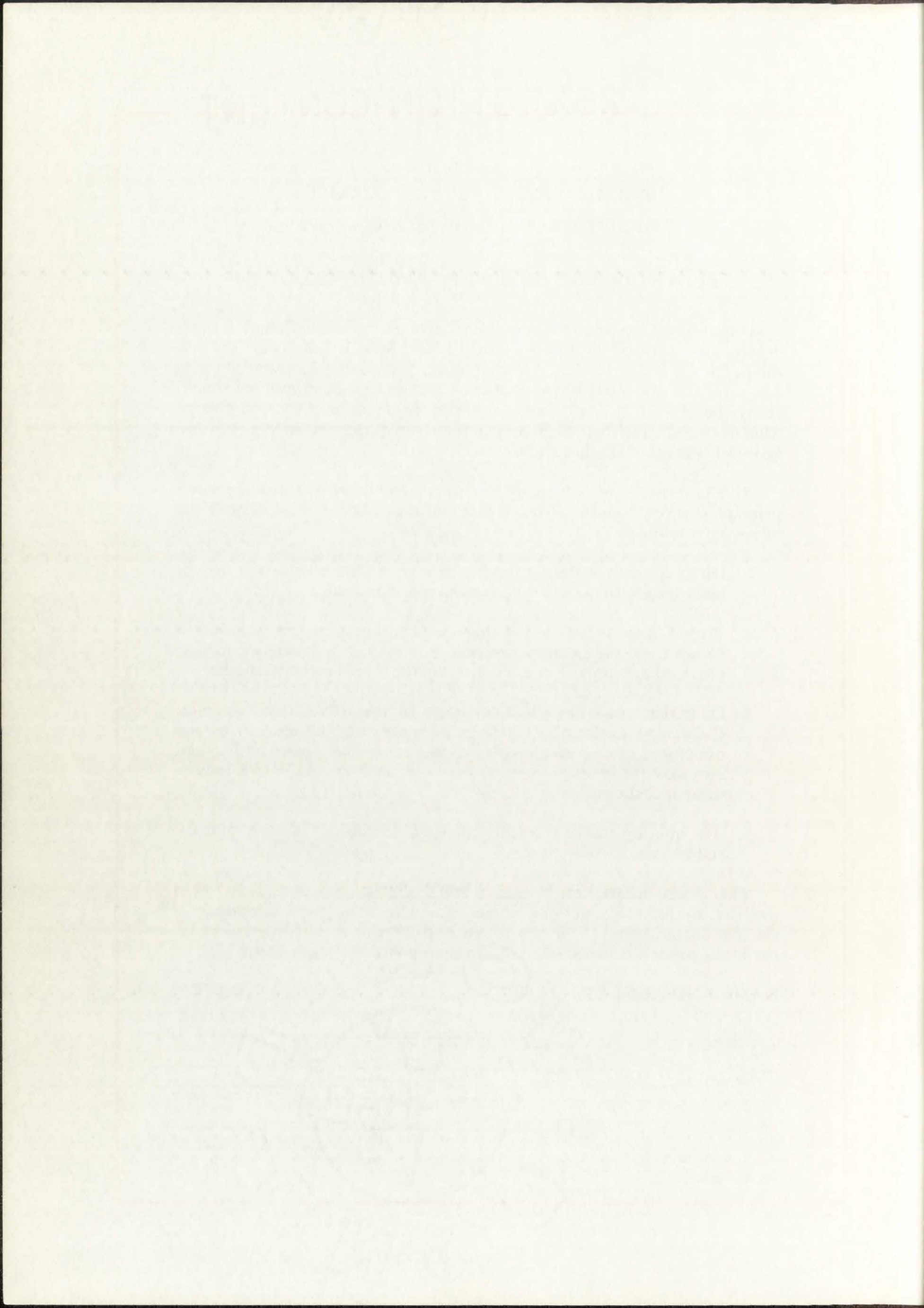
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This dissertation, directed and approved by the candidate's committee, has been accepted by the Graduate Committee of The University of New Mexico in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE SMALL-GROUP METHOD AND COMMAND METHOD OF TEACHING

Title A PHYSICAL EDUCATION ACTIVITY COURSE

Edward Rhudy

Candidate

Health, Physical Education and Recreation

Department

John W. Zippert

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July 11, 1974

Date

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Chairman

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John J. Gustafson

The undersigned hereby certifies that the above is a true and correct copy of the original as the same appears in the records of the Department of the Interior.

W. A. R. 100-10000

Witness my hand and the seal of the Department of the Interior at Washington, D. C., this 10th day of October, 1900.

James H. Campbell

John H. ...

A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE
SMALL-GROUP METHOD AND COMMAND METHOD OF TEACHING
A PHYSICAL EDUCATION ACTIVITY COURSE

BY

EDWARD RHUDY

B.S., The University of New Mexico, 1970

M.S., The University of New Mexico, 1971

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Philosophy
in the Graduate School of
The University of New Mexico
Albuquerque, New Mexico
August, 1974

A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE
SMALL-GROUP METHOD AND CONVENTIONAL METHOD OF TEACHING
A PHYSICAL EDUCATION ACTIVITY COURSE

BY

HOWARD BRUDY

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August, 1974

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TO MY WIFE (MOM)

ACKNOWLEDGMENTS

To Lawrence B. Rosenfeld, Chairman of the Doctoral Committee and Director of this study, the writer wishes to express his sincere appreciation for the guidance and support provided during this investigation.

To the members of the committee, Dr. John Gustafson, Dr. Kenneth Lersten, and Dr. Armond Seidler, appreciation is expressed for their helpful suggestions and appraisals.

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for his helpful suggestions and
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A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE
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A PHYSICAL EDUCATION ACTIVITY COURSE

BY
Edward Rhudy

ABSTRACT OF DISSERTATION

Submitted in Partial Fulfillment of the
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August, 1974

A COMPARATIVE STUDY OF THE EFFECTS OF
SMALL-SCALE AND LARGE-SCALE
Agricultural Production

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1966-1970

1971-1975
1976-1980

1981-1985
1986-1990

1991-1995
1996-2000

A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE
SMALL-GROUP METHOD AND COMMAND METHOD OF TEACHING
A PHYSICAL EDUCATION ACTIVITY COURSE

Edward Rhudy, Ph.D.
Department of Health, Physical
Education and Recreation
The University of New Mexico, 1974

This study compared the effectiveness of the small-group method and command method of teaching a physical education activity course, including a comparison of the behaviors of students in small-group classes and command classes.

The study was conducted utilizing 79 male and female subjects enrolled in four beginning swimming classes at The University of New Mexico during the Spring semester of 1974.

The study employed both empirical and descriptive research methodologies. The empirical study consisted of measuring changes in seven dependent variables: (1) attitude toward the physical activity, (2) attitude toward the instructor of the course, (3) self-esteem, (4) personal-self, (5) physical-self, (6) social-self, and (7) skill acquisition.



The instrument used to measure personal-self, physical-self, social-self, and self-esteem was the Tennessee Self Concept Scale, as developed by Fitts. It was administered following a pretest/posttest procedure. The instrument used to measure students' attitudes toward the physical activity and the instructor of the course was the "Students' Reaction to Instruction and Courses, 2nd Edition," as developed by Hoyt and Owens. It was administered following a posttest only procedure. Skill acquisition was measured by the individual instructor of each course and the researcher. The swimming skills measured were the front crawl, the back crawl, elementary backstroke, sidestroke, and breaststroke.

The seven hypotheses were tested using two analyses of variance and four analyses of covariance. The design of each test was a 4 x 1 with the type I error rate set at .05.

No significant differences were found with any of the statistical tests. It was found that students' attitudes toward beginning swimming and the instructor of the course were the same regardless of whether students were in classes where the small-group method or the command

The purpose of this study was to determine the effect of physical activity on the health of young adults. The study was conducted over a period of six months. The participants were divided into two groups: an experimental group and a control group. The experimental group was instructed to engage in a regular exercise routine, while the control group was instructed to maintain their current level of activity. Data was collected on various health indicators, including heart rate, blood pressure, and body mass index. The results of the study showed that the experimental group experienced significant improvements in these indicators compared to the control group. These findings suggest that regular physical activity is beneficial for the health of young adults. Further research is needed to explore the long-term effects of exercise on health and to identify the most effective types of physical activity.

method of teaching was used. It was also found that students' self-esteem, personal-self, physical-self, and social-self remained unchanged regardless of whether they were in classes where the small-group method or the command method of teaching was used.

Results also indicated that students' self-concept, which included the personal-self, physical-self, social-self, and self-esteem, was not subject to manipulation by different methods of teaching.

The descriptive research consisted of approximately 10 observations of each class. The purposes of these observations were to insure that the instructors followed the assigned method of teaching, to develop small-group instructional strategies, and to compare the behaviors of students in the small-group and command classes. Results indicated that it was necessary for an instructor to understand, accept, and be comfortable with the premises embodied in the rationale for small-group methods of teaching, that there are no major differences between using small-group methods in a "content" course and a physical education activity course, and that, although class time must be allowed for students to become

period of teaching was used. It was also found that students who received physical-education, physical-education, and social-education had higher registration of whether they were in classes where the multi-group method of the course was used or not.

Results also indicated that students' self-concept, which included the personal-self, physical-self, social-self, and self-esteem, was not subject to manipulation by different methods of teaching.

The descriptive research consisted of approximately 30 observations of each class. The purpose of these observations was to ensure that the instructor followed the assigned method of teaching, to develop multi-group instructional materials, and to compare the behavior of students in the multi-group and control classes. Results indicated that it was necessary for an instructor to understand, accept, and be comfortable with the practices embodied in the rationale for multi-group methods of teaching, that there are no major differences between using multi-group methods in a "constant" course and a physical education activity course, and that although there may be a need for students to practice

acquainted, it was not necessary for students to study group dynamics for small-group methods of teaching to be used effectively.

The results of this study indicate that a teacher can manipulate the classroom climate so as to produce certain behaviors from students, and the method of teaching used in a physical education activity class does not necessarily affect several measures of self-concept. However, the student behaviors in response to the two teaching methods do differ along predicted dimensions.

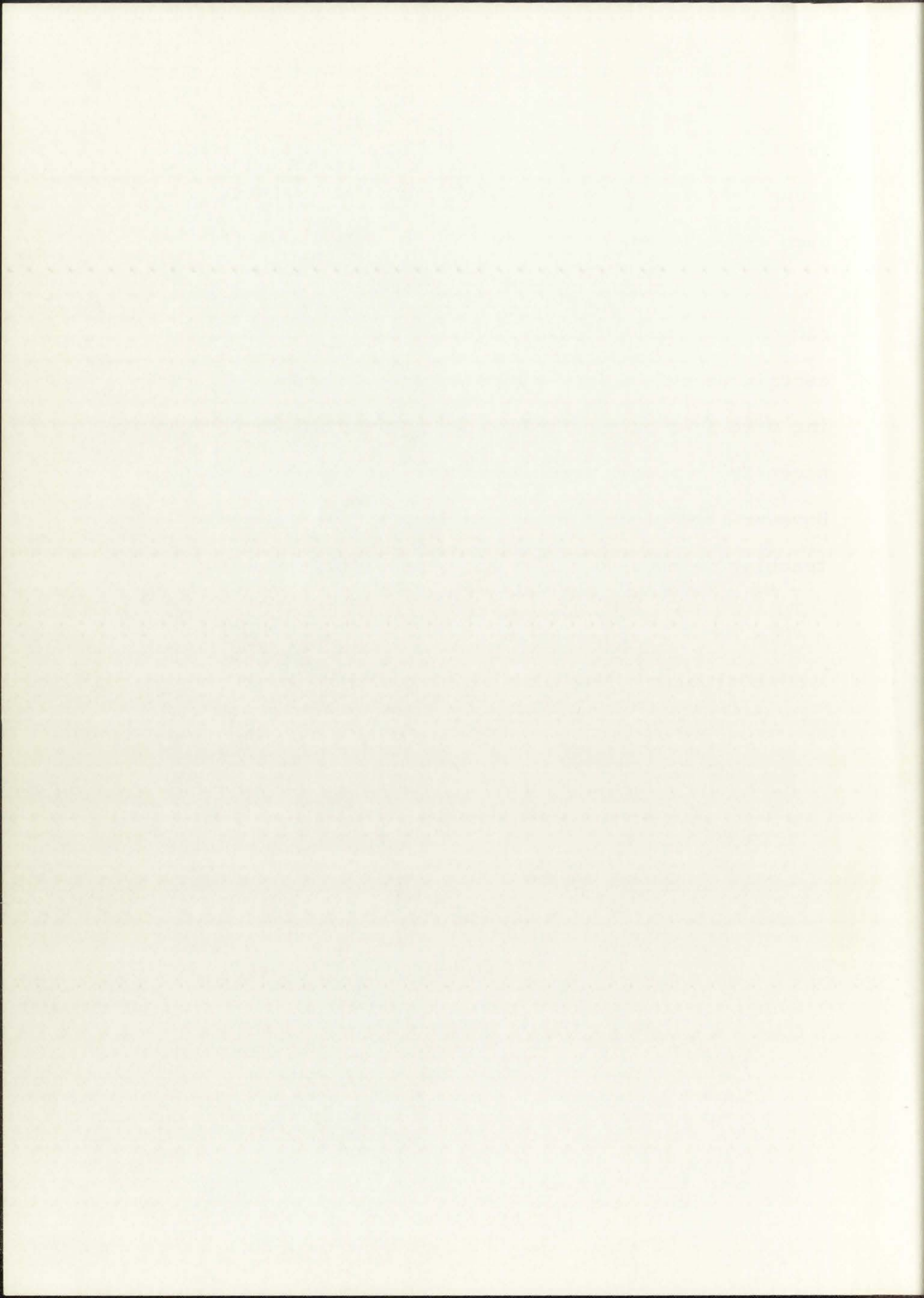


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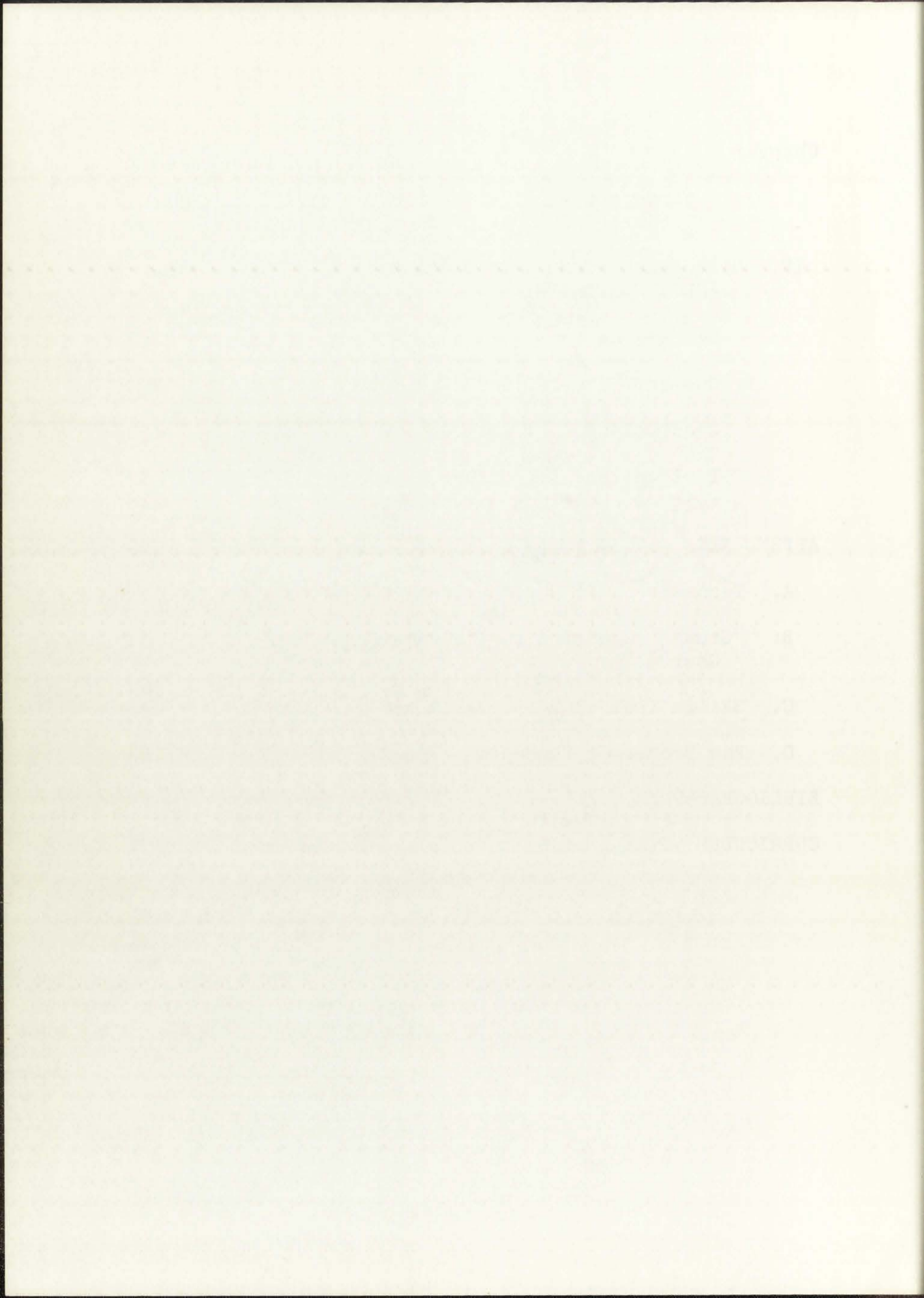
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CHAPTER I

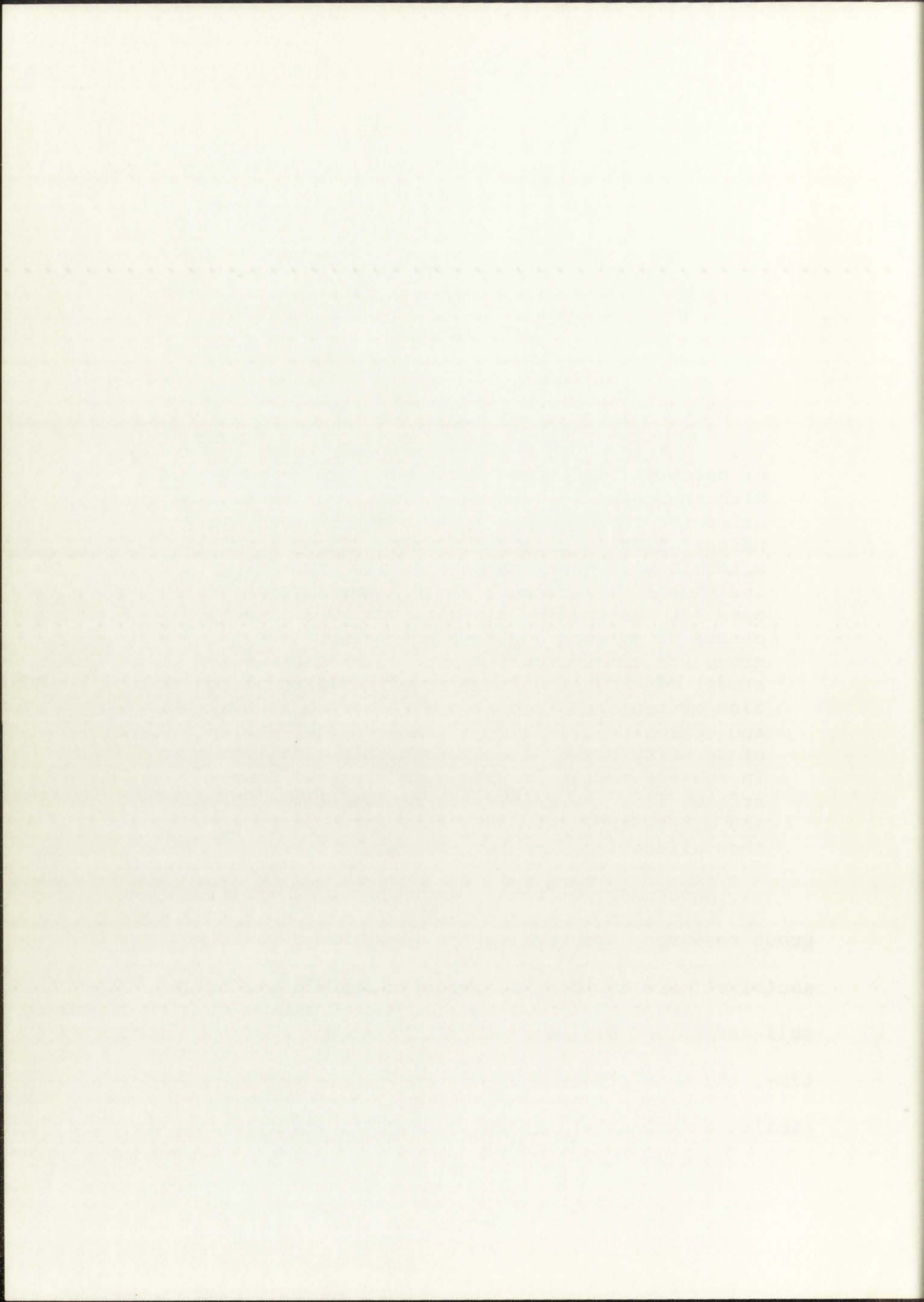
THE PROBLEM

INTRODUCTION

A positive classroom climate is

. . . one in which the students share high amounts of potential influence—both with one another and with the teacher; where high levels of attraction exist for the group as a whole and between classmates; where norms are supportive for getting academic work done, as well as for maximizing individual differences; where communication is open and featured by dialogue; and where the processes of working and developing together as a group are considered relevant in themselves for study. In such a classroom, we would expect to find student and teacher goal-directed activity and curiosity, feelings of self-esteem, feelings of security rather than threat, high involvement in subject-matter learning, feelings of power arising from the ability to influence the teacher and other students, and a sense of belonging rather than alienation from the school.¹

According to Schmuck and Schmuck, "most classroom group research corroborates the view that a positive social climate in the peer group enhances a student's self-esteem and his academic performance."² At the same time, the mere presence of others who are working on a similar task has been shown to have significant effects



on the intellectual and motor performance of an individual.³ The presence of others, however, must not be threatening, for when an individual feels anxious or fearful in the presence of others, his perceptions and thoughts are restricted and distorted.⁴ Students must feel relaxed and comfortable in the classroom.

The results of studies focusing on individual versus group learning point to the same conclusion. Consistently, groups have been shown to learn faster than individuals, both in natural situations⁵ and in contrived laboratory situations.⁶

PURPOSE OF THE STUDY

Despite the widespread use of small-group methods of teaching by educators, there has not been extensive systematic research on the effectiveness of small-group methods in the classroom.

Most studies have been more concerned with demonstrating the utility of a single, uniquely designed program than with comparing the relative merits of several methods or with the studying of the nature of the learnings achieved.⁷

Olmstead made this statement in 1968, and the paucity of research in this area would indicate that it still holds true today.

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The purpose of this study was to compare the effectiveness of the small-group method and command method of teaching beginning swimming classes, including a comparison of the behaviors of students in small-group classes and command classes.

STATEMENT OF THE PROBLEM

Did the use of small-group techniques facilitate the creation of a positive classroom climate in beginning swimming classes? How did classes using such techniques compare in effectiveness with classes relying on the command method of teaching? Most teachers of physical education have been concerned almost exclusively with skill acquisition, and hence the emphasis on the command method. New concerns call for the development of new teaching methods.⁸

Specific questions of concern in this study included: (1) Were students' attitudes toward certain activities more favorable in classes where the small-group method was used than students' attitudes in classes where the command method was used? (2) Were students' attitudes toward their instructor more favorable in

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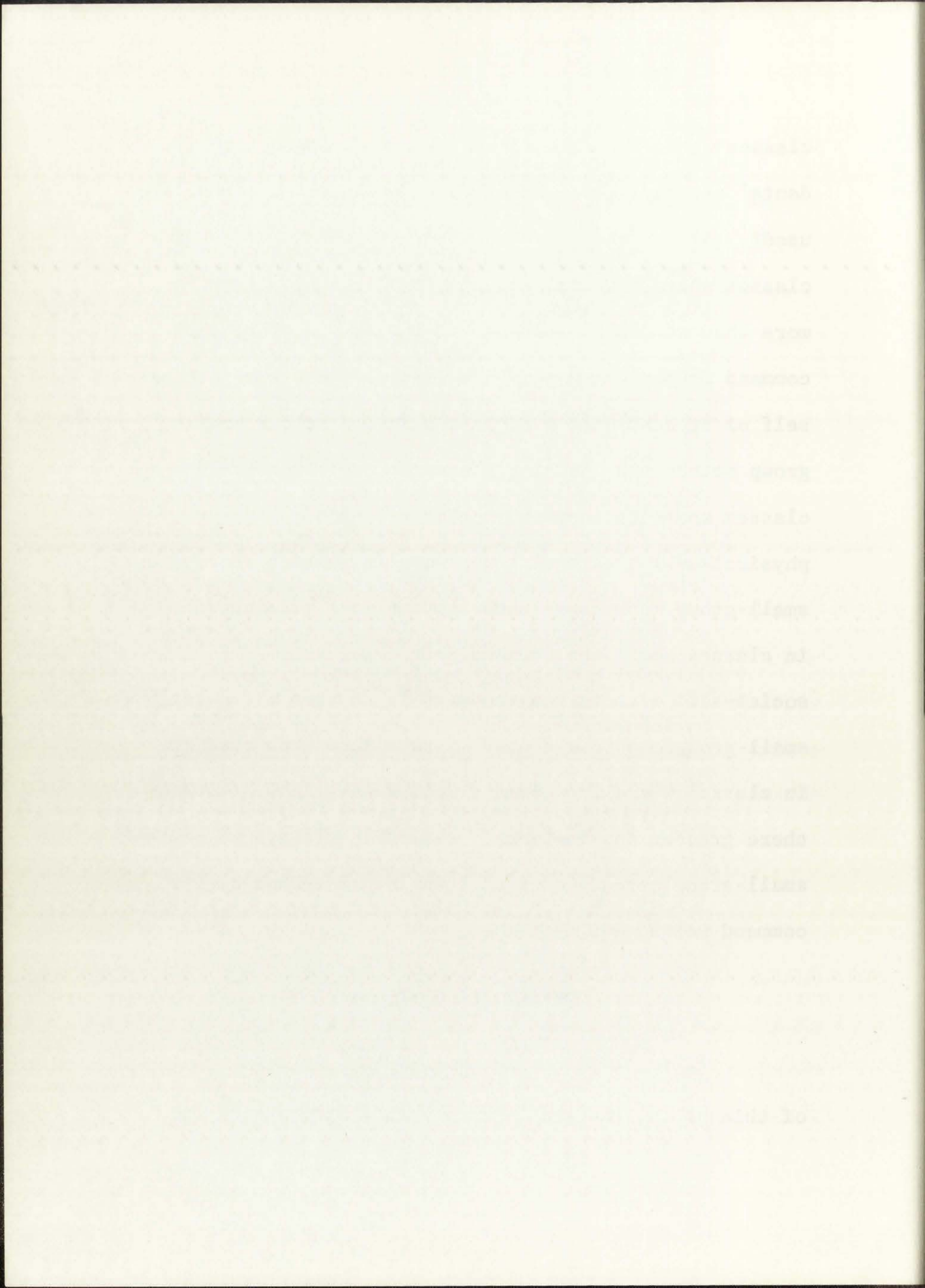
more the command

method? How

classes where the small-group method was used than students' attitudes in classes where the command method was used? (3) Did the self-esteem of students who were in classes where the small-group method was used improve more than students' self-esteem in classes where the command method was used. Specifically, did the personal-self of students who were in classes where the small-group method was used improve more than students in classes where the command method was used? Did the physical-self of students who were in classes where the small-group method was used improve more than students in classes where the command method was used? Did the social-self of students who were in classes where the small-group method was used improve more than students in classes where the command method was used? (4) Was there greater acquisition of skills in classes where the small-group method was used than in classes where the command method was used?

DEFINITION OF TERMS

Small-group method of teaching. For the purpose of this study, the small-group method of teaching was

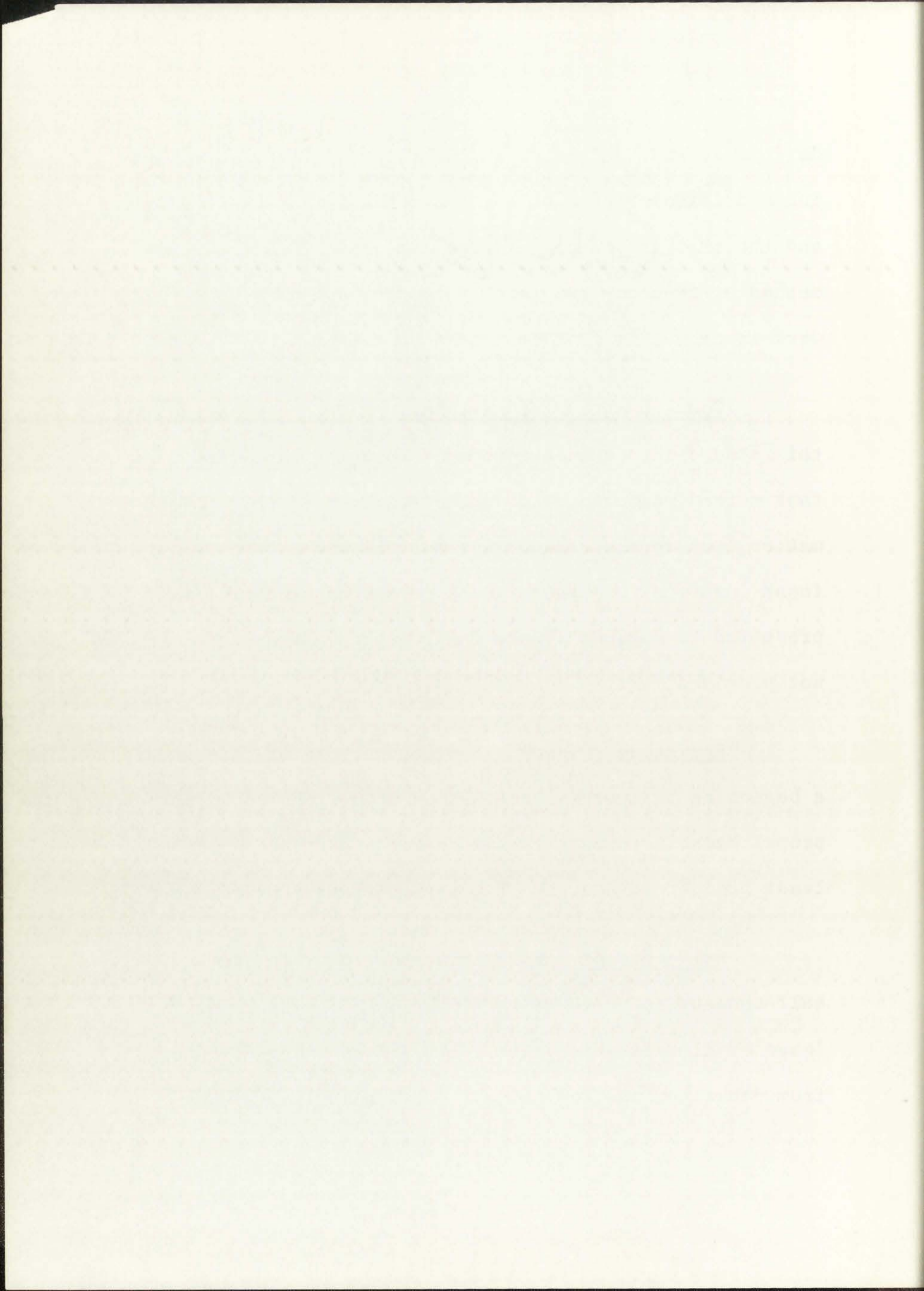


defined as that method where the responsibility for teaching and learning shifts from the teacher to the student and the teacher becomes a guide and a facilitator. This method of teaching was facilitated by having the students work in groups of from two to seven members.

Command method of teaching. For the purpose of this study, the command method of teaching was defined as that method which focused on the teacher and the subject matter,⁹ where the student was not allowed to provide any input into what he was to learn or how the material was presented to him, and where interpersonal interaction was not provided for.

Beginning swimmer. For the purpose of this study, a beginning swimmer was defined as anyone who could not propel himself through the water for a distance of at least 50 feet in a depth of water that was over his head.

Self-concept. For the purpose of this study, self-concept referred to the individual's picture or image of himself—his view of himself as being distinct from other persons and things. This self-image incor-



porated his perception of what he was really like (self-identity) and his worth as a person (self-evaluation) as well as his aspirations for growth and accomplishment.¹⁰

The following definitions are from the Tennessee Self Concept Scale:¹¹

Physical-self—here the individual is presenting his view of his body, his state of health, his physical appearance, skills, and sexuality.

Personal-self—this is the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others.

Social-self—this is another "self as perceived in relation to others" category, but pertains to "other" in a more general way. It reflects the person's sense of adequacy and worth in his social interaction with other people in general.

Self-esteem—the overall measure of self-concept.

Attitude toward the instructor. For the purpose of this study, attitude toward the instructor refers to the state of feelings or emotions about the instructor of the beginning swimming course.

Attitude toward the course. For the purpose of this study, attitude toward the course refers to the state of feelings or emotions about the beginning swimming course.



Effective teaching. For the purpose of this study, "effective teaching is said to occur when students report a high degree of progress on objectives which the instructor feels are important."¹²

DELIMITATIONS

Participants in this study were students who voluntarily enrolled in beginning swimming classes at The University of New Mexico during the Spring semester, 1974. This study used one objective measure of self-concept, namely, the Tennessee Self Concept Scale.¹³ Students' attitudes toward the instructor and the activity course was measured by the "Student Reactions to Instruction and Courses—Short Form."¹⁴ A panel of five experts in swimming set the criteria for evaluating skill acquisition.

LIMITATIONS

This investigation was limited to a study of those students who were enrolled in the beginning swimming classes at The University of New Mexico. All professional services classes at The University of New Mexico are voluntary and co-educational.



FOOTNOTES

¹R. A. Schmuck and P. A. Schmuck, Group Processes in the Classroom (Dubuque, Iowa: Wm. C. Brown Co., 1971), p. 18.

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³J. C. Coleman, Psychology and Effective Behavior (Glenview, Ill.: Scott, Foresman & Co., 1969), pp. 272-299; F. F. Dashiell, "Experimental Studies of the Influence of Social Situations on the Behavior of Individual Human Adults," A Handbook of Social Psychology, ed. C. Murchieson (Worcester, Mass.: Clark University Press, 1935), pp. 1097-1158; Schmuck and Schmuck, op. cit.

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⁷J. A. Olmstead, Theory and State of the Arts of Small-Group Methods of Instructions (Alexandria, Va.: Human Resources Research Organization, March, 1970), p. 51.

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⁸M. Mosston, Teaching Physical Education (Columbus, Ohio: Charles E. Merrill, 1966), pp. 229-230.

⁹Ibid., p. 19.

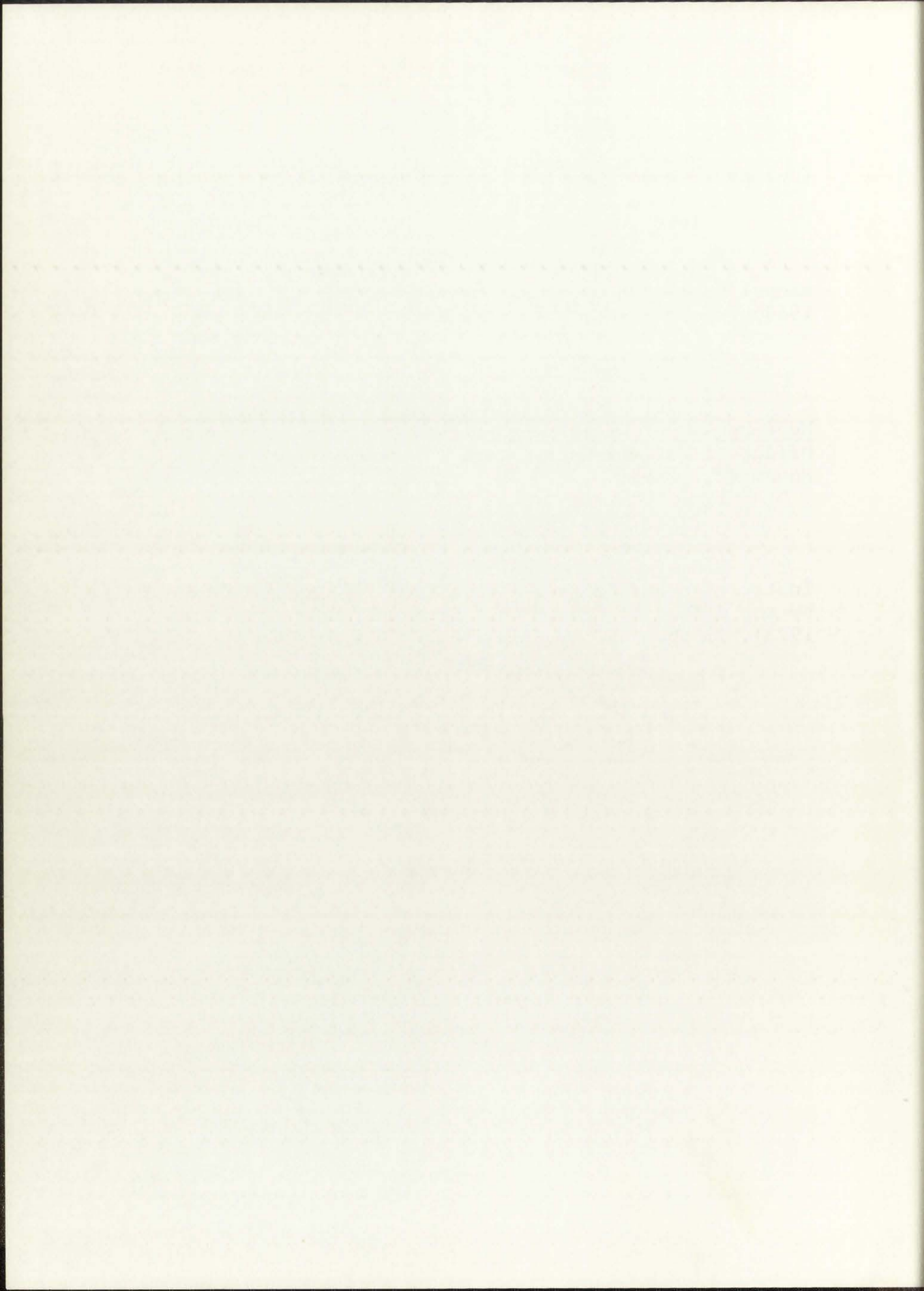
¹⁰W. H. Fitts, "Tennessee Self Concept Scale" (a manual published by Counselor and Tests, Nashville, Tenn., 1965), 31 pp.

¹¹Ibid., p. 3.

¹²D. P. Hoyt, Instructional Effectiveness: I. Measurement of Effectiveness (Kansas State University, Office of Educational Research, Research Report #6, November, 1969).

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CHAPTER II

REVIEW OF RELATED LITERATURE AND HYPOTHESES

INTRODUCTION

There are certain factors that affect learning and that are necessary for learning to occur which are evident in all teaching methods;¹ however, the one factor which separates small-group methods of teaching from all of the others, and the one factor fundamental to all small-group methods, is the deliberate use of the concept of social interaction.² In this interaction

there is a calculated and systematic attempt to apply knowledge, thought, and fact-finding to the solution of a problem or resolution of an issue so that learning can occur.³

Scientists have long been suspect of the effects which the presence of others has upon the performance and thinking of an individual⁴ and that, if used correctly, this presence of others can facilitate learning.⁵ It was with these premises in mind that the review of related literature was conducted.

CHAPTER II

THE HYPOTHESES

INTRODUCTION

There are certain factors that affect learning and that are necessary for learning to occur which are

evident in all learning methods; however, the one factor which separates small-group methods of teaching from all

of the others, and the one factor fundamental to all small-group methods, is the deliberate use of the concept

of social interaction. In this interaction there is a calculated and systematic attempt to apply knowledge, theory, and learning in the solution of a problem or resolution of a task so that learning can occur.

Scientists have long been aware of the effects which the presence of others has upon the performance and thinking of an individual, and that, if necessary, this

presence of others can facilitate learning. It was this

idea which led to the review of related literature and the present study.

This review of the related literature was divided into two major areas: (1) properties of the classroom climate, and (2) research with small-group methods in the classroom. This second section was broken down into two smaller areas: (a) methods in physical education, and (b) research in using small-group methods in other areas of education. By far the greater amount of work has been done in the latter category.

PROPERTIES OF THE CLASSROOM CLIMATE

The essential properties of the classroom climate and of groups in the classroom are (1) leadership and the development of other roles and their effects on self-concept, (2) need for affiliation, (3) group norms, (4) communication patterns, and (5) cohesiveness.⁶

Leadership and Development of Other Roles and Their Effects on Self- Concept

The leadership role is one of the most important positions in the group structure. Carter defined leadership as the role which is the focus of group behavior, or the center of attention, and which exerts influence over

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References

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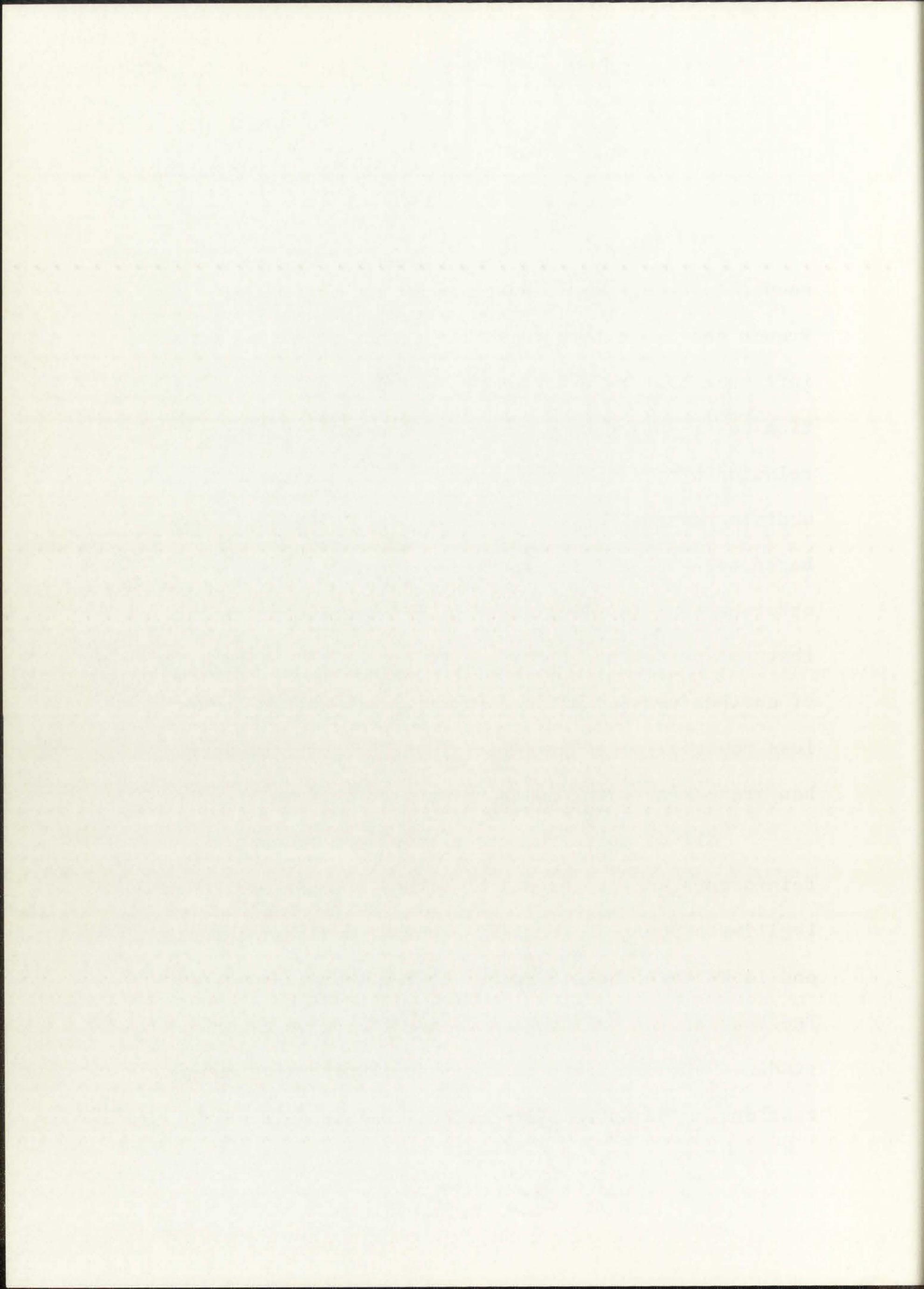
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others. Leadership involves both interpersonal relationships and behavioral skills.⁷

"An analysis of the interpersonal influence is needed to understand leadership in the classroom."⁸

French and Raven identified five kinds of social power or influence that a leader can have over a group: (1) attraction power—based upon the identification or liking relationship; (2) reward power—based upon the ability to mediate rewards for the other person; (3) coercive power—based upon the ability to mediate punishment for the other person; (4) legitimate power—based upon the belief that one person has the right to prescribe the behavior of another person; and (5) expert power—based upon the less powerful person's belief that the powerful person has greater resources with respect to a given area.⁹

All of these represent some form of control over reinforcers and can be had by either teacher or student. Legitimate power is normally associated with the teacher and is bestowed on him or her by the school and state. The teacher in turn can bestow legitimate power on a student. Expert power is also usually ascribed to the teacher. "The attractive person (teacher or student) can



bestow favors that are reinforcing for the person who is attracted to him; the expert can reinforce the other person by providing resources that are unavailable to the other person."¹⁰ "Thus these three kinds of power reduce to reward power and coercive power."¹¹

Legitimate, reward, and coercive power are the least effective of the five bases of power for exerting interpersonal influence.¹² In a study on leadership by Lewin, Lippett, and White, three groups of boys, each group using either autocratic, democratic, or laissez-faire forms of leadership, were used. Boys using a laissez-faire form of leadership, where the leader abdicated his authority and performed no leadership function, experienced the most stress. They were disorganized, frustrated, and produced little work. Groups with autocratic leaders, where the leader kept and used all of his legitimate power, produced quantitatively more work than the other groups. Groups with democratic leaders, who distributed the authority among members of the group, were qualitatively better in their performance. The interpersonal relationship between the leader and members was best in the democratic group. Also, the groups

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differed with respect to who performed the group influence function. The group influence function was performed rarely by anyone in the laissez-faire group; it resided almost solely with the assigned leader in the autocratic group; and was distributed throughout the democratic group.¹³

Leadership has already been defined as the ability to influence others. One consequence of the ability to influence others is the improvement of one's self-esteem.¹⁴ Those students who have no influence in a group and feel powerless can find solace only by psychologically withdrawing from the classroom group.¹⁵ Following this reasoning, ". . . classrooms have a more positive climate when leadership is executed by many members of the class."¹⁶

Besides the effects of shared leadership on self-image, Mannheim stated that a student's self-image also tends to be the same as that reflected to him by members of his dominant referent group.¹⁷ The self-image which a student develops as a result of his interpersonal relations with his peers and teachers determines to a large extent the degree to which he adopts adaptive or maladapt-

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tive roles in the classroom. Because of the relationship between interpersonal behavior, the adaption of certain roles, and the effects of classroom roles on learning, Schmuck and Schmuck argued that:

Concurrent with the teaching of an academic curriculum, schools should be concerned with the development of skills in interpersonal relationships, with the adequacy of the student's relationships to his classmates and teachers, as well as to himself.¹⁸

The learning process is intimately tied with interpersonal relations in the classroom:

. . . first one person [imagines] how he looks to a second person, followed by the first person's estimating how the second reacts to him, followed by the first person's internalizing a new view of himself based on his new view of the second person's reaction towards him.¹⁹

A person's self-concept is influenced strongly by what he thinks others think about him, and the way a person feels about himself affects how he feels about others. Negative feelings about the self lead to negative feelings about others, and this aggressive reaction toward others merely supports the others' negative reaction toward him.²⁰ Concurrently, positive feelings about self leads to positive feelings about others and the adoption of roles conducive to learning. Schmuck and Schmuck



claimed that students with a negative self-esteem are likely to slip into daydreams in class, or to misbehave when in school and, whenever possible, to drop out of school.²¹

As students and teachers interact in the classroom, they communicate, both verbally and nonverbally, their feelings about one another. "Such gestures of affect influence the manner in which a student views himself, his abilities, his likeability, and his general worth."²²

Summary. Past research has revealed that leadership is one of the most important aspects of the group structure. Groups that use a democratic form of leadership produce qualitatively better work. In groups where the influence function is distributed throughout the group, members feel they have the ability to influence others, and this has positive effects on self-esteem. Democratic leadership produces a more positive classroom climate. Interpersonal relationships between students is greater, which leads to the possibility of improvements in self-image and self-concept.



Need for Affiliation

Schutz, in his theory of interpersonal needs, provided us with an explanation about why people join groups, as well as establishing the relationship between leadership and the need for affiliation. According to Schutz, man has three interpersonal needs: inclusion, control, and affection.²³ Rosenfeld interpreted Schutz's three interpersonal needs in the following manner: inclusion is defined as the need to establish and maintain satisfactory relations with others with respect to interaction and association; control is defined as the need to establish and maintain satisfactory relations with people with respect to control and power (leadership); and affection is defined as the need to establish and maintain satisfactory relations with people with respect to love and affection.²⁴

The fulfillment of the need to belong to a group was noted by Maslow, who listed fulfillment of this need as basic to becoming self-actualized.²⁵ This need cannot be satisfied directly and is dependent upon the positive reaction of others.²⁶ Moreno,²⁷ Gronlund,²⁸ and Northway²⁹ have emphasized the importance of social acceptance

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in the classroom.

Man, as a social creature, has a need for affiliation. Without it he experiences feelings of loneliness, worthlessness, and anxiety which prevent him from working to his maximum potential. Schachter reported that classroom groups with diffuse friendship patterns exhibited a more positive climate than did classrooms which were centrally structured. In the centrally structured classroom, students were more aware of who was liked and disliked than in the diffuse classroom.

The importance of these results is heightened by the further findings that a student's perception of holding low status (feelings of exclusion rather than inclusion) — more than the fact of actually having such status — was related to incomplete use of intellectual abilities and to holding negative attitudes toward the self and toward the school.³⁰

Research findings conducted by Nickse and Ripple suggested that status in classroom groups does affect attitude and feelings toward group members and toward small-group work. It was suggested that low chosen students may be able to increase their social interaction skills with practice in learning settings provided by small-group work.³¹ Similar research carried out by Johnson and Bany corroborated the findings of Nickse and Ripple. They noted that the



creation of small, flexible groups can raise social acceptability scores of children who, at the beginning of their experiment, were not socially integrated into the group.³²

Summary. The need to belong to groups can only be satisfied by the positive reaction of others. When a student is not accepted by a group, whether perceived or factual, his use of his intellectual abilities is incomplete and he holds negative attitudes toward himself and his school. Research indicates that a student can increase his social interaction skills by working in small groups. Following leadership and need for affiliation, the next most important aspect for consideration in the creation of a positive classroom climate is the need for the establishment of group norms.

Group Norms

Norms are rules of conduct set by the members of a group to maintain behavioral consistency. They provide for control of behavior by serving as a standard against which behavior can be evaluated. The behavior of individuals within a group are monitored by other members of



that group. According to Thalen and Dickerman, norms become stabilized and are powerful determinants of the behavior of group members.³³

The degree to which an individual conforms to the norms established by a group is dependent upon the attractiveness of that particular group. In groups outside the classroom, if an individual chooses not to conform to group norms, one alternative is to leave the group; however, in the classroom he does not usually have this alternative. Consequently, if the norms in the classroom group are not flexible and changable, an individual may psychologically withdraw or create a split within the classroom group, which in turn will disrupt the classroom climate. "The development of an effective instructional situation is, in large part, dependent upon the evolution of certain norms which will be facilitative to optimal learning."³⁴

Shaw stated that norms are social products which are formed during the course of interpersonal relationships and that these norms are accepted only if they are perceived as right and proper by the individuals in the group. The important norms in the classroom are those

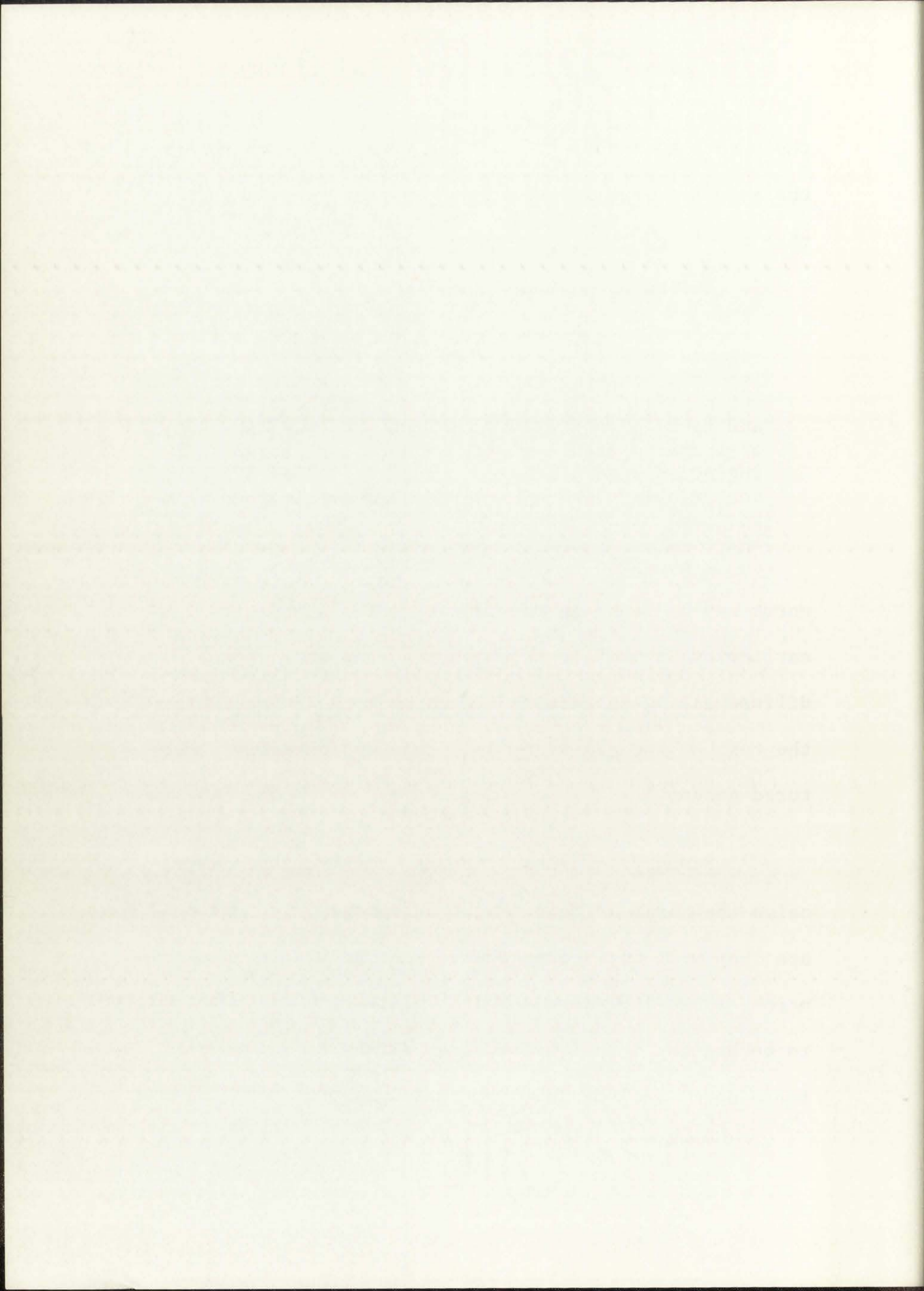
that exercise influence over the students' involvement in the academic work and the interpersonal relationships that go along with the learning task.³⁵

According to Olmstead:

Norms may be concerned with just about anything related to the life of a group. Two of the more important ones for small-group instruction are norms which permit every member to experience difficulty and norms of objectivity in the analysis and solution of learning problems. These norms are essential ingredients of a climate conducive to learning and, accordingly, are major targets of small-group instructional methods.³⁶

A possible solution to the establishment of group norms may be found in the findings of a study cited earlier by Schmuck in which he reported that groups with diffuse liking patterns share norms more favorable for the teacher and classroom work than do centrally structured groups.³⁷

Summary. Unless students in the classroom perceive the norms as being right and proper, the chances are they will not accept them. When groups set their own norms, those individuals that violate them are more likely to be brought into line by other students. Given that these norms include involvement in academic work, permit



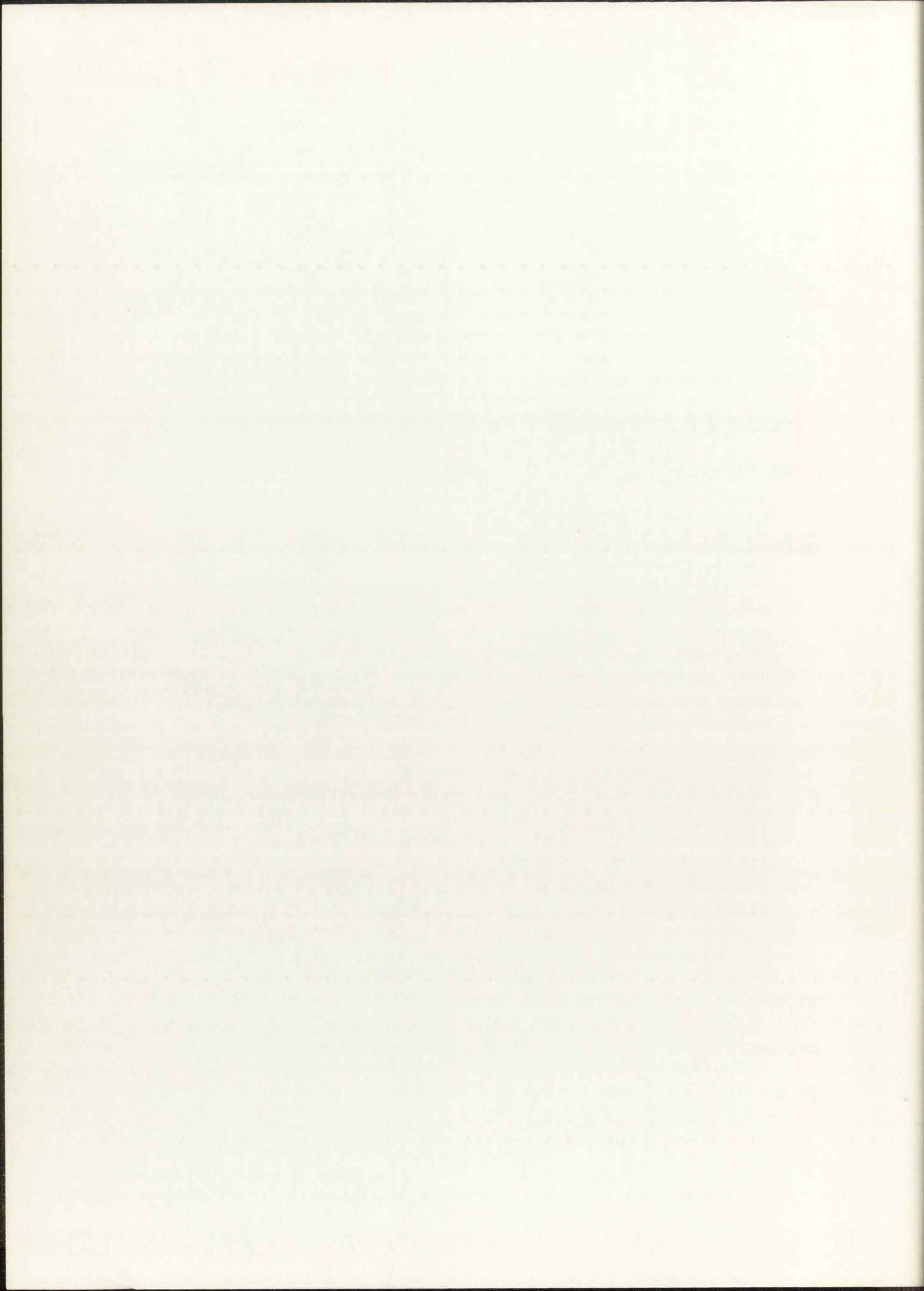
members to experience difficulty, and allow objectivity in the analysis and solution of learning problems, there will be a more positive classroom climate. Groups with diffuse liking patterns (see leadership) share more norms favorable for the teacher and classroom work. None of the aspects necessary for a positive classroom climate discussed can become functional without good lines of communication.

Communication Patterns

In a basic sense, learning is a function of communication. This is true of all learning that occurs in educational or training contexts, especially in group instructional situations. The communications that occur within the group determine the amount and types of learning that will be achieved.

. . . Much of the communication may be at the cognitive level, being primarily an exchange of ideas concerned with the topic under examination. However, many communications also carry noncognitive meanings. Thus, people communicate emotions, attitudes, and feelings, all of which may enter into and influence, either positively or negatively, the learning process.³⁸

Within any group there tends to be a stabilization of lines of communication. A group member does not communicate equally with all the members of the group. Power and role relationships, personal likes and dislikes,



subgroup cleavages, and other conditions influence these available and used lines of communication.³⁹

The more lines of communication, the more positive the climate in the classroom. Two way communication, as between teacher and student, as well as between student and student, gives the group as a whole the benefit of all the ideas present, as well as providing individual members with a sense of involvement. All this serves to improve the self-esteem of the individual members.⁴⁰

It is the leader, the individual with the most power, that usually controls the communication network. An autocratic leader tends to maintain tight control over the use of the lines of communication so that he can maintain his power. A democratic leader tends more to allow others to control lines of communication, although ". . . there must be continual vigilance to see that information is not withheld or manipulated by those in power positions."⁴¹ Medow and Zander reported that central members of the group, who have access to communication channels, tend to have higher morale, a stronger desire for the group to succeed, and a greater feeling of responsibility for the outcome of the group action.⁴²

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Schmuck and Schmuck contended that the pattern of peer group interaction in the classroom is related to the climate that exists there. In classrooms where there is free and relaxed interaction and high amounts of dialogue and feedback among the members, a positive climate exists. The opportunity for increased interaction and increased verbal communication both increase liking behavior.⁴³

Summary. The role of communication patterns in the group process is directly related to power and role relationships. The more lines of communication, the more positive the climate in the classroom, the more the sense of involvement, the more ideas presented, and the better the self-esteem. Individuals in the group also are more involved when they have access to many communications channels.

Cohesiveness

The cohesiveness of a group is gauged by the members' identification with and desire to remain in the group.⁴⁴ It differs from affiliation, because it emphasizes the individual's relationship to the group rather than his relationships with specific members. If an

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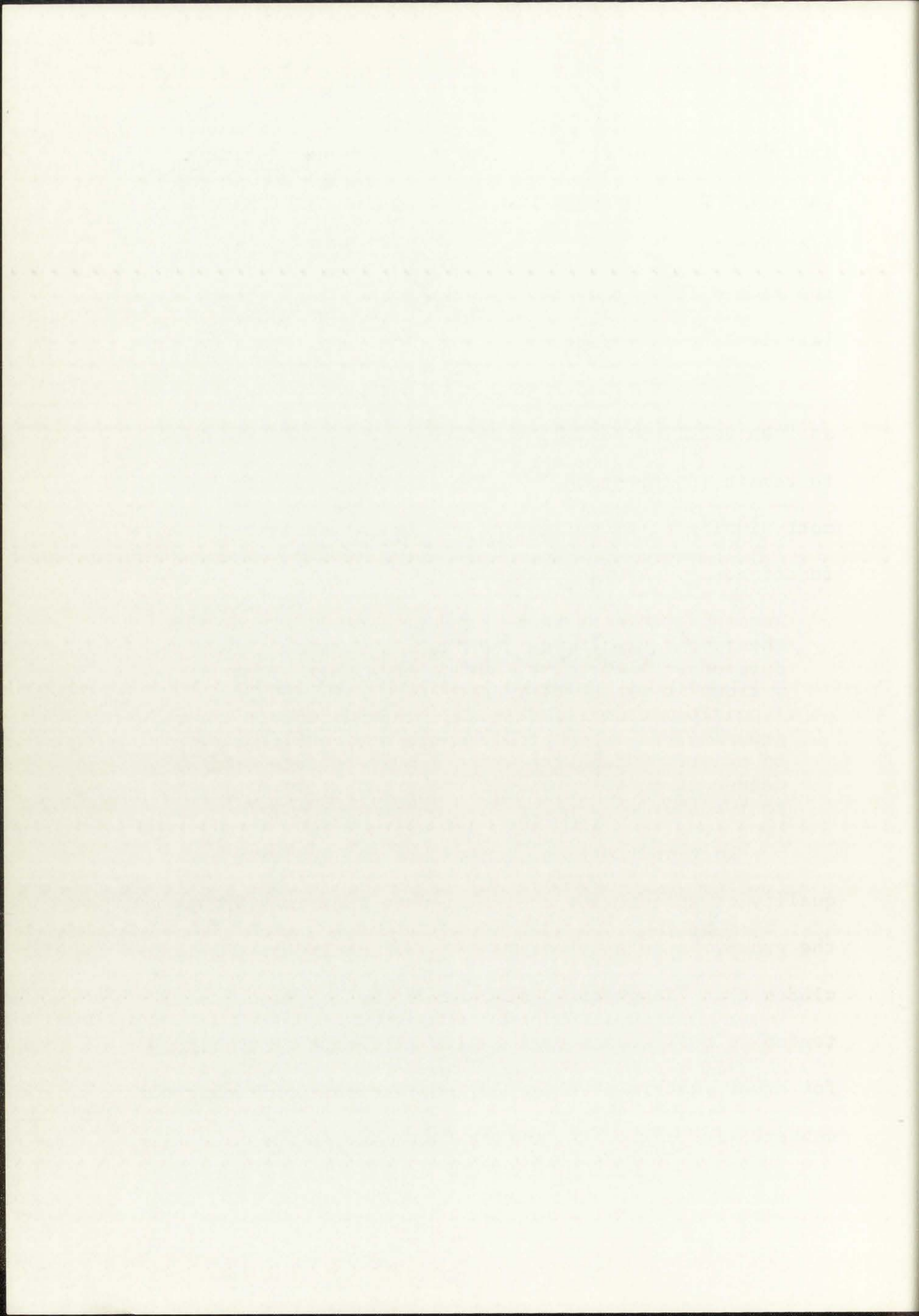
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individual likes his group and wishes to remain in it, it can exert pressure upon him to change as other members are changing; further, "the fact that other members face the same difficulties is reassuring and, thus, there is less feeling of inadequacy."⁴⁵

Festinger and Raven defined group cohesiveness as "the resultant of all the forces acting on the members to remain in the group."⁴⁶ The cohesiveness of the group most significantly influences the social-emotional function.

According to most theories (cf. Cattell's syntality theory and Bennis and Shepard's theory of group development) the first demand that must be met by a group is the resolution of internal problems (social-emotional function). Indeed, unless the group solves these problems the group will cease to exist. Consequently there must be some minimum degree of cohesiveness if the group is to continue to function as a group.⁴⁷

Lott and Lott concluded that the quantity and quality of interaction are related to the cohesiveness of the group.⁴⁸ In an experiment conducted by Back, he concluded that "in general, members of low cohesive groups tended to act independently, with little consideration for other members of the dyad, whereas the cohesive group members were active in seeking facts and in reaching



agreements."⁴⁹ When cohesiveness was based on task performance, group members wanted to complete the task quickly and efficiently; and when cohesiveness was based upon group prestige, the members of the dyad acted cautiously and avoided any action that might endanger their status.⁵⁰

Schmuck and Schmuck indicated that in industrial organizations cohesiveness is correlated with the productivity of a group, provided the norms are supportive of production.⁵¹ Both Muldoon⁵² and Schmuck and Schmuck⁵³ showed that classrooms with more dispersed liking structures were more cohesive. Schmuck and Schmuck went on to say, ". . . when a dispersed liking structure is accompanied by clear goals and an appreciation for individual diversity, a cohesive classroom group will probably emerge, and this will also enhance the climate of the group."⁵⁴

One function of a cohesive classroom group, as described by Bradford, is a climate that supports readiness for learning. Such a climate includes the following:

- (1) Expectations among members that everyone will learn.
- (2) Acceptance that learning and change are desirable and not a mark of previous inadequacy.

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- (3) Recognition that individuals may make mistakes but, since all are learning, errors will not be punished by the group or other members.
- (4) Realistic levels of aspiration for the group and for all members in terms of new learnings to be achieved.

Where such a climate exists, group influences can be strong in helping individuals develop a readiness to learn (overcome resistance) and then to change.⁵⁵

According to Shaw, interaction contributes something to the group product that is more than the mere combination of individual products. This hypothesis suggests that group members somehow exert an influence on their fellow members which leads to behavior that would not occur when members are alone.⁵⁶

Summary. Cohesiveness emphasizes an individual's relationship to the group itself and is concerned primarily with the group maintenance function (internal problems). Members of cohesive groups, when concerned with task functions, are more active in seeking facts, in reaching agreements, and in wanting to complete the task quickly and efficiently. Classrooms with dispersed liking structures are more cohesive. One of the primary functions of a cohesive classroom group is a climate that supports readiness for learning.

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RESEARCH WITH SMALL-GROUP METHODS
IN THE CLASSROOM

This second half of the review of related literature is divided into three areas. The first consists of research in small-groups in physical education. The second area follows the same outlines as the first, but consists of research in areas other than physical education. The third section includes a review of papers and articles on the implementation of small-group methods.

Research in Small-Group Methods
in Physical Education

Marburger conducted a study on the effectiveness of the Gestalt method (student-centered) and the Stimulus-Response method (teacher-centered) in teaching tennis to college women. He also investigated the effects of each of these teaching methods on student attitudes toward physical education (using Form A of the Wear Attitude Inventory). No significant difference between the two groups was found in skill acquisition; however, the Stimulus-Response group had significantly better knowledge of tennis than the Gestalt group.⁵⁷

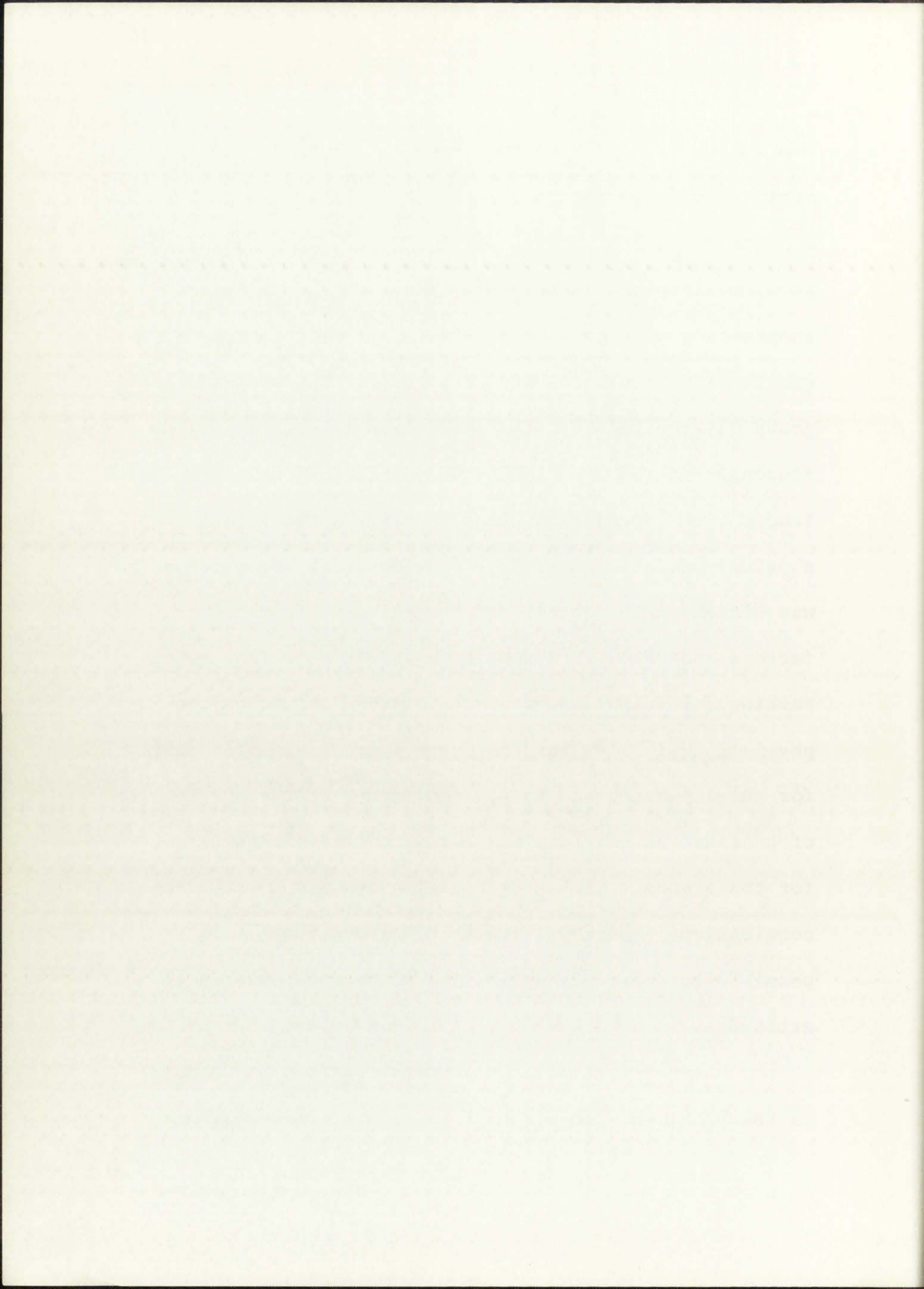
This study is relevant to the present investigation because of its focus on students' attitudes toward physical education and the emphasis on the student-centered approach as compared to the teacher-centered approach. The command method is classified as a teacher-centered approach and the small-group method is classified as a student-centered approach. Also, the tennis group used by Marburger and the swimming groups used in the present investigation were both beginner groups.

Hussey conducted a study similar to Marburger's in that he also used the Gestalt and Stimulus-Response (S-R) methods of teaching; instead of tennis skills, he concentrated on beginning trampoline stunts. Hussey found that skill acquisition to be the same in both experimental and control groups.⁵⁸

Blatnick conducted a study on student attitudes toward physical activities for lifetime sports. A teaching model was used which utilized the principles of operant conditioning, designed specifically for changing attitudes. Eighty-six male freshmen were selected at random from the total population enrolled in required physical education classes. Thirty-three were in the

control group and 33 in the experimental group; 20 were administered the attitude scale for reliability purposes. A pretest/posttest design was followed. The control group was exposed to the traditional method of class instruction with the emphases on skill acquisition and knowledge of the rules and strategies. The experimental group was treated with the structured teaching model (a student-centered approach). Communications and experiences were aimed at changing concepts about lifetime physical education activity. The criteria for grading was placed on the intellectual attainment of concept factors and skill achievement was given no weight in marking. Results showed a .66 shift in attitudes toward physical activities for the control group and 5.58 shift for the experimental group, significant at the .01 level of confidence. Fitness was not significantly different for the groups. The experimental group had greater skill acquisition. The investigator concluded that it is possible to construct activities to produce changes in attitudes.⁵⁹

A recent article on student-centered approaches to teaching, "A Comparison of the Effectiveness of the



Command Method and the Task Method of Teaching the Forehand and Backhand Tennis Strokes," concluded that the task method (a student-centered approach) was superior to the command method in teaching the forehand and backhand tennis strokes.⁶⁰

The task method of teaching is one in which the student, once he has been introduced to a new skill, practices it on his own without direct aid from the teacher, whereas, in the command method, the teacher is always in command, telling the student when to begin and when to end.

Summary. A review of the studies concerned with the use of small-group methods in physical education makes it quite evident that little research has been done in this area. From these studies, however, it may be concluded that a student-centered approach (also referred to as Gestalt and Task Methods) is more effective for knowledge retention and attitude change, and that the teacher-centered approach (also referred to as Command Method, S-R Method, and Standard Method) is most effective for skill acquisition, although not in all instances.



The Use of Small-Group Methods in
Other Areas of Education

Gordon was interested in the effect of group participation upon changes in the members' behavior and changes in attitude toward self. Analyzing the recordings of non-directive interviews as an assessment device, Gordon found that members became more self-accepting, they increasingly searched their attitudes and abilities concerning success or failure, and they developed increased perception of the importance of the reliance of self or other dichotomy. The members of the groups found it necessary to shift a whole constellation of attitudes and beliefs to effect behavior change and beliefs.⁶¹ Koller, in his review of research on the effects of small group inquiry, found that, using small-group methods in grades 3 through 12, attitudes, interests, differing learning styles, and feelings are provided for in an effective and meaningful way.⁶²

There are a number of studies on the use of small-group methods written from the teachers' point of view. Webb and Grib found that teachers' behavior changed from attempting to provide for anticipated needs to an attempt

Group Cohesion and the Effectiveness of Group

Performance: A Meta-Analysis of the Research

by Bruce W. Tuckman and Charles A. Berson

Abstract: A meta-analysis of 147 studies on group cohesion and performance was conducted. The results show a positive relationship between group cohesion and performance, with the effect size being moderate to large. The relationship is stronger for groups with high task interdependence and for groups with high levels of cohesion.

Group cohesion is defined as the degree to which members of a group are attracted to one another and motivated to remain in the group. Cohesion is a multidimensional construct, and its relationship to performance is complex. This meta-analysis examines the relationship between group cohesion and performance across a variety of studies.

The meta-analysis included 147 studies published between 1950 and 1970. The studies were selected based on their focus on group cohesion and performance. The results of the meta-analysis are presented in Table 1.

Table 1 shows that the overall effect size for the relationship between group cohesion and performance is moderate to large. The effect size is stronger for groups with high task interdependence and for groups with high levels of cohesion.

The meta-analysis also found that the relationship between group cohesion and performance is stronger for groups with high levels of task interdependence. This suggests that cohesion is more important for groups that are highly interdependent.

Finally, the meta-analysis found that the relationship between group cohesion and performance is stronger for groups with high levels of cohesion. This suggests that cohesion is a key factor in determining group performance.

There are a number of limitations to this meta-analysis. First, the studies included in the meta-analysis were primarily published between 1950 and 1970. It is possible that more recent studies have found different results.

Second, the meta-analysis only examined the relationship between group cohesion and performance. It did not examine the relationship between group cohesion and other variables, such as group satisfaction or group stability.

Despite these limitations, the meta-analysis provides a clear picture of the relationship between group cohesion and performance. The results suggest that group cohesion is a key factor in determining group performance, and that the relationship is stronger for groups with high task interdependence and for groups with high levels of cohesion.

to assist students in fulfilling expressed needs.⁶³ This is very important, considering that, unless a teacher is relaxed with a particular method of teaching, he cannot be expected to employ it effectively.

Glatthorn concluded in his study, "Learning in Small Groups," that only through small-group methods can you get student-teacher interaction. The student learns best when involved in activity: he is seen as an individual learner, he cannot be ignored, and he cannot get lost as a passive learner.⁶⁴ Glatthorn "found that scheduling the teacher for a small group does change teacher behavior. . . . Even the most dictatorial teacher can't lecture to five or six students."⁶⁵

Whipple conducted a study using two groups of five student teachers in early childhood education. The objectives of his study were to measure changes in educational objectives, teaching techniques, and teaching styles as a result of small-group methods. An analysis of the data indicates that the student teachers involved in the experimental group increased their self-understanding, gained a more mature perspective of their role, and became more sensitive observers of their children's

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became more sensitive observers of their children's

thinking and needs.⁶⁶

This study by Whipple was particularly relevant to this investigation because of its emphasis on teacher behavior. The teachers used to employ small-group methods in the present investigation to the beginning swimming classes were neophytes to small-group methods themselves.

An HEW sponsored program for disadvantaged youths was designed to improve language art skills using small-group methods. The findings of this program showed that, in addition to a greater improvement in the area of language arts and mathematics, which were substantially greater than their gains in previous years, the students demonstrated improved attitudes toward school and self by better attendance and more classroom and extracurricular participation.⁶⁷

The Hartford Public Schools instituted an intensive reading program using small-group methods. They reported significant improvement in both attitudes and skills. An analysis of parents' and teachers' evaluation forms collected by the researchers following the experiment revealed a more positive attitude toward reading, more self-confidence, and, in general, a more positive

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attitude toward school.

Marani, comparing small-group methods and an individualized approach of teaching reading, found no significant difference in reading achievement or the students' attitude toward self.⁶⁹ However, the difference between small-group methods and an individualized method of teaching, both being student-centered approaches, probably accounts for these seemingly contradictory findings.

Miller used small-group methods in a ninth grade industrial arts class. Conclusions drawn from this study include the following: students who work in small groups can be expected to increase their level of enjoyment, consider learning easier, and find it more challenging. It was also an effective means of presenting material related to a particular course of study.⁷⁰

A small-group approach was also employed by Sancho in bilingual education. Sancho stated that the child in the bilingual education situation must be aware of the two languages involved as two separate systems corresponding to the two distinct cultural entities that are part of his environment. The child must learn to

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A small-group approach was also employed by Sanchez in bilingual education. Sanchez stated that the child in the bilingual education situation must be aware of the two languages involved as two separate systems corresponding to the two distinct cultural entities that are part of his environment. The child must learn to

separate, yet identify with, each system as a useful and necessary means of communication. Sancho grouped together children with varied language abilities, backgrounds, and academic skills. He based this grouping on the theory that children from different language backgrounds, if exposed to one another's language in a bilingual setting which encourages and reinforces both languages equally, will develop the second language naturally and easily, while improving the first language. Sancho concluded that the experiment was successful.⁷¹ No empirical data, however, was provided to substantiate his conclusions.

Welch evaluated the effectiveness of small, student learning groups and identified factors that contribute to small-group learning in an overall flexible modular scheduling plan. Fifteen schools, comprising a total of 91 small groups using flexible modular schedules, participated in the study. The findings showed that there was no correlation between group effectiveness in relation to optimum class size, sex of teachers, modular length, or number of modes, and little correlation between the observational criteria and students' perception of classroom environment. However, his findings did indicate

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that small groups are likely to be effective when they indicate high cohesiveness, satisfaction, goal direction, and democracy, while at the same time possessing the characteristics of low friction, cliqueness, and organization. Concerning student involvement, it was found that students talked 52 percent of the time as compared to 15 percent in regular classes. Seventy-nine percent of the students in small groups spoke at least once during a 20 minute mode.⁷²

The research by Welch provided further support for the claims that small-group methods increase cohesiveness, support a democratic form of leadership, and provide for the need for affiliation and group norms made in the first section of this review of related literature and add further to the research hypotheses posited for the present investigation.

Two studies, one by Ball,⁷³ who used small-group methods to teach math and philosophy, and the other by Taylor,⁷⁴ who used small-group methods in an American history course, provided documentary evidence which supported the use of small-group methods of teaching.

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Summary. The research reported here in this section can best be summarized by citing a comprehensive report by Olmstead, Theory and State of the Arts of Small-Group Methods of Instruction, who evaluated the more common small-group methods in terms of their effectiveness in teaching. A rationale for the use of small-group instruction was presented, followed by descriptions of the principal methods, and an assessment based on existing research findings and which held true in the present research. It was concluded that small-group methods can be effective for enhancing motivation for learning, developing positive attitudes toward later use of course materials, and improving problem solving skills. However, small-group methods were no more effective than lectures for transmitting information and concepts, although when used in conjunction with lectures there was an increase in the depth of understanding of course content.⁷⁵

Other Related Literature

The following review is of research on the use of small-group methods in teaching. They provide an outline of the effectiveness of small-group methods.

Section 1

Chapter 1

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Olmstead stated that small-group methods are founded upon a well-developed rationale, whereas "most other methods have evolved through trial and error and, therefore, their rationales are, to say the least, unsystematic."⁷⁶ Small-group methods are based on learning theory. According to Olmstead, learning theory is based on a climate of learning, the opportunity for controlled observation of others actively learning, the opportunity to experience varied and realistic situations, the opportunity for experimentation, and the opportunity to objectively analyze one's own performance. Along with learning theory, the techniques of group dynamics is combined to yield small-group methods.⁷⁷

The success of small-group methods depends on the care with which they are designed and used. The following are precautions that Olmstead stated must be taken for the most effective use of small-group methods: (1) instructional objectives must be made clear to the students, (2) background information concerning the topics or problems under study must be provided for the student, and (3) students should be assigned permanently to groups and allowed to remain together whenever group assignments

The purpose of this study was to evaluate the effectiveness of a self-directed learning method in a laboratory setting. The study was conducted over a period of six weeks, during which time the students were divided into two groups: a control group and an experimental group. The control group received traditional instruction, while the experimental group was given a self-directed learning approach. The results of the study indicated that the self-directed learning method was significantly more effective than the traditional method. The experimental group showed a higher level of understanding and retention of the material, as well as a greater ability to apply the concepts in practical situations. The study also found that the self-directed learning method was more cost-effective and more flexible than the traditional method. The results of this study suggest that self-directed learning should be used more widely in laboratory settings. The following are the objectives of the study: (1) to determine the effectiveness of the self-directed learning method in a laboratory setting, (2) to compare the self-directed learning method with the traditional method, (3) to determine the cost-effectiveness of the self-directed learning method, and (4) to determine the flexibility of the self-directed learning method. The study was conducted in a laboratory setting, and the results were compared to those of the control group. The self-directed learning method was found to be more effective than the traditional method in all aspects measured. The study also found that the self-directed learning method was more cost-effective and more flexible than the traditional method. The results of this study suggest that self-directed learning should be used more widely in laboratory settings.

are considered desirable. "An exception is the case where a stated objective is the stimulation of students through exposure to a wide range of ideas and viewpoints. With such an objective, periodic realignment of groups may be advisable."⁷⁸

Requirements for the instructor included the following: (1) he should be well trained in the use of small-group methods, (2) he must establish precisely what he wants to accomplish in the area of learning, and (3) finally,

it is important for an instructor to understand, accept, and be comfortable with the premises embodied in the rationale for small-group instruction. Principal among these are the premises that (a) a group of reasonable, capable [students] can learn on its own if the instructor will let it, (b) it is not essential for an instructor to control every input into a discussion in order for it to be an effective learning experience, and (c) maximum learning probably occurs when a group breaks its dependence upon its instructor and assumes responsibility for learning.⁷⁹

Adams also discussed the effectiveness of small-group instruction as opposed to teacher-centered instruction. He suggested the following in using this type of class instruction: (1) students are told that the class is not lecture, but one in which they will participate

the concept of the group as a whole is the basis for the study of the group as a whole. The study of the group as a whole is the study of the group as a whole.

With this as objective, the following assignment of groups may be made:

Requirements for the instructor included the

following: (1) he should be well trained in the use of

small-group methods, (2) he must establish himself as

he must be recognized as the area of learning, and

(3) finally,

it is important for an instructor to understand group, and be comfortable with the process involved in the practice for small-group instruction. The chief among these are the process (a) a group of responsibility, (b) a group of responsibility, (c) a group of responsibility, (d) a group of responsibility, (e) a group of responsibility, (f) a group of responsibility, (g) a group of responsibility, (h) a group of responsibility, (i) a group of responsibility, (j) a group of responsibility, (k) a group of responsibility, (l) a group of responsibility, (m) a group of responsibility, (n) a group of responsibility, (o) a group of responsibility, (p) a group of responsibility, (q) a group of responsibility, (r) a group of responsibility, (s) a group of responsibility, (t) a group of responsibility, (u) a group of responsibility, (v) a group of responsibility, (w) a group of responsibility, (x) a group of responsibility, (y) a group of responsibility, (z) a group of responsibility.

Alam also discusses the effectiveness of small-

group instruction as opposed to teacher-centered learning.

He suggested the following in using this type of

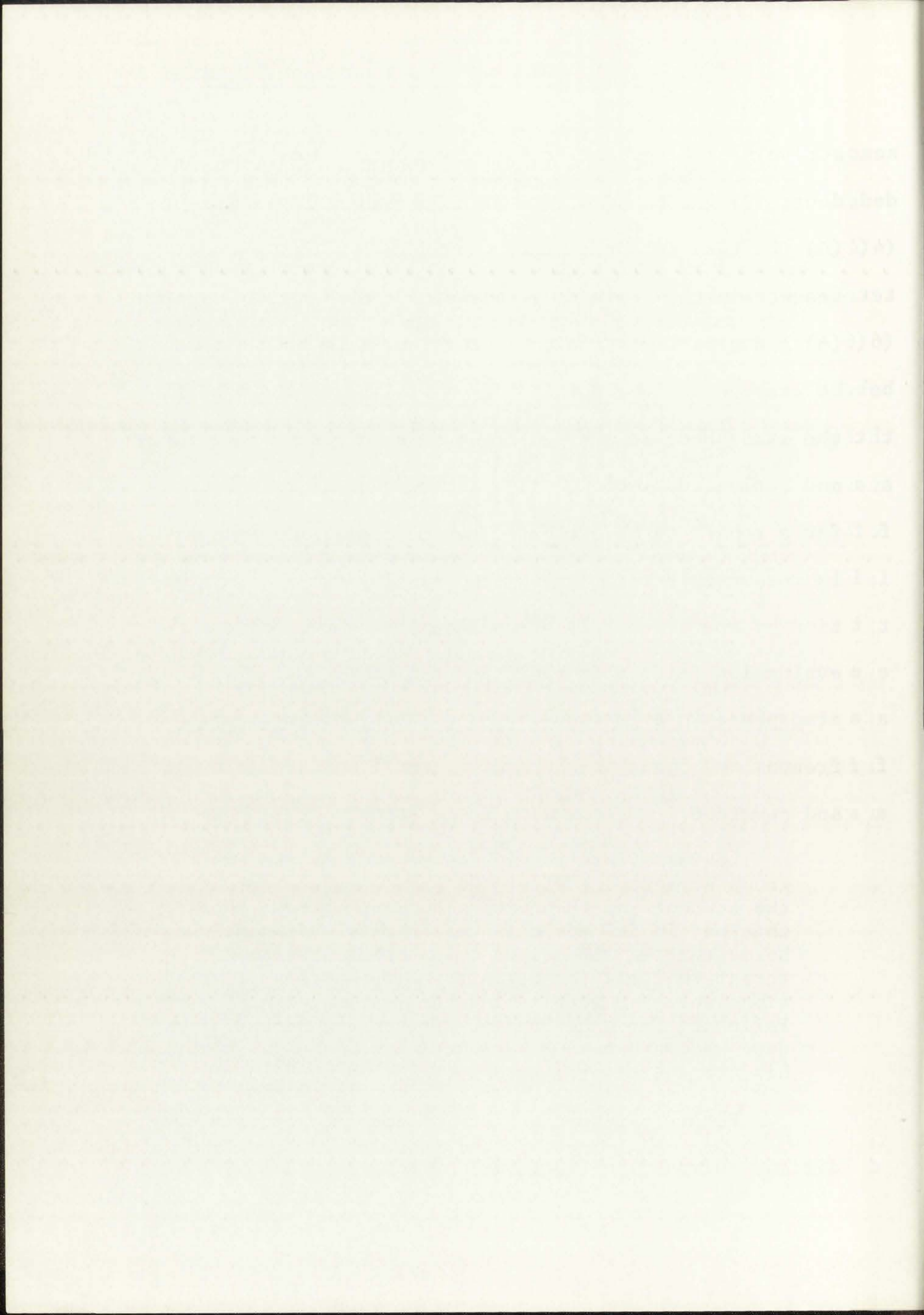
class instruction: (1) students are told that the class

is not lecture, but one in which they will participate

actively; (2) personal data are collected from each student; (3) groups of six to eight persons are set up; (4) the task of the learner should be outlined by the teacher in the beginning; (5) outside reading is essential; (6) group participation is essential, mild pressure can be exerted to insure this; (7) skill is needed in setting the atmosphere in the classroom to encourage participation and active involvement; (8) each student is responsible for a report to be presented to the class; (9) each group is responsible for a group report; (10) external evaluation by the teacher is de-emphasized and the focus of evaluation shifted to the student himself; and (11) the atmosphere in a learner-centered class should be one of freedom and openness where divergent ideas are welcomed and rewarded.⁸⁰ Adams went on to state:

Learner centered approaches such as the small group arrangement offer the open atmosphere where the student and the teacher become learners sharing together in the education enterprise. Phenomenology holds that in situations which offer absence of threat the self can begin to rearrange its perceptions which in reality is what learning is all about. Following these rearranged perceptions we have a student who is becoming self-actualized and is improving his subsequent problem solving behavior.⁸¹

Peters designed a study to identify certain conditions surrounding the formation and operation of



selected small groups, to discover their distinctive educational features, and to suggest guidelines for effective use of the small-group approach. These were among the guidelines formulated: (1) small-group members should be fairly diverse in talents and skills, but compatible in values and norms; (2) study should alternate with opportunities for practical application; (3) mutual trust and a sense of community and personal identification should be fostered; (4) the group should be fairly permanent, with regular and frequent meetings; (5) members should have a common purpose or cause; (6) ideally, all members should be trained for performance of responsibilities within the group.⁸²

Summary. As a result of a review of the literature in areas of education other than physical education, it can be concluded that small-group methods can be effective for enhancing motivation for learning, developing positive attitudes toward later use of course materials, and improving problem-solving skills. However, small-group methods were no more effective than lectures for transmitting information and concepts, although when used



in conjunction with lectures, there was an increase in the depth of understanding of course content.

Although there are many ways of using small-group methods, the literature is consistent in its basic premises. It may be concluded that the major factors involved in the use of all small-group methods are: a teacher must be willing to accept and treat his students as equals; understand the principles of group dynamics; make the student realize he is responsible for his own learning and, consequently, himself; and, in general, create a positive climate in the classroom.

HYPOTHESES

Null Hypothesis 1

Based on data provided by Schmuck and Schmuck,⁸³ Shaw,⁸⁴ Lott and Lott,⁸⁵ and Mannheim,⁸⁶ concerning students' attitudes toward classroom group tasks, the following null hypothesis was posited:

1. There will be no significant difference in attitudes toward beginning swimming between students who are in classes where the small-group method of teaching is used and students in classes where the command method of teaching is used.

The depth of understanding of course content.
Although there are some who believe that
the literature is essential to the field,
it may be concluded that the most effective
method is the use of all small-group methods.
Methods must be selected in relation to the students
as a whole, and the objectives of group dynamics.
The student who is responsible for his own
learning and, consequently, himself; and, in general,
create a positive climate in the classroom.

REFERENCES

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based on data provided by Hershbach and Schuck,
Shaw, ⁸⁰ Lord and Lord, ⁸¹ and Hershbach, ⁸² concerning stu-
dents' attitudes toward classroom group work. The follow-
ing will hypothesis was tested:
1. There will be no significant difference in
attitudes toward classroom group work between students who
are in classes where the small-group method of teaching
is used and students in classes where the conventional method
of teaching is used.

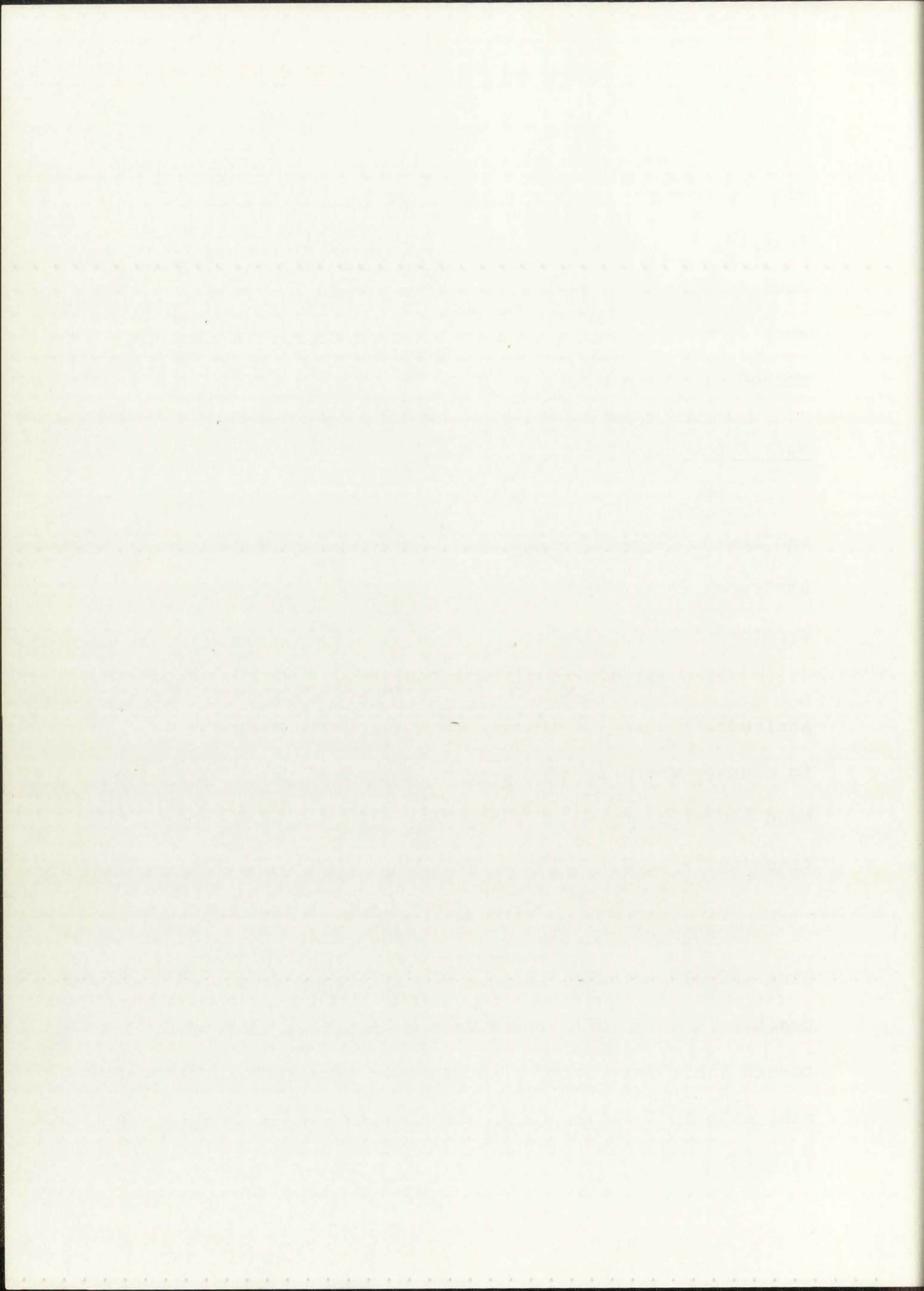
Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence more positive attitudes toward courses in beginning swimming than students enrolled in beginning swimming classes where the command method of teaching is used.

Null Hypothesis 2

Based on data provided by Schmuck and Schmuck,⁸⁷ and Lewin, Lippett, and White,⁸⁸ concerning students' attitudes toward their instructors, the following null hypothesis was posited:

2. There will be no significant difference in attitudes toward the instructor between students who are in classes where the small-group method of teaching is used and students in classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence more positive attitudes toward their instructor than students enrolled in beginning swimming classed where the command method of teaching is used.



Null Hypothesis 3

Based on data provided by Shaw,⁸⁹ Schmuck and Schmuck,⁹⁰ and Schachter,⁹¹ concerning students' self-esteem, the following null hypothesis was posited:

3. There will be no significant difference in self-esteem of students who are in classes where the small-group method of teaching is used and students' changes in self-esteem in classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence a more positive self-esteem than students enrolled in beginning swimming classes where the command method of teaching is used.

Null Hypothesis 4

Based on data provided by Schmuck and Schmuck,⁹² Medow and Zander,⁹³ Schachter,⁹⁴ and Schutz,⁹⁵ concerning the personal-self, the following null hypothesis was posited:

4. There will be no significant difference in the personal-self of students who are in classes where

Null Hypothesis 1

Based on data provided by Schuck and Schuck (1972) and Lander, Schachter, and Schuck (1972) concerning the personal self, the following null hypothesis was postulated:

3. There will be no significant difference in self-esteem of students who are in classes where the small-group method of teaching is used and students who are in classes where the personal self method of teaching is used.

Research Hypothesis 1

Along with the above null hypothesis, the following research hypothesis was postulated:

Teaching in which evidence of a more positive self-esteem than students enrolled in beginning writing classes where the personal method of teaching is used.

Null Hypothesis 2

Based on data provided by Schuck and Schuck (1972) and Lander, Schachter, and Schuck (1972) concerning the personal self, the following null hypothesis was postulated:

4. There will be no significant difference in the personal self of students who are in classes where

the small-group method of teaching is used and students in classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence a more positive personal-self than students enrolled in beginning swimming classes where the command method of teaching is used.

Null Hypothesis 5

Based on data provided by Schmuck and Schmuck,⁹⁶ Medow and Zander,⁹⁷ Schachter,⁹⁸ and Schutz,⁹⁹ concerning the physical-self, the following null hypothesis was posited:

5. There will be no significant difference in changes in the physical-self of students who are in classes where the small-group method of teaching is used and students in classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence a more positive physical-self than students enrolled in beginning swimming classes

The results of the study indicate that the use of the self-
directed learning method of teaching is used.

Research Hypothesis The study was conducted in order to

compare the use of the self-
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Self-Directed Learning

Based on data provided by Johnson and Johnson,

Johnson and Landrum,²⁷ Johnson,²⁸ and Johnson,²⁹ concerning

the physical self, the following self-hypothesis was

proposed:

H₁: There will be no significant difference in

changes in the physical self of students who are in classes

where the self-
directed learning method of teaching is used and

where the self-
directed learning method of teaching is

used.

Research Hypothesis Students enrolled in the

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where the command method of teaching is used.

Null Hypothesis 6

Based on data provided by Shaw,¹⁰⁰ Schmuck and Schmuck,¹⁰¹ Mannheim,¹⁰² and Schachter,¹⁰³ concerning the social-self, the following null hypothesis was posited:

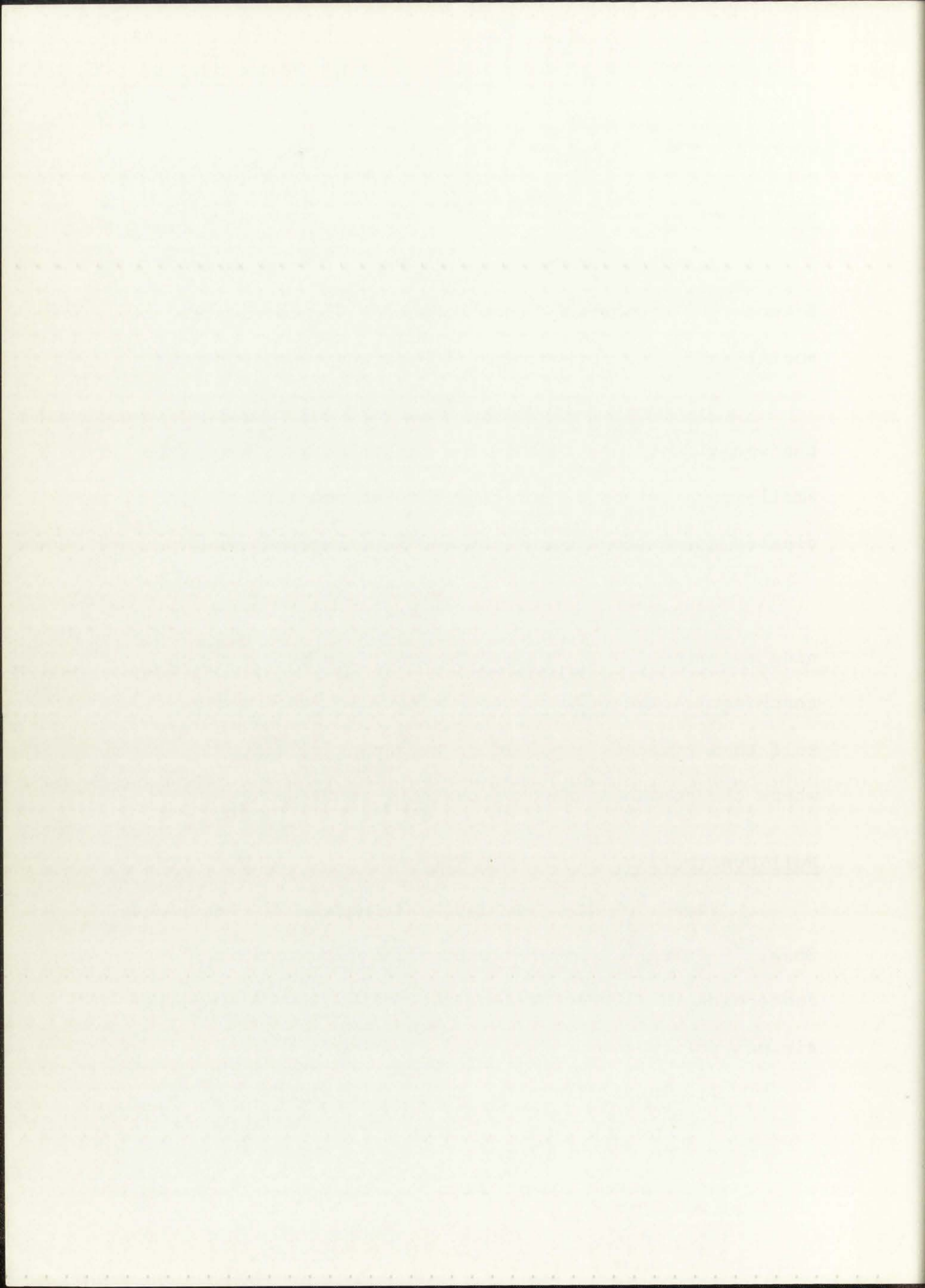
6. There will be no significant difference in the social-self of students who are in classes where the small-group method of teaching is used and students in classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence a more positive social-self than students enrolled in beginning swimming classes where the command method of teaching is used.

Null Hypothesis 7

Based on data provided by Rosenfeld,¹⁰⁴ Beaty and Shaw,¹⁰⁵ Yuker,¹⁰⁶ and Perlmutter and deMontmollin,¹⁰⁷ concerning skill acquisition, the following null hypothesis was posited:

7. There will be no significant difference in



the skill acquisition of students in classes where the small-group method of teaching is used and classes where the command method of teaching is used.

Research hypothesis. Students enrolled in beginning swimming classes where the small-group method of teaching is used will evidence no more acquisition of skill than students enrolled in beginning swimming classes where the command method of teaching is used.

SUMMARY

Past research has revealed that leadership is one of the most important aspects of the group structure. Groups that use a democratic form of leadership produce qualitatively better work. In groups where the influence function is distributed throughout the group, members feel they have the ability to influence others, and this has positive effects on self-esteem. Democratic leadership produces a more positive classroom climate. Interpersonal relationships between students is more frequent, which leads to a better self-image and a better self-concept.

The first objective of research is to determine the
effectiveness of teaching methods and classes where

the content and style of learning is used.

Research Synthesis - Synthesis involves in logic

and various classes where the synthesis method of

teaching is used and the synthesis of more complex

skills that students are able to perform

classes where the synthesis method of teaching is used.

SUMMARY

First research has revealed that leadership is one

of the most important aspects of the group structure.

Groups that use a democratic form of leadership produce

qualitatively better work. In groups where the influence

function is distributed throughout the group, members

feel they have the ability to influence others, and this

has positive effects on self-esteem. Democratic leaders

also produce a more positive classroom climate. Data

personal relationships between students is more frequent

which leads to a better self-esteem and a better self-

concept.

The need to belong to groups can only be satisfied by the positive reaction of others. When a student is not accepted by a group, whether perceived or factual, his use of his intellectual abilities is incomplete and he holds negative attitudes toward himself and his school. Research indicates that a student can increase his social interaction skills by working in small groups.

Unless students in the classroom perceive the norms as being right and proper, the chances are they will not accept them. When groups set their own norms, those individuals that violate them are more likely to be brought into line by other students. Given that these norms include involvement in academic work, permit members to experience difficulty and all objectivity in the analysis and solution of learning problems, there will be a more positive classroom climate. Groups with diffuse liking patterns share more norms favorable toward the teacher and classroom work.

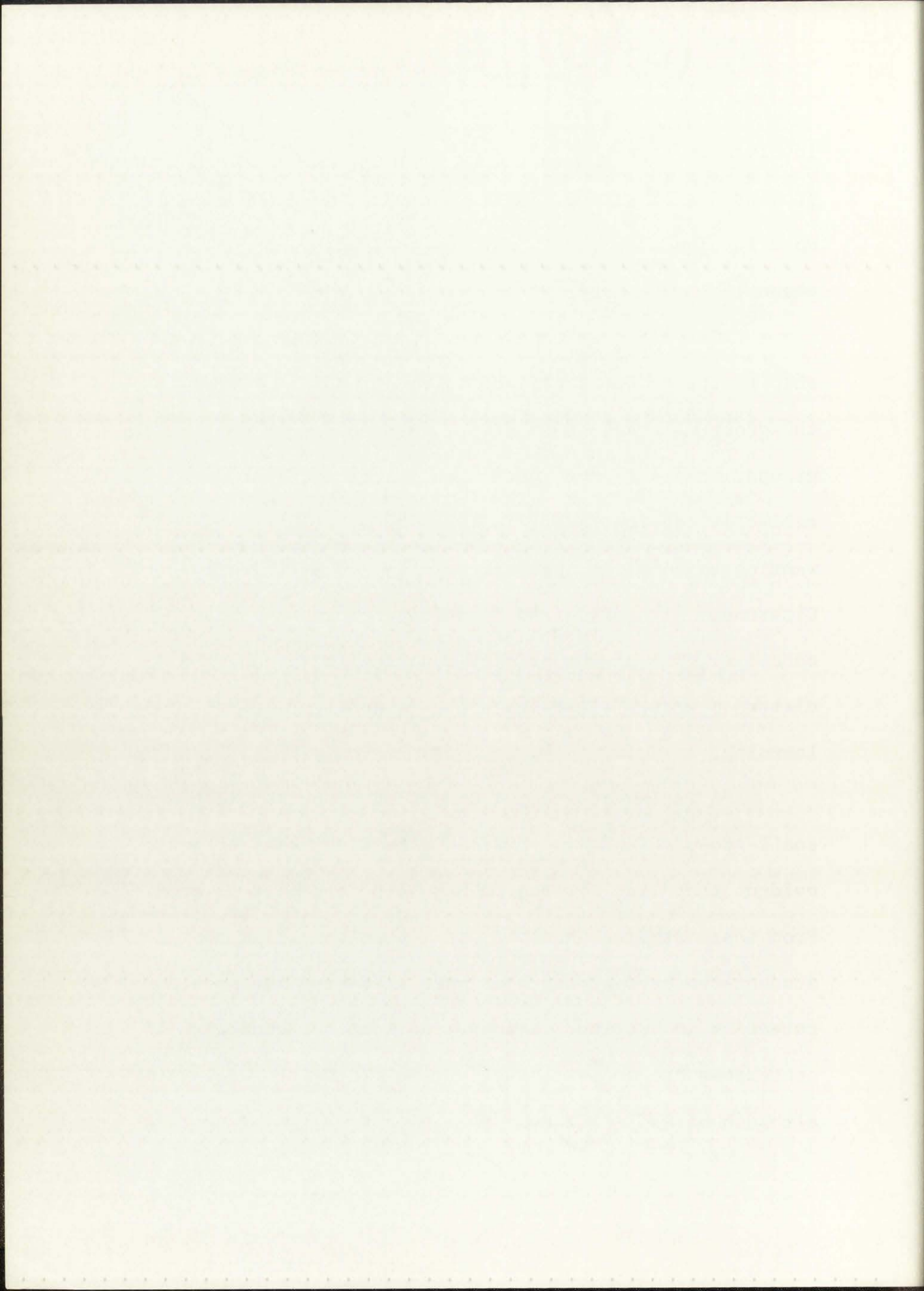
The role of communication patterns in the group process is directly related to power and role relationships. The more lines of communication, the more positive the climate in the classroom, the more the sense of

The need to have a positive attitude towards the subject is essential for the student to be successful. The teacher should create a positive atmosphere in the classroom by being friendly and approachable. The student should be encouraged to ask questions and participate in class activities. The teacher should provide constructive feedback and praise the student's efforts. The student should be motivated by setting goals and working hard to achieve them. The teacher should use a variety of teaching methods to engage the student and make learning enjoyable. The student should be encouraged to take responsibility for their own learning and to seek help when needed. The teacher should be a role model and demonstrate the qualities of a good teacher. The student should be encouraged to be a good student and to respect the teacher and classmates. The teacher should be a source of support and encouragement for the student. The student should be encouraged to be a good citizen and to contribute to the community. The teacher should be a source of inspiration and motivation for the student. The student should be encouraged to be a good person and to live a life of integrity and honesty. The teacher should be a source of knowledge and wisdom for the student. The student should be encouraged to be a good learner and to seek knowledge and wisdom. The teacher should be a source of love and compassion for the student. The student should be encouraged to be a good person and to love and compassion for others. The teacher should be a source of hope and faith for the student. The student should be encouraged to be a good person and to have hope and faith in the future. The teacher should be a source of strength and courage for the student. The student should be encouraged to be a good person and to have strength and courage to face the challenges of life. The teacher should be a source of peace and harmony for the student. The student should be encouraged to be a good person and to promote peace and harmony in the world. The teacher should be a source of joy and happiness for the student. The student should be encouraged to be a good person and to experience joy and happiness in life. The teacher should be a source of love and compassion for the student. The student should be encouraged to be a good person and to love and compassion for others. The teacher should be a source of hope and faith for the student. The student should be encouraged to be a good person and to have hope and faith in the future. The teacher should be a source of strength and courage for the student. The student should be encouraged to be a good person and to have strength and courage to face the challenges of life. The teacher should be a source of peace and harmony for the student. The student should be encouraged to be a good person and to promote peace and harmony in the world. The teacher should be a source of joy and happiness for the student. The student should be encouraged to be a good person and to experience joy and happiness in life.

involvement, the more ideas presented, and the better the students' self-esteem. Individuals in the group also are more involved when they have access to many communications channels.

Cohesiveness emphasizes an individual's relationship to the group itself and is concerned primarily with the group maintenance function. Members of cohesive groups, when concerned with task functions, are more active in seeking facts, in reaching agreements, and in wanting to complete the task quickly and efficiently. Classrooms with dispersed liking structures are more cohesive. One of the primary functions of a cohesive classroom group is a climate that supports readiness for learning.

A review of studies concerned with the use of small-group methods in physical education makes it quite evident that little research has been done in this area. From these studies, however, it may be concluded that a student-centered approach is more effective for knowledge retention and attitude change, and that the teacher-centered approach is most effective for skill acquisition, although not in all instances.



FOOTNOTES

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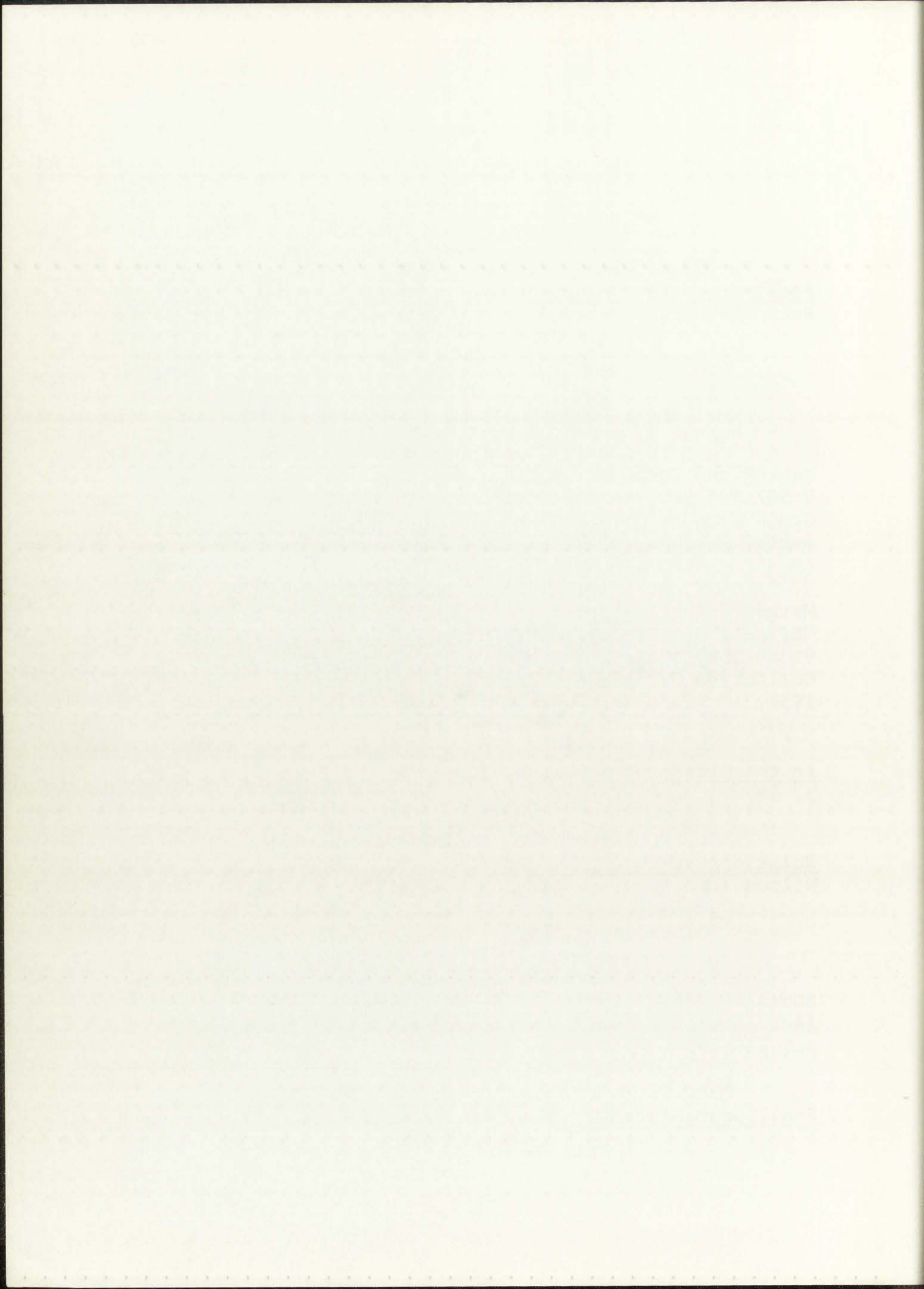
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CHAPTER III

METHODOLOGY AND ANALYSIS OF THE DATA

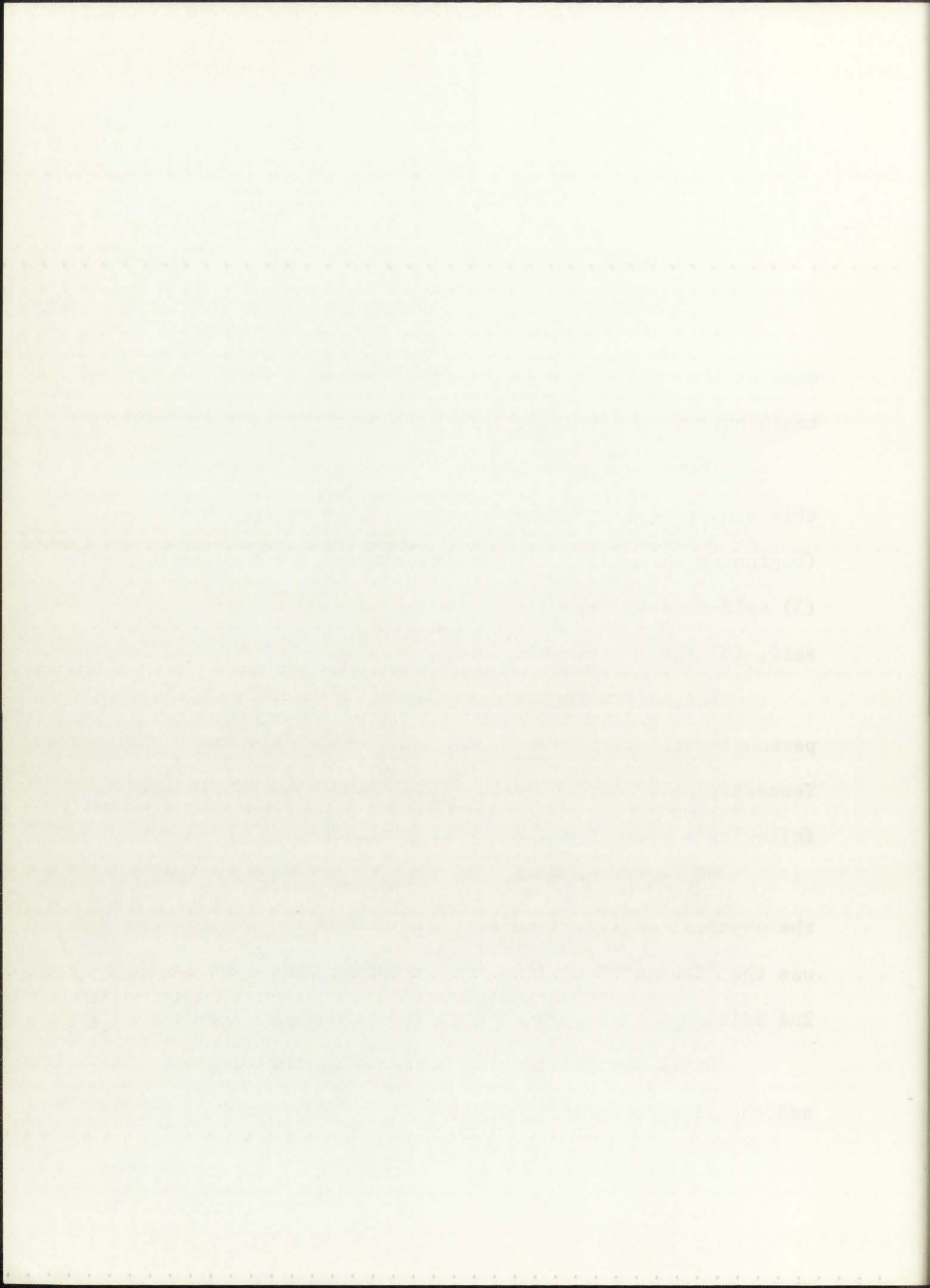
This study was designed to compare the effectiveness of the small-group method and command method of teaching.

There were seven dependent variables measured in this study: (1) attitude toward the physical activity (beginning swimming), (2) attitude toward the instructor, (3) self-esteem, (4) the personal-self, (5) the physical-self, (6) the social-self, and (7) skill acquisition.

The instrument used to measure physical-self, personal-self, social-self, and self-esteem was the Tennessee Self Concept Scale (TSCS)¹ and was administered following a pretest and posttest procedure.

The instrument used to measure attitudes toward the physical activity and attitude toward the instructor was the "Student Reactions to Instruction and Courses, 2nd Edition," by Donald P. Hoyt and Richard E. Owens.²

Skill acquisition was measured by the instructors and the researcher as a normal part of the course



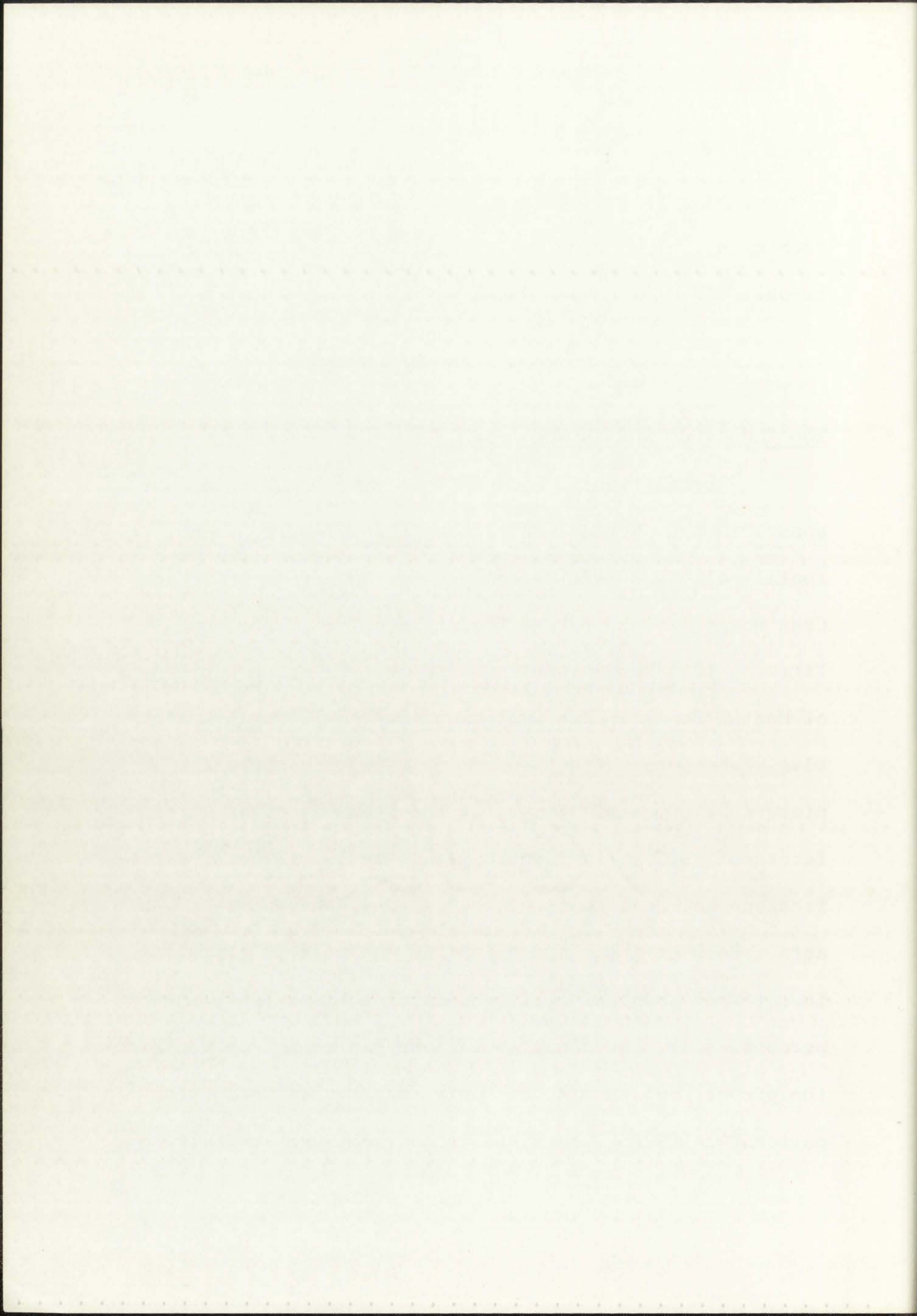
procedures, and therefore was an unobtrusive measure.

The swimming skills measured were the front crawl, the back crawl, elementary backstroke, sidestroke, and breaststroke.

SELECTION OF THE INSTRUMENTS

The Tennessee Self Concept Scale

The instrument used in this experiment to measure change in the physical-self, the personal-self, the social-self, and self-esteem was the Tennessee Self Concept Scale (TSCS), Form C (Counseling Form), developed by Fitts in 1955 in conjunction with the Tennessee Department of Mental Health. The Scale consists of 100 self-descriptive statements which the subject uses to portray his picture of himself. Ninety of the items describe three facets of self: (1) identity—what he is, (2) self-satisfaction—how he accepts himself, and (3) behavior—how he acts. Each of these dimensions of the self is described in terms of physical-self, the moral-ethical-self, the personal-self, the family-self, and the social-self. For the purposes of this study, only the physical-self, the personal-self, the social-self, and self-esteem (self-



esteem is described by Fitts as the overall measure of self-concept) were used.³ The moral-ethical-self was excluded because it measures "moral worth, relationship to God, feelings of being a 'good' or 'bad' person, and satisfaction with one's religion or lack of it,"⁴ and this study did not hypothesize about any of the aspects described as the moral-ethical-self. The family-self was excluded because the measure of the social-self (used in this study) also measures "relation to others," but in a more general way. The family-self is a more specific measure of the "relationship to others."⁵

This scheme orders the responses into a 3 x 5 matrix which consists of 45 positive items and 45 negative items, offered to the subjects on a Likert-type scale which indicates the degree to which each item is true of him. The range of responses allowed is from completely false, which is assigned a value of 1, to completely true, which is assigned a value of 5. This portion of the Scale thus generates a phenomenological system of determining the Total Positive (P) Score which Fitts describes as the most important single score on the Counseling Form; it reflects the overall level of self-esteem. The Scale

at the level of the self-concept of
the subject, the self-concept was
assumed to be a moral concept, relationship
to God, feeling of being a good or bad person, and
satisfaction with one's religion or lack of it, and
this study did not differentiate about any of the aspects
described as the moral-ethical-self. The facility-self was
excluded because the presence of the moral-ethical-self
was not a necessary condition for the facility-self, but in a
more general way, the facility-self is a more specific
measure of the "relationship to oneself."
This subject order and the response form 2, 3 x 2
matrix which consists of 45 positive items and 45 negative
items, offered to the subjects on a Likert-type scale
which indicates the degree to which each item is true or
false. The range of responses allowed is from completely
false, which is assigned a value of 1, to completely true,
which is assigned a value of 5. This portion of the
scale thus generates a psychometric system of values
along the total scale. (B) Items which are described
as the most important traits were on the descriptive form
to indicate the overall level of self-esteem. The scale

is self administering for either individuals or groups and can be used with subjects age 12 or higher and having at least a sixth grade reading level. It is also applicable to the whole range of psychological adjustments from healthy, well adjusted people to psychotic patients.⁶

The group from which the norms for the TSCS were developed was a sample of 626 people, ranging in age from 12 to 68, with approximately equal numbers of both sexes, representative of all social, economic, racial, and intellectual levels, and educational levels from sixth grade through the Ph.D. degree. Subjects were obtained from high school and college classes, and employers at state institutions and various other sources.⁷ Data collected by Sundby,⁸ with high school students, Gividen,⁹ with army recruits, Hall,¹⁰ with teachers, and Fitts,¹¹ with Negro nursing students, show group means and variances comparable to those of the norm group.

The Tennessee Self Concept Scale was found by Fitts to have a test-retest reliability of all major scores ranging from .60 to .92. For the four items selected for this study, the reliability scores range from .85 to .92.¹²

Regarding content validity, an item in the Scale was retained for the final version only if there was unanimous agreement by seven clinical psychologists that it was classified correctly.¹³ "Thus we may assume that the categories used in the Scale are logically meaningful and publicly communicable."¹⁴

The intercorrelations of the scores on the Scale are reported in Table 1. "Some of the correlations are part whole correlations and are consequently spuriously high," and are identified by asterisks.

TABLE 1
INTERCORRELATIONS OF SCORES

	Self-Esteem	Physical-Self	Personal-Self	Social-Self
Self-Esteem		.75*	.90*	.88*
Physical-Self			.67	.65
Personal-Self				.70
Social-Self				

Fitts reported that additional intercorrelations have been computed and that, in general, these correlations

The categories used in the tests are logically meaningful
 and publicly identifiable.¹⁴
 The intercorrelations of the scores on the tests
 are reported in Table 1. Some of the correlations are
 part-whole correlations and are correspondingly spuriously
 high, and are identified by asterisks.

TABLE 1
 INTERCORRELATIONS OF SCORES

Self-Reason	Self-Physical	Self-Paranoid	Self-Social
Self-Reason	.15*	.20*	.28*
Self-Physical		.67*	.63*
Self-Paranoid			.70*
Self-Social			

These reported that additional intercorrelations have
 been computed and that, in general, these correlations

for the other groups are comparable to those of the norm group.¹⁵

With regard to predictive validity, "self theory would lead us to expect predictable self-concept differences in groups whose behavior is different."¹⁶ There have been a number of studies using the TSCS which studied the relationship between self-concept and behavior, i.e., Atchison, in a study involving predicted differences between delinquents and non-delinquents;¹⁷ Lefeber, in a study involving predicted differences of juvenile first offenders and repeated offenders, also using a control group;¹⁸ Boston and Kew, in a study involving predicted differences with unwed mothers;¹⁹ and Gividen, involving soldiers and their reaction to stress.²⁰ All of these studies found significant differences between the groups studied.

The TSCS correlates highly with the measures of self-concept of the Minnesota Multiphasic Personality Inventory and The Edwards Personality Preference Schedule, both of which are more common inventories used to measure personality. Fitts also reported correlations of the Tennessee Self Concept Scale with other measures of personality.²¹

The first part of the report deals with the general situation of the country and the progress of the work done during the year. It is followed by a detailed account of the various projects and the results obtained. The report concludes with a summary of the work done and the prospects for the future.

The work done during the year has been very satisfactory and has resulted in many important discoveries. The progress made in the various projects has been considerable and has led to many new ideas and inventions. The results obtained have been very valuable and have helped to advance the science of the day.

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The Student Reaction to Instruction
and Courses, 2nd Edition

The "Student Reaction to Instruction and Courses, 2nd Edition," by Holt and Owens, was developed for measuring teaching effectiveness and identifying instructional behaviors which are related to effectiveness. "Its purpose is to discover cues which may form a basis for improving instruction."²²

The "Student Reaction to Instruction and Courses" is a student rated, 36 item questionnaire divided into four parts: teaching procedure, comparison of the course being evaluated with others taken at the same institution, progress made by the student scoring the form compared with that made in other courses at the same institution, and personal attitudes and behaviors of the student scoring the scale in the course in question. (See Appendix B for a copy of the form.)

To take into account differences in course objectives, each instructor is asked to indicate the degree of importance he attaches to each of eight objectives. The objectives include: (1) gaining factual knowledge (terminology, classification, methods, trends); (2) learning fundamental principles, generalizations or theories;

The student's response to instruction and learning

and learning, as well as their own learning, are examined

in terms of their effectiveness and identifying instructional

processes which are related to effectiveness. The purpose is to discover how they may be used as a basis for

improving instruction. The student's response to instruction and learning

is a complex phenomenon, and the present study is a preliminary

attempt to identify the factors which are related to the

effectiveness of instruction. The present study is a preliminary

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effectiveness of instruction. The present study is a preliminary

(3) learning to apply principles to solve practical problems; (4) understanding of interests, talents, values, etc.; (5) learning attitudes and behavior characteristics of professionals in the field most closely related to the course in question; (6) developing skill in effective communications; (7) discovering the implications of the course material for personal and professional conduct; and (8) gaining a broader understanding and appreciation of intellectual-cultural matters (music, science, literature, etc.).²³

Four are clearly cognitive in nature—gaining factual knowledge, learning principles and theories, learning applications, and developing communication skills. Three are better classified as "affective"—self-understanding, learning professional attitudes and behaviors, and discovering the personal and professional implications of course and material. The last objective appears to be both cognitive and affective, since it stresses understanding and appreciation of intellectual-cultural matters.²⁴

The questionnaire was developed in the following manner: a set of objectives, which would describe instructor's emphases and would be used to obtain progress ratings, was taken from two taxonomies of educational objectives and synthesized into a smaller set of objectives by means of factor analysis. These results were presented to a committee composed of the top faculty and

... (1) ... (2) ... (3) ... (4) ... (5) ... (6) ... (7) ... (8) ... (9) ... (10) ... (11) ... (12) ... (13) ... (14) ... (15) ... (16) ... (17) ... (18) ... (19) ... (20) ... (21) ... (22) ... (23) ... (24) ... (25) ... (26) ... (27) ... (28) ... (29) ... (30) ... (31) ... (32) ... (33) ... (34) ... (35) ... (36) ... (37) ... (38) ... (39) ... (40) ... (41) ... (42) ... (43) ... (44) ... (45) ... (46) ... (47) ... (48) ... (49) ... (50) ... (51) ... (52) ... (53) ... (54) ... (55) ... (56) ... (57) ... (58) ... (59) ... (60) ... (61) ... (62) ... (63) ... (64) ... (65) ... (66) ... (67) ... (68) ... (69) ... (70) ... (71) ... (72) ... (73) ... (74) ... (75) ... (76) ... (77) ... (78) ... (79) ... (80) ... (81) ... (82) ... (83) ... (84) ... (85) ... (86) ... (87) ... (88) ... (89) ... (90) ... (91) ... (92) ... (93) ... (94) ... (95) ... (96) ... (97) ... (98) ... (99) ... (100) ...

... are clearly cognitive in nature—gaining factual knowledge, learning principles and theories, learning applications, and developing competencies. These are better classified as "academic" self-understanding, learning professional attitudes and behavior, and discovering the personal and professional implications of course and material. The last objective appears to be both cognitive and affective, since it stresses understanding and appreciation of technical-cultural matters.

The questionnaire was developed in the following manner: a set of objectives, which would describe the instructor's emphasis and would be used to obtain program ratings, was taken from the taxonomy of educational objectives and synthesized into a smaller set of objectives for factor analysis. These results were presented to a committee composed of the top faculty and

students in three Kansas State University colleges. As a result, the eight objectives, listed previously, were selected.²⁵ Norms were established by administering the scale to 606 undergraduate classes at Kansas State University, with 366 faculty members participating.²⁶

Hoyt reported a reliability of over .90 of progress ratings when 20 or more students from any one class respond to the questionnaire and reliability centering around .85 when only 10 students describe the instructor and course.²⁷ Table 2 reports the means, standard deviations, and intercorrelations among class progress ratings.²⁸

Concerning these correlations, Hoyt reported that,

If a class was generally pleasing to a student, he was likely to give it positive ratings on all characteristics; the reverse occurred for classes in which the student was generally dissatisfied. This effect reduces the student's ability to discriminate among the various characteristics of the course.

On the other hand, some of the covariations among progress ratings may reflect a mutual interdependence among objectives. That is, progress on one objective may facilitate progress on another objective.²⁹

No direct test could be made of the validity.

However, the following indirect test was made: "The test involved correlating the progress ratings for each

Attendance in the class was excellent. The students were very interested in the material presented.

The class was held in the usual manner. The instructor presented the material in a clear and concise manner.

The students were very active in the class. They asked many questions and participated in the discussions.

The instructor was very helpful in answering the students' questions. He was very patient and thorough.

The class was very successful. The students learned a great deal of new material. They were very satisfied with the course.

The instructor was very well liked by the students. They enjoyed his lectures and his sense of humor.

The class was very well organized. The instructor had a clear plan for the course and followed it very closely.

However, the following points were noted. The students would have liked to have more time for the practical work.

Involved course. The students were very involved in the course. They were very active and participated in the discussions.

TABLE 2

MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS AMONG CLASS PROGRESS RATINGS
(N = 606 Classes)^a

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	Mean	s.d.
1. Fact. knowledge								3.55	0.55
2. Princ., theories	0.80							3.53	0.51
3. Applications	0.57	0.73						3.32	0.61
4. Self-understanding	0.36	0.52	0.54					3.00	0.63
5. Prof. att., beh.	0.41	0.50	0.56	0.72				3.30	0.62
6. Communication skill	0.24	0.38	0.41	0.74	0.66			2.90	0.74
7. Implic. for conduct	0.47	0.59	0.69	0.78	0.83	0.73		3.34	0.60
8. Gen. lib. educ.	0.35	0.40	0.05	0.50	0.30	0.49	0.33	2.62	0.72

^aCorrelations of 0.11 or higher are significantly different from zero ($P < 0.01$)



objective with the instructor's rating of the importance of these objectives."³⁰ A positive correlation was obtained in all of the eight areas. All were significantly greater than zero ($P > 0.01$), ranging from .18 to 0.50; the average was .32.³¹

For the purposes of this study, the level of predictive validity varied from .50 to .83 on the eight objectives.³²

The following questions from the "Student Reaction to Instruction and Courses" were excluded because students reported difficulty in relating them to a physical education service class: (19) amount of reading, (2) amount of other work, (21) difficulty, (22) content integrated, (17) gave exams stressing unnecessary memorizing, (18) exam questions unreasonably detailed (no written exams were involved in the experiment).

Skill Acquisition

Skill acquisition was measured by means of two judges, the instructor of each of the respective classes and the researcher. Five swimming strokes—the front crawl, back crawl, elementary backstroke, sidestroke, and

of the ... of the ...

of this ... A positive correlation was

obtained in all of the other areas. All were slightly

andly greater than were in 0.91, ranging from 0.87 to

0.91, the average was 0.89.

For the purposes of this study, the level of

distinctive validity varied from 0.87 to 0.91 on the right

as) ...

The following questions from the "Student

Section in Instruction and Research" were excluded because

students reported difficulty in relating them to a specific

and educational service class. (1) amount of reading

(2) amount of other work (11) difficulty (12) content

integrated. (13) gave exams stressing unnecessary facts

facts. (14) gave questions unnecessarily detailed in

written exams were included in the experiment.

Skill Acquisition

Skill acquisition was measured by means of two

judges. The judgments of each of the respective classes

and the researcher. The writing steps—the first

level, basic level, elementary techniques, abstractness, and

breaststroke—were judged by means of a single bi-polar semantic differential scale. The range of possible scores was from excellent, which was assigned a value of 5, to unsatisfactory, which was assigned a value of 1. This allowed the generation of five separate scores for each subject, plus a total score, a total score for each class for each stroke, and a total score for each class for all of the combined strokes. All strokes were judged on skill as described by the American Red Cross Swimming and Water Safety Manual.³³ Each subject swam 25 yards of each of the five strokes, with both judges evaluating each of the strokes at the same time. Each judge kept a separate score sheet which was collected at the end of each class and the means then tabulated. The skills evaluation was the final test administered out of the battery of three.

SAMPLE

Seventy-nine students, enrolled in beginning swimming classes at The University of New Mexico during the Spring semester of 1974, were used in this study. Of the seven sections of beginning swimming offered, four were selected at random. Two received the command method of

... of a single point
... The range of possible scores
... which was assigned a value of 1, so
... which was assigned a value of 1. This
... the number of the separate errors for each
... a total score for each class
... and a total score for each class for all
... All errors were judged on skill
... as described by the Psychology and Motor Behavior and Motor
... Each subject was 15 yards of each of
... with both judges evaluating each of the
... Each judge kept a separate
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SAMPLE

... enrolled in beginning swim
... at the University of New Mexico during the
... were used in this study. Of the
... were
... the command period of

instruction and two received the small-group method of instruction. Two instructors were solicited, each instructor taught one class using the command method and one class using the small-group method. For the instructors to have been selected, they had to meet the following criteria: (1) neither had previous experience using small-group methods, (2) both had at least three years of teaching experience in swimming in either high school or college situations, and (3) both reported that they enjoyed teaching and felt they had good rapport with their students. The criteria listed under number 3 were validated by the experimenter, who had observed the two instructors teaching swimming classes, interviewing their students enrolled in their class the previous semester, and interviewing the coordinator of the professional services program—their immediate superior. The classes and types of instruction used for each class were assigned at random. The selection of the subjects within each swimming class was as follows: they had to be enrolled in The University of New Mexico and they had to have not been able to propel themselves through the water for a distance of no more than 50 feet in a depth of water that was over their head.

Testing Procedures

The pretest of the Tennessee Self Concept Scale was administered prior to the start of the experimental period, on January 28, 1974, to all four classes. All students consented to take the Scale. The posttest of the TSCS was administered after the end of the experimental period, on April 15, 1974. All of those students but one who took the pretest of the Scale consented to retake it. Those students who did not take the pretest were excluded from the posttest. The final number was 77.

The "Reaction to Instruction and Courses, 2nd Edition" was administered after the end of the experimental period on April 17, 1974. Because the students were asked not to put their names on the questionnaire, all of the subjects were included in the final analysis, regardless of whether they were used for analysis of the TSCS. The reason for this being that, if the students were required to put their names on the questionnaire, it could have prevented them from responding honestly, since they might have feared repercussions should their responses be detrimental to their instructor. Also, the more students who completed the questionnaire, the higher the reliability.

The purpose of the Tennessee Cellulose Paper
was to determine the effect of the experimental
period, on January 15, 1954, in all four classes. All
students encountered to date the tests. The purpose of
the tests was administered after the end of the report.
Detailed report on April 15, 1954. All of four students
who now who took the present of the tests. In order to
ensure it. Those students who did not take the present
were excluded from the present. The final answer was 75.

The "Reaction of Instruction and Control, and
Evaluation" was administered after the end of the experi-
mental period on April 15, 1954. Because the students
were asked not to put their names on the questionnaire,
all of the students were included in the final analysis,
regardless of whether they were used for analysis of the
test. The reason for this point that, if the students
were required to put their names on the questionnaire, it

could have prevented some from responding honestly, since
they might have feared retribution should their responses
be detrimental to their instructor. Also, the fact that
their names were not on the questionnaire, the student the
activity.

The skills test was administered after the experimental period, on the 19th of April, to all of the subjects in each class. They were instructed that the scores they received from their performance would not be part of their grade for the course and that it would only be used by the instructor to find where their deficiencies were so that he could assist them in improving their strokes so that they would do better on their final skills test.

Each testing session of the posttest was conducted by the researcher. The subjects were given the proper booklets of the "Tennessee Self Concept Scale" and the "Reaction to Instruction and Courses, 2nd Edition," asked to read the directions, and then asked if there were any questions following the reading of the directions. Questions were then answered by the researcher.

PROCEDURES

There were four classes under observation. All four met three times a week. All physical education activity courses at The University of New Mexico are volunteer and coeducational. The males and females in the

The study was an attempt to determine the effect of the
general public on the health of the individual.

Each subject was given a questionnaire to complete
before the start of the study.

Each subject was given a questionnaire to complete
before the start of the study.

Each subject was given a questionnaire to complete
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Each subject was given a questionnaire to complete
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before the start of the study.

Each subject was given a questionnaire to complete
before the start of the study.

four classes involved in this study ranged in age from 18 to 25 years with the class status from freshmen to seniors.

As in any beginning swimming class, all of the students wanted to learn to swim. There were those who were afraid of the water in all of the classes. The facility they used was a new, Olympic size pool (50 meters by 25 yards). The depth of water in the learning area went from three and one-half feet to four and one-half feet. Arrangements were made so the students could have some exposure to deep water.

The two small-group classes and the two command classes were observed by the researcher and an assistant who had been previously trained in the technique of non-participatory and participation observation in graduate courses at The University of New Mexico. The purpose of these observations were threefold: (1) to establish that the instructors were using the assigned method of teaching, (2) to aid in the development of small-group instructional strategies, and (3) to attempt to establish what the patterns of student behavior were under the small-group method of teaching as compared to the command method of teaching.

four classes were formed, two in each of the two schools. The classes were formed by random assignment to sections.

At the beginning of the study, all of the students were given a pre-test. These were those who

were assigned to the control in all of the classes. The

facilities they used was a new, Olympic size pool, 50 meters

by 25 meters. The depth of water in the learning area

was from three and one-half feet to four and one-half

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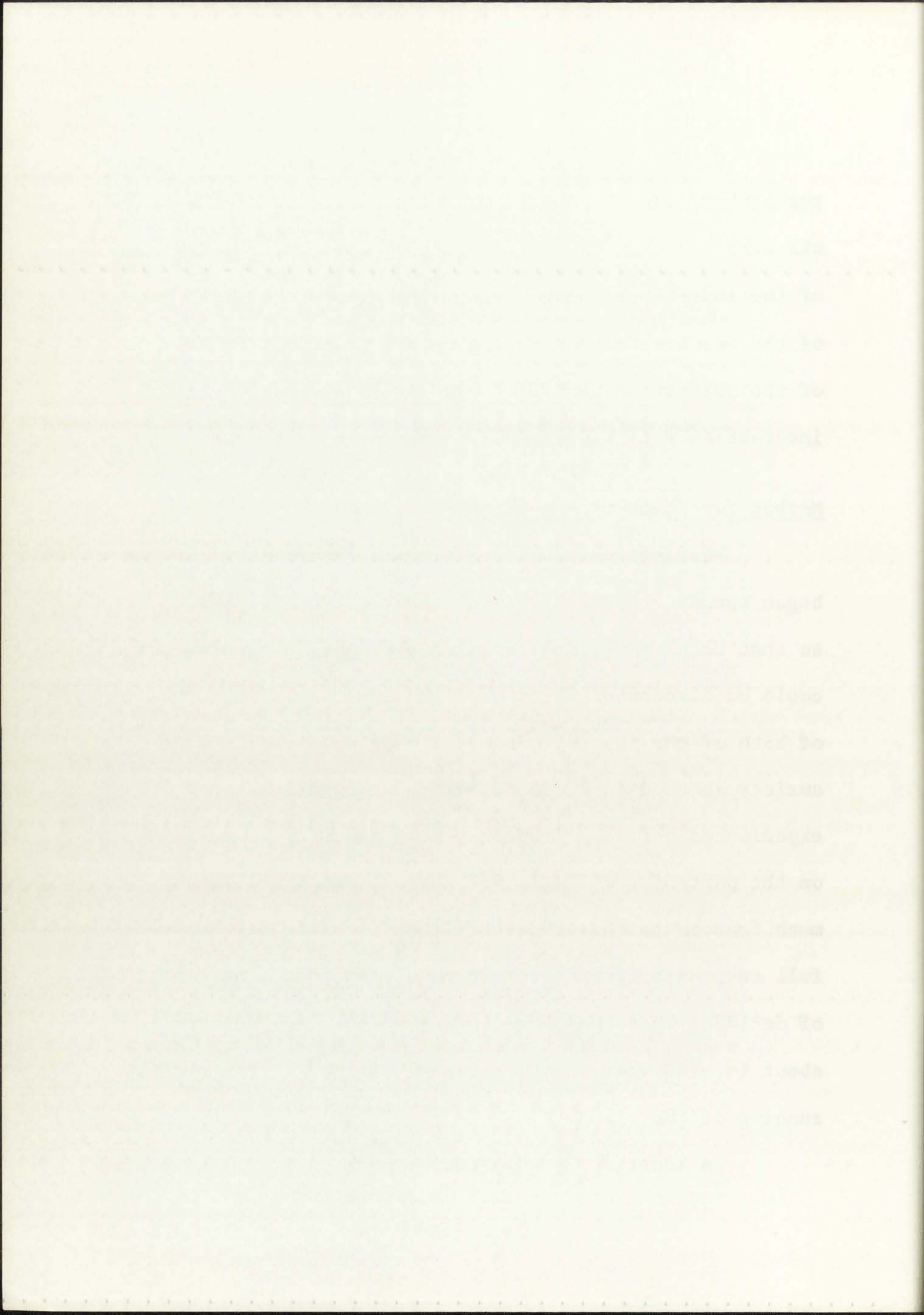
courses at the University of New Mexico. The purpose of

A total of 40 observations were made by the researcher/observer and 10 by the assistant. Of the observations made by the researcher/observer, half were of the instructor's and half of the student's, with each of the teaching methods being observed equally. The role of the observer's assistant was for the validation of the interaction matrix discussed later in this chapter.

Method for Teaching the Teachers

Meetings were held before the experimental period began between the experimenter and the two instructors, so that both theory and techniques of small-group methods could be discussed. Talk was free and easy to the extent of both of the instructors expressing some feelings of anxiety about using a method of teaching neither had experienced before. There was some concern, especially on the part of the female instructor, about allowing so much freedom to the students. That is, letting them take full responsibility for their own learning to the extent of deciding what they were to learn, how they were to go about it, and what the criteria was to be for the overall running of the class.

In addition to the fears expressed by the instruc-



tors, the investigator had his own fears, since the procedures for teaching the instructors the use of small-group techniques was by using the small-group methods itself. The use of this method of teaching requires an enormous amount of patience on the part of the instructors, as all were to discover. Trust had to be placed in the instructors of the beginning swimming classes to take full responsibility for learning a new method of teaching and then turning around, almost immediately, and use it when both had been using the command method of teaching all of their previous career.

Material on group dynamics, use of small-group techniques in the classroom, the teacher's role in group processes, and other reference material was provided the two instructors one month prior to the beginning of the experimental period.

In a meeting prior to the first day of the beginning of the experimental period, the following comment was made by the investigator:

Keep in mind that the primary objective for these classes is learning to swim. The better the students' attitude toward you (the instructor), the swimming class, and themselves, the more they will learn and enjoy themselves.

There were several factors which the group

of the group during the first part of the session

was by using the small-group method.

The use of this method in teaching requires an amount

of material on the part of the instructor, as all

was to be done. That had to be placed in the

hands of the beginning students as well.

responsibility for learning a new method of teaching

was placed upon the students themselves, and it was

felt that using the student method of teaching all of

their previous work.

Material in group format, use of small-group

techniques in the classroom, the teacher's role in group

processes, and other references material was provided the

two instructors one week prior to the beginning of the

experimental period.

In a meeting prior to the first day of the begin-

ning of the experimental period, the following concepts

and were by the instructor:

It was to be noted that the primary objective for these

classes is learning to solve. The better the students

attitude toward you (the instructor), the better

class, and therefore, the more they will learn and

Our primary reason for using the small-group method is it allows for the creation of a positive classroom climate which will allow positive attitudes to be developed toward all of those things I just mentioned better than any other method of teaching. 1/23

The following is a list of procedures for the implementation of small-group methods which resulted from the observations and review of literature, and which were developed and used by the instructors involved in this study.

Implementing Small-Group Methods

1. At the earliest possible moment, the instructor should inform the students that they are responsible for what they learn; that he, the instructor, will only be there as a guide and facilitator; that they, the students, will be allowed and encouraged to participate actively in every class session and phase of the class; that they will be involved in small groups where they will decide on the aims and objectives of the class, where they will plan individual projects which are relevant to the course, and where they will be responsible for helping each other. They should be made aware that he, as the instructor, will provide guidance when asked for and

The following is a list of procedures for the
development of self-groups which resulted from
the observations and review of literature, and which were
developed and used by the instructors involved in this
study.

Instructor Self-Group Methods

1. At the earliest possible moment, the instructor
should inform the students that they are responsible
for what they learn; that he, the instructor, will only
be there as a guide and facilitator; that they, the stu-
dents, will be allowed and encouraged to participate
actively in every class session and phase of the class;
that they will be involved in self-groups where they
will decide on the aims and objectives of the class, where
they will plan individual projects which are relevant to
the course, and where they will be responsible for help-
ing each other. They should be made aware that he, as
the instructor, will provide guidance when asked for and

assistance whenever needed.

At this point the instructor must be careful to let the students know that he is not putting everything off on them such that he can just come to class everyday and sit around. As the instructor, he must be active continuously, encouraging, assisting, doing research for them, suggesting points of improvement, and whatever else may produce a positive classroom climate.

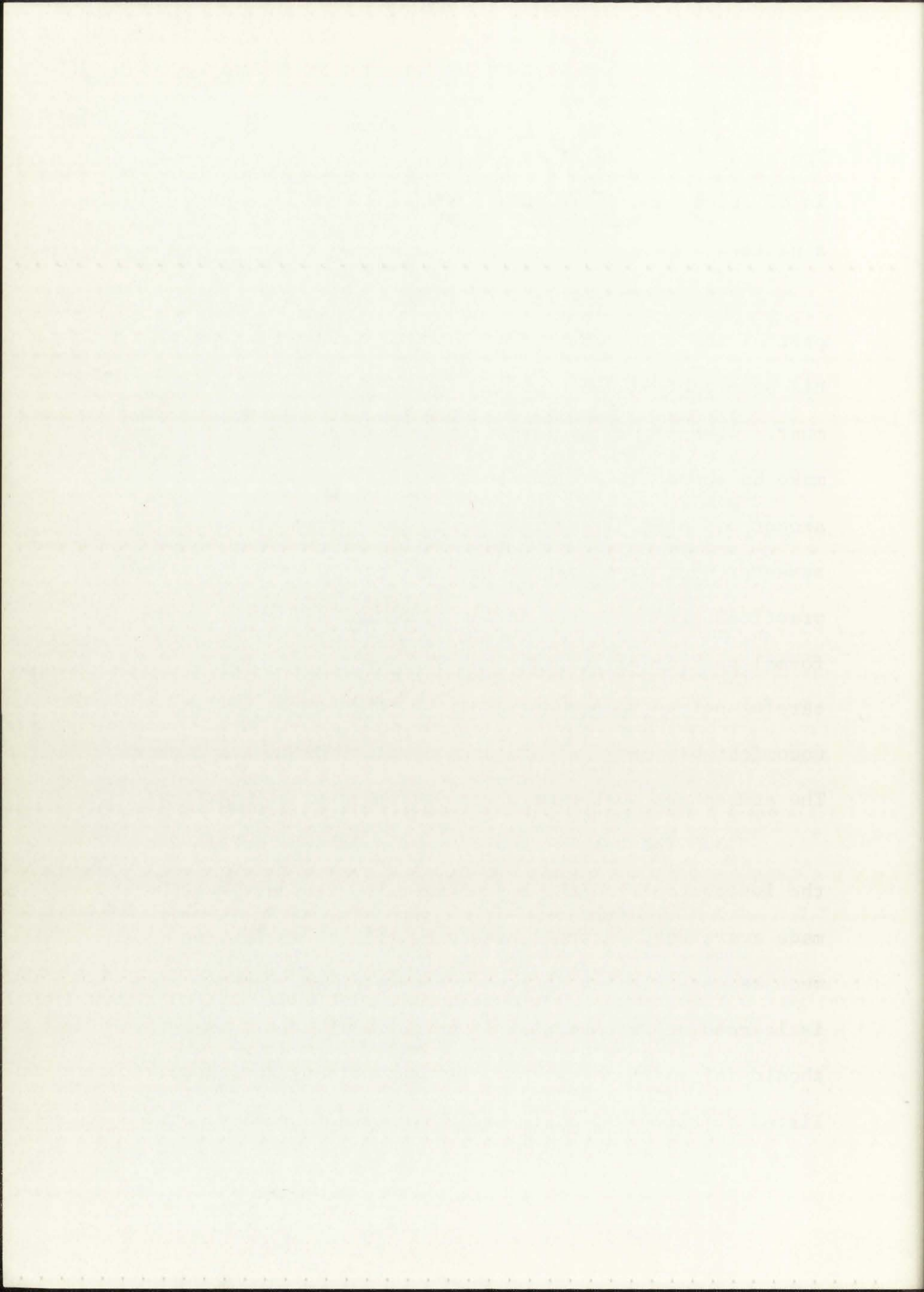
2. Groups of from three to five seem to operate best in an activity such as beginning swimming. Groups that are larger than five cut down on interaction by all of the members of the group and frequently result in the formation of smaller groups within each of the groups. "Groups that are smaller tend to lack variety of personalities and interests and most frequently get bogged down in trivia when activities and discussion lag."³⁴

For setting up the groups, information should be collected from each student, i.e., previous experience with aquatic sports; age; sex; whether he has had experience with and likes working with groups; and whether he has some particular fear of the water. This should be accomplished as early as possible in the first week of class.

The atmosphere created in the beginning of a school term is of prime importance, since it is difficult to change a pattern once one is established.

The instructor should make it clear that he is part of the classroom group, that he must argue or defend his points of view and opinions just as everyone else must. With regard to formal instruction, it seems to make no appreciable difference in skill acquisition or amount of material covered during the course of the semester whether almost no lectures are given or mass practices are conducted during a course. If there are formal periods of instruction, the instructor must be careful not to become autocratic such that students feel uncomfortable or afraid to ask questions or make comments. The atmosphere must remain free and open at all times.

3. The task of the learner should be outlined by the instructor from the beginning. The students must be made aware that external pressures will be avoided as much as possible and that the responsibility for how much is learned or accomplished is up to them. The instructor should inform them that he will note objectives and aims listed by them as a class and that, when necessary, will



remind them of their commitments and previous decisions. This is not to say that the objectives cannot be changed, because mistakes will be made, new and better ways will be learned as they grow in experience, and changes must therefore be allowed. Whenever a group feels a change is necessary, it should be brought before the class and discussed by all.

The students must be allowed class time to get to know one another and to discuss and decide what activities they would like to learn during the course. After these data are collected, the entire class should then discuss the accumulated data and come to a reasonable consensus, so that a plan can be drawn up and followed. It is at this time that the instructor must push for the inclusion of his own or the school's requirement.

During initial periods of small-group discussions, allowances must be made for the students to get to know one another. The field notes yield the following example which occurred during the first part of the semester:

10:46 In one group a male keeps swimming off away from the rest of his group. The rest of the members of the group are laughing and generally getting to know one another. Occasionally one of the students looks around to find where Linda (the instructor) is.

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10:55 Still very little happening other than people getting to know one another. 1/25

In a conversation with the instructor after this class:

The class is over. Linda seems a little impatient. "I want everything right now," she said, referring to the students picking up small-group techniques.

I, the observer, said to Linda, "generally I am very pleased with the way the students all got along today. They weren't in the water much, but we must keep in mind that this class will be a little slower than the other command class during the beginning. We must allow for them to get to know one another. We have to be patient." 1/25

For the successful implementation of small-group techniques in the classroom, the task function (learning to swim) must be accepted by the group as part of the social-emotional function.

Classroom groups develop along the dimensions of emotionality and task performance. In the beginning of the life of any group, members must deal with the emotional issues of belongingness and trust. Groups such as classrooms, with task to perform, then move into performance functions. Decisions must be made as to how work is to be accomplished. Patterns of work begin to develop while emotionality issues are simultaneously being resolved.³⁵

That is, it is just as important to learn to swim as it is to get along with others in the group, or, part of being liked is learning to swim.

4. Specific assignments, related to what has been

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In a conversation with the instructor about this aspect
of the course he said, "I think it is a little interesting
I want everything right now," she said, referring
to the student picking up small-group assignments.

The observer, like the others, "generally I am
very pleased with the way the students all got along
today. They were in the water early, but we were
late in what that this class will be a little slower
than the other classes during the beginning.
He had a few for late to not to have one another.
He have to be patient." This

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into performance functions. Decisions must be made
as to how work is to be accomplished. Patterns of
work begin to develop while emotionally issues are
simultaneously being resolved.

That is, it is just as important to learn to swim as it
is to get along with others in the group, or, part of
being liked is learning to swim.

6. Socially assignments, related to what has been

discussed by the class is essential. A case in point can be drawn from the field notes. Linda had set up her groups and was following previously established lines when she came to the researcher.

Linda is thinking small groups on her own. She asked me if she could take six of the activities the students listed as things they wanted to learn and have the students teach the activities to each other.

Students are to be allowed to get into whatever activity interests them most, provided no group has more than four members. 2/8

This list of activities, which took three weeks, set the entire tone for the rest of the semester for this particular class.

Although mistakes were made by the groups, and Linda did correct them, it was done in such a manner that there was no threat. Everyone laughed at each other's mistakes because they realized that either they would soon be in the same situation themselves or they had already been in it. As the semester progressed, and as a direct result of this first major group activity, students felt free to admit when they did not know the correct answer to something. They felt free to seek help from Linda or their fellow students. At this same time, whenever Linda would make a mistake, the class would

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Although ... were made by the groups, and ...
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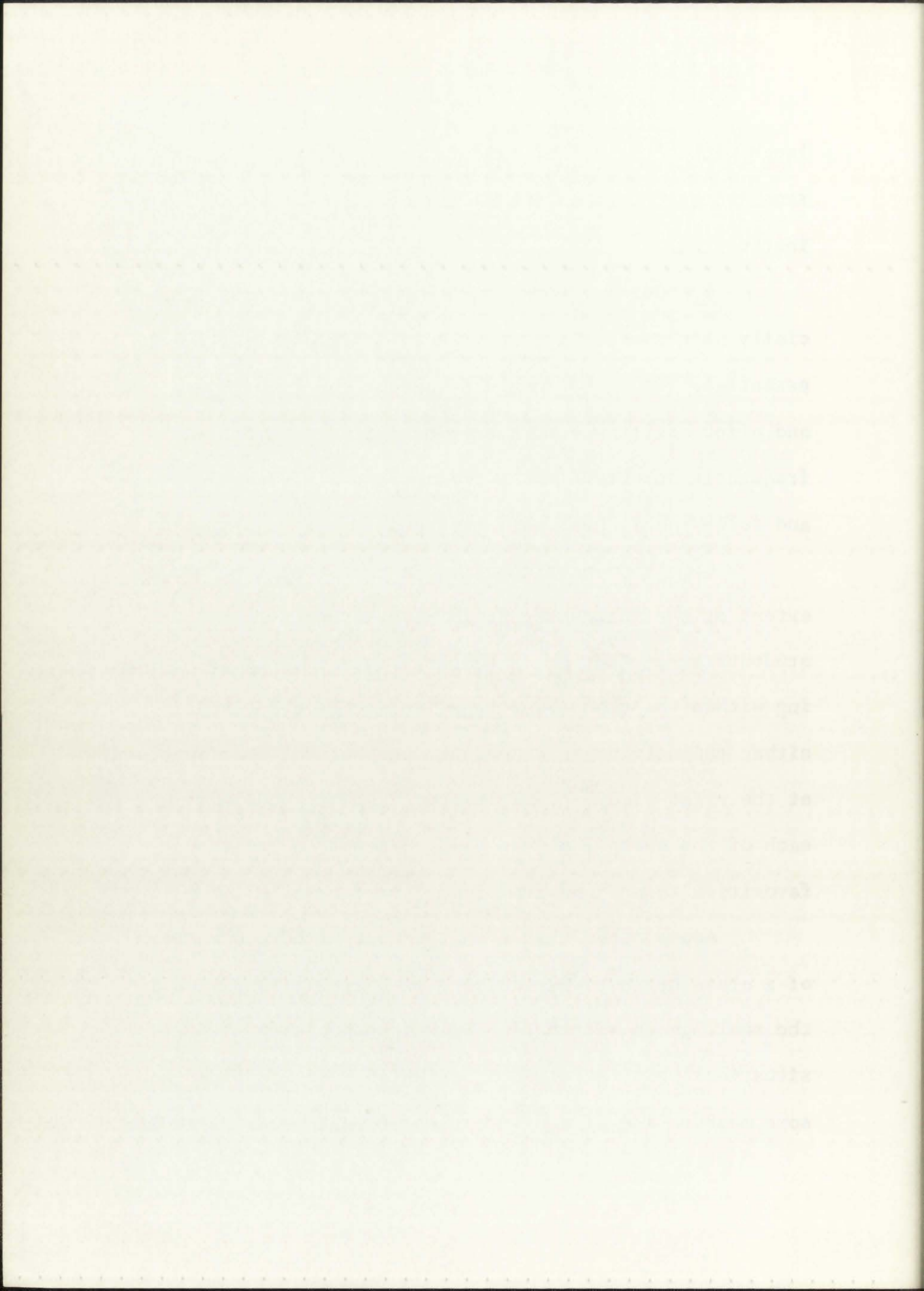
... of their ...
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laugh with her and feel free to ask questions just the same as they did when one of their fellow peers did the instructing.

5. Outside work, such as extra practices, especially when someone is experiencing difficulty, seems essential. Students should be encouraged to both ask for and offer assistance for these assignments. This most frequently occurred in the small-group classes prior to and following formal class sessions.

6. Group participation is essential, even to the extent of the instructor applying pressure by making the students aware that he is keeping track of what is happening within the groups. Suggestions on group dynamics, either to individuals or groups, are helpful when injected at the right time.³⁶ The instructor must spend time with each of the groups, always being careful not to show favoritism to any one group.

Adams noted that even the most withdrawn members of a class begin to participate as security is gained in the small group setting.³⁷ This is especially useful in situations which arise in a beginning swimming class where some members are afraid of the water. Care was taken in



each of the small-group classes to spread those students who were afraid out so that no two were in the same group. "It is in the small group that the students feel freedom to explore personal feelings and meanings."³⁸ Once those students that were frightened openly admitted it to their group, they began to work on their problems, which they could do in full force, since they no longer had to worry about what others were thinking. One of Linda's students confided in her during the ninth week of the experiment.

"For the first eight weeks, I used to hate to get out of bed come Monday, Wednesday, and Friday mornings, because I was so afraid of the water. Now after working with the others in my group, I'm not afraid anymore."

Linda noted that he was just as good a swimmer now as anyone else in the class. 4/8

7. Group reports are necessary because they eliminate competition between members, thereby reducing the possibility of failure for those students who would otherwise worry about it. Everyone contributes something. The more dominant and aggressive members of the groups can present verbally to the class and the more timid can either assist directly or demonstrate in the water.

After each group presentation, the group presenting that day's activity would divide the class into three or four small groups and each member of

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the day's instructional group would help each small group. (The first group present set this example.) Without any word of encouragement from the instructor, the remainder of the groups followed suit. It was of tremendous success, causing not only a closeness within each group, but a closeness throughout the class. It was not unusual for one student who was experiencing difficulty to stop the person nearest him/her and ask for assistance. 3/74

"The particular talents and abilities of each student should become evident as the projects unfold and much is learned in regard to appreciating the point of view of others, even though compromise is sometimes a necessity."³⁹

8. External evaluation should be played down by the instructor and the focus of evaluation placed on the students themselves. Since it is the students who decide how they should be evaluated, there should be no argument or ill feelings at the end of the semester when grades are assigned. The reader is reminded that, since the instructor is a member of the classroom group, he has equal say as to aims, objectives, grades, etc. A rating scale, such as that used in the small-group classes of this study, are suggested.

Both Linda and Bill have persuaded their respective group that a 1 to 10 scale would be much easier, and allow for more freedom than assigned grades.

I mentioned to Bill and Linda that, in my own experience, seldom are grades so low when small-group techniques are employed correctly. 2/74

The first group was assigned to...
The second group was assigned to...
The third group was assigned to...
The fourth group was assigned to...
The fifth group was assigned to...
The sixth group was assigned to...
The seventh group was assigned to...
The eighth group was assigned to...
The ninth group was assigned to...
The tenth group was assigned to...

The particular talents and abilities of each student should become evident as the projects unfold and each is

learned in regard to appreciating the point of view of others, even though compromise is sometimes a necessity.

3. External evaluation should be played down by the instructor and the focus of evaluation placed on the

students themselves. Since it is the students who decide how they should be evaluated, there should be no argument

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instructor is a member of the classroom group, he has equal say in setting objectives, grades, etc. A rating

scale, such as that used in the small-group classes of this study, are suggested.

Both Linda and Bill have persuaded their respective groups that a 1 to 10 scale would be much easier and allow for more freedom than assigned grades.

I mentioned to Bill and Linda that in my own experience, self and peer grades are low when small-group techniques are employed correctly. 2/4

Also, the grades should be arrived at following a discussion between teacher and student, as should have been arranged during the first weeks of the semester anyway.

9. The classroom climate should be a positive one. It should be one of freedom and openness where mistakes are treated as part of learning and where there is no failure. Unless the student enjoys what he is doing, the chances are he will not continue to participate.

STATISTICAL TREATMENT

Five individual analyses of covariance were used to test the data gathered by the Tennessee Self Concept Scale. On the use of intact groups, such as were used in the present study, Kirk stated that "experiments of this type are always subject to interpretation difficulties that are not present when random assignment is used in forming the experimental groups."⁴⁰ Analysis of covariance, he stated, is particularly appropriate for this research situation.⁴¹ "Analysis of covariance provides a basis for pretreatment differences when our interest is in testing posttreatment differences,"⁴² which was the

The first part of the paper discusses the importance of the research in this field. It is noted that the current state of knowledge is limited and that further investigation is needed. The author then presents a review of the existing literature, highlighting the strengths and weaknesses of various studies. This is followed by a detailed description of the methodology used in the present study, including the selection of participants and the procedures for data collection and analysis. The results of the study are then presented, showing a clear trend that supports the author's hypothesis. Finally, the paper concludes with a discussion of the implications of the findings and suggestions for future research.

situation in the present study. The pretests of the TSCS were used as the covariates.

Analysis of variance was used to test the data gathered by means of the "Students Reaction to Instruction and Courses," 2nd Edition," which was used to measure attitudes toward the instructor and the attitudes toward beginning swimming classes. Popham stated that the analysis of variance is simply a statistical means of testing for significant difference between means of two or more groups simultaneously.⁴³

The design of the covariate and variance analyses were each a 4 x 1, with the four groups being assigned as the dependent variables for the purpose of the statistical analyses. All statistical analyses were run on an IBM 360-67 computer. The statistical program used to compute the analyses of covariance was the BMD 09V.⁴⁴ The statistical program used to compute the analyses of variance was the BMD 01V.⁴⁵

RESULTS

Hypothesis 1. Ho: The mean scores for students completing items on the "Students Reaction to Instruction

Analysis of variance was used to test the data

generated by means of the Student's t-test for comparison

and between the different groups which was used to measure

variance between the treatment and the control groups

regarding the different stages of the experiment

analysis of variance is applied to statistical data

to test for significant differences between means of two

or more groups simultaneously

The design of the covariance and variance analysis

were each a 2 x 2 with the four groups being assigned to

the dependent variables for the purpose of the statistical

analysis. All statistical analyses were run on an

IBM 505-55 computer. The statistical program used to

compute the analysis of covariance was the SAS 5.05

The statistical program used to compute the analysis of

variance was the SAS 5.05

conclusion leads to the Student's t-test for comparison

and Courses, 2nd Edition" used to measure attitudes toward beginning swimming, who were in classes where small-group methods were used, were not significantly greater than the mean scores of students who were in classes where the command method was used.

TABLE 3
ANALYSIS OF VARIANCE
STUDENT REACTION TO INSTRUCTION AND COURSES

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	18.5517	3	6.1838	1.3369*
Within Groups	346.4678	75	4.6255	
Total	365.4678	78		

*
p > .05

The null hypothesis was retained. The attitudes toward beginning swimming of students who were in classes where small-group methods of teaching were used were not significantly different from attitudes of students in classes where the command method of teaching was used.

Hypothesis 2. Ho: The mean scores for students completing items on the "Student Reaction to Instruction

and Courses, 2nd Edition" used to measure attitudes toward the instructor, who were in classes where small-group methods were used, were not significantly greater than the mean scores of students who were in classes where the command method was used.

Table 3 includes the analysis of variance of the results of the "Student Reaction to Instruction and Courses, 2nd Edition" used to measure both attitudes toward the course and the instructor. A separate analysis of the data was not run because the results of the scale itself, which measured both variables simultaneously, were not significant.

The null hypothesis was retained. The attitudes toward the instructor of beginning swimming of students who were in classes where small-group methods of teaching were used were not significantly different from attitudes of students in classes where the command method of teaching was used.

Hypothesis 3. Ho: The mean scores for students completing the Tennessee Self Concept Scale used to measure self-esteem, who were in classes where small-group methods were used, were not significantly greater than the

mean scores of students who were in classes where the command method was used.

TABLE 4
ANALYSIS OF COVARIANCE
SELF-ESTEEM - TOTAL POSITIVE SCORE

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	1227.3477	3	409.1157	0.7594*
Within Groups	38488.5938	73	538.7305	
Total	40015.9415	75		

*
p > .05

The null hypothesis was retained. The self-esteem of students who were in classes where small-group methods of teaching were used were not significantly different from the self-esteem of students in classes where the command method of teaching was used.

Hypothesis 4. Ho: The mean scores for students completing the Tennessee Self Concept Scale used to measure the personal-self, who were in classes where small-group methods were used, were not significantly greater than the mean scores of students who were in

then... compared...

TABLE 4

ANALYSIS OF COVARIANCE
MULTI-LEVEL - TOTAL POSITIVE SCORE

Source	df	SS	MS	F	p
Between groups	1	1221.2417	1221.2417	102.1192	0.0004
Within groups	13	1328.1218	102.1632		
Total	14	2549.3635			

p < .05

The null hypothesis was retained. The multi-level analysis... of students who were in classes where multi-group methods... of teaching were used were not significantly different... from the multilevel analysis of students in classes where the... control method of teaching was used.

Hypothesis 4. For the mean scores for students

utilizing the Johnson Self-Concept Scale used to... measure the personal-self, who were in classes where... multi-group methods were used, were not significantly... higher than the mean scores of students who were in

classes where the command method was used.

TABLE 5
ANALYSIS OF COVARIANCE
THE PERSONAL-SELF

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	118.3142	3	39.4381	1.2382*
Within Groups	2293.2727	72	31.8410	
Total	2411.5869	75		

*
p > .05

The null hypothesis was retained. The personal-self of students who were in classes where small-group methods of teaching were used were not significantly different from the personal-self of students in classes where the command method of teaching was used.

Hypothesis 5. Ho: The mean scores for students completing the Tennessee Self Concept Scale used to measure the physical-self, who were in classes where small-group methods were used, were not significantly greater than the mean scores of students who were in classes where the command method was used.



TABLE 6

ANALYSIS OF COVARIANCE
THE PHYSICAL-SELF

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	80.0710	3	26.6903	0.9476*
Within Groups	2027.8887	72	28.1651	
Total	2107.9597	75		

*
p > .05

The null hypothesis was retained. The physical-self of students who were in classes where small-group methods of teaching were used were not significantly different from the physical-self of students in classes where the command method of teaching was used.

Hypothesis 6. Ho: The mean scores for students completing the Tennessee Self Concept Scale used to measure the social-self, who were in classes where small-group methods were used were not significantly greater than the mean scores of students who were in classes where the command method was used.

ANALYSIS OF VARIANCE
OF THE PHYSICAL-SCIENCE

Source of Variation	Sum of Squares	D.F.	Mean Square	F	Significance
Between Groups	28.81	2	14.405	1.85	0.16
Within Groups	202.99	72	2.819		
Total	231.80	74			

The null hypothesis was rejected. The physical-
 science students who were in classes where small-group
 methods of teaching were used were not significantly
 different from the physical-science students in classes
 where the standard method of teaching was used.
 The mean scores for students
 completing the Tennessee Self-Concept Scale were
 means for the small-group, who were in classes where small-
 group methods were used were not significantly greater
 than the mean scores of students who were in classes
 where the standard method was used.

TABLE 7

ANALYSIS OF COVARIANCE
THE SOCIAL-SELF

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	74.9392	3	24.9797	0.8275*
Within Groups	2173.5198	72	30.1878	
Total	2248.4590	74		

*
p > .05

The null hypothesis was retained. The social-self of students in classes where small-group methods were used were not significantly greater than the social-self of students who were in classes where the command method was used.

Hypothesis 7. Ho: The mean scores for skill acquisition for students who were in classes where small-group methods were used were not significantly greater than the mean scores of students who were in classes where the command method was used.

The null hypothesis, therefore, was retained. The mean scores for skill acquisition of students in

TABLE 2

ANALYSIS OF COVARIANCE
ON THE TOTAL SCORE

Source	Sum of Squares	df	Mean Square	F	p
Between groups	20.9797	2	10.4898	1.82	0.1633
Within groups	30.1878	12	2.5156		
Total	51.1675	14			

* p < .05

The null hypothesis was retained. The total score of students in classes where small-group methods were used was not significantly greater than the total score of students who were in classes where the control method was used.

Hypothesis 2. The mean scores for skill acquisition for students who were in classes where small-group methods were used were not significantly greater than the mean scores of students who were in classes where the control method was used.

The null hypothesis, therefore, was retained. The mean scores for skill acquisition of students in

classes where small-group methods were used were not significantly greater than the mean scores of students in classes where the command method was used.

TABLE 8

ANALYSIS OF VARIANCE
SKILL ACQUISITION

Source	Sum of Squares	DF	Mean Square	F-Ratio
Between Groups	0.9250	3	0.3083	0.5252*
Within Groups	42.8519	73	0.5870	
Total	43.8868	76		

*
p > .05

DESCRIPTIVE ANALYSIS

Observational data were gathered by the investigator by means of two methods: (1) informal observation and (2) formal observation. The informal observation was conducted during the first five weeks of the experimental period. "Informal observing can only yield general statements, the value of which depends greatly on the sensitivity of the observer and on his purpose."⁴⁶ The formal period of observation was conducted during the last four

class
class

Group

Between Groups

Within Groups

Total

2, 2, 2

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weeks of the experimental period.

The Informal Period of Observation

The informal period of observation allowed the students to become accustomed to the experimenter/observer, thereby reducing what Webb referred to as reactive validity. He stated that a visible observer can produce changes in behavior that diminish the validity of comparisons;⁴⁷ however, Deutsch pointed out

the effects of the observer may erode over time and thereby produce a selective contaminant in observational data series. The defense against this is to permit the effect of the observer contaminant to wear off, and to start the analysis with data subsequent to the time when the effect is negligible.⁴⁸

Having been able to observe the students actively participating in class activities over the first five weeks, the observer was able to identify certain classroom behaviors which made it possible to designate the individual actors for future observation. Further, as a result of these observations, points of particular relevance to the study were discussed with the instructors, and the drop rate was thereby reduced considerably.⁴⁹

Pohland warned observers of two possible errors which may be committed if they either go into a classroom situation

The present study is concerned with the effects of the physical setting of the experiment on the behavior of the subjects. It is assumed that the physical setting will have a significant effect on the behavior of the subjects.

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with preconceived ideas as to what to expect or if they do not allow for a period of informal observation:

(1) there is the possibility of "self-fulfilling prophecy" and (2) valuable time may be lost if what the observer had expected was not a major factor involved in accounting for particular student-teacher behaviors, thereby resulting in the actual causal factors going unnoticed for a period of time.⁵⁰

Also, during the informal period of observation, of primary concern was the observing of the instructors, both in assisting to establish small-group instructional strategies, as well as observing the command method of teaching. Time was spent in the development of an instrument for the gathering of quantitative data. The interaction matrix finally used was the result.

Following the informal period of observation, but prior to the formal period of observation, a period of two weeks elapsed during which time the field notes, taken during the informal period, were organized and analyzed, the instrument used for collecting quantitative data was finalized, and the observer was able to rest and thereby begin the formal period with a clear mind.

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The Formal Period of Observation

The formal period of observation was devoted to the listing of the patterns of student behaviors and the recording of the quantitative data by means of an interaction matrix. Because it was sometimes difficult to hear the verbal communication taking place between students, and between teacher and students, it was necessary in some situations to rely on nonverbal cues, e.g., facial expressions, arm and body gestures, and proximity, for the recording of student behaviors and the filling out of the interaction matrix.

Observational data, collected by the investigator/observer, were compared with data collected by two assistants to check the validity of his observations. Days for observations were assigned at random, thereby reducing human instrument error.⁵¹ Field notes were taken during all observations, and notes taken of conversations with students and instructors were made immediately following the conversations to reduce the error associated with memory.

The interaction matrix consisted of the number of times interaction took place between students, and

The Interaction Matrix

The interaction matrix is a tool used to analyze the relationships between different variables in a system. It is particularly useful in the study of complex systems where multiple factors interact in non-linear ways. The matrix is constructed by identifying the key variables and their interactions, and then representing these relationships in a structured format. This allows researchers to visualize and analyze the system's behavior under various conditions. The matrix is often used to identify patterns, trends, and potential points of intervention. It is a powerful tool for understanding the underlying structure of a system and for predicting its future behavior.

Observational data, collected by the investigator, were analyzed with data collected by two assistants to check the validity of his observations. Data for observations were assigned at random, thereby reducing the possibility of bias. Field notes were taken during all observations, and notes taken of conversations with students and instructors were made immediately following the conversations to reduce the error associated with memory.

The interaction matrix consists of the number of interactions between different variables. These interactions are often represented as a grid or matrix, where each cell in the grid represents a specific interaction between two variables. The matrix is used to analyze the strength and direction of these interactions, and to identify any underlying patterns or trends. This is a key step in the process of understanding a complex system and its behavior.

between teacher and students. A differentiation was made between whether the conversation was task oriented or social-emotionally (maintenance function) oriented. There was also a differentiation made as to who initiated the conversation or interaction, that is, teacher initiated or student initiated. These differentiations were made possible as a result of the informal observation period during which time the investigator noted that, whenever the interaction was of a task nature, the students would either demonstrate part of or all of a swimming stroke or make some arm or head gestures of the strokes. Eight observations, two of each class, were made using the interaction matrix. Times were assigned at random with each observation lasting for ten minutes.

	Task	Social-Emotional
Teacher-Student		
Student-Teacher		
Student-Student		

The investigator and assistant observed classes simultaneously until their records using the interaction

between what is observed and what is reported. The relationship between the two is complex and often difficult to interpret. The data suggest that there is a significant difference between the two, and this difference is likely to be due to a variety of factors. One of the most important factors is the nature of the interaction between the two parties. The data suggest that the interaction between the two parties is often characterized by a high degree of ambiguity and uncertainty. This ambiguity and uncertainty is likely to lead to a high degree of variability in the data. Another important factor is the nature of the observations. The data suggest that the observations are often made in a context that is highly complex and dynamic. This complexity and dynamism is likely to lead to a high degree of variability in the data. Finally, the data suggest that the reporting process is often characterized by a high degree of subjectivity. This subjectivity is likely to lead to a high degree of variability in the data.

Teacher-Student	Student-Teacher	Student-Student
...
...
...

The interaction between the two parties is often characterized by a high degree of ambiguity and uncertainty. This ambiguity and uncertainty is likely to lead to a high degree of variability in the data. Another important factor is the nature of the observations. The data suggest that the observations are often made in a context that is highly complex and dynamic. This complexity and dynamism is likely to lead to a high degree of variability in the data. Finally, the data suggest that the reporting process is often characterized by a high degree of subjectivity. This subjectivity is likely to lead to a high degree of variability in the data.

matrix correlated at .85 or more on three successive observations.⁵²

The categories used for the interaction matrix were arrived at by the researcher as a result of the informal period of observation and material taken from the review of literature. Group functions can generally be summarily categorized into two areas: the task function—that is, the primary objectives of the group—and the social-emotional function—that is, the measures a group must take to maintain its organization and integration if it is to function or to remain together.⁵³

The categories of interaction involving teacher and students consist simply of all possible combinations of interaction which can and do take place in a classroom.

PATTERNS OF STUDENT BEHAVIOR

The following section consists of (1) the interaction matrix and (2) the summary list of behaviors exhibited by students in classes where small-group methods were used compared to the behaviors of students in classes where the command method was used.

1967

The following table shows the results of the study.

Table 1. Results of the study.

The results show that the majority of students

are satisfied with the results of the study.

The results of the study are as follows:

The results of the study are as follows:

The results of the study are as follows:

The results of the study are as follows:

The results of the study are as follows:

The results of the study are as follows:

The Interaction Matrix

Eight observations were made by the researcher/observer using the interaction matrix. Each observation lasted for ten minutes. Each of the four classes involved in the experiment was observed two times.

Tables 9 through 12 show the results of the eight observations made of the four classes observed for this study. The two classes where the small-group method of teaching was used had almost three times as much interaction taking place as the two classes where the command method of teaching was used. Interaction took place a total of 55 times during the four observations of the two command classes as compared to 151 times during the four observations of the small-groups classes. Of the 55 incidences of interaction in the classes, 33 were of a task nature and 22 were of a social-emotional nature. Of the 151 incidences of interaction in the small-group classes, 66 were of a task nature and 85 were of a social-emotional nature.

Summary List of Student Behaviors— Small-Group vs. Command

1. The atmosphere was more relaxed in the small-

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Volume 4, Number 1, February 1978

Journal of Experimental Psychology: Learning, Memory, and Cognition

Volume 14, Number 1, February 1978

Journal of Experimental Psychology: Perception and Psychophysics

Volume 16, Number 1, February 1978

Journal of Experimental Psychology: Social

Volume 18, Number 1, February 1978

Journal of Experimental Psychology: Human Perception and Performance

Volume 13, Number 1, February 1978

Journal of Experimental Psychology: Information Processing

Volume 15, Number 1, February 1978

Journal of Experimental Psychology: Memory and Cognition

Volume 17, Number 1, February 1978

Journal of Experimental Psychology: Open

Volume 19, Number 1, February 1978

Journal of Experimental Psychology: Psychology of Women

Volume 21, Number 1, February 1978

Journal of Experimental Psychology: Developmental Psychology

Volume 23, Number 1, February 1978

Journal of Experimental Psychology: Human Learning and Memory

TABLE 9

P.E. 101-001 COMMAND METHOD OF TEACHING

	Task Function	Social-Emotional Function
Teacher-Student		/// /// (8)
Student-Teacher		/ (1)
Student-Student	/// /// // (12)	

TABLE 10

P.E. 101-005 COMMAND METHOD OF TEACHING

	Task Function	Social-Emotional Function
Teacher-Student	/ (1)	/// / (6)
Student-Teacher	//// (4)	/// / (6)
Student-Student	/// /// / (16)	/ (1)

TABLE 11

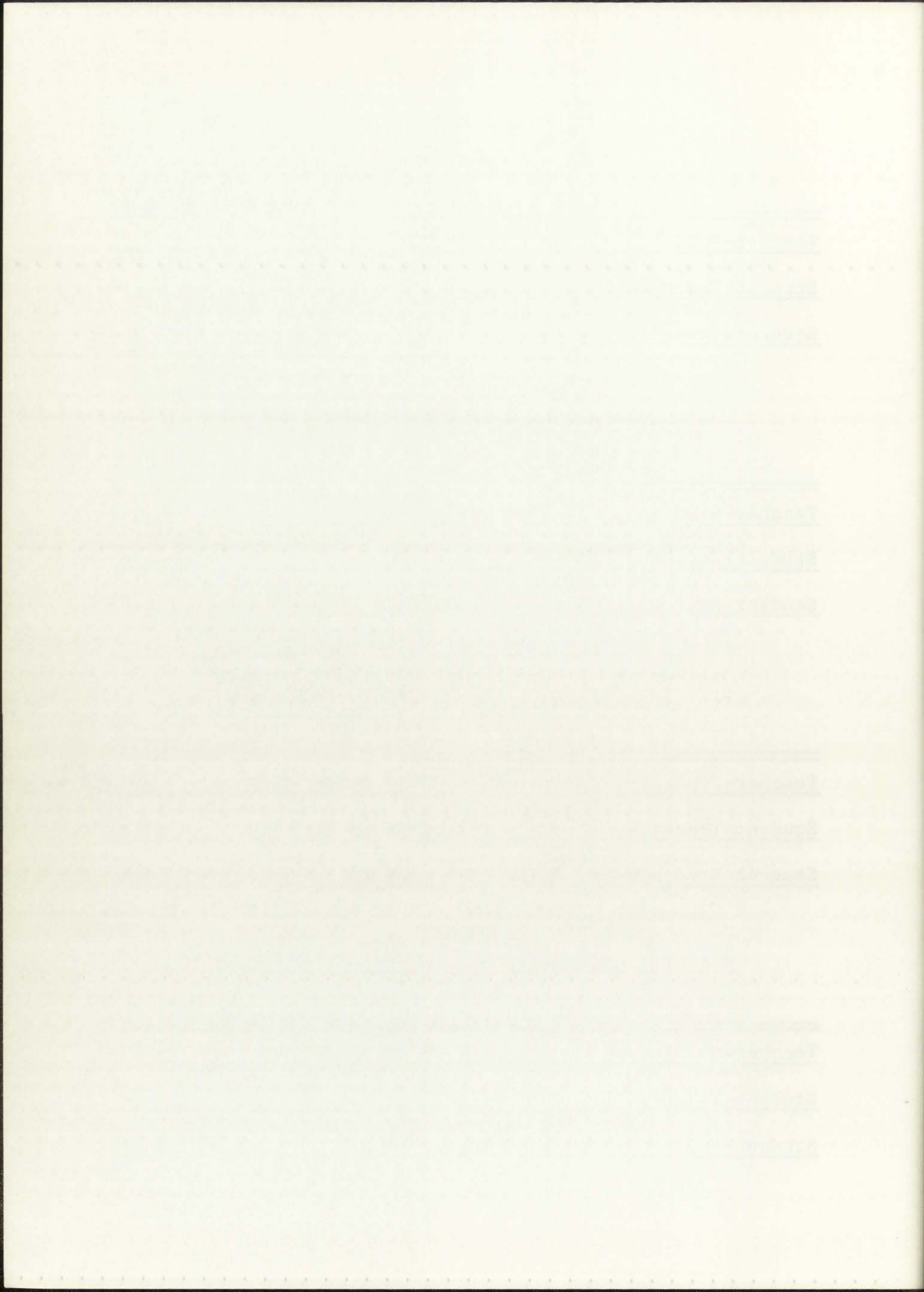
P.E. 101-002 SMALL-GROUP METHOD OF TEACHING

	Task Function	Social-Emotional Function
Teacher-Student	/// //// (9)	/// /// /// /// /// (23)
Student-Teacher	/// (3)	/// /// /// / (16)
Student-Student	/// /// /// (23)	/// /// / (11)

TABLE 12

P.E. 101-004 SMALL-GROUP METHOD OF TEACHING

	Task Function	Social-Emotional Function
Teacher-Student	// (2)	/// /// /// //// (19)
Student-Teacher	// (2)	/// // (7)
Student-Student	/// /// /// /// /// /// (28)	/// //// (9)



group setting than in the command setting.

2. There was more interpersonal interaction taking place all during the class time and was not confined to periods of inactivity, as it was in the command class.

3. Students decided their own objectives and chose the activities they felt were most relevant to them in the small-group classes. The command classes' activities were all preplanned by the instructor.

4. Leadership was shared by many students in the small-group classes and frequently changed hands. Leadership in the command classes was confined mostly to one person, the teacher.

5. Class time was allowed for the fulfilling of social-emotional needs of the students in the small-group classes. No allowance was made for this in the command classes.

6. Students in the small-group classes frequently asked for assistance and received it, as well as offered assistance. Little assistance was offered by students in the command classes.

7. There was less encouragement and feedback

group work and individual work.

There was a very interesting discussion

about the role of the class and what was

done in periods of transition, as it was in the

class.

Students must find their own objectives and

choose the activities they felt were most relevant to them

in the self-group classes. The overall class activity

was also all prepared by the instructor.

Leadership was shared by many students in the

self-group classes and frequently changed hands. Leaders

ship in the command classes was confined mostly to one

person, the teacher.

The class was allowed for the fulling of

social-emotional needs of the students in the self-group

classes. No allowance was made for this in the command

classes.

Students in the self-group classes frequently

asked for assistance and received it, as well as offered

assistance. Little assistance was offered by students in the

command classes.

There was less encouragement and feedback

offered in the command classes than in the small-group classes.

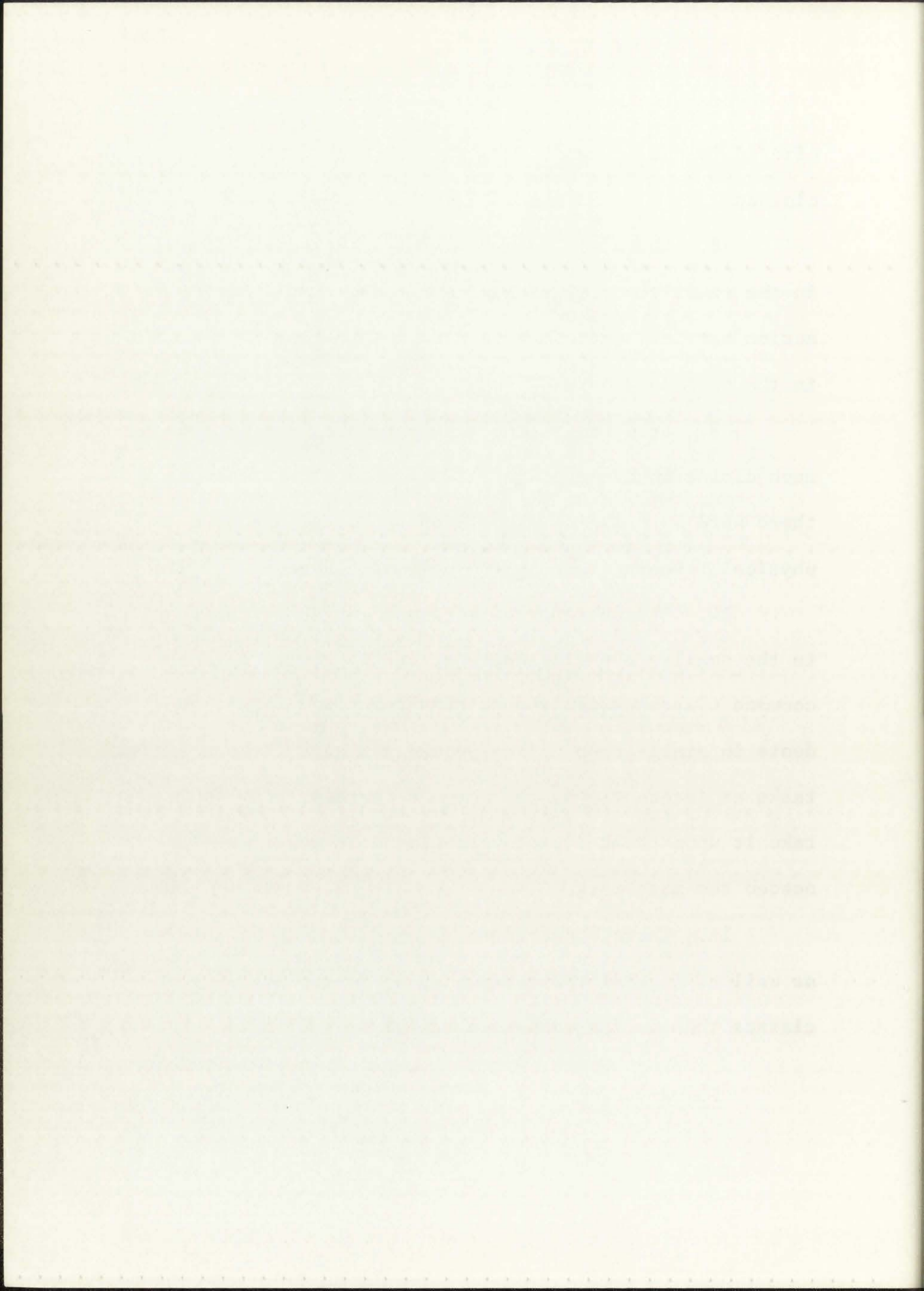
8. There was a more positive classroom climate in the small-group classes as evidenced by the interaction matrices and comments made in the field notes than in the command classes.

9. Students in the small-group classes stood much closer when conversing, faced each other head on; there were more facial expressions evident, and more physical touching than in the command classes.

10. Students worked more and longer on their own in the small-group classes, whereas the students in the command classes usually required prompting. Also, students in small-group classes would not have to be assigned tasks as frequently as the command classes; they would take it upon themselves to practice on strokes they felt needed the most work.

11. There appeared to be more showing of interest, as well as a greater attention span, in the small-group classes than in the command classes.

Summary. In classes where small-group methods of



teaching were used, the atmosphere was more relaxed, there was more interpersonal interaction, students decided their own objectives and activities, leadership was shared by more students and changed hands more frequently, the social-emotional needs were fulfilled more during class time, students offered and sought assistance from one another more frequently, there was more encouragement and feedback between students, and students and teachers, there was a more positive classroom climate, students concentrated longer on the task at hand, and showed more interest in the course than students in classes where the command method of teaching was used.

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FOOTNOTES

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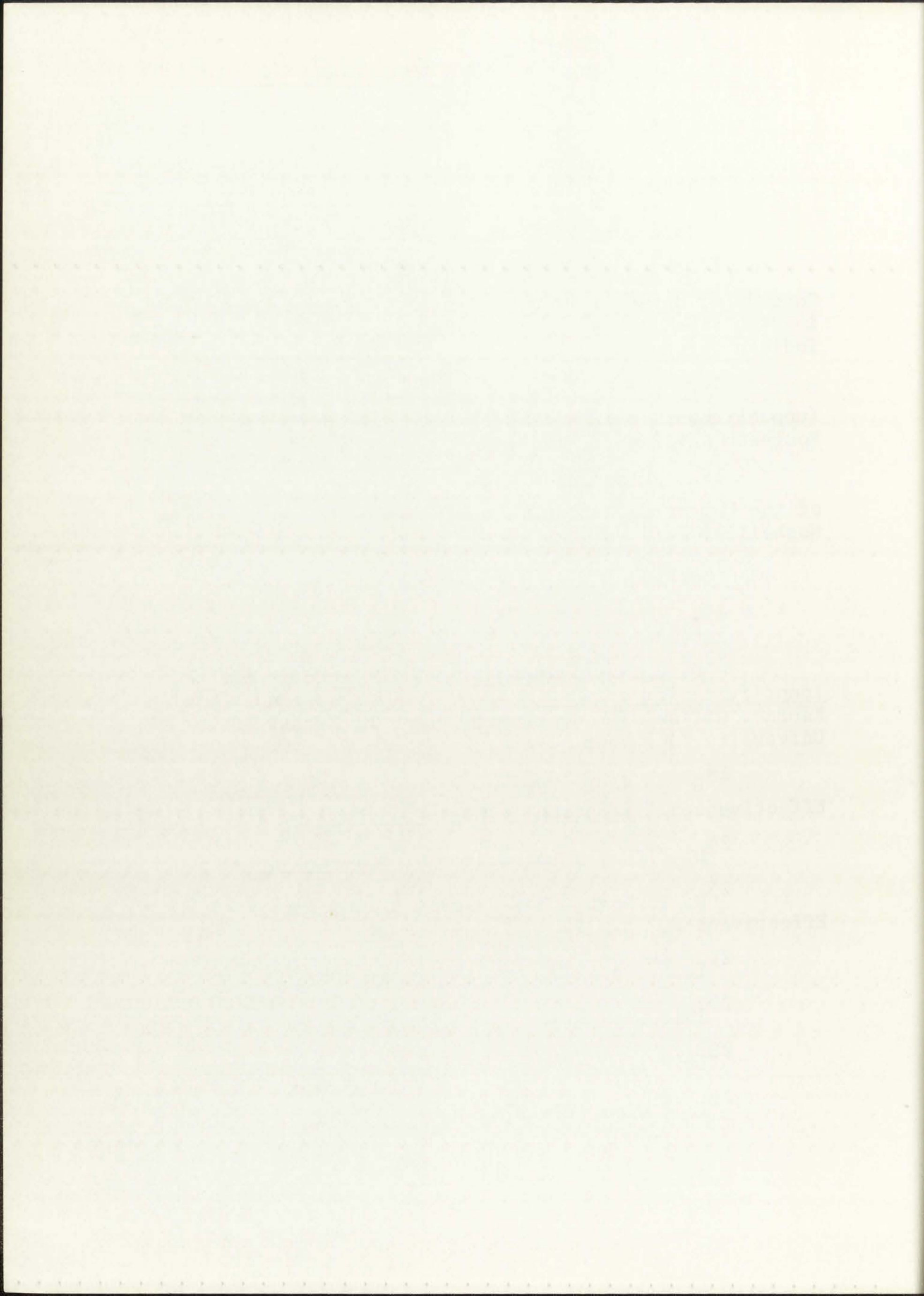
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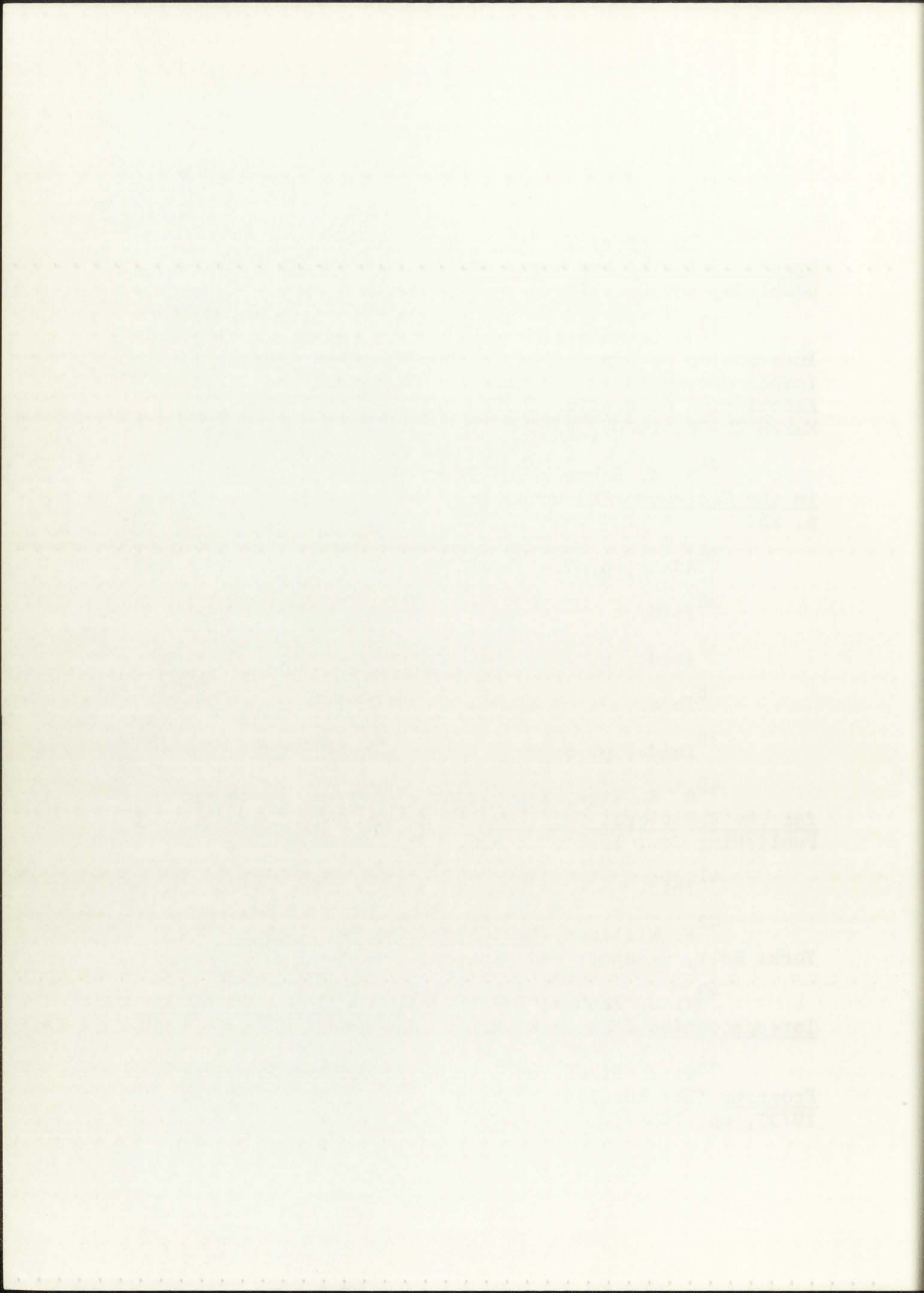
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CHAPTER IV

DISCUSSION, SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

DISCUSSION

Although differences in affect between the small-group method and command method of teaching were hypothesized, none were found. Significant differences were not found in attitudes toward the physical education activity course and the instructor, skill acquisition, and self-concept.

Hypotheses 1 and 2 dealt with students' attitudes toward beginning swimming classes and the instructors, respectively, in the comparison of the two methods of teaching. The instructors received a high rating from each of their classes. The overall high ratings may explain the outcome of no significant differences for these hypotheses. In Hoyt's article, he commented that, when students were generally pleased with a course, as all four classes involved in this experiment indicated

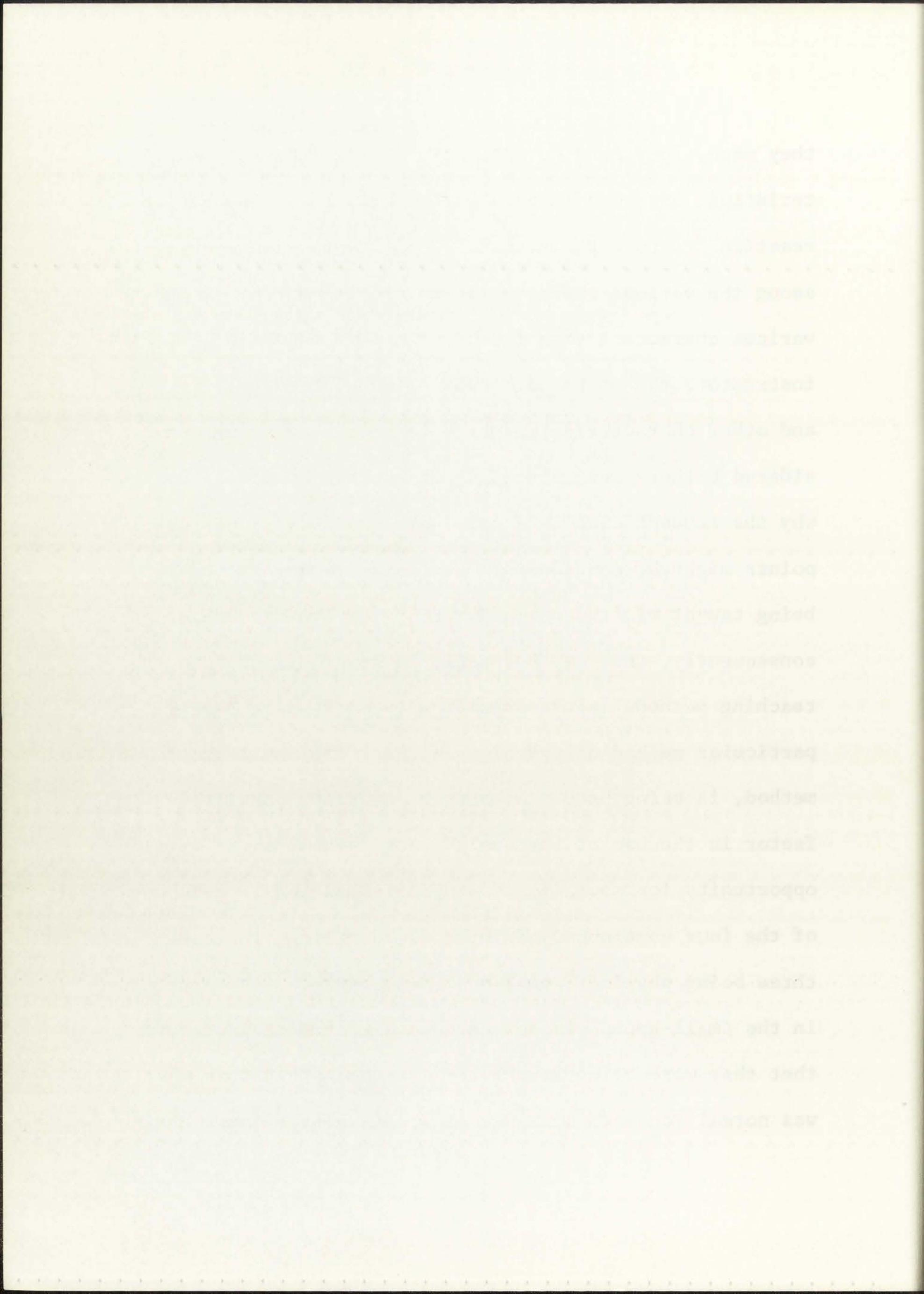
CHAPTER IV

AND RECOMMENDATIONS

DISCUSSION

Although differences in student behavior were noted between the two groups, the method and content of teaching were not significantly different. Significant differences were not found in attitudes toward the physical education activity course and the instructor, skill acquisition, and self-concept. Hypotheses 1 and 2 dealt with students' attitudes toward beginning swimming classes and the instructor, respectively. In the comparison of the two methods of teaching, the instructor received a high rating from each of their classes. The overall high ratings may explain the outcome of no significant differences for these hypotheses. In hypothesis 3, it was expected that when students were generally pleased with a course, as all four classes involved in this experiment indicated

they were, they tend to rate it positively on all characteristics. He went on to say that this overall positive reaction "reduces the student's ability to discriminate among the various characteristics of the course."¹ These various characteristics include the personality of the instructor, the method of teaching used, the facility, and other characteristics which might otherwise be considered bothersome. Hoyt did not explain specifically why the student cannot discriminate; however, a number of points might be considered. Students are accustomed to being taught via the command method in physical education; consequently, they may be unable to discriminate between teaching methods unless specifically made aware that a particular method of teaching, such as the small-group method, is being used. A case in point: a positive factor in the use of the small-group method is the greater opportunity for socialization. Socialization is also one of the four continuums of Physical Education, the other three being physical, emotional, and mental. The students in the small-group classes were not informed (disclosure) that they were being taught via a method other than what was normal for most classes. There is little doubt that

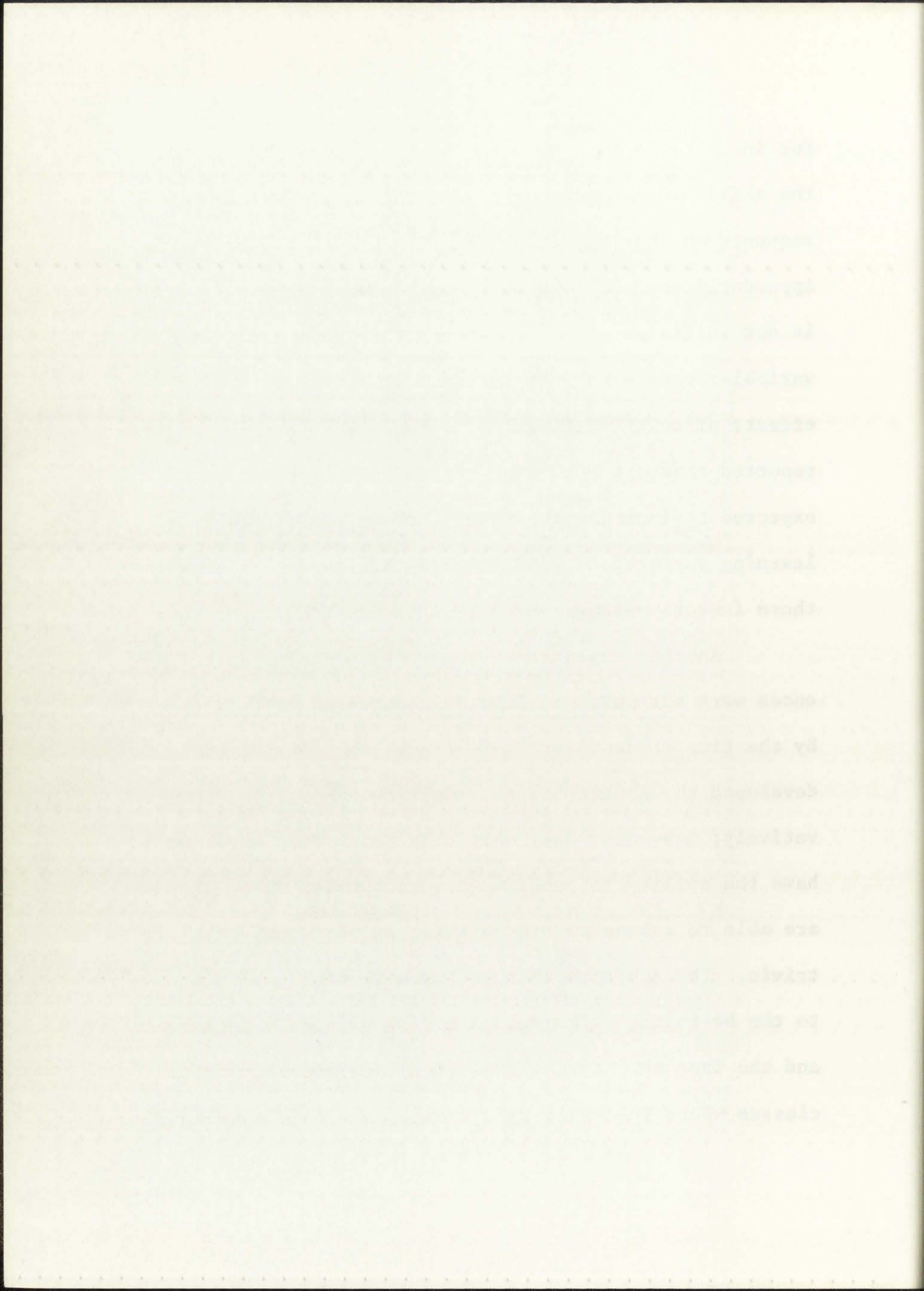


they must have been aware that something was going on, since the researcher/observer was usually present during class; but, it may be that, unless students are asked to compare and be aware of a specific method of teaching such as the small-group method, they will be unable to discriminate. A study by Welch² found that there was little correlation between the observational criteria and the students' perception of the classroom environment. Welch's findings further showed that more interaction occurred in classes where small-group methods were used than in classes where other methods were used. It can only be concluded from these findings that his students were unable to discriminate between the use of small-group methods, where more interaction occurred, and other methods used in classes they had been accustomed to attending.

Allowing students time to interact in a class and to set their own objectives may not be enough to produce measurable changes of attitudes in physical education activity courses. Olmstead³ and Adams⁴ reported that it was in "content" type courses where attitude change may have a greater chance of occurring. This may be accounted

for in that, in any beginning physical education course, the skills which must be learned may follow a logical sequence whether the students or the teacher plans them. Apparently one such exposure, such as was provided here, is not sufficient to make a measurable difference in variables chosen for this study. There may be other effects of using small-group methods; for example, Miller reported that students who work in small groups can be expected to increase their level of enjoyment, consider learning easier, and find it more challenging.⁵ None of these factors were measured in this investigation.

Another explanation about why significant differences were not found in attitudes concerns objectives. By the time students get to college, they may have developed the ability to set their own objectives conservatively; many want only what they think they need and have the ability to succeed. To accomplish this, they are able to filter out the trivia, or what they think is trivia. The subjects in this investigation may have come to the beginning swimming classes simply to learn to swim and the fact that more interaction took place in their classes where the small-group method was used than in the



classes where the command method was used went unnoticed. They apparently liked their teacher and learned to swim—and that was "enough" for them.

Another explanation for the findings about attitudes was the possibility that the Hoyt measuring instrument was not adequate. Hoyt warned that this instrument had not been tried on laboratory type courses, of which beginning swimming may be an example.⁶ This decreases our ability to make predictions; however, it is the opinion of the researcher that the comment made earlier about students having generally positive feelings about a course, which results in their tendency to rate all characteristics positively, was the major reason for no significant deficiencies being found between the two major groups.

A confounding and elusive dimension, characteristic of using natural groups, resides with the effects of the teacher himself. Teachers may influence students much more than the methods employed to teach them. Combs, in an article titled "What is a Good Teacher," stated:

As we have seen research on competencies has been unable to isolate any common traits or practices of good teachers. But this unanimous failure in itself

They were not only interested in the results but also in the process of learning.

.....
The results of the study are as follows:

.....
The first finding was that the students who were given the opportunity to choose their own topics showed a higher level of motivation and achievement than those who were given a fixed curriculum.

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The second finding was that the students who were given the opportunity to choose their own topics showed a higher level of self-direction and responsibility than those who were given a fixed curriculum.

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The third finding was that the students who were given the opportunity to choose their own topics showed a higher level of creativity and problem-solving skills than those who were given a fixed curriculum.

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The fourth finding was that the students who were given the opportunity to choose their own topics showed a higher level of social skills and teamwork than those who were given a fixed curriculum.

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The fifth finding was that the students who were given the opportunity to choose their own topics showed a higher level of self-esteem and confidence than those who were given a fixed curriculum.

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The sixth finding was that the students who were given the opportunity to choose their own topics showed a higher level of persistence and perseverance than those who were given a fixed curriculum.

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The seventh finding was that the students who were given the opportunity to choose their own topics showed a higher level of critical thinking and analysis than those who were given a fixed curriculum.

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The eighth finding was that the students who were given the opportunity to choose their own topics showed a higher level of communication skills and public speaking than those who were given a fixed curriculum.

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The ninth finding was that the students who were given the opportunity to choose their own topics showed a higher level of leadership skills and responsibility than those who were given a fixed curriculum.

.....
The tenth finding was that the students who were given the opportunity to choose their own topics showed a higher level of self-awareness and self-reflection than those who were given a fixed curriculum.

demonstrates an important fact:⁷ a good teacher is primarily a unique personality.

The personality of the teacher and how he relates to his students may be more important than the method of teaching he used when one considers the overall affect on the student.

With regard to this study, the attitude of the male instructor who taught P.E. 101-004 and P.E. 101-005 may have affected the test results. He did not, as he later confirmed, really become involved in using the small-group method until late in the experimental period. He reported that, after having used the command method of teaching for ten years, he felt uncomfortable using the small-group method. He also did not read all of the material on small-group techniques provided to him by the researcher until the last half of the experimental period. Once he did start using small-group techniques exclusively, it took longer for the students to respond, since once one begins a semester using one method of teaching, it becomes increasingly difficult to change as time progresses.

The opposite was the case for the female instructor. She got into using small-group techniques



exclusively at the very beginning of the experimental period. She read all of the material provided to her and attempted to utilize it. Whenever she perceived a problem, she would discuss it with the researcher/observer and either solve it or avoid it.

Another confounding and elusive dimension resides with the effects of the group itself, or what the researcher refers to as the personality of the group. The male instructor's command class (P.E. 101-005) was an outstanding group of students. They were interested in learning, friendly toward one another, and willing to help whenever possible. They were the kind of group every instructor hopes for each semester. In contrast to this, his small-groups class (P.E. 101-004) was the opposite. Both the instructor and the researcher noted that, unlike his command class, this group was very lax. They would come to class late and seldom remain afterwards to practice. These students did have the opportunity to interact more than the command group, but then this was a function of the established procedures of using small-group methods of teaching. Unless the instructor is aware of and familiar with varieties of small-group

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 every instructor hopes for with a minimum of effort. In contrast to
 this, his management class (U.S. 101-004) was the oppo-
 site. Both the instructor and the researcher found that
 unlike his command class, this group was very lax. They
 would come to class late and seldom remain afterwards to
 practice. These students did have the opportunity to
 interact with the command group, but then this was
 a function of the institutional procedures of using mail-
 group method of teaching. Unless the instructor is
 aware of and familiar with various of mail-group

techniques, he may not be successful with it. The behavior exhibited by this class is one of the possible outcomes which may occur when using small-group methods. Small-group methods are not meant for every class or every instructor.

The female instructor's classes were entirely different. Both groups started out the same, that is, the skill level and atmosphere in each class was approximately equal. As a result of the method, they became differentiated. Each of these groups could be classified as a classic small-group and a classic command group.

With regard to why significant differences were not found with reference to the measures of self-concept, a review of the literature concerning the use of small-group methods of teaching and self-concept revealed that the previous research was conducted with students in grades one through twelve and that information on college students was not available. The results of this study indicate that students' self-concept was not subject to change through exposure to the small-group method or the command method of teaching beginning swimming; however, there are two points worthy of consideration here:

...the results of the study are not surprising in view of the fact that the behavior exhibited by this class is one of the possible outcomes which may occur when using this group method. ... self-group method, but not meant for every class or every instructor.

The results of the study are entirely different. Each group started out the same, that is, the skill level and composition in each class was approximately equal. As a result of the study, the results demonstrated that each of these groups could be classified as a classic self-group and a classic command group.

With regard to the significant differences which were not found with reference to the measure of self-concept, a review of the literature concerning the use of self-group methods of teaching and self-concept revealed that the previous research was conducted with students in grades one through twelve and that instruction on college students was not available. The results of this study indicate that students' self-concept was not subject to change through exposure to the self-group method or the command method of teaching beginning writing; however,

there are no valid criteria of consideration here: ... command method of teaching beginning writing; however, there are no valid criteria of consideration here: ...

(1) the stability of the self-concept, and (2) the impact of the experience gained by the students in a beginning swimming class on the self-concept. The stability of the self-concept of subjects in elementary and high schools is less consistent and, therefore, more subject to change than at the college age where the students' personality is already consolidated, so change in self-concept is not evident.⁸

It must also be considered that a beginning swimming class does not necessarily have a large impact on student self-concept than a class which places students in high stress situations, such as being left out alone in the wilderness without food for three days does when one has never had this experience before.⁹ The actual time per week spent in the water in a beginning swimming class is less than one and one-half hours, hardly a considerable portion of the normal school week. Except for those few who may have hydrophobia and possibly reduce this fear as a result of taking a beginning swimming class, it is only one part of a normally busy day for most students.

The results of testing Hypothesis 7 was that the

skill acquisition of students in classes where small-group methods of teaching were used were not significantly different from the skill acquisition of students in classes where the command method was used. The majority of previous research indicated that skill acquisition is greater in classes where a teacher-centered approach, such as the command method of teaching, is used than a student-centered approach, such as the small-group method.

Given the differences between the instructors, the classes, and the methods of teaching used, the fact that the skill level was not significantly different throughout the four classes is, in itself, significant. It appears, from the results of this study, that teachers should be more willing to experiment with different methods and techniques of teaching. One of the major complaints against the use of small-group methods of teaching was the necessity of allowing a good deal of class time for the fulfilling of the social-emotional function. Research showed that, when the skill level of students in small-group classes is compared to the skill level of other methods of teaching, specifically the teacher-centered approaches, those in the former classes

skill level of the students in the class. The teacher should be aware of the skill level of the students in the class and adjust the instruction accordingly.

It is important for the teacher to be aware of the skill level of the students in the class and adjust the instruction accordingly. The teacher should be aware of the skill level of the students in the class and adjust the instruction accordingly.

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functions. Research shows that, when the skill level of the students in the class is low, the teacher should be aware of the skill level of the students in the class and adjust the instruction accordingly. The teacher should be aware of the skill level of the students in the class and adjust the instruction accordingly.

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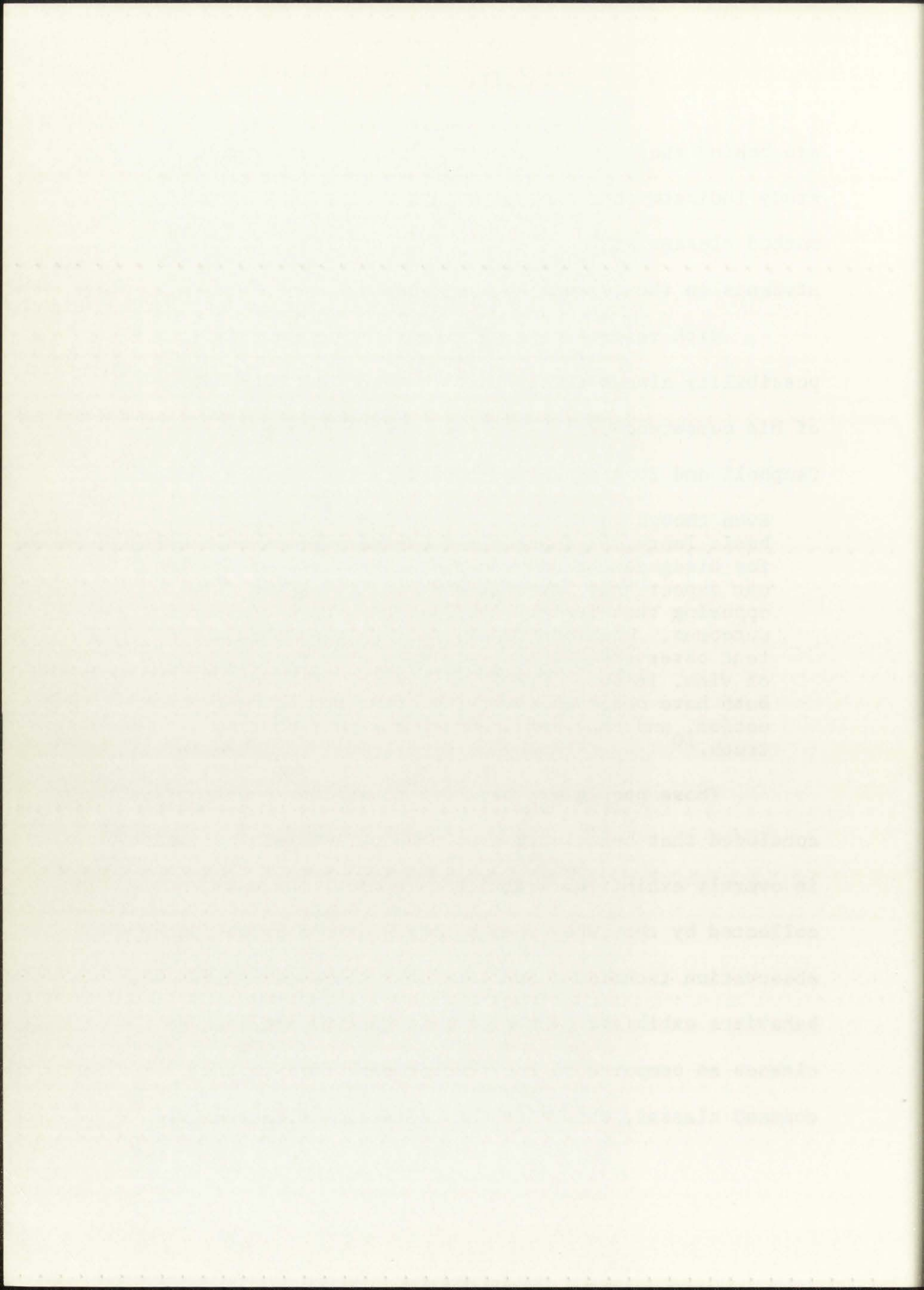
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are behind those in the latter. The results of this study indicate that those students in the small-group method classes at least attain the same level as those students in the command method classes.

With reference to the descriptive analysis, the possibility always exists that an observer, regardless of his competence, will only see what he wants to see. Campbell and Stanley warned, however, that

even though we recognized experimentation as the basic language of proof, as the only decision court for disagreement between rival theories, we should not expect that "crucial experiments" which pit opposing theories will be likely to have clear cut outcomes. When one finds, for example, that competent observers advocate strongly divergent points of view, it seems likely on a priori grounds that both have observed something about the natural situation, and that both represent a part of the truth.¹⁰

Those people who consider themselves behaviorists concluded that behavior can only be defined as that which is overtly exhibited. With this in mind, the data collected by the researcher by means of non-participatory observation techniques conclude that there were different behaviors exhibited by the students in the small-group classes as compared to the student behaviors in the command classes, which fit the definition of a positive



classroom climate as defined by Schmuck and Schmuck.¹¹

SUMMARY

The purpose of this study was to compare the effectiveness of the small-group method and command method of teaching a physical education activity course, including a comparison of the behaviors of students in small-group classes and command classes.

The study was conducted at The University of New Mexico during the Spring semester of 1974. Seventy-nine male and female students, enrolled in four beginning swimming classes, and who qualified as non-swimmers, constituted the sample.

The study employed both empirical and descriptive research methodologies. The empirical study consisted of measuring changes in seven dependent variables: (1) attitude toward the physical activity (beginning swimming), (2) attitude toward the instructor of the course, (3) self-esteem, (4) the personal-self, (5) the physical-self, (6) the social-self, and (7) skill acquisition.

The instrument used to measure personal-self, physical-self, social-self, and self-esteem was the

ABSTRACT

The purpose of this study was to compare the effectiveness of the author's method and course of teaching physical education activity course including a selection of the behavior of students in social-group classes and normal classes.

The study was conducted at The University of New Mexico during the Spring semester of 1974. Seventy-nine male and female students enrolled in four beginning activity classes, and who qualified as non-swimmers, conducted the research.

The study explored both empirical and descriptive research methodologies. The empirical study consisted of measuring changes in seven dependent variables: (1) attitude toward the physical activity (beginning extending), (2) attitude toward the instructor of the course, (3) self-esteem, (4) the personal self, (5) the physical self, (6) the social self, and (7) skill acquisition.

The treatment used to measure personal self, physical self, social self, and self-esteem was the

Tennessee Self Concept Scale, as developed by Fitts.

It was administered following a pretest/posttest procedure.

The instrument used to measure students' attitudes toward the physical activity and the instructor of the course was the "Students' Reaction to Instruction and Courses, 2nd Edition," as developed by Hoyt and Owens.

Skill acquisition was measured by the individual instructor of each course and the researcher. The swimming skills measured were the front crawl, the back crawl, elementary backstroke, sidestroke, and breaststroke.

The seven hypotheses were tested using two analyses of variance and four analyses of covariance. The design of each test was a 4 x 1 with the type I error rate set at .05.

No significant differences were found with any of the statistical tests. It was found that students' attitudes toward beginning swimming and the instructor of the course were not significantly different, regardless of whether students were in classes where the small-group method or the command method of teaching was used. It was also found that students' self-esteem, personal-self,

physical-self, and social-self were not significantly different, regardless of whether they were in classes where the small-group method or the command method of teaching was used. Results also indicated that students' self-concept, which included the personal-self, physical-self, social-self, and self-esteem, was not subject to manipulation by different methods of teaching.

In addition to data being collected by means of pencil and paper test, approximately 10 observations were made of each of the four classes. The purposes of these observations were to insure that the instructors followed the assigned method of teaching, to develop small-group instructional strategies, and to compare the behaviors of students in the small-group and command classes.

The results of observing the classes to insure that the teachers followed the assigned method of teaching indicated that there are no major differences between using small-group methods of teaching in a "content" course and a physical education activity course. Also, although the instructors of the small-group classes would occasionally revert back to using the command method of teaching, it was only necessary to bring it to their

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attention for them to change back again. Results also indicated that it was necessary for an instructor to understand, accept, and be comfortable with the premises embodied in the rationale for small-group methods of teaching. Further, although class time must be allowed for students to become acquainted, it was not necessary for students to study group dynamics for small-group methods of teaching to be used effectively.

The results of comparing the list of student behaviors in small-group and command classes revealed that the occurrence of certain desirable student behaviors can be deliberately planned by the teacher. For a positive classroom climate to exist, the instructor must be trained in the use of small-group methods, he must be concerned with and plan for particular outcomes, he must have the objectives he wished to accomplish clearly established, and he must accept, understand, and be comfortable with small-group methods of teaching.

For the implementation of small-group methods, it was suggested that certain procedures be followed. The teacher should: (1) inform the students at the earliest possible moment that he is responsible for what he is to

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learn; (2) form groups of from three to five, since this number of group members seems to operate best in an activity such as beginning swimming; (3) outline the task of the learner from the beginning; (4) make specific assignments, related to what has been discussed by the class; (5) assign outside work such as extra practices, especially when someone is experiencing difficulty; (6) stress group participation, even to the extent of applying pressure by making the students aware that he is keeping track of what is happening within the groups; (7) require group reports be presented to the class, for it reduces intergroup competition, thereby reducing threat to the individual students; (8) play down external evaluation and make the focus of evaluation be assumed by the students themselves; and (9) attempt to create a positive classroom climate.

A comparison of student behaviors in classes where small-group methods of teaching were used indicated that the atmosphere in the small-group classes was more relaxed; there was more interpersonal interaction; students had more power to set their own objectives and activities; leadership was shared by more students and

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changed hands more frequently; the social-emotional needs were fulfilled more during class time; students offered and sought assistance from one another more frequently; there was more encouragement and feedback between students, and between students and teachers; there was a more positive classroom climate; students concentrated longer on the task at hand; and students showed more interest in the course.

CONCLUSIONS

The following conclusions may be posited from this investigation: a teacher can manipulate the classroom climate so as to produce certain behaviors from students; and the method of teaching used in a physical education activity class does not necessarily affect several measures of a student's self-concept: self-esteem, personal-self, physical-self, and social-self. However, the student behaviors in response to the two teaching methods do differ along predicted dimensions.

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IMPLICATIONS FOR FUTURE RESEARCH:

RECOMMENDATIONS

1. This study should be replicated with the following exceptions: (a) rather than exposing two different groups to two different methods of teaching, one group should be exposed to the two different methods. The subjects should be made aware that they are taking part in an experiment and asked to analyze and rate each method; (b) an instrument which would measure the process view of the self-concept should replace the Tennessee Self Concept Scale; and (c) the instructors should have prior experience with the use of small-group methods before taking part in the experiment.

2. The factors not measured in this study, which were discussed in the descriptive analysis, should be put to statistical tests; personal interviews should be conducted; a more extensive use of the interaction matrix should be made, with the results analyzed statistically.

3. Rather than using non-participatory observation techniques, participant observation should be employed to further analyze what is taking place in physical education activity courses.

EXPERIMENTAL DESIGN

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FOOTNOTES

¹D. P. Hoyt, "Measures of Instructional Effectiveness," Research in Higher Education, 1:371, 1973.

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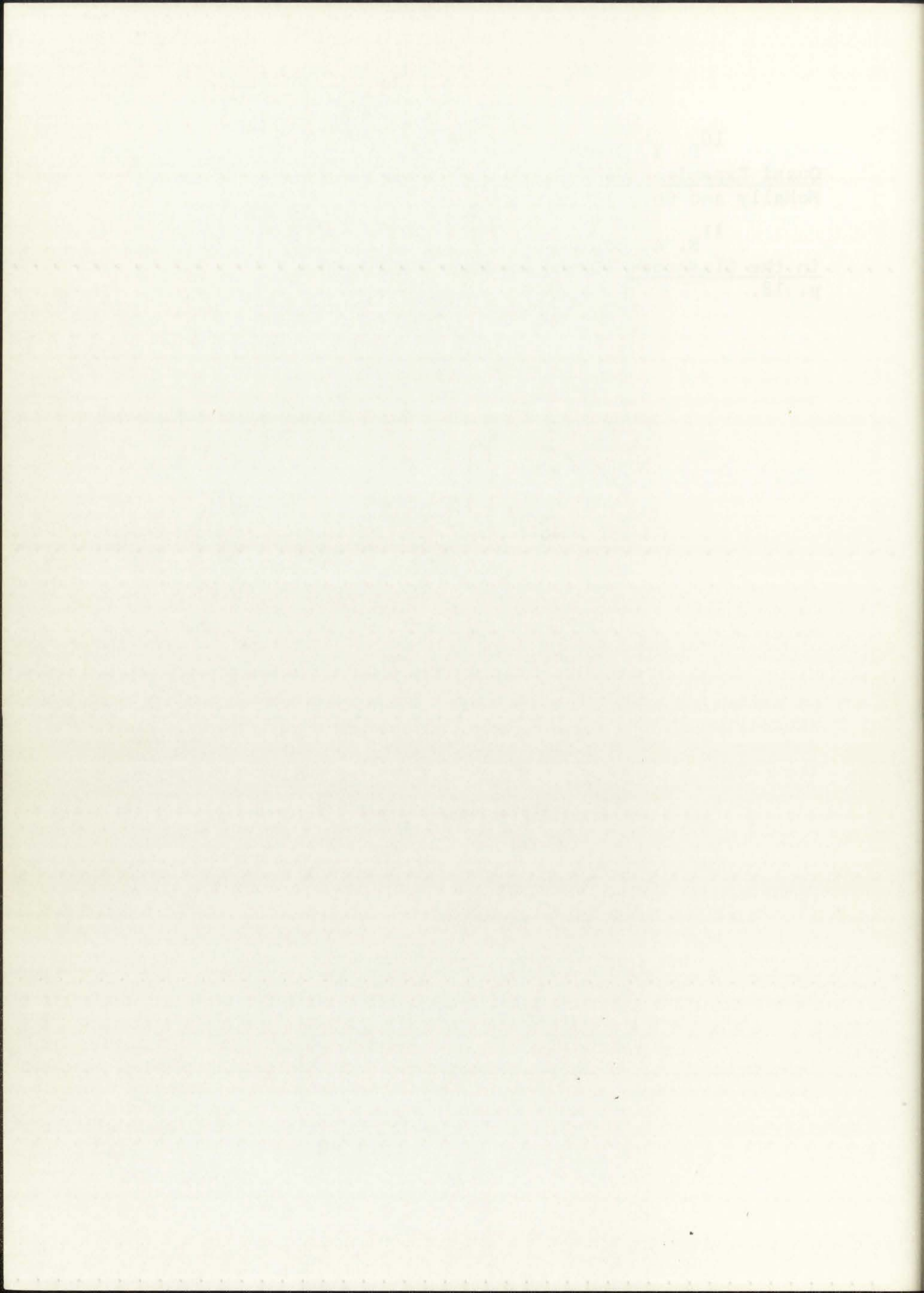
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W. W. Waller, "Tennessee Soil Group Scale" (manuscript published by University of Tennessee, Knoxville, Tennessee, 1951), 31 pp.

J. G. G., "Changes in Soil-Group Rating from Outward Bound Type Activities" (unpublished Master's thesis, The University of New Mexico, May, 1951).

¹⁰D. T. Campbell and J. Stanley, Experimental and Quasi Experimental Designs for Research (Chicago: Rand McNally and Co., 1963), p. 3.

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APPENDIXES

EXHIBIT

APPENDIX A

TENNESSEE SELF CONCEPT SCALE

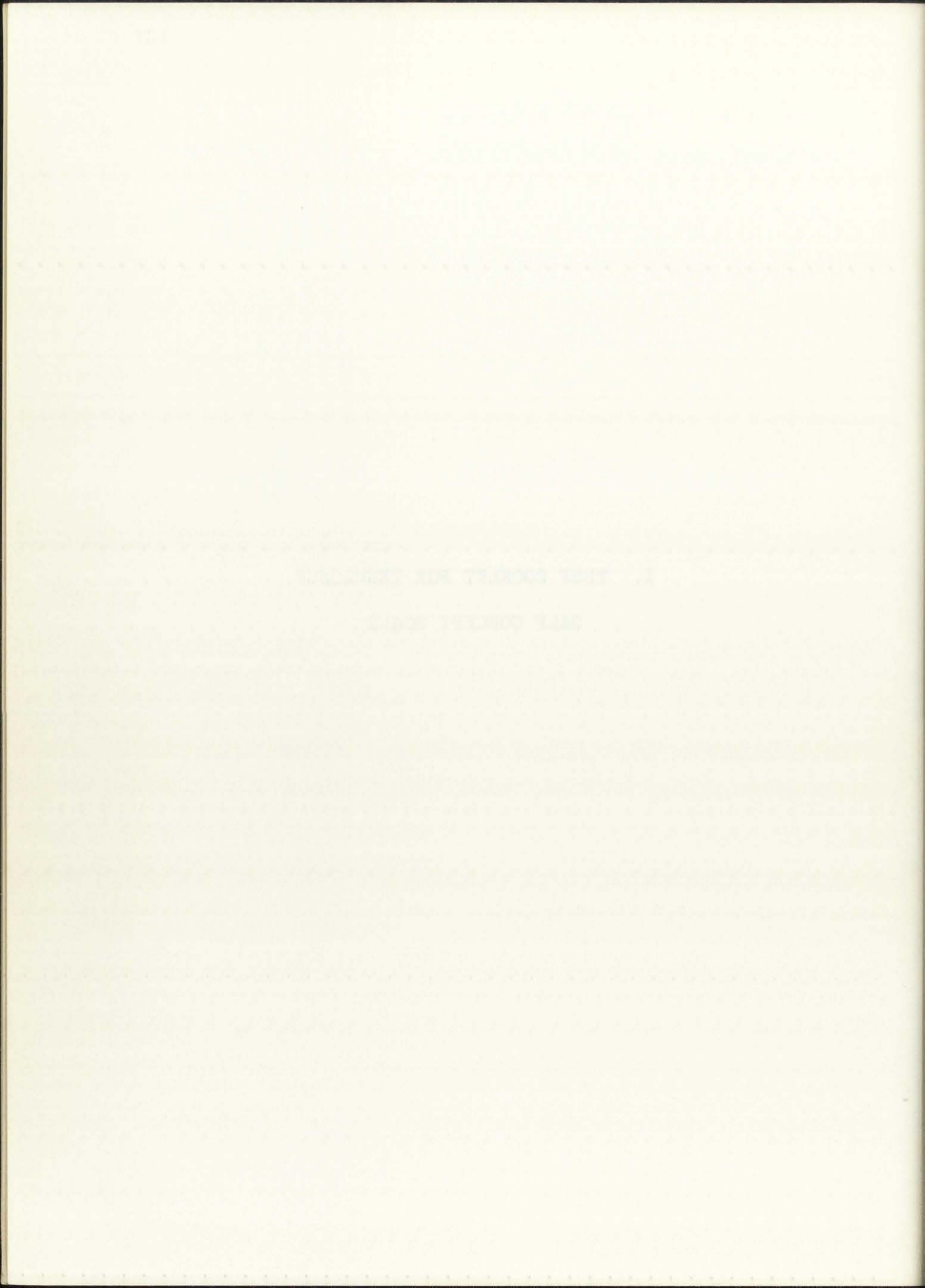
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ALBERT A. ZIEGLER

ALBERT A. ZIEGLER

I. TEST BOOKLET FOR TENNESSEE

SELF CONCEPT SCALE



TEST BOOKLET FOR TENNESSEE SELF CONCEPT SCALE

INSTRUCTIONS

On the top line of the separate answer sheet, fill in your name and the other information except for the time information in the last three boxes. Write only on the answer sheet. Do not put any marks in this booklet.

The statements in this booklet are to help you describe yourself as you see yourself. Please respond to them as if you were describing yourself to yourself. Do not omit any item! Read each statement carefully; then select one of the five responses listed below. On your answer sheet, put a circle around the response you chose. If you want to change an answer after you have circled it, do not erase it but put an X mark through the response and then circle the response you want.

As you start, be sure that the question numbers on your answer sheet match the question number on the test booklet. Note that the question numbers are not in logical order — please work carefully!

Remember, put a circle around the response number you have chosen for each statement.

Responses	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
	1	2	3	4	5

You will find these response numbers repeated at the bottom of each page to help you remember them.

THE ANSWER TO THE QUESTION

INSTRUCTIONS

On the top line of the answer sheet, fill in your name and the date. The information in the last line of the answer sheet is not part of the answer.

The statements in this booklet describe yourself as you are described to them as if you were described. Do not write any facts and do not select one of the five responses. Answer sheet, put a circle around the number of the response. If you want to change an answer, do not erase it but put an X over it and then circle the response.

As you start, be sure to read your answer sheet and the test booklet. This test booklet is in logical order - please work in that order.

Remember, put a circle around the number you have chosen for each response.

Completely True
Response: True, False, or Don't Know

You will find these instructions at the bottom of each page of the booklet.

1. I have a healthy body.
2. I am an attractive person.
3. I consider myself a sloppy person.
19. I am a decent sort of person.
21. I am an honest person.
23. I am a bad person.
37. I am a cheerful person.
39. I am a calm and easy going person.
41. I am a nobody.
55. I have a family that would always help me in any kind of trouble.
57. I am a member of a happy family.
59. My friends have no confidence in me.
73. I am a friendly person.
75. I am popular with men.
77. I am not interested in what other people do.
91. I do not always tell the truth.
93. I get angry sometimes.
2. I like to look nice and neat all the time.
4. I am full of aches and pains.
6. I am a sick person.
20. I am a religious person.
22. I am a moral failure.
24. I am a morally weak person.
38. I have a lot of self-control.
40. I am a hateful person.

Responses:

Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
1	2	3	4	5

42. I am losing my mind.
56. I am an important person to my friends and family.
58. I am not loved by my family.
60. I feel that my family doesn't trust me.
74. I am popular with women.
76. I am mad at the whole world.
78. I am hard to be friendly with.
92. Once in a while I think of things too bad to talk about.
94. Sometimes, when I am not feeling well, I am cross.
7. I am neither too fat nor too thin.
9. I like my looks just the way they are.
11. I would like to change some parts of my body.
25. I am satisfied with my moral behavior.
27. I am satisfied with my relationship to God.
29. I ought to go to church more.
43. I am satisfied to be just what I am.
45. I am just as nice as I should be.
47. I despise myself.
61. I am satisfied with my family relationships.
63. I understand my family as well as I should.
65. I should trust my family more.
79. I am as sociable as I want to be.
81. I try to please others, but I don't overdo it.
83. I am no good at all from a social standpoint.
95. I do not like everyone I know.

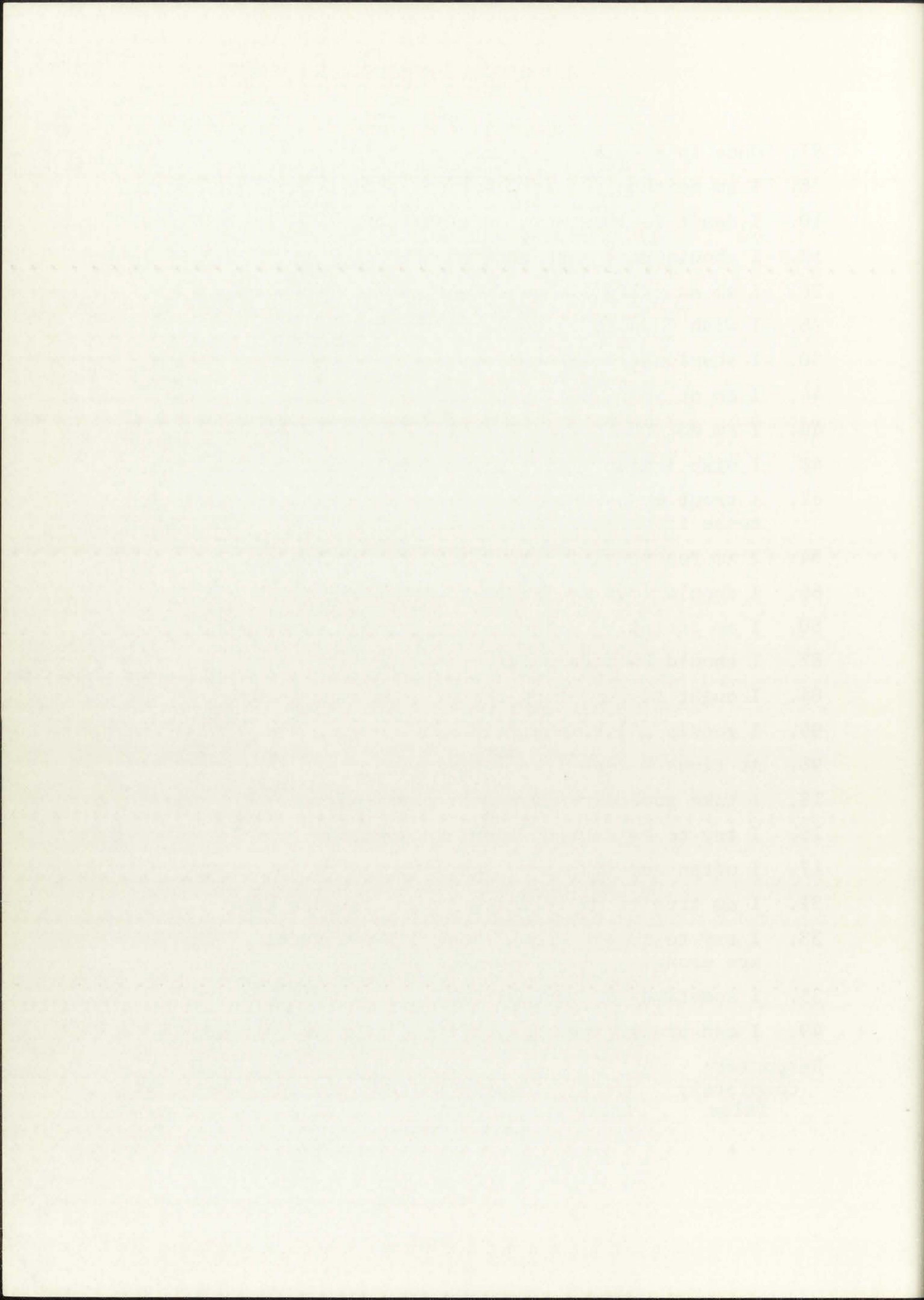
Responses:

Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
1	2	3	4	5

97. Once in a while, I laugh at a dirty joke.
8. I am neither too tall nor too short.
10. I don't feel as well as I should.
12. I should have more sex appeal.
26. I am as religious as I want to be.
28. I wish I could be more trustworthy.
30. I shouldn't tell so many lies.
44. I am as smart as I want to be.
46. I am not the person I would like to be.
48. I wish I didn't give up as easily as I do.
62. I treat my parents as well as I should (Use past tense if parents are not living).
64. I am too sensitive to things my family say.
66. I should love my family more.
80. I am satisfied with the way I treat other people.
82. I should be more polite to others.
84. I ought to get along better with other people.
96. I gossip a little at times.
98. At times I feel like swearing.
13. I take good care of myself physically.
15. I try to be careful about my appearance.
17. I often act like I am "all thumbs."
31. I am true to my religion in my everyday life.
33. I try to change when I know I'm doing things that are wrong.
35. I sometimes do very bad things.
49. I can always take care of myself in any situation.

Responses:

Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
1	2	3	4	5



51. I take the blame for things without getting mad.
53. I do things without thinking about them first.
67. I try to play fair with my friends and family.
69. I take a real interest in my family.
71. I give in to my parents. (Use past tense if parents are not living.)
85. I try to understand the other fellow's point of view.
87. I get along well with other people.
89. I do not forgive others easily.
99. I would rather win than lose in a game.
14. I feel good most of the time.
16. I do poorly in sports and games.
18. I am a poor sleeper.
32. I do what is right most of the time.
34. I sometimes use unfair means to get ahead.
36. I have trouble doing the things that are right.
50. I solve my problems quite easily.
52. I change my mind a lot.
54. I try to run away from my problems.
68. I do my share of work at home.
70. I quarrel with my family.
72. I do not act like my family thinks I should.
86. I see good points in all the people I meet.
88. I do not feel at ease with other people.
90. I find it hard to talk with strangers.
100. Once in a while I put off until tomorrow what I ought to do today.

Responses:

Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true
1	2	3	4	5

- 81. I take an interest in my work without getting bored.
- 82. I do things without thinking about them first.
- 83. I try to stay calm when my friends and family are angry.
- 84. I take a good interest in my family.
- 85. I give in to my passions. I do what I want to do.
- 86. I try to understand the other fellow's point of view.
- 87. I get along well with other people.
- 88. I do not suggest things easily.
- 89. I would rather win than lose in a game.
- 90. I feel that most of the time I am right.
- 91. I do things for sports and games.
- 92. I am a good fighter.
- 93. I do what is right most of the time.
- 94. I sometimes get things wrong to get ahead.
- 95. I have trouble doing the things that are right.
- 96. I solve my problems quite easily.
- 97. I change my mind a lot.
- 98. I try to get away from my problems.
- 99. I do my share of work at home.
- 100. I quarrel with my family.
- 101. I do not get into quarrels easily.
- 102. I see good points in all the people I meet.
- 103. I do not feel at ease with other people.
- 104. I find it hard to talk with strangers.
- 105. I am a little nervous when I am in a crowd.

Completely false Mostly false Fairly false Fairly true Completely true
 100% 75% 50% 25% 0%

II. ANSWER SHEET FOR TENNESSEE
SELF CONCEPT SCALE



FORM C.

TENNESSEE SELF CONCEPT SCALE

ANSWER SHEET

ITEM NO.	PAGES 5 AND 6	ITEM NO.	PAGES 3 AND 4	ITEM NO.	PAGES 1 AND 2
13	1 2 3 4 5	7	1 2 3 4 5	1	1 2 3 4 5
14	1 2 3 4 5	8	1 2 3 4 5	2	1 2 3 4 5
15	1 2 3 4 5	9	1 2 3 4 5	3	1 2 3 4 5
16	1 2 3 4 5	10	1 2 3 4 5	4	1 2 3 4 5
17	1 2 3 4 5	11	1 2 3 4 5	5	1 2 3 4 5
18	1 2 3 4 5	12	1 2 3 4 5	6	1 2 3 4 5
31	1 2 3 4 5	25	1 2 3 4 5	19	1 2 3 4 5
32	1 2 3 4 5	26	1 2 3 4 5	20	1 2 3 4 5
33	1 2 3 4 5	27	1 2 3 4 5	21	1 2 3 4 5
34	1 2 3 4 5	28	1 2 3 4 5	22	1 2 3 4 5
35	1 2 3 4 5	29	1 2 3 4 5	23	1 2 3 4 5
36	1 2 3 4 5	30	1 2 3 4 5	24	1 2 3 4 5
49	1 2 3 4 5	43	1 2 3 4 5	37	1 2 3 4 5
50	1 2 3 4 5	44	1 2 3 4 5	38	1 2 3 4 5
51	1 2 3 4 5	45	1 2 3 4 5	39	1 2 3 4 5
52	1 2 3 4 5	46	1 2 3 4 5	40	1 2 3 4 5
53	1 2 3 4 5	47	1 2 3 4 5	41	1 2 3 4 5
54	1 2 3 4 5	48	1 2 3 4 5	42	1 2 3 4 5
67	1 2 3 4 5	61	1 2 3 4 5	55	1 2 3 4 5
68	1 2 3 4 5	62	1 2 3 4 5	56	1 2 3 4 5
69	1 2 3 4 5	63	1 2 3 4 5	57	1 2 3 4 5
70	1 2 3 4 5	64	1 2 3 4 5	58	1 2 3 4 5
71	1 2 3 4 5	65	1 2 3 4 5	59	1 2 3 4 5
72	1 2 3 4 5	66	1 2 3 4 5	60	1 2 3 4 5
85	1 2 3 4 5	79	1 2 3 4 5	73	1 2 3 4 5
86	1 2 3 4 5	80	1 2 3 4 5	74	1 2 3 4 5
87	1 2 3 4 5	81	1 2 3 4 5	75	1 2 3 4 5
88	1 2 3 4 5	82	1 2 3 4 5	76	1 2 3 4 5
89	1 2 3 4 5	83	1 2 3 4 5	77	1 2 3 4 5
90	1 2 3 4 5	84	1 2 3 4 5	78	1 2 3 4 5
99	1 2 3 4 5	95	1 2 3 4 5	91	1 2 3 4 5
100	1 2 3 4 5	96	1 2 3 4 5	92	1 2 3 4 5
		97	1 2 3 4 5	93	1 2 3 4 5
		98	1 2 3 4 5	94	1 2 3 4 5

NAME
SCHOOL GRADE
SEX
AGE
DATE
TIME STARTED
TIME FINISHED
TOTAL TIME

PUBLISHED BY:
 COUNSELOR RECORDINGS AND TESTS
 BOX 6184, ACKLEN STA.
 NASHVILLE, TENN. 37212

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Date	Temperature		Humidity		Wind	Remarks
	Max	Min	Rel	Abs		
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1911-11-2	68	48	78	68	W 12	
1911-11-3	70	50	80	70	W 15	
1911-11-4	72	52	82	72	W 18	
1911-11-5	75	55	85	75	W 20	
1911-11-6	78	58	88	78	W 22	
1911-11-7	80	60	90	80	W 25	
1911-11-8	82	62	92	82	W 28	
1911-11-9	85	65	95	85	W 30	
1911-11-10	88	68	98	88	W 32	
1911-11-11	90	70	100	90	W 35	
1911-11-12	92	72	100	92	W 38	
1911-11-13	95	75	100	95	W 40	
1911-11-14	98	78	100	98	W 42	
1911-11-15	100	80	100	100	W 45	
1911-11-16	102	82	100	102	W 48	
1911-11-17	105	85	100	105	W 50	
1911-11-18	108	88	100	108	W 52	
1911-11-19	110	90	100	110	W 55	
1911-11-20	112	92	100	112	W 58	
1911-11-21	115	95	100	115	W 60	
1911-11-22	118	98	100	118	W 62	
1911-11-23	120	100	100	120	W 65	
1911-11-24	122	102	100	122	W 68	
1911-11-25	125	105	100	125	W 70	
1911-11-26	128	108	100	128	W 72	
1911-11-27	130	110	100	130	W 75	
1911-11-28	132	112	100	132	W 78	
1911-11-29	135	115	100	135	W 80	
1911-11-30	138	118	100	138	W 82	

STATION NO. 1000

REPORT MADE AT THE END OF THE MONTH

III. SCORE SHEET FOR TENNESSEE
SELF CONCEPT SCALE

THE GREAT WESTERN

AND THE GREAT EAST

SCORE SHEET		NAME	SCHOOL GRADE	SEX	AGE	DATE	TIME STARTED	TIME FINISHED	TOTAL TIME
HOW THE INDIVIDUAL PERCEIVES HIMSELF									
IN TERMS OF:	COLUMN A PHYSICAL SELF	COLUMN B MORAL-ETHICAL SELF	COLUMN C PERSONAL SELF	COLUMN D FAMILY SELF	COLUMN E SOCIAL SELF	SELF CRITICISM	ROW TOTALS	POSITIVE P	VARIABILITY Range of Cell Scores
ROW 1.	P-1 P-2 P-3 N-4 N-5 N-6 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-19P-20P-21 N-27N-28N-29N-30 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-37P-38P-39 N-40N-41N-42 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-55P-56P-57 N-58N-59N-60 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-73P-74P-75 N-76N-77N-78 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	91 92 93 94 5 5 5 5 4 4 4 4 3 3 3 3 2 2 2 2 1 1 1 1			
ROW 2.	P-7 P-8 P-9 N-10 N-11 N-12 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-25P-26P-27N-28N-29N-30 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-43P-44P-45 N-46N-47N-48 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-61P-62P-63 N-64N-65N-66 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-79P-80P-81 N-82N-83N-84 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	95 96 97 98 5 5 5 5 4 4 4 4 3 3 3 3 2 2 2 2 1 1 1 1			
ROW 3.	P-13 P-14 P-15 N-16 N-17 N-18 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-31P-32P-33 N-34N-35N-36 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-49P-50P-51 N-52N-53N-54 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-67P-68P-69 N-70N-71N-72 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	P-85P-86P-87 N-88N-89N-90 5 5 5 1 1 1 4 4 4 2 2 2 3 3 3 3 3 3 2 2 2 4 4 4 1 1 1 5 5 5	99 100 5 5 4 4 3 3 2 2 1 1			
BEHAVIOR HOW HE ACTS						SC=			
TOTAL POSITIVE (ΣP)							Total Positive or P →		
V (Range of Cell Scores)									
COLUMN TOTALS									
							Col. Tot. V →		Tot. V.

DISTRIBUTION OF RESPONSES

NUMBER OF 5's 4's 3's 2's 1's

TOTALS $\frac{X_1}{D} + \frac{X_2}{D} + \frac{X_3}{D} + \frac{X_4}{D} + \frac{X_5}{D} = 100$

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APPENDIX B

"STUDENT REACTION TO INSTRUCTION AND COURSES"

APPENDIX

STATEMENT OF THE COMMISSIONERS OF THE GENERAL LAND OFFICE

[Faint, illegible text follows, likely a detailed report or list of items.]

INSTRUCTIONS FOR ADMINISTERING
STUDENT REACTIONS TO INSTRUCTION AND COURSES

1. Read aloud the General Directions from the top of the Student Reaction to Instruction and Courses Form, asking students to follow along. Answer any questions students have. If it is necessary to devise a rule not covered by the instructions, note this on a separate sheet of paper and include it with the completed sheets.
2. Ask each student to fill out the three items of information called for on the Evaluation Form. Write the 6-digit number of the course, the instructor's last name, and the date of administration on the chalk board. Please use a soft pencil.
3. If the instructor has prepared special questions, instruct students to answer them in the spaces provided on the form.
4. It is suggested that the instructor not remain in the class after the forms have been distributed and the instructions read. If the instructor does not remain, appoint a class member to complete the following steps. Unless the instructor gives other directions, students may be dismissed after completing the forms.
5. Please return all Evaluation Forms and Faculty Information Forms to the department office.

OTHER SPECIAL INSTRUCTIONS

- A. Give your sex at top of form below the instructor's name.
- B. Remember that this is not a traditional educational course such as English or mathematics — Look at everything in light of Physical Education.

INSTRUCTIONS FOR ADMINISTRATION

STUDENT REACTIONS TO INSTRUCTION AND COURSES

1. Read and the General Director from the top of the Student Reaction to Instruction and Courses form, asking students to follow along, answer any questions students have. It is necessary to devote a week not covered by the instructions, note this on a separate sheet of paper and include it with the completed sheets.

2. Ask each student to fill out the three items of information called for on the Evaluation Form. Write the 6-digit number of the course, the instructor's last name, and the date of administration on the shell page. Please use a self-addressed envelope.

3. If the instructor has prepared special questions, instruct students to answer them in the spaces provided on the form.

It is suggested that the instructor not remain in the class after the forms have been distributed and the instructions read. If the instructor does not remain, appoint a class member to complete the following steps. Unless the instructor gives other directions, students may be dismissed after completing the forms.

4. Please return all Evaluation forms and Faculty Information forms to the department office.

OTHER SPECIAL INSTRUCTIONS

A. Give your box at top of form below the instructor's name.

B. Remember that this is not a traditional educational course such as English or mathematics - look at everything in light of Physical Education.

Instructor _____

Course No. _____

**STUDENT REACTIONS TO INSTRUCTION AND COURSES
UNIVERSITY OF NEW MEXICO**

By giving thoughtful and honest answers to these questions, you will help your instructor improve this course and his teaching procedures. Omit items which are not applicable to your instructor or this course. Please use only a SOFT PENCIL.

PART I. Describe your instructor's teaching procedures by using the following code:
1=Hardly Ever 2=Occasionally
3=Sometimes 4=Frequently
5=Almost Always

The Instructor:

- 1. Promoted teacher-student discussion (as opposed to mere responses to questions). ::1:: ::2:: ::3:: ::4:: ::5::
- 2. Found ways to help students answer their own questions. ::1:: ::2:: ::3:: ::4:: ::5::
- 3. Encouraged students to express themselves freely and openly. ::1:: ::2:: ::3:: ::4:: ::5::
- 4. Seemed enthusiastic about the subject matter. ::1:: ::2:: ::3:: ::4:: ::5::
- 5. Changed his approach to meet new situations. ::1:: ::2:: ::3:: ::4:: ::5::
- 6. Spoke with expressiveness and variety in tone of voice. ::1:: ::2:: ::3:: ::4:: ::5::
- 7. Demonstrated the importance and significance of his subject matter. ::1:: ::2:: ::3:: ::4:: ::5::
- 8. Made presentations which were dry and dull. ::1:: ::2:: ::3:: ::4:: ::5::
- 9. Made it clear how each topic fit into the course. ::1:: ::2:: ::3:: ::4:: ::5::
- 10. Explained the reasons for his criticisms of students' academic performance. ::1:: ::2:: ::3:: ::4:: ::5::
- 11. Encouraged student comments even when they turned out to be incorrect or irrelevant. ::1:: ::2:: ::3:: ::4:: ::5::
- 12. Summarized material in a manner which aided retention. ::1:: ::2:: ::3:: ::4:: ::5::
- 13. Stimulated students to intellectual effort beyond that required by most courses. ::1:: ::2:: ::3:: ::4:: ::5::
- 14. Stated clearly the objectives of the course. ::1:: ::2:: ::3:: ::4:: ::5::
- 15. Explained course material clearly, and explanations were to the point. ::1:: ::2:: ::3:: ::4:: ::5::
- 16. Related course material to real life situations. ::1:: ::2:: ::3:: ::4:: ::5::
- 17. Gave examinations which stressed unnecessary memorization. ::1:: ::2:: ::3:: ::4:: ::5::
- 18. Gave examination questions which were unreasonably detailed (picky). ::1:: ::2:: ::3:: ::4:: ::5::

PART III. Compare the progress you have made in this course with that made in other courses you have taken at this college or university, using the following code:
1=Lowest 10% of Courses I have taken here
2=Next 20% 3=Middle 40%
4=Next 20% 5=Upper 10%

Your Progress:

- 23. Gaining factual knowledge (terminology, classifications, methods, trends). ::1:: ::2:: ::3:: ::4:: ::5::
- 24. Learning fundamental principles, generalizations, or theories. ::1:: ::2:: ::3:: ::4:: ::5::
- 25. Learning to apply course material to improve rational thinking, problem-solving and decision making. ::1:: ::2:: ::3:: ::4:: ::5::
- 26. Developing specific skills, competencies and points of view needed by professionals in the field most closely related to this course. ::1:: ::2:: ::3:: ::4:: ::5::
- 27. Learning how professionals in this field go about the process of gaining new knowledge. ::1:: ::2:: ::3:: ::4:: ::5::
- 28. Developing creative capacities. ::1:: ::2:: ::3:: ::4:: ::5::
- 29. Developing a sense of personal responsibility (self-reliance, self-discipline). ::1:: ::2:: ::3:: ::4:: ::5::
- 30. Gaining a broader understanding and appreciation of intellectual-cultural activity (music, science, literature, etc.). ::1:: ::2:: ::3:: ::4:: ::5::
- 31. Developing skill in expressing myself orally or in writing. ::1:: ::2:: ::3:: ::4:: ::5::
- 32. Discovering the implications of the course material for understanding myself (interests, talents, values, etc.). ::1:: ::2:: ::3:: ::4:: ::5::

PART IV. Describe your personal attitudes and behavior in this course, using the following code:
1=Definitely False 2=More False than True
3=Inbetween 4=More True than False
5=Definitely True

Self-Rating:

- 33. I worked harder on this course than on most courses I have taken. ::1:: ::2:: ::3:: ::4:: ::5::
- 34. I had a strong desire to take this course. ::1:: ::2:: ::3:: ::4:: ::5::
- 35. I would like to take another class from this instructor. ::1:: ::2:: ::3:: ::4:: ::5::
- 36. As a result of taking this course, I have more positive feelings toward this field of study. ::1:: ::2:: ::3:: ::4:: ::5::

PART II. On the next four questions, compare this course with others you have taken at this institution, using the following code:
1=Much Less than Most Courses
2=Less than Most 3=About Average
4=More than Most 5=Much More than Most

The Course:

- 19. Amount of reading. ::1:: ::2:: ::3:: ::4:: ::5::
- 20. Amount of work in other (non-reading) assignments. ::1:: ::2:: ::3:: ::4:: ::5::
- 21. Difficulty of subject matter. ::1:: ::2:: ::3:: ::4:: ::5::
- 22. Degree to which the course hung together (various topics and class activities were related to each other). ::1:: ::2:: ::3:: ::4:: ::5::

PART V. If your instructor has included additional items, please answer them in the space below:

- 37. ::1:: ::2:: ::3:: ::4:: ::5::
- 38. ::1:: ::2:: ::3:: ::4:: ::5::
- 39. ::1:: ::2:: ::3:: ::4:: ::5::
- 40. ::1:: ::2:: ::3:: ::4:: ::5::
- 41. ::1:: ::2:: ::3:: ::4:: ::5::
- 42. ::1:: ::2:: ::3:: ::4:: ::5::

Your comments on how the instructor might improve this course or his teaching are invited on the reverse side of this form.

THE UNIVERSITY OF CHICAGO
LIBRARY

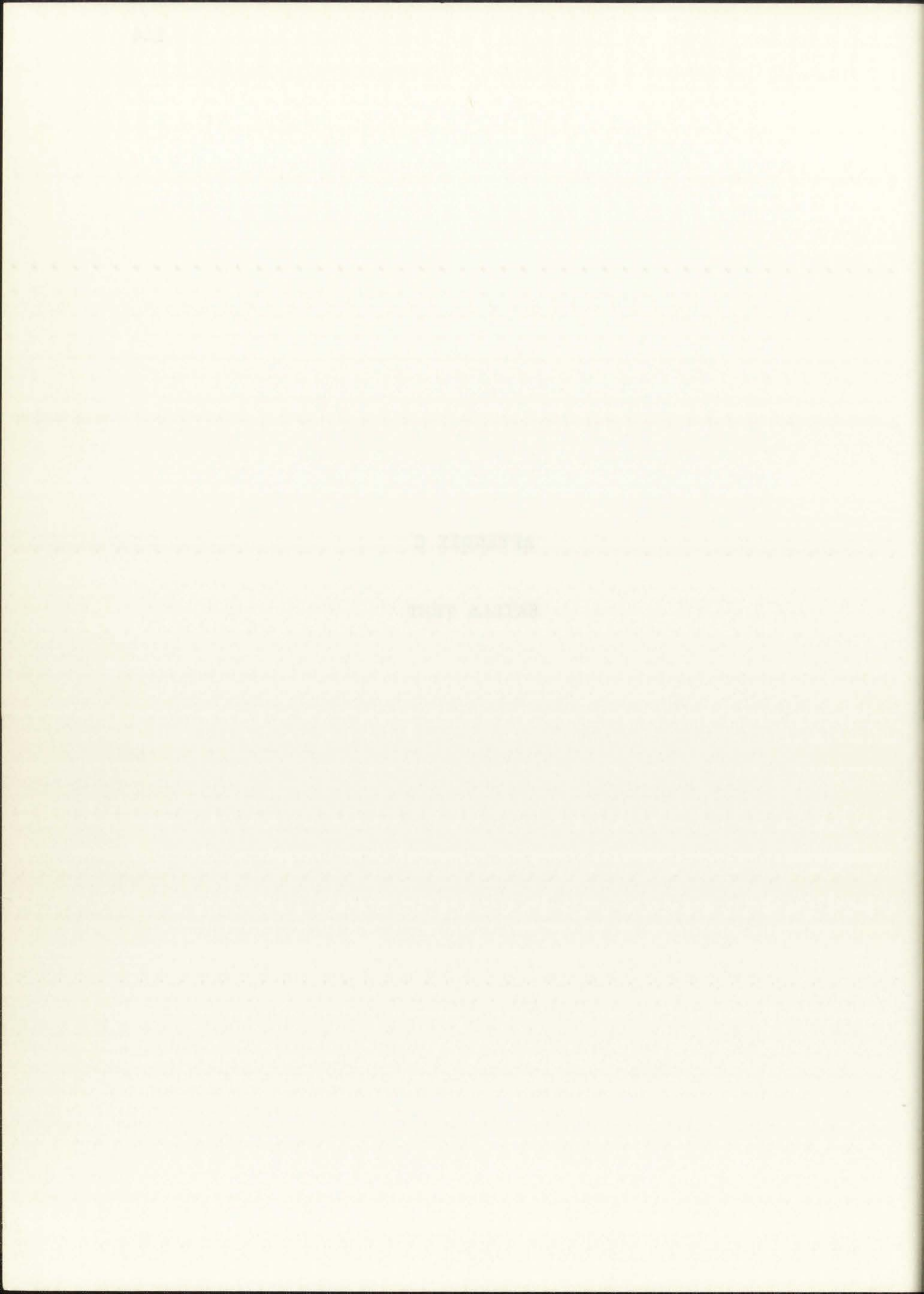
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APPENDIX C

SKILLS TEST



I. RATING SHEET



APPENDIX D

RAW SCORES OF STUDENTS

APPENDIX D

STATEMENT OF WORK

THIS STATEMENT OF WORK IS A SUMMARY OF THE WORK TO BE PERFORMED BY THE CONTRACTOR UNDER THIS CONTRACT.

I. RAW SCORES FOR TENNESSEE SELF CONCEPT

I. THE CONCEPT OF THE SELF

LEGEND

1. Sex of student — 1 = male; 2 = female.
2. Class standing — 1 = freshmen; 2 = sophomore;
3 = junior; 4 = senior; 5 = graduate
3. Physical-self
4. Personal-self
5. Social-self
6. Self-esteem

6. Self-actualization

5. Social-self

4. Personal-self

3. Physical-self

2 - Intimacy 4 - security

2. Class standing - 1 -

1. Bel. of others - 2 -

TABLE 7

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
PRETEST SCORES OF P.E. 101-001, COMMAND CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	1	2	63	63	63	325
2	1	1	62	40	46	269
3	1	1	66	69	64	331
4	1	2	54	67	63	321
5	1	3	75	65	60	320
6	2	2	72	72	75	363
7	2	2	60	59	62	299
8	2	2	58	63	69	324
9	1	1	60	45	52	276
10	1	4	62	53	49	294
11	2	4	71	75	67	378
12	2	4	74	74	72	374
13	2	1	72	73	75	358
14	1	2	61	63	60	311
15	2	2	57	53	56	286
16	2	1	75	64	56	321
17	1	3	54	48	65	319
18	1	2	74	62	61	336
19	1	2	72	73	66	352
20	1	4	69	65	68	342
21	2	2	64	59	68	327
22	2	1	57	63	67	329
23	1	4	68	56	58	203
24	2	2	65	62	62	316

TABLE 8

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 POSTTEST SCORES OF P.E. 101-001, COMMAND CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	1	2	66	62	67	324
2	1	1	70	73	69	374
3	1	1	71	73	70	348
4	1	2	49	66	68	329
5	1	3	77	67	65	335
6	2	2	73	76	77	375
7	2	2	66	67	61	333
8	2	2	71	64	63	347
9	1	1	56	46	53	269
10	1	4	62	62	60	319
11	2	4	86	78	81	395
12	2	4	71	72	65	356
13	2	1	68	68	71	351
14	1	2	56	61	57	287
15	2	2	63	53	57	295
16	2	1	79	68	67	351
17	1	3	60	58	71	325
18	1	2	74	63	66	350
19	1	2	67	70	65	352
20	1	4	69	66	68	340
21	2	1	66	56	69	329
22	2	1	60	66	75	351
23	1	4	67	60	62	336
24	2	2	71	63	68	330

TABLE 9

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 PRETEST SCORES OF P.E. 101-002, SMALL-GROUP CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	2	1	62	66	64	341
2	2	1	71	72	70	354
3	2	1	78	70	72	378
4	2	1	60	62	60	334
5	1	3	66	66	58	332
6	1	2	46	47	58	279
7	1	2	78	60	61	333
8	2	1	71	69	71	363
9	2	5	53	65	72	334
10	2	1	47	62	60	313
11	2	1	60	65	76	358
12	1	3	68	64	68	327
13	1	1	74	75	76	382
14	2	1	59	58	63	204
15	1	1	71	72	64	341
16	1	3	59	64	67	319
17	2	1	62	65	69	328
18	2	2	71	76	78	370

STATE OF TEXAS

COUNTY OF _____

Subscribed

TABLE 10

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 POSTTEST SCORES OF P.E. 101-002, SMALL-GROUP CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	2	1	69	66	65	347
2	2	1	77	67	73	358
3	2	1	86	80	85	420
4	2	1	61	63	58	319
5	1	3	65	69	59	332
6	1	2	51	48	62	273
7	1	2	76	69	59	342
8	2	1	68	71	73	366
9	2	5	67	73	77	368
10	2	1	56	57	62	301
11	2	1	68	67	79	377
12	1	3	68	56	66	327
13	1	1	72	78	77	386
14	2	1	61	52	57	287
15	1	1	65	75	67	343
16	1	3	65	61	58	331
17	2	1	72	65	72	346
18	2	2	67	67	72	347

TABLE 10

POPULATION OF THE DISTRICT OF COLUMBIA, 1900-1910

Year	1900	1905	1910
1	34,100	42,000	52,000
2	35,000	43,000	53,000
3	36,000	44,000	54,000
4	37,000	45,000	55,000
5	38,000	46,000	56,000
6	39,000	47,000	57,000
7	40,000	48,000	58,000
8	41,000	49,000	59,000
9	42,000	50,000	60,000
10	43,000	51,000	61,000
11	44,000	52,000	62,000
12	45,000	53,000	63,000
13	46,000	54,000	64,000
14	47,000	55,000	65,000
15	48,000	56,000	66,000
16	49,000	57,000	67,000
17	50,000	58,000	68,000
18	51,000	59,000	69,000
19	52,000	60,000	70,000
20	53,000	61,000	71,000
21	54,000	62,000	72,000
22	55,000	63,000	73,000
23	56,000	64,000	74,000
24	57,000	65,000	75,000
25	58,000	66,000	76,000
26	59,000	67,000	77,000
27	60,000	68,000	78,000
28	61,000	69,000	79,000
29	62,000	70,000	80,000
30	63,000	71,000	81,000
31	64,000	72,000	82,000
32	65,000	73,000	83,000
33	66,000	74,000	84,000
34	67,000	75,000	85,000
35	68,000	76,000	86,000
36	69,000	77,000	87,000
37	70,000	78,000	88,000
38	71,000	79,000	89,000
39	72,000	80,000	90,000
40	73,000	81,000	91,000
41	74,000	82,000	92,000
42	75,000	83,000	93,000
43	76,000	84,000	94,000
44	77,000	85,000	95,000
45	78,000	86,000	96,000
46	79,000	87,000	97,000
47	80,000	88,000	98,000
48	81,000	89,000	99,000
49	82,000	90,000	100,000
50	83,000	91,000	101,000
51	84,000	92,000	102,000
52	85,000	93,000	103,000
53	86,000	94,000	104,000
54	87,000	95,000	105,000
55	88,000	96,000	106,000
56	89,000	97,000	107,000
57	90,000	98,000	108,000
58	91,000	99,000	109,000
59	92,000	100,000	110,000
60	93,000	101,000	111,000
61	94,000	102,000	112,000
62	95,000	103,000	113,000
63	96,000	104,000	114,000
64	97,000	105,000	115,000
65	98,000	106,000	116,000
66	99,000	107,000	117,000
67	100,000	108,000	118,000
68	101,000	109,000	119,000
69	102,000	110,000	120,000
70	103,000	111,000	121,000
71	104,000	112,000	122,000
72	105,000	113,000	123,000
73	106,000	114,000	124,000
74	107,000	115,000	125,000
75	108,000	116,000	126,000
76	109,000	117,000	127,000
77	110,000	118,000	128,000
78	111,000	119,000	129,000
79	112,000	120,000	130,000
80	113,000	121,000	131,000
81	114,000	122,000	132,000
82	115,000	123,000	133,000
83	116,000	124,000	134,000
84	117,000	125,000	135,000
85	118,000	126,000	136,000
86	119,000	127,000	137,000
87	120,000	128,000	138,000
88	121,000	129,000	139,000
89	122,000	130,000	140,000
90	123,000	131,000	141,000
91	124,000	132,000	142,000
92	125,000	133,000	143,000
93	126,000	134,000	144,000
94	127,000	135,000	145,000
95	128,000	136,000	146,000
96	129,000	137,000	147,000
97	130,000	138,000	148,000
98	131,000	139,000	149,000
99	132,000	140,000	150,000
100	133,000	141,000	151,000

TABLE 11

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 PRETEST SCORES OF P.E. 101-004, SMALL-GROUP CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	2	1	52	35	40	232
2	1	1	67	79	70	349
3	2	1	64	64	73	348
4	1	2	61	59	51	308
5	1	2	63	64	58	306
6	1	2	67	74	75	372
7	1	3	69	71	68	345
8	1	2	83	85	62	387
9	2	2	68	70	73	357
10	1	2	60	42	54	265
11	1	1	76	75	60	355
12	2	3	74	69	69	364
13	2	4	63	57	61	331
14	1	3	70	70	70	367

TABLE 12

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 POSTTEST SCORES OF P.E. 101-004, SMALL-GROUP CLASS

	1	2	3	4	5	6
<u>Student</u>						
1	2	1	54	50	53	276
2	1	1	72	73	74	374
3	2	1	64	64	70	338
4	1	2	60	61	50	304
5	1	2	61	72	61	331
6	1	2	66	71	74	357
7	1	3	71	70	69	362
8	1	2	64	60	52	304
9	2	2	69	67	68	354
10	1	2	66	41	57	268
11	1	1	73	72	73	356
12	2	3	83	78	84	389
13	2	4	59	59	56	313
14	1	3	83	71	80	398

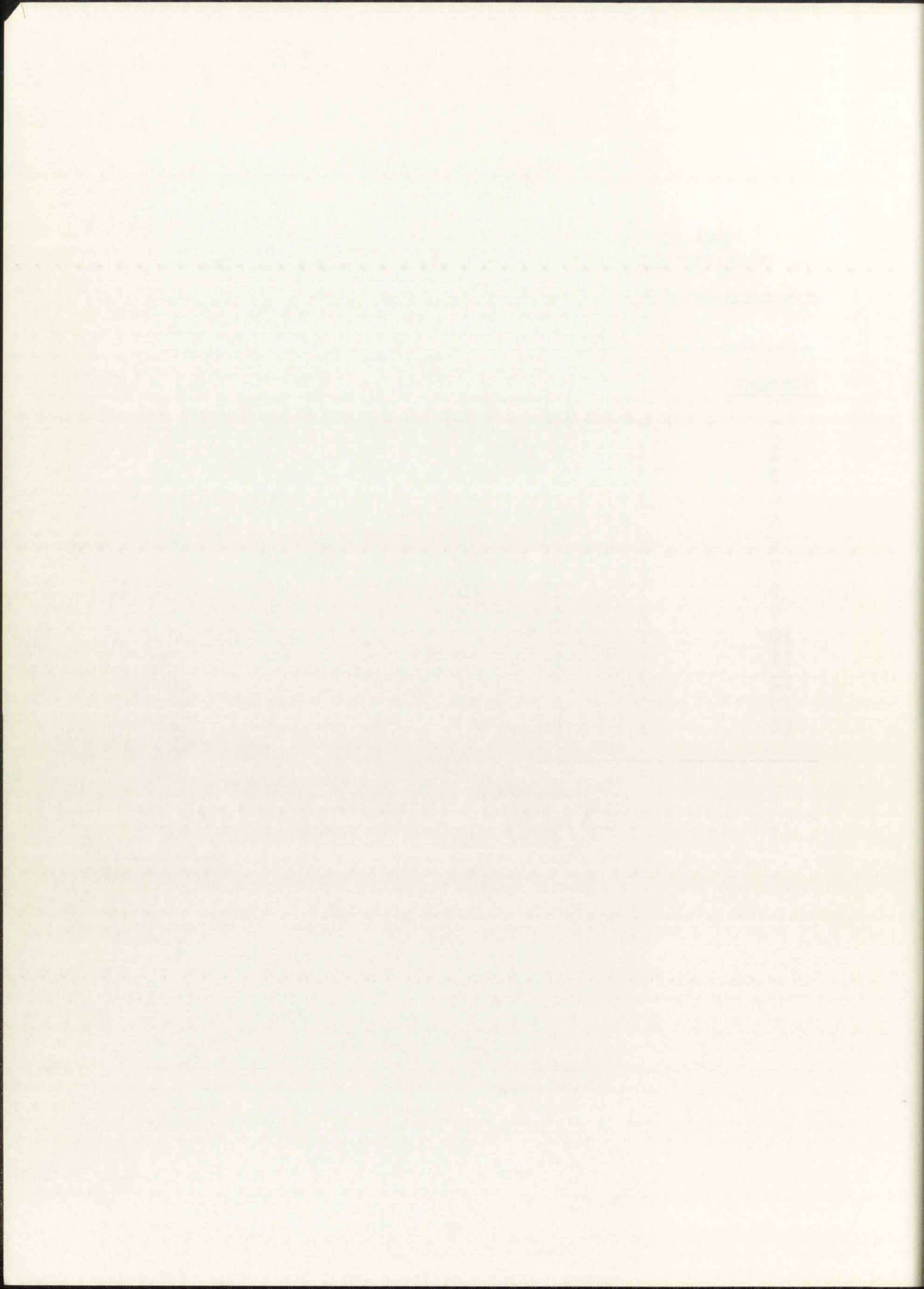


TABLE 13

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
PRETEST SCORES OF P.E. 101-005, COMMAND GROUP

	1	2	3	4	5	6
<u>Student</u>						
1	1	1	46	61	64	312
2	2	3	62	55	62	303
3	2	2	72	68	71	367
4	2	2	69	59	60	314
5	2	3	75	70	67	355
6	1	3	67	65	66	327
7	2	1	68	58	73	335
8	2	4	67	75	73	359
9	2	2	77	72	76	365
10	1	4	68	79	61	344
11	2	2	67	68	65	355
12	2	4	78	78	81	385
13	1	1	76	67	67	354
14	1	1	66	67	74	353
15	2	4	60	54	61	317
16	2	1	67	65	61	344
17	2	2	78	73	63	350
18	1	4	62	61	68	320
19	2	2	58	53	58	284
20	1	1	68	77	68	370
21	2	3	72	66	70	321

TABLE 1

THE FOLLOWING TABLE SHOWS THE RESULTS OF THE TESTS CONDUCTED AT THE LABORATORY OF THE U.S. GEOLOGICAL SURVEY, WASHINGTON, D.C., ON THE ...

1	2	3	4	5	6	7	8
1	10	10	10	10	10	10	10
2	10	10	10	10	10	10	10
3	10	10	10	10	10	10	10
4	10	10	10	10	10	10	10
5	10	10	10	10	10	10	10
6	10	10	10	10	10	10	10
7	10	10	10	10	10	10	10
8	10	10	10	10	10	10	10
9	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10
11	10	10	10	10	10	10	10
12	10	10	10	10	10	10	10
13	10	10	10	10	10	10	10
14	10	10	10	10	10	10	10
15	10	10	10	10	10	10	10
16	10	10	10	10	10	10	10
17	10	10	10	10	10	10	10
18	10	10	10	10	10	10	10
19	10	10	10	10	10	10	10
20	10	10	10	10	10	10	10
21	10	10	10	10	10	10	10

THE FOLLOWING TABLE SHOWS THE RESULTS OF THE TESTS CONDUCTED AT THE LABORATORY OF THE U.S. GEOLOGICAL SURVEY, WASHINGTON, D.C., ON THE ...

TABLE 14

RAW SCORES FOR TENNESSEE SELF CONCEPT SCALE
 POSTTEST SCORES OF P.E. 101-005, COMMAND GROUP

	1	2	3	4	5	6
<u>Student</u>						
1	1	1	55	66	58	315
2	2	3	65	67	63	321
3	2	2	77	71	73	387
4	2	2	65	68	66	323
5	2	3	67	64	62	326
6	1	3	70	64	65	327
7	2	1	72	68	71	360
8	2	4	72	76	71	360
9	2	2	74	66	76	359
10	1	4	71	69	66	337
11	2	2	72	77	79	390
12	2	4	79	78	83	391
13	1	1	71	66	64	333
14	1	1	68	67	64	344
15	2	4	66	65	63	346
16	2	1	80	71	62	363
17	2	2	74	73	66	349
18	1	4	61	62	65	321
19	2	2	73	65	63	333
20	1	1	62	70	67	351
21	2	3	73	59	67	315

TABLE 14

PERCENTAGE OF STUDENTS WHOSE SCORES ON THE TESTS WERE IN THE FOLLOWING RANGES

Standard	1	2	3	4	5	6
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1
4	1	1	1	1	1	1
5	1	1	1	1	1	1
6	1	1	1	1	1	1
7	1	1	1	1	1	1
8	1	1	1	1	1	1
9	1	1	1	1	1	1
10	1	1	1	1	1	1
11	1	1	1	1	1	1
12	1	1	1	1	1	1
13	1	1	1	1	1	1
14	1	1	1	1	1	1
15	1	1	1	1	1	1
16	1	1	1	1	1	1
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1
20	1	1	1	1	1	1
21	1	1	1	1	1	1

II. MEAN SCORES FOR "STUDENT REACTION
TO INSTRUCTION AND COURSES"



"STUDENT REACTION TO INSTRUCTOR AND COURSE"

	SMALL-GROUPS			COMMAND
	101-002	101-004	101-001	101-005
Part I. Evaluation (progress rating)				
A. Subject matter mastery				
23. Factual Knowledge	3.8	3.1	3.4	3.9
24. Principles-Theories	4.3	3.5	3.3	4.1
26. Professional Skills-Viewpoints	3.9	3.9	3.3	4.1
27. Discipline's Methods	3.2	2.7	2.3	3.1
B. Development of General Skills				
28. Creative Capacities	3.4	3.1	2.8	3.1
31. Effective Communication	2.5	2.9	1.8	2.8
25. Thinking, Problem-Solving	3.7	3.0	2.7	2.9
C. Personal Development				
32. Implications for Self-Understanding	4.2	3.6	3.1	4.1
29. Personal Responsibility	4.2	4.4	3.6	4.0
30. General-Liberal Education	4.2	3.9	3.4	3.9
Part III. Students' Self-Ratings				
33. Worked Hard	3.7	3.7	3.1	4.0
34. Strong Desire to Take Course	4.2	4.5	4.0	4.5
35. Would Like Instructor Again	4.1	4.7	4.3	4.6
36. Incr. Pos. Attitude Toward Field	3.9	3.8	3.6	4.2

Case No.	Year	Month	Day	Time	Location	Remarks
100-101	1911	10	10	10:00	...	...
100-102	1911	10	11	10:00	...	...
100-103	1911	10	12	10:00	...	...
100-104	1911	10	13	10:00	...	...
100-105	1911	10	14	10:00	...	...
100-106	1911	10	15	10:00	...	...
100-107	1911	10	16	10:00	...	...
100-108	1911	10	17	10:00	...	...
100-109	1911	10	18	10:00	...	...
100-110	1911	10	19	10:00	...	...
100-111	1911	10	20	10:00	...	...
100-112	1911	10	21	10:00	...	...
100-113	1911	10	22	10:00	...	...
100-114	1911	10	23	10:00	...	...
100-115	1911	10	24	10:00	...	...
100-116	1911	10	25	10:00	...	...
100-117	1911	10	26	10:00	...	...
100-118	1911	10	27	10:00	...	...
100-119	1911	10	28	10:00	...	...
100-120	1911	10	29	10:00	...	...
100-121	1911	10	30	10:00	...	...
100-122	1911	10	31	10:00	...	...

100-101 100-102 100-103 100-104 100-105 100-106 100-107 100-108 100-109 100-110 100-111 100-112 100-113 100-114 100-115 100-116 100-117 100-118 100-119 100-120 100-121 100-122

100-101 100-102 100-103 100-104 100-105 100-106 100-107 100-108 100-109 100-110 100-111 100-112 100-113 100-114 100-115 100-116 100-117 100-118 100-119 100-120 100-121 100-122

100-101 100-102 100-103 100-104 100-105 100-106 100-107 100-108 100-109 100-110 100-111 100-112 100-113 100-114 100-115 100-116 100-117 100-118 100-119 100-120 100-121 100-122

For Items in (), Low Scores are Desirable

Part V.

- | | | | | |
|-----|--|--------------------|---------|-----|
| 37. | I recommend this course by this instructor to Non-Majors. | | | |
| | 1. Strongly Agree | 2. Mildly Agree | | |
| | 3. Agree | 4. Mildly Disagree | | |
| | 5. Strongly Disagree | | 1.4 | 1.5 |
| 38. | I recommend this course by this instructor to Majors | | | |
| | 1. Strongly Agree | 2. Mildly Agree | | |
| | 3. Agree | 4. Mildly Disagree | | |
| | 5. Strongly Disagree | | 1.8 | 1.6 |
| 39. | I would rate the overall quality of instruction as: | | | |
| | 1. Excellent | 2. Above Average | | |
| | 3. Average | 4. Below Average | 5. Poor | |
| | | | 1.6 | 1.9 |
| 40. | The method of teaching used in this course was different from any other methods I have previously come into contact with in P.E. | | | |
| | 1. Strongly Agree | 2. Mildly Agree | | |
| | 3. Agree | 4. Mildly Disagree | | |
| | 5. Strongly Disagree | | 1.8 | 1.3 |
| | | | 2.9 | 2.7 |
| | | | 3.2 | 3.1 |

100-005 100-007 100-008 100-009

100-010 100-011 100-012 100-013

100-014 100-015 100-016 100-017

100-018 100-019 100-020 100-021

100-022 100-023 100-024 100-025

100-026 100-027 100-028 100-029

100-030 100-031 100-032 100-033

100-034 100-035 100-036 100-037

100-038 100-039 100-040 100-041

III. RAW SCORES, MEANS SCORES, AND
CORRELATIONS FOR SKILLS TEST

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LEGEND

1. Researcher's rating scores for students for the front crawl.
2. Instructor's rating scores for students for the front crawl.
3. Mean rating scores for students for the front crawl.
4. Researcher's rating scores for students for the back crawl.
5. Instructor's rating scores for students for the back crawl.
6. Mean rating scores for students for the back crawl.
7. Researcher's rating scores for students for the elementary backstroke.
8. Instructor's rating scores for students for the elementary backstroke.
9. Mean rating scores for students for the elementary backstroke.
10. Researcher's rating scores for students for the sidestroke.
11. Instructor's rating scores for students for the sidestroke.

1. Researcher's rating scores for students for the

2. Instructor's rating scores for students for the

3. Mean rating scores for students for the

4. Researcher's rating scores for students for the

5. Instructor's rating scores for students for the

6. Mean rating scores for students for the

7. Researcher's rating scores for students for the

8. Instructor's rating scores for students for the

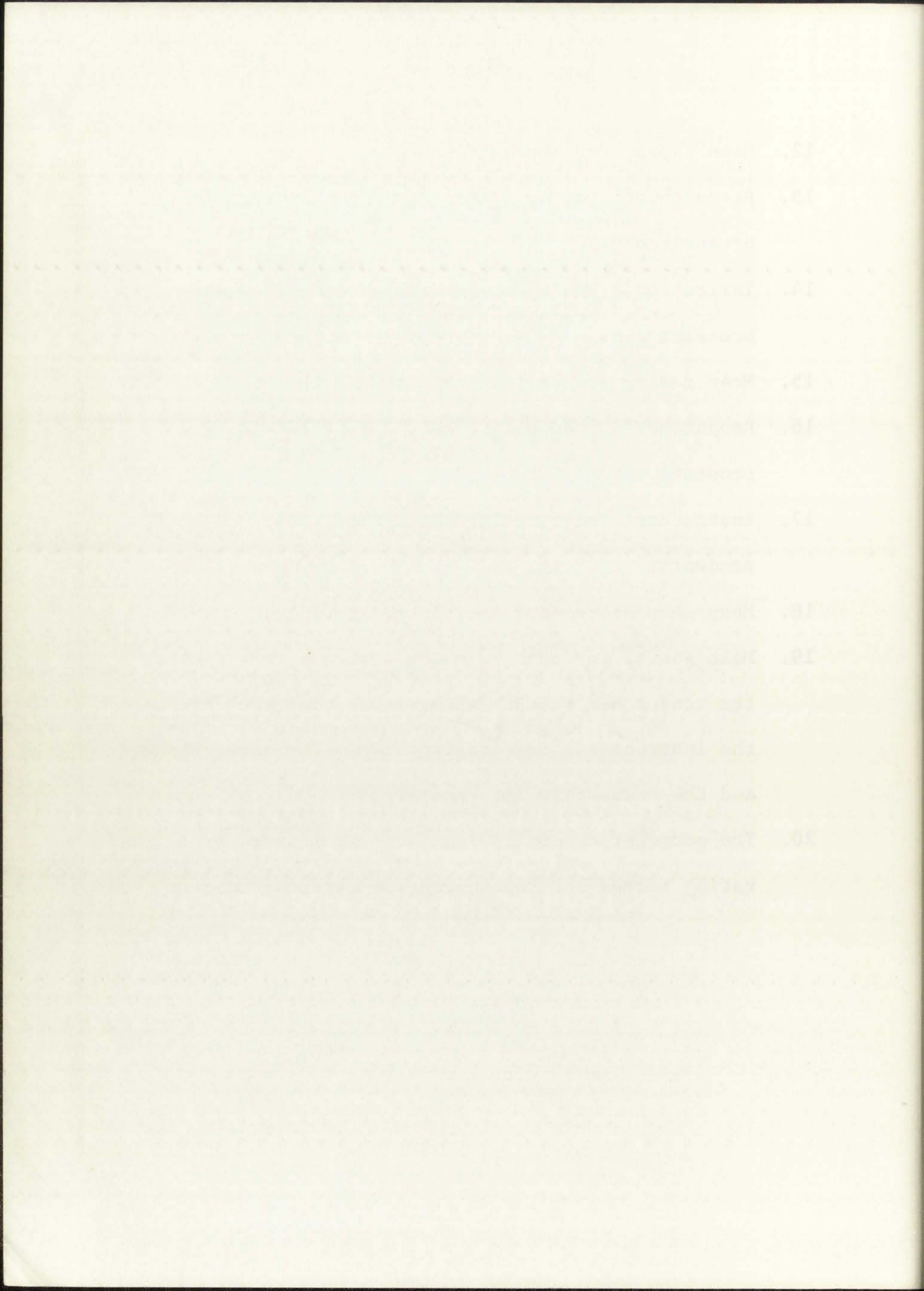
9. Mean rating scores for students for the

10. Researcher's rating scores for students for the

11. Instructor's rating scores for students for the

12. Mean rating scores for students for the

12. Mean scores for students for the sidestroke.
13. Researcher's rating scores for students for the breaststroke.
14. Instructor's rating scores for students for the breaststroke.
15. Mean rating scores for students for the breaststroke.
16. Researcher's mean rating scores for individual students.
17. Instructor's mean rating scores for individual students.
18. Mean mean scores for individual students.
19. Mean scores for each swimming stroke. They include the researcher's mean rating scores for each stroke, the instructor's mean rating scores for each stroke, and the mean score for each stroke.
20. The correlation coefficients of the researcher's rating scores and the instructor's rating scores.



SKILLS TEST, P.E. 101-001, COMMAND GROUP, 4/19/74

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	2.0	1.0	1.5	2.5	2.0	2.25	3.0	2.0	2.5	1.0	1.0	1.0	1.0	1.0	1.0	1.9	1.4	1.65
2	2.5	2.5	2.5	3.0	3.0	3.0	3.5	3.0	3.25	3.0	3.0	3.0	2.0	2.0	2.0	2.8	2.7	2.75
3	4.5	4.0	4.25	4.0	4.0	4.0	4.0	4.5	4.25	4.0	4.0	4.0	2.5	2.5	2.5	3.8	3.8	3.80
4	4.0	4.0	4.0	2.5	3.0	2.75	3.0	2.0	2.5	2.0	2.5	2.25	2.0	2.0	2.0	2.7	2.7	2.70
5	5.0	4.0	4.5	3.5	3.0	3.25	4.0	4.0	4.0	4.0	4.0	4.0	3.5	3.0	3.25	4.0	3.6	3.80
6	4.5	3.5	4.0	3.5	3.0	3.25	4.0	5.0	4.5	4.0	5.0	4.5	4.0	4.5	4.25	4.0	4.2	4.10
7	1.5	1.0	1.25	2.0	3.0	2.5	3.5	4.5	4.0	2.5	3.5	3.0	1.0	1.0	1.0	2.1	2.6	2.35
8	2.0	3.0	2.5	2.5	4.0	3.25	4.0	5.0	4.5	3.5	4.0	3.75	2.5	2.0	2.25	2.9	3.6	3.25
9	4.0	4.0	4.0	3.5	3.0	3.25	2.0	2.5	2.25	2.5	2.5	2.5	2.0	2.0	2.0	2.8	2.8	2.80
10	4.5	2.0	3.25	3.0	3.0	3.0	3.0	4.0	3.5	2.5	2.0	2.25	2.0	2.0	2.0	3.16	2.6	2.88
11	3.5	4.5	4.0	3.0	4.0	3.5	4.5	4.0	4.25	4.5	5.0	4.72	2.5	2.0	2.25	3.6	3.9	3.75
12	4.0	4.0	4.0	3.5	3.5	3.5	4.0	4.0	4.0	4.5	5.0	4.75	2.0	1.5	1.75	3.6	3.6	3.60
13	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
14	3.0	4.0	3.5	2.5	3.0	2.75	3.0	4.0	3.5	2.0	4.0	3.0	1.0	0.0	0.5	2.3	3.0	2.65
15	3.0	2.5	2.75	2.5	3.0	2.75	2.0	4.0	3.0	2.5	3.5	2.75	2.0	1.0	1.5	2.4	2.8	2.60
16	4.0	3.0	3.5	3.0	4.0	3.5	4.5	3.0	3.75	4.0	4.0	4.0	2.5	2.5	2.5	3.6	3.3	3.45
17	5.0	4.5	4.75	4.0	4.5	4.25	5.0	4.0	4.5	3.5	5.0	4.25	3.0	4.0	3.5	4.1	4.2	4.15
18	2.0	3.5	2.75	2.0	2.0	2.0	2.5	3.0	2.75	2.0	3.5	1.75	1.0	3.0	2.0	1.9	3.0	2.45
19	2.5	3.0	2.75	3.0	3.0	3.0	2.0	2.5	2.25	2.0	3.0	2.5	1.5	1.0	1.25	2.2	2.5	2.35
20	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.5	3.75	4.0	4.0	4.0	2.5	2.0	2.25	3.3	3.1	3.20
21	3.5	3.5	3.5	3.0	3.0	3.0	3.5	3.0	3.25	4.0	4.0	4.0	2.0	2.0	2.0	3.2	3.1	3.15
22	4.0	5.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	3.5	4.0	3.75	1.5	1.0	1.25	3.4	3.6	3.50
23	3.0	3.0	3.0	3.0	2.5	2.75	4.0	3.0	3.5	2.5	3.0	2.75	2.0	2.0	2.0	2.9	2.7	2.80
24	2.5	2.5	2.5	2.0	2.5	2.25	3.0	3.0	3.0	3.0	3.5	3.25	1.5	1.0	1.25	2.4	2.5	2.45
19 M =	3.35	3.25	3.30	2.98	3.17	3.07	3.46	3.52	3.53	3.08	3.58	3.32	2.10	2.00	2.03	3.05		
20 r =	.636 Front Crawl			.593 Back Crawl			.507 Elementary Backstroke			.802 Side Stroke			.691 Breaststroke			.833		



SKILLS TEST, P.E. 101-002, EXPERIMENTAL GROUP, 4/19/74

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	3.4	3.4	3.40
2	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.5	4.25	3.0	3.5	3.25	2.5	2.0	2.25	3.1	3.2	3.15
3	4.5	5.0	4.75	4.0	4.5	4.25	4.0	5.0	4.5	4.0	5.0	4.5	4.0	5.0	4.5	4.1	4.9	4.50
4	1.5	2.0	1.75	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.4	1.35
5	3.0	4.5	3.75	4.0	4.0	4.0	3.5	3.5	3.5	5.0	5.0	5.0	2.5	3.5	3.0	3.6	4.1	3.85
6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.00
7	3.0	3.0	3.0	3.0	3.0	3.0	2.0	2.5	2.25	3.0	3.0	3.0	2.0	2.5	2.25	2.6	2.8	2.70
8	3.0	4.0	3.5	3.0	4.0	3.5	3.5	4.0	3.75	5.0	5.0	5.0	3.0	4.0	3.5	3.5	4.2	3.85
9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.00
10	4.0	4.5	4.25	3.5	3.0	3.25	3.5	3.5	3.5	4.0	4.0	4.0	3.5	3.0	3.25	3.7	3.6	3.65
11	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.5	2.0	2.0	2.0	3.0	2.8	2.90
12	4.0	5.0	4.5	4.0	4.0	4.0	3.0	3.0	3.0	4.0	3.5	3.75	2.0	3.0	2.5	3.4	3.7	3.55
13	2.5	3.0	3.75	2.5	3.0	2.75	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.30
14	4.0	5.0	4.5	4.5	5.0	4.75	4.5	5.0	4.75	5.0	5.0	5.0	4.5	4.5	4.5	4.5	4.9	4.70
15	4.0	4.0	4.0	5.0	4.0	4.5	4.0	4.0	4.0	3.0	4.0	3.5	1.0	3.0	2.0	3.6	3.8	3.70
16	1.5	2.5	2.0	1.0	3.0	2.0	2.0	3.0	2.5	2.0	2.5	2.25	1.0	2.0	1.5	1.3	2.6	1.95
17	5.0	5.0	5.0	4.0	4.0	4.0	4.0	3.5	3.75	5.0	5.0	5.0	2.0	3.5	2.75	4.0	4.2	4.10
18	2.5	3.0	3.25	2.5	3.0	2.75	3.0	3.0	3.0	4.0	4.0	4.0	2.0	2.0	2.0	2.8	3.0	2.90
19 M =	3.25	3.69	3.5	3.33	3.52	3.44	3.22	3.42	3.32	3.61	3.69	3.65	2.44	2.89	2.67	3.32		
20 r =	.8996 Front Crawl			.8720 Back Crawl			.9380 Elementary Backstroke			.931 Side Stroke			.856 Breaststroke			.935		

This image shows a blank, aged, cream-colored page, likely a ledger or account book page. The page features a faint grid pattern, suggesting it was designed for recording numerical data. The grid consists of approximately 10 columns and 20 rows. The paper is slightly discolored and shows signs of wear, including a vertical crease on the left side and some minor staining. The page is numbered '166' in the top right corner.

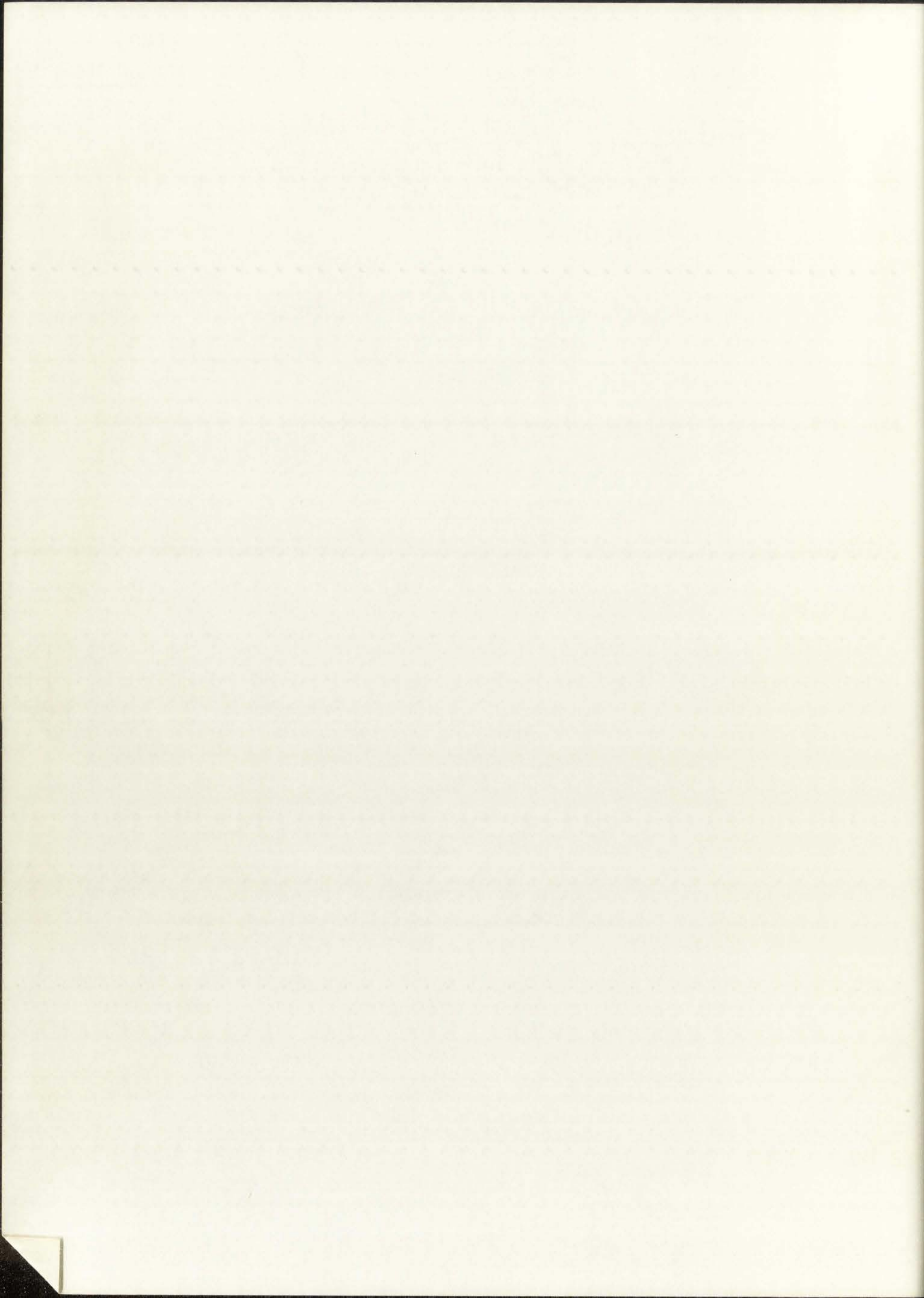
SKILLS TEST, P.E. 101-005, COMMAND GROUP, 4/19/74

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.5	4.25	2.5	3.0	2.75	3.4	3.6	3.50
2	3.5	3.5	3.5	3.0	3.0	3.0	3.5	3.5	3.5	4.0	4.0	4.0	2.0	3.0	2.5	3.2	3.4	3.30
3	4.5	4.5	4.5	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	3.0	3.0	3.0	4.1	4.1	4.10
4	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.8	4.8	4.80
5	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	2.5	2.5	2.5	3.3	3.3	3.30
6	2.0	2.0	2.0	3.0	3.0	3.0	3.5	3.0	3.25	3.0	3.0	3.0	2.0	3.0	2.5	2.7	2.8	2.75
7	4.0	4.0	4.0	5.0	5.0	5.0	4.5	4.5	4.5	4.0	3.5	3.75	4.0	3.5	3.75	4.3	4.1	4.20
8	3.0	3.0	3.0	2.0	2.5	2.25	2.0	2.0	2.0	4.0	4.0	4.0	3.0	3.0	3.0	2.8	2.9	2.85
9	2.0	2.0	2.0	2.5	2.5	2.5	2.0	2.5	2.25	3.5	3.0	3.25	2.0	2.0	2.0	2.4	2.4	2.40
10	4.0	4.0	4.0	3.5	4.0	3.75	2.0	2.0	2.0	4.5	4.0	4.25	1.0	1.0	1.0	3.0	3.0	3.00
11	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.5	4.25	4.5	4.5	4.5	4.0	4.5	4.25	3.7	3.9	3.80
12	3.0	3.0	3.0	2.0	2.5	2.25	2.0	2.5	2.25	4.0	4.0	4.0	3.0	3.0	3.0	2.8	3.0	2.90
13	3.0	3.0	3.0	2.0	2.5	2.25	3.0	2.5	2.75	4.0	3.0	3.5	2.5	2.0	2.25	2.9	2.6	2.75
14	3.5	3.0	3.25	4.0	4.0	4.0	3.0	3.5	3.25	4.0	3.5	3.75	3.0	3.0	3.0	3.5	3.4	3.45
15	2.0	1.5	1.75	2.5	3.0	2.75	2.5	2.5	2.5	5.0	4.5	4.75	3.0	2.5	2.75	3.0	2.8	2.90
16	2.0	2.0	2.0	2.0	3.0	2.5	3.0	2.5	2.75	4.0	3.5	3.75	2.0	1.5	1.75	2.6	2.6	2.55
17	2.0	1.5	1.75	1.5	2.0	1.75	4.0	3.5	3.75	1.0	1.0	1.0	1.0	3.5	2.25	1.9	2.0	1.95
18	3.0	3.5	3.25	3.0	3.5	3.25	4.0	4.0	4.0	3.5	3.5	3.5	3.5	4.0	3.75	3.4	3.7	3.55
19	2.5	3.5	3.0	3.5	3.5	3.5	3.0	3.0	3.0	2.5	3.0	2.75	1.0	2.5	1.75	2.7	3.1	2.90
20	3.0	3.5	3.25	2.5	3.0	2.75	3.5	3.5	3.5	4.0	4.5	4.25	1.5	2.0	1.75	2.9	3.3	3.10
21	2.5	3.0	2.75	2.5	3.0	2.75	2.5	3.0	2.75	3.5	3.5	3.5	2.5	2.5	2.5	2.7	3.0	2.85
19 M =	3.05	3.1	3.07	3.0	3.26	3.13	3.26	3.29	3.27	3.86	3.74	3.8	2.52	2.81	2.67	3.19		
20 r =	.924 Front Crawl			.957 Back Crawl			.932 Elementary Backstroke			.776 Side Crawl			.856 Breaststroke			.889		

SKILLS TEST, P. E. 101-004, EXPERIMENTAL GROUP, 4/19/74

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1.5	2.5	2.0	1.5	3.0	2.25	4.0	4.0	4.0	2.5	3.0	2.75	2.0	3.0	2.5	2.5	3.6	3.05
2	3.0	3.0	3.0	2.5	4.0	3.25	4.0	3.0	3.5	3.0	4.0	3.5	2.0	2.5	2.25	3.1	3.3	3.20
3	2.0	1.0	1.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.25	1.2	1.1	1.15
4	3.0	4.0	3.5	2.5	4.0	3.25	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.5	3.7	4.2	3.95
5	2.5	3.0	2.75	3.0	3.0	3.0	4.0	4.0	4.0	3.5	4.0	3.75	2.5	2.5	2.5	3.1	3.3	3.20
6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
7	2.5	2.0	2.25	2.5	2.0	2.25	3.0	3.0	3.0	2.0	2.0	2.0	2.0	1.0	1.5	2.4	2.3	2.35
8	3.0	2.0	2.5	3.0	3.0	3.0	2.5	3.0	2.75	3.0	3.5	3.25	3.5	3.0	3.25	3.0	2.9	2.95
9	2.0	2.0	2.0	1.5	2.0	1.75	3.0	4.0	3.5	2.0	3.0	2.5	2.0	2.0	2.0	2.1	2.6	2.35
10	4.0	4.0	4.0	4.0	5.0	4.5	4.0	5.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.4	4.20
11	2.0	3.0	2.5	3.0	1.5	2.25	3.5	4.0	3.75	1.5	1.0	1.25	1.0	1.0	1.0	2.2	2.5	2.35
12	3.0	4.0	3.5	3.0	2.0	2.5	3.0	3.0	3.0	4.0	4.0	4.0	3.5	3.0	3.25	3.3	3.2	3.25
13	5.0	4.0	4.5	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	4.5	2.5	3.0	2.75	4.1	3.8	3.95
14	4.0	4.0	4.0	2.0	3.0	2.5	4.0	4.0	4.0	2.5	4.0	3.25	3.0	4.0	3.5	3.3	3.6	3.45
19 M =	2.84	2.9	2.88	2.5	2.75	2.63	3.31	3.5	3.4	2.9	3.13	3.02	2.47	2.69	2.58			3.04
20 r =	.662 Front Crawl			.834 Back Crawl			.886 Elementary Backstroke			.900 Side Stroke			.789 Breaststroke			.889		

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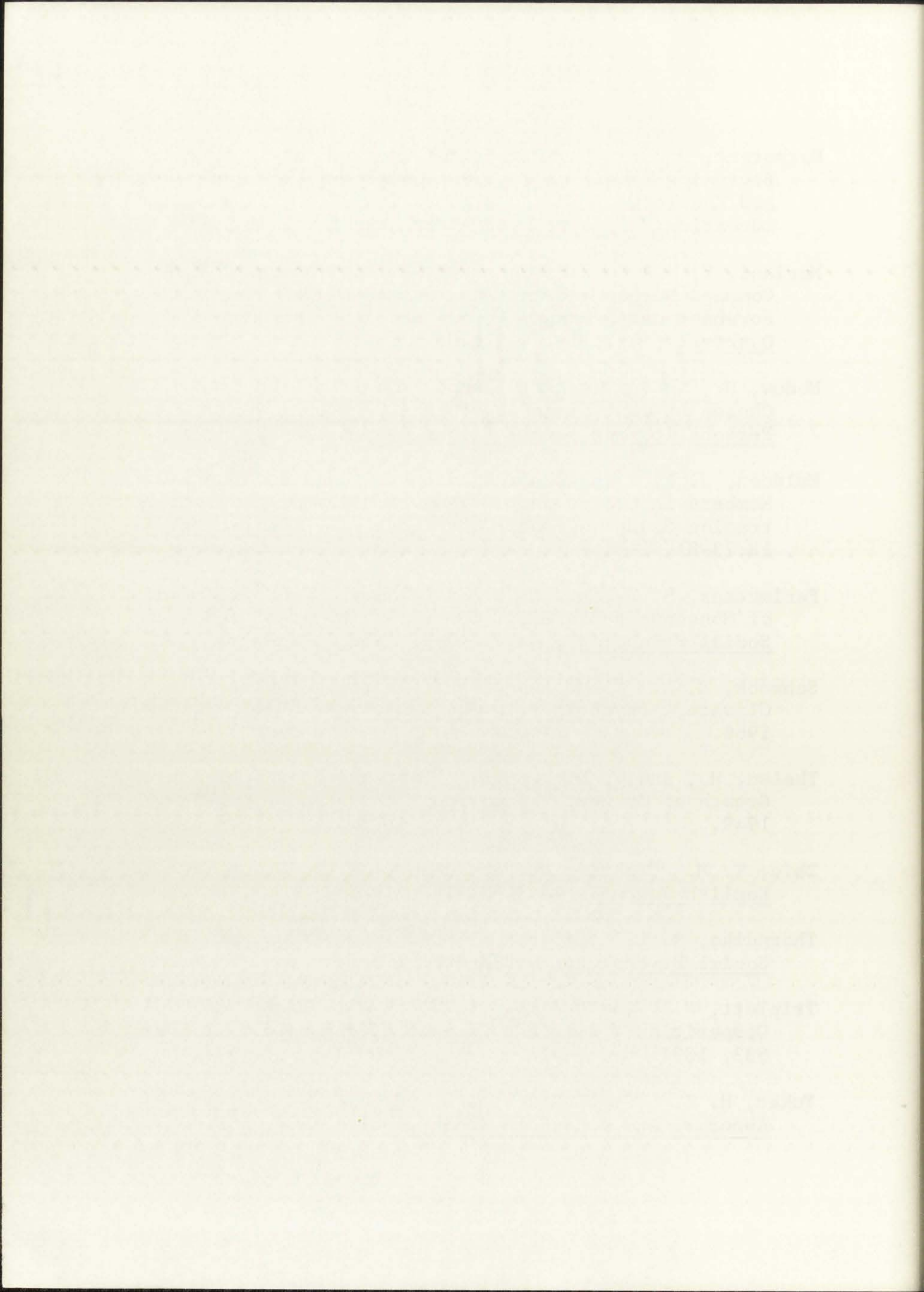
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Workshop for Teachers
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