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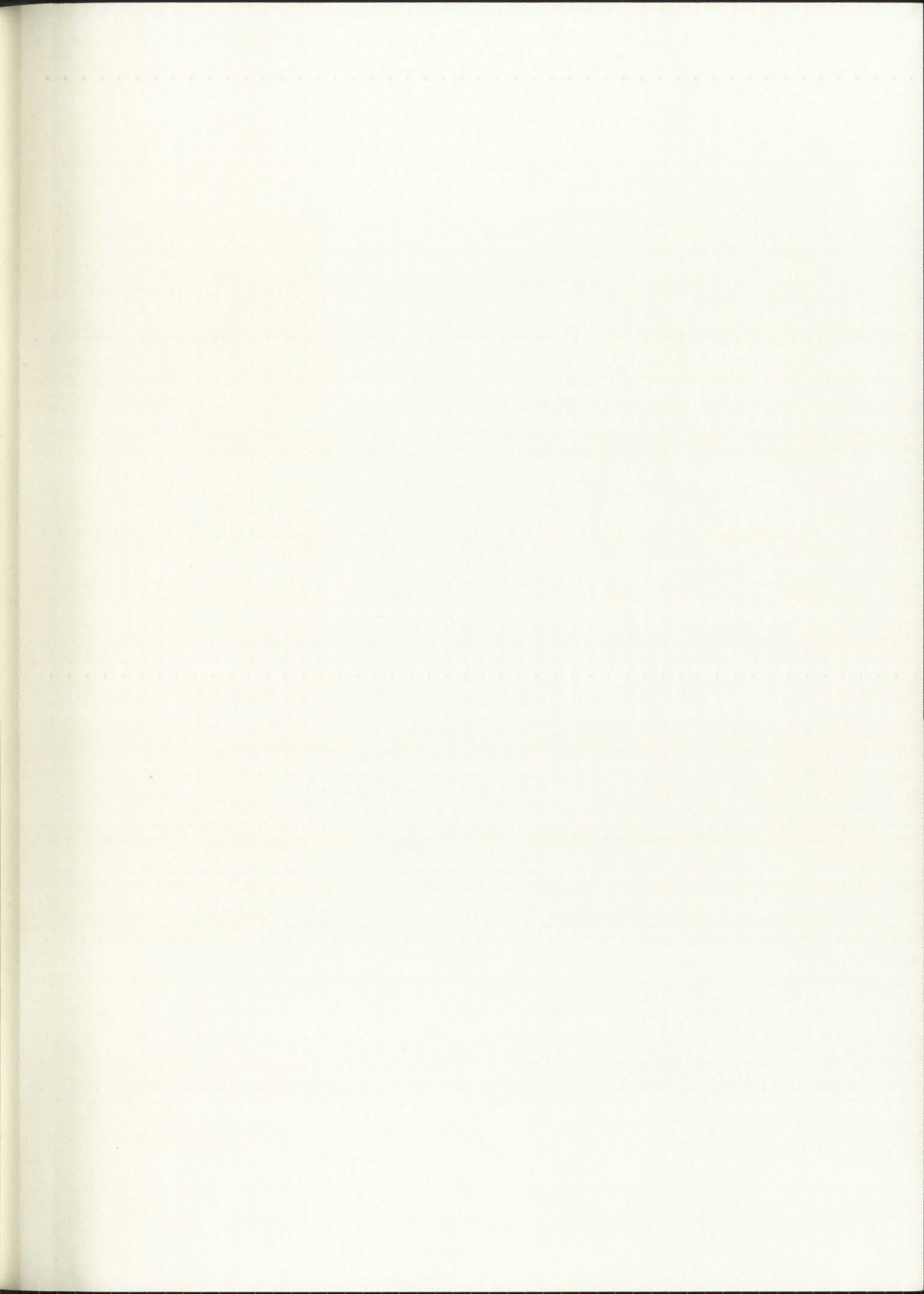
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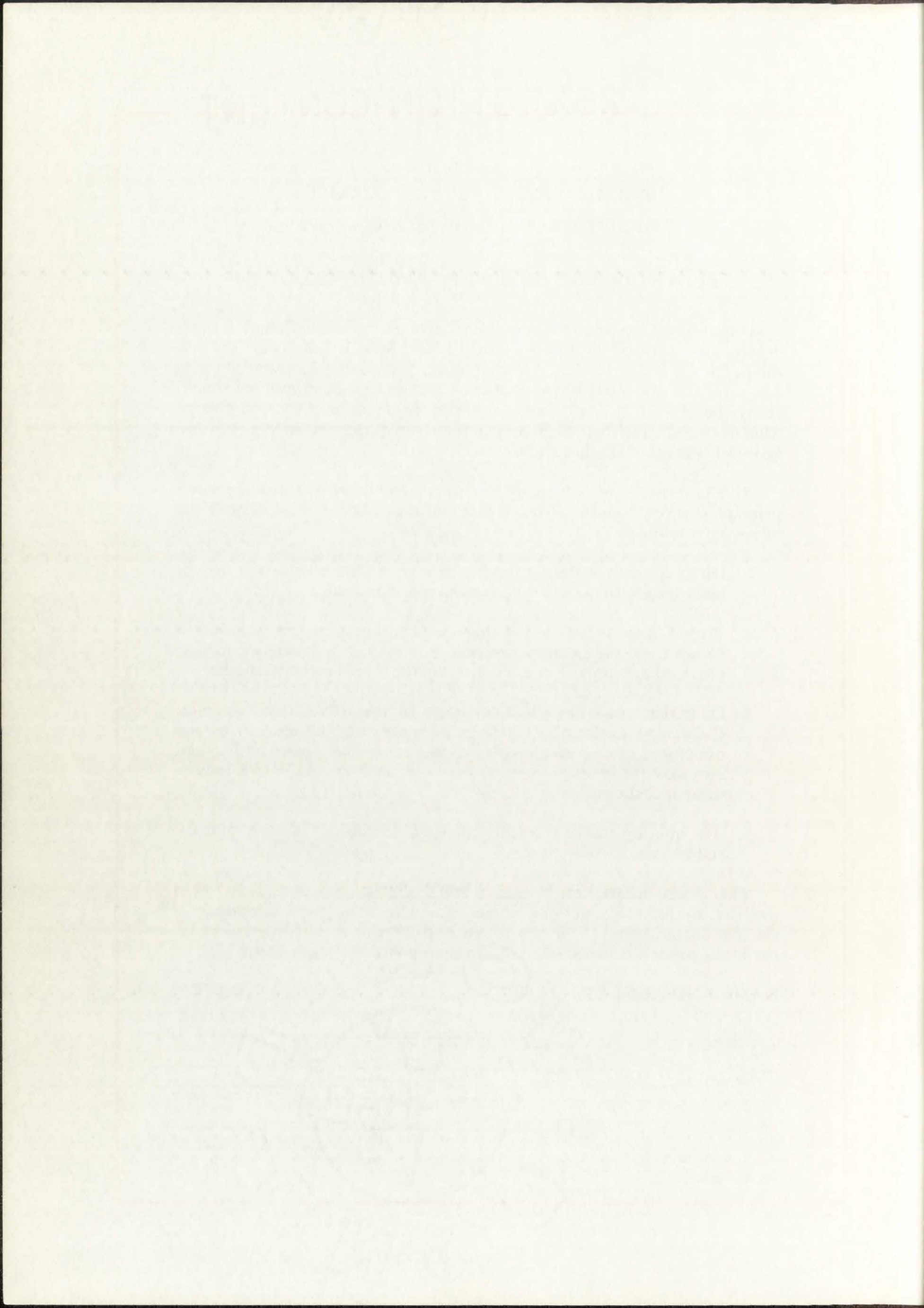
This dissertation, directed and approved by the candidate's
committee, has been accepted by the Graduate Committee of The
University of New Mexico in partial fulfillment of the require-
ments for the degree of

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

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Department

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July 11, 1974
Date

Committee

Lawrence R. Rosenfeld
Chairman

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

TO MY WIFE MAGGI

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appraisals.

A COMPARATIVE STUDY OF THE EFFECTIVENESS OF THE
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ABSTRACT OF DISSERTATION

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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, 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 compari-

son 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) atti-

tude toward the physical activity, (2) attitude toward

the instructor of the course, (3) self-esteem, (4) per-

sonal-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' atti-
tudes 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

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 com-

mand method of teaching was used.

Results also indicated that students' self-con-

cept, which included the personal-self, physical-self,

social-self, and self-esteem, was not subject to manipu-

lation by different methods of teaching.

The descriptive research consisted of approxi-

mately 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

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.
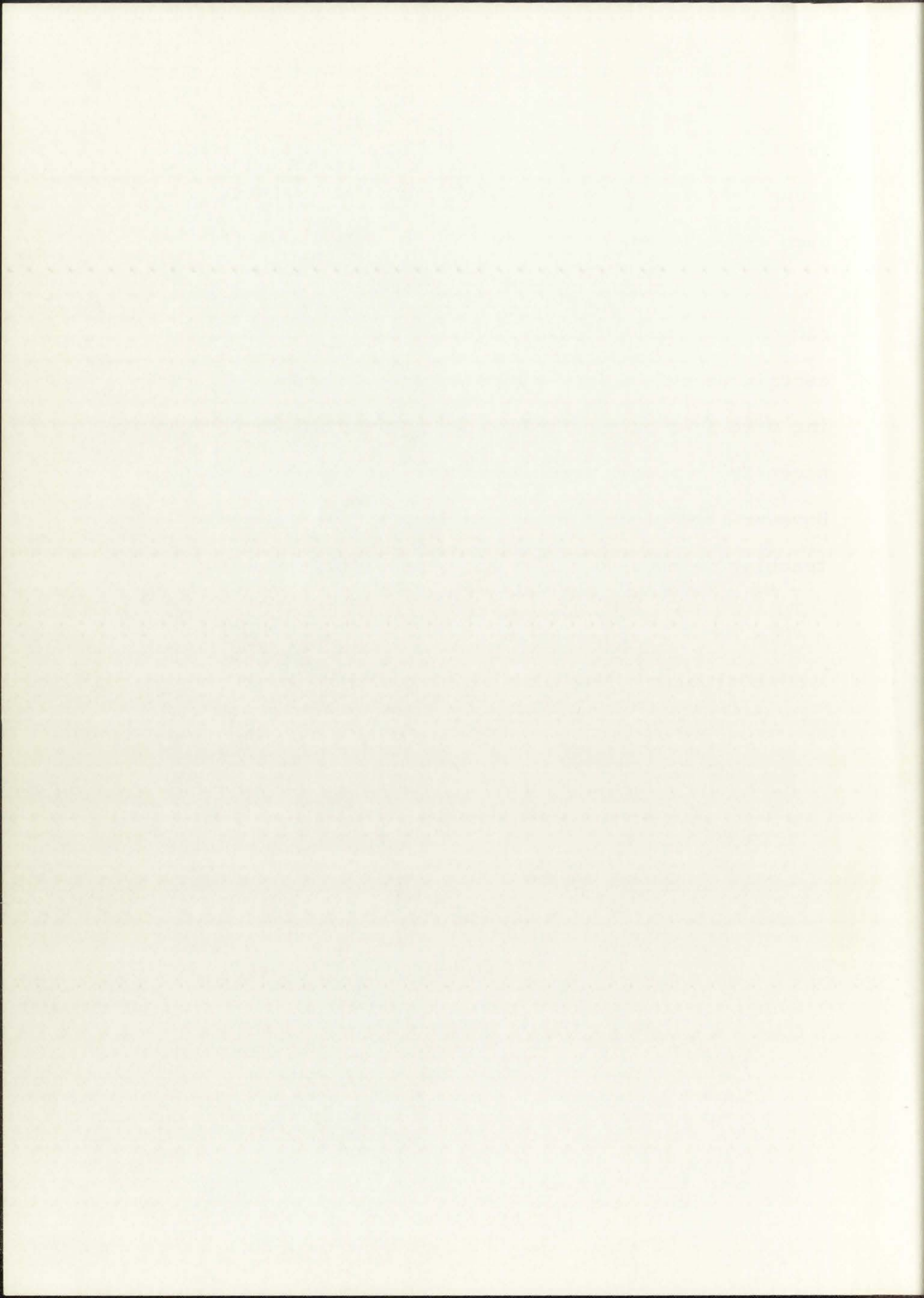
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CHAPTER I

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 class-
mates; 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 pro-
cesses 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

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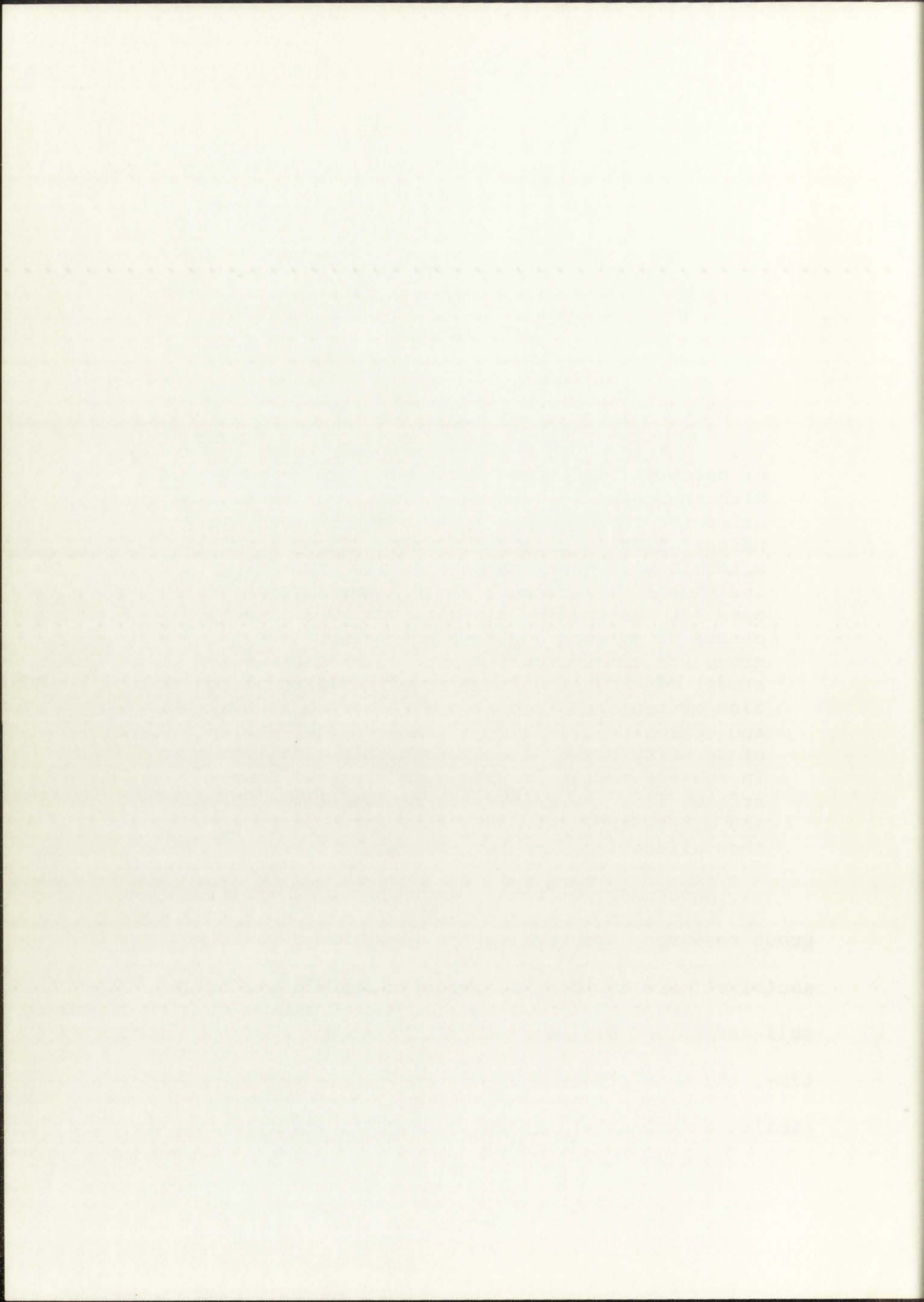
on the intellectual and motor performance of an indi-
vidual.[3] The presence of others, however, must not be
threatening, for when an individual feels anxious or
fearful in the presence of others, his perceptions and
thoughts are restricted and distorted.[4] Students must
feel relaxed and comfortable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

The results of studies focusing on individual
versus group learning point to the same conclusion. Con-
sistently, groups have been shown to learn faster than
individuals, both in natural situations[5] 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 demon-
> strating 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.

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

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

<u>Small-group method of teaching</u>. For the purpose of this study, the small-group method of teaching was
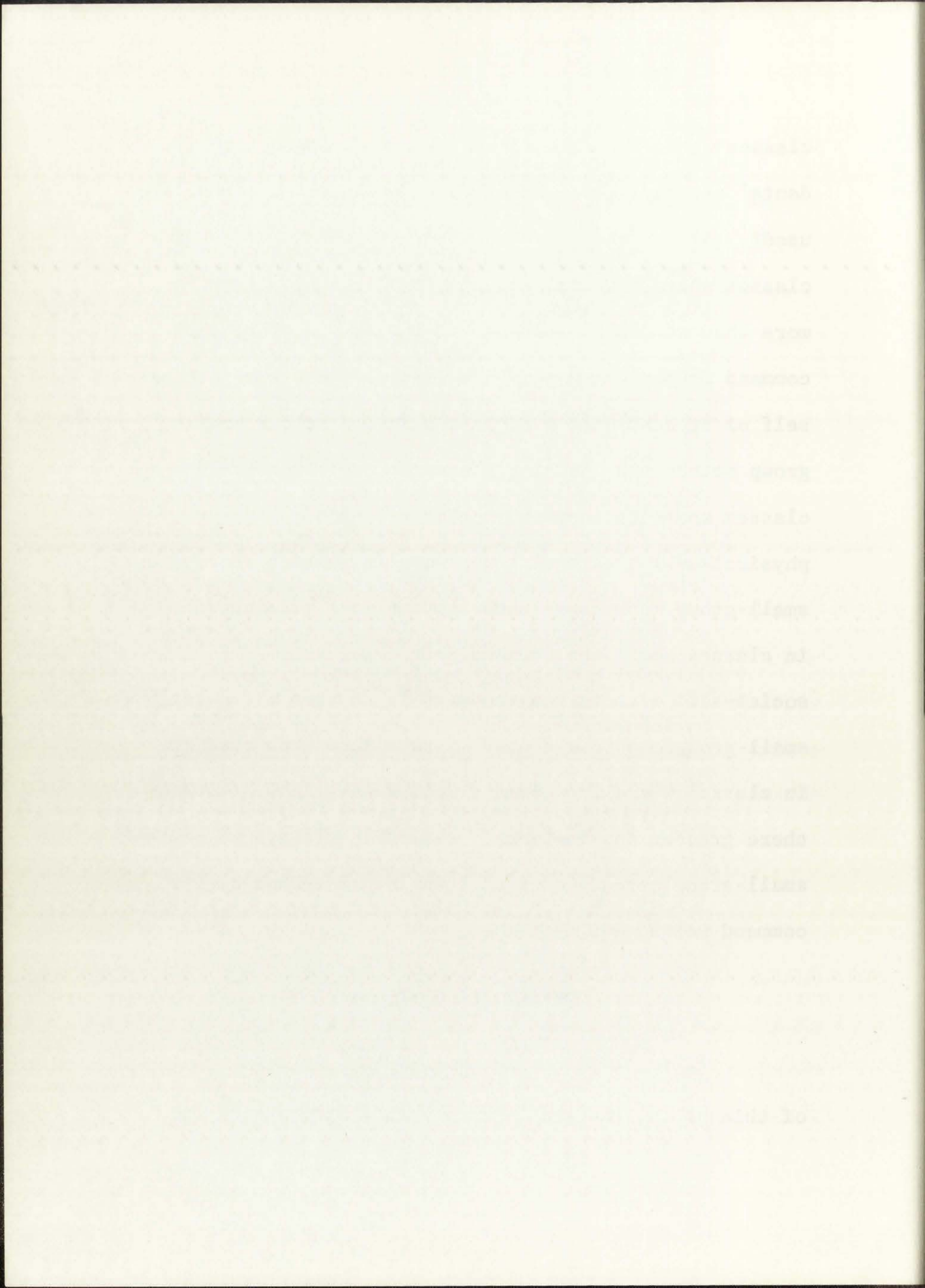
defined as that method where the responsibility for teach-

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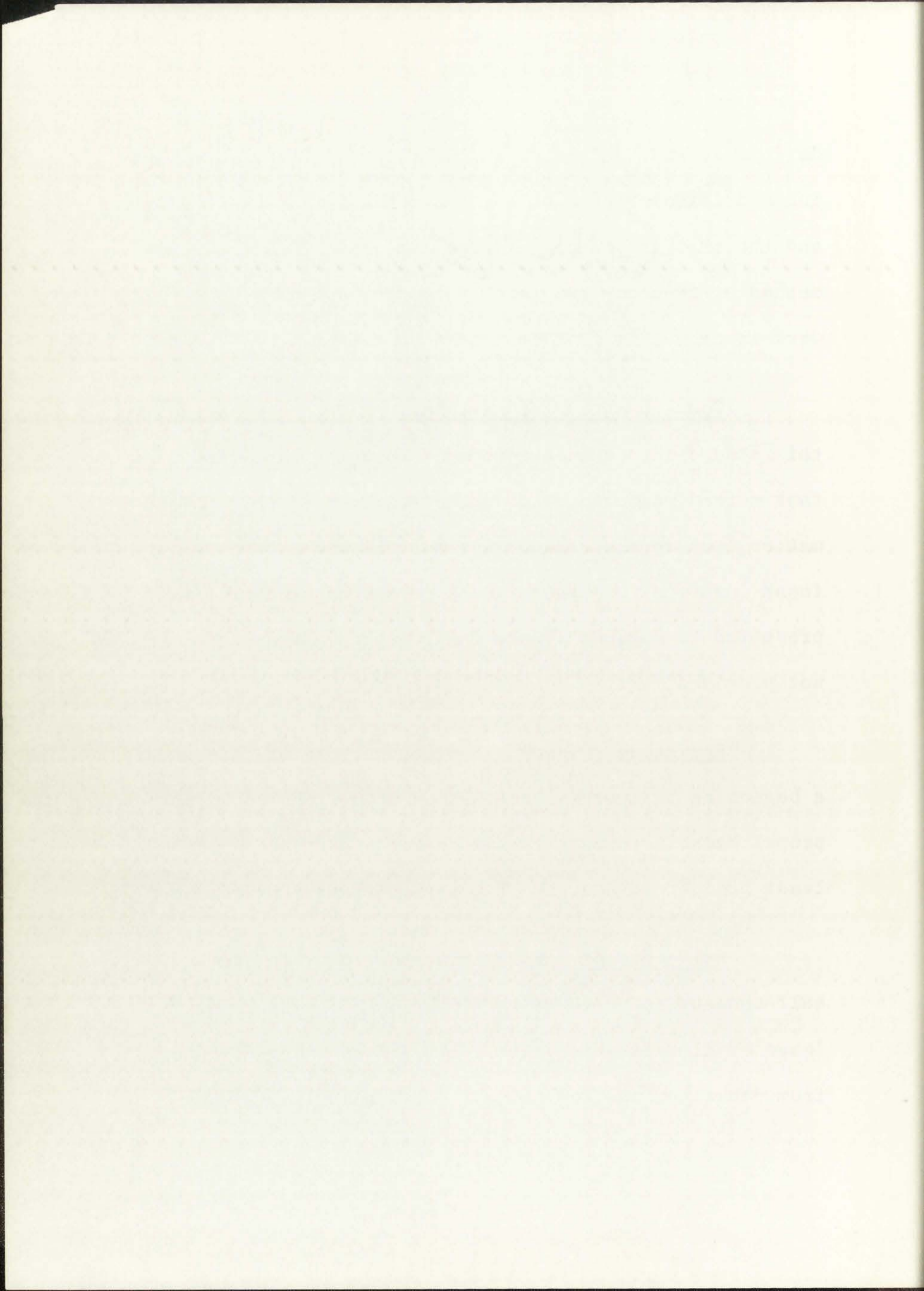
The following definitions are from the Tennessee Self Concept Scale:[11]

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 acquisi-
tion.

LIMITATIONS

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

FOOTNOTES

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[2] Ibid., p. 17.

[3] J. 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.

[4] D. Snugg and A. W. Combs, Individual Behavior: A New Frame of Reference for Psychology (New York: Harper and Row, 1949), p. 229.

[5] W. A. Barton, "The Effects of Group Activity and Individual Effort in Developing Ability to Solve Problems in First-Year Algebra," Journal of Educational Administration and Supervision, 12:512-518, 1926.

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

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

[9]Ibid., p. 19.

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

[11]Ibid., p. 3.

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

[13]Fitts, op. cit., p. 3.

[14]D. P. Hoyt and R. E. Owens, "Student Reaction to
Instruction and Courses—Short Form" (a manual published
by the Office of Educational Research, Kansas, November,
1973), 13 pp.
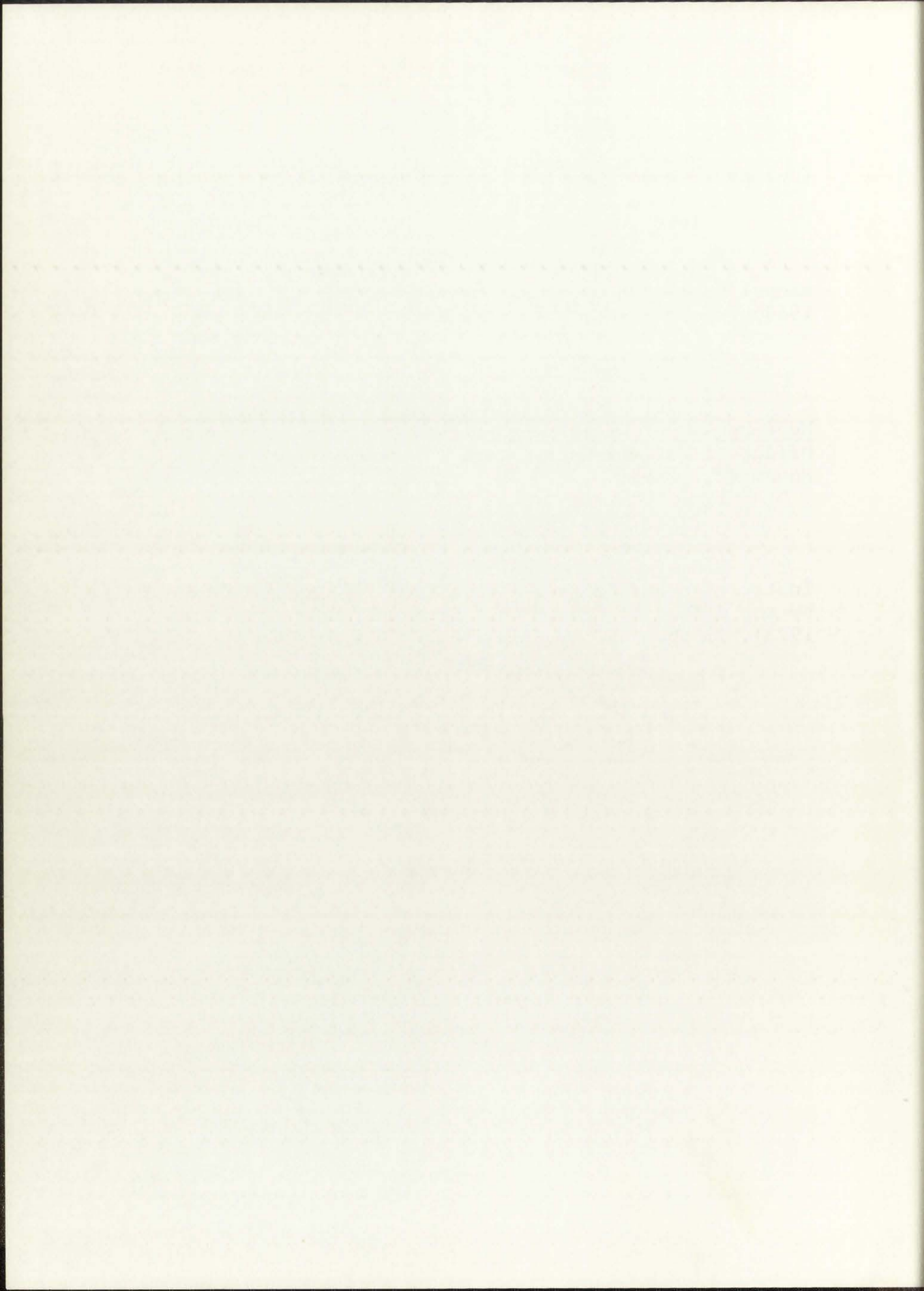
CHAPTER II

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 think-

ing of an individual[4] 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 litera-

ture was conducted.

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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

others. Leadership involves both interpersonal relation-

ships 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) attrac-

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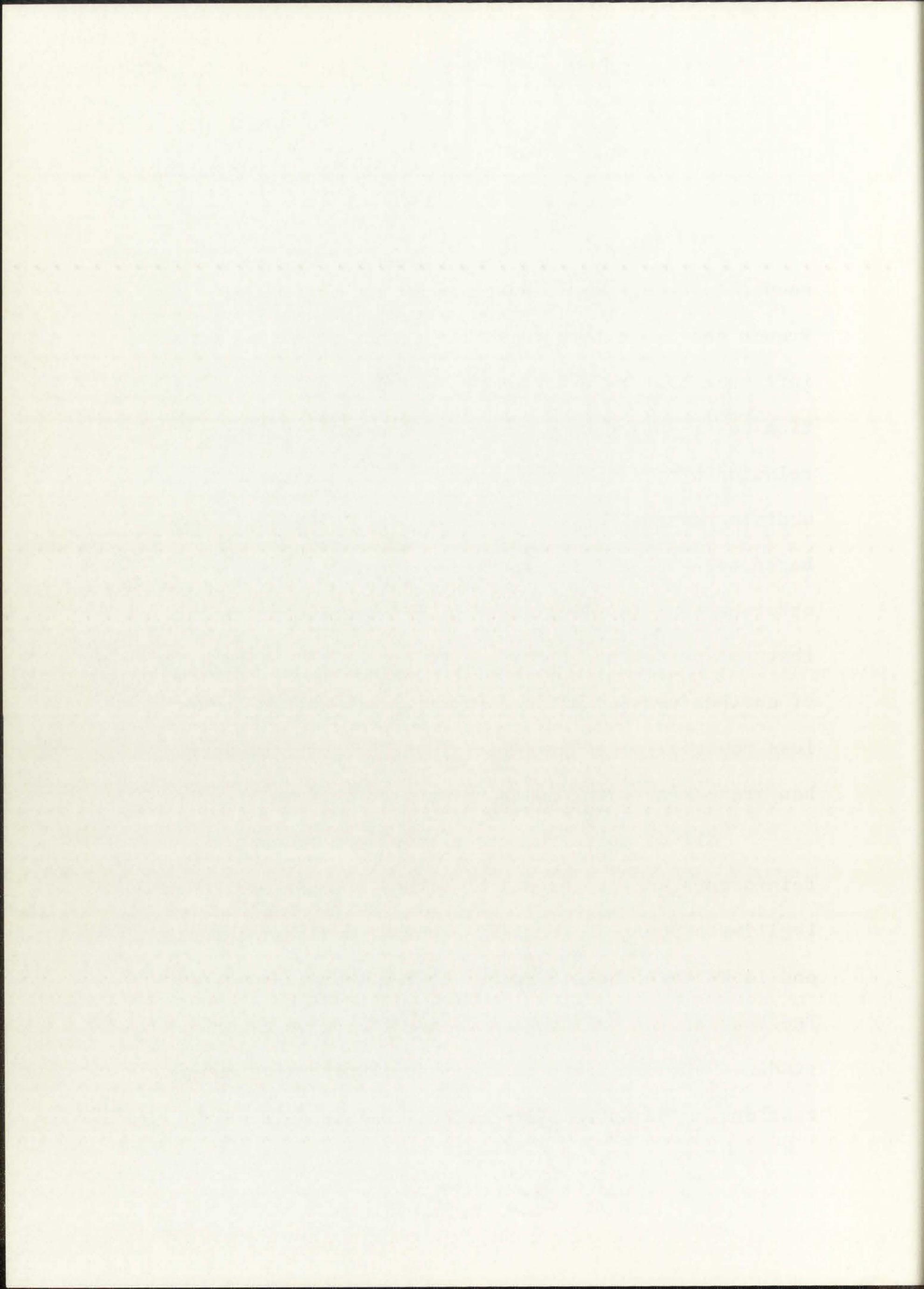
bestow favors that are reinforcing for the person who is attracted to him; the expert can reinforce the other person by providing resources that are unavailable to the other person."[10] "Thus these three kinds of power reduce to reward power and coercive power."[11]

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

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 rela-

tions with his peers and teachers determines to a large

extent the degree to which he adopts adaptive or maladap-

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 curric-
> ulum, schools should be concerned with the develop-
> ment 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 esti-
> mating 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 per-
son feels about himself affects how he feels about others.
Negative feelings about the self lead to negative feel-
ings 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 inter-action 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 main-tain 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 North-way[29] have emphasized the importance of social acceptance

in the classroom.

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

> The importance of these results is heightened by the
> further findings that a student's perception of hold-
> ing 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 incom-

plete 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 affili-

ation, 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 indi-

viduals 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 struc-

tured groups.[37]

Summary. Unless students in the classroom per-

ceive 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
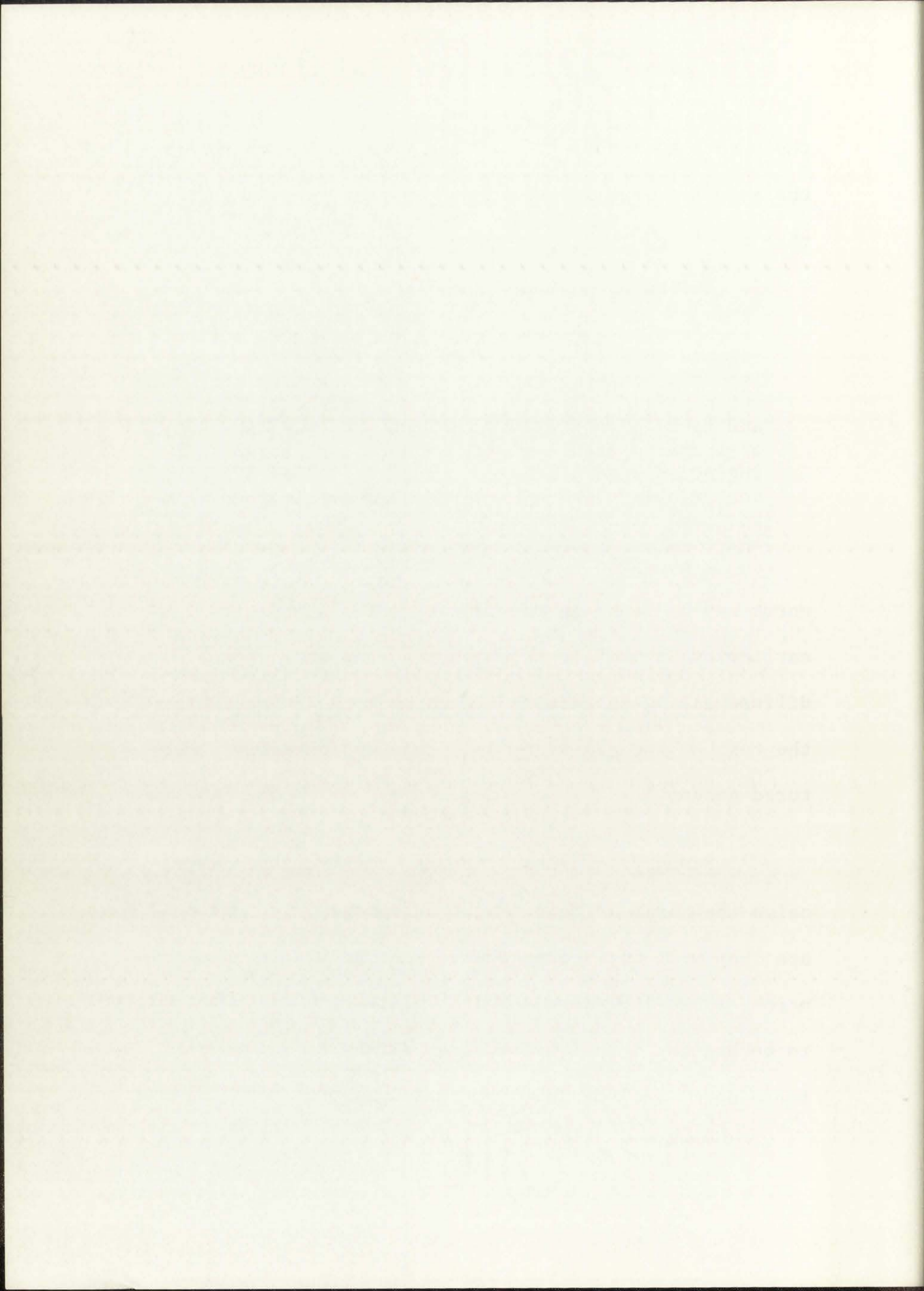
members to experience difficulty, and allow objectivity

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, espe-
cially in group instructional situations. The
communications that occur within the group deter-
mine 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 noncogni-
tive meanings. Thus, people communicate emotions,
attitudes, and feelings, all of which may enter
into and influence, either positively or nega-
tively, the learning process.[38]

Within any group there tends to be a stabiliza-

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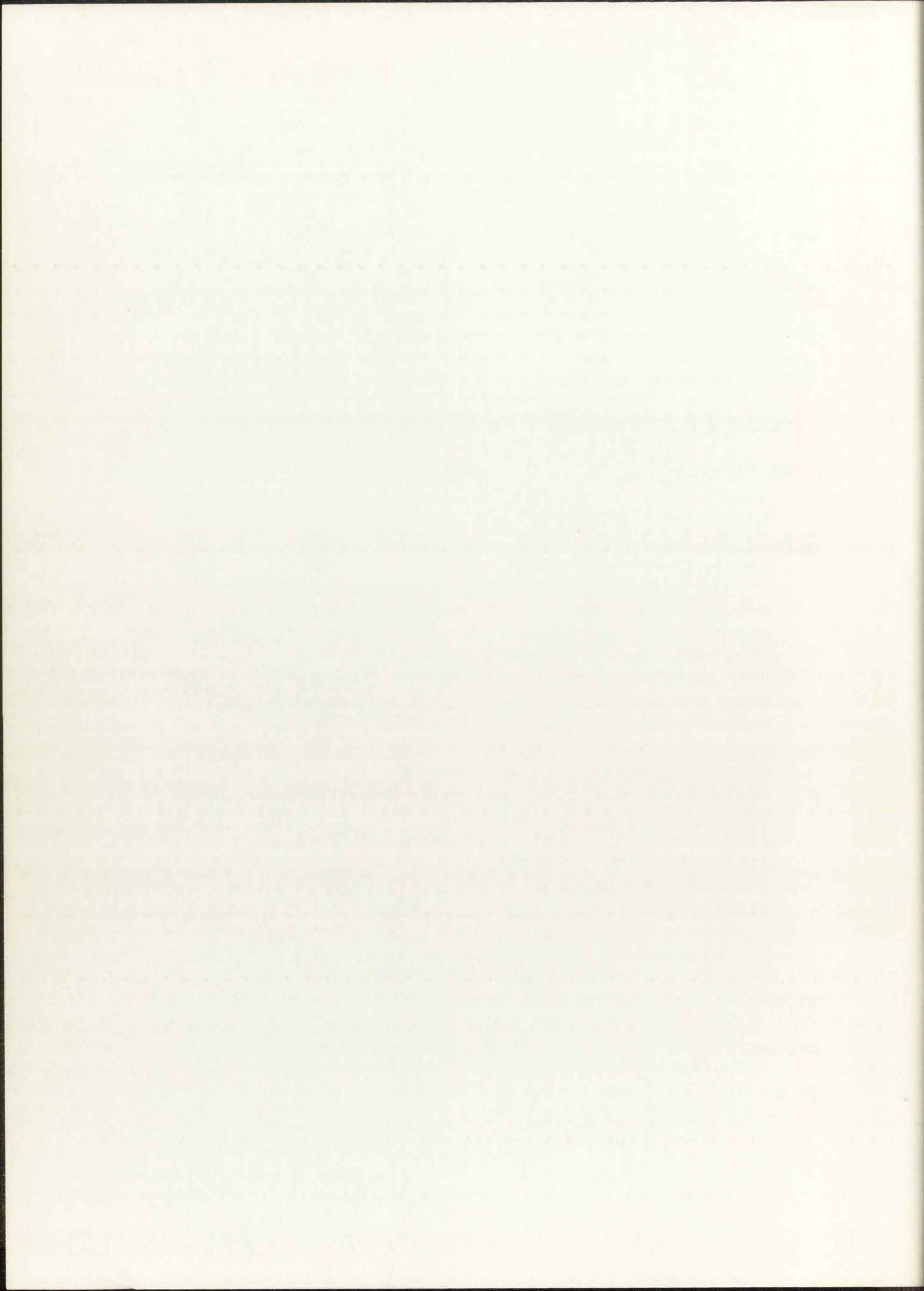
subgroup cleavages, and other conditions influence these
available and used lines of communication.[39]

The more lines of communication, the more posi-
tive the climate in the classroom. Two way communication,
as between teacher and student, as well as between stu-
dent 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 commun-
ication 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]

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

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 con-
cluded 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
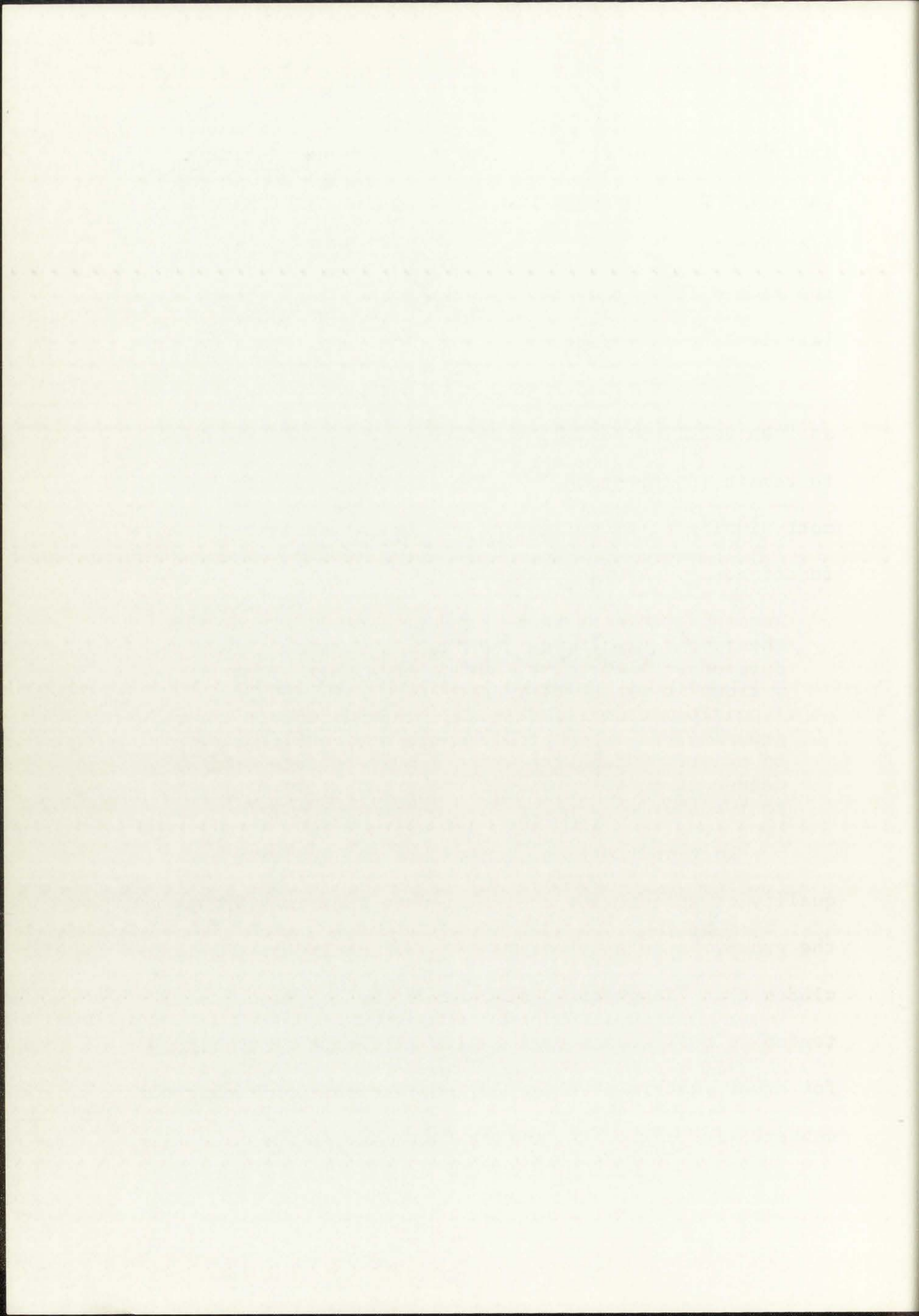
agreements."[49] When cohesiveness was based on task per-

formance, 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 pro-

ductivity of a group, provided the norms are supportive

of production.[51] Both Muldoon[52] and Schmuck and Schmuck[53]

showed that classrooms with more dispersed liking struc-

tures were more cohesive. Schmuck and Schmuck went on to

say, ". . . when a dispersed liking structure is accom-

panied 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 readi-

ness 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.

(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.

RESEARCH WITH SMALL-GROUP METHODS

IN THE CLASSROOM

This second half of the review of related litera-
ture 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 educa-
tion. 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 knowl-
edge 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 exper-

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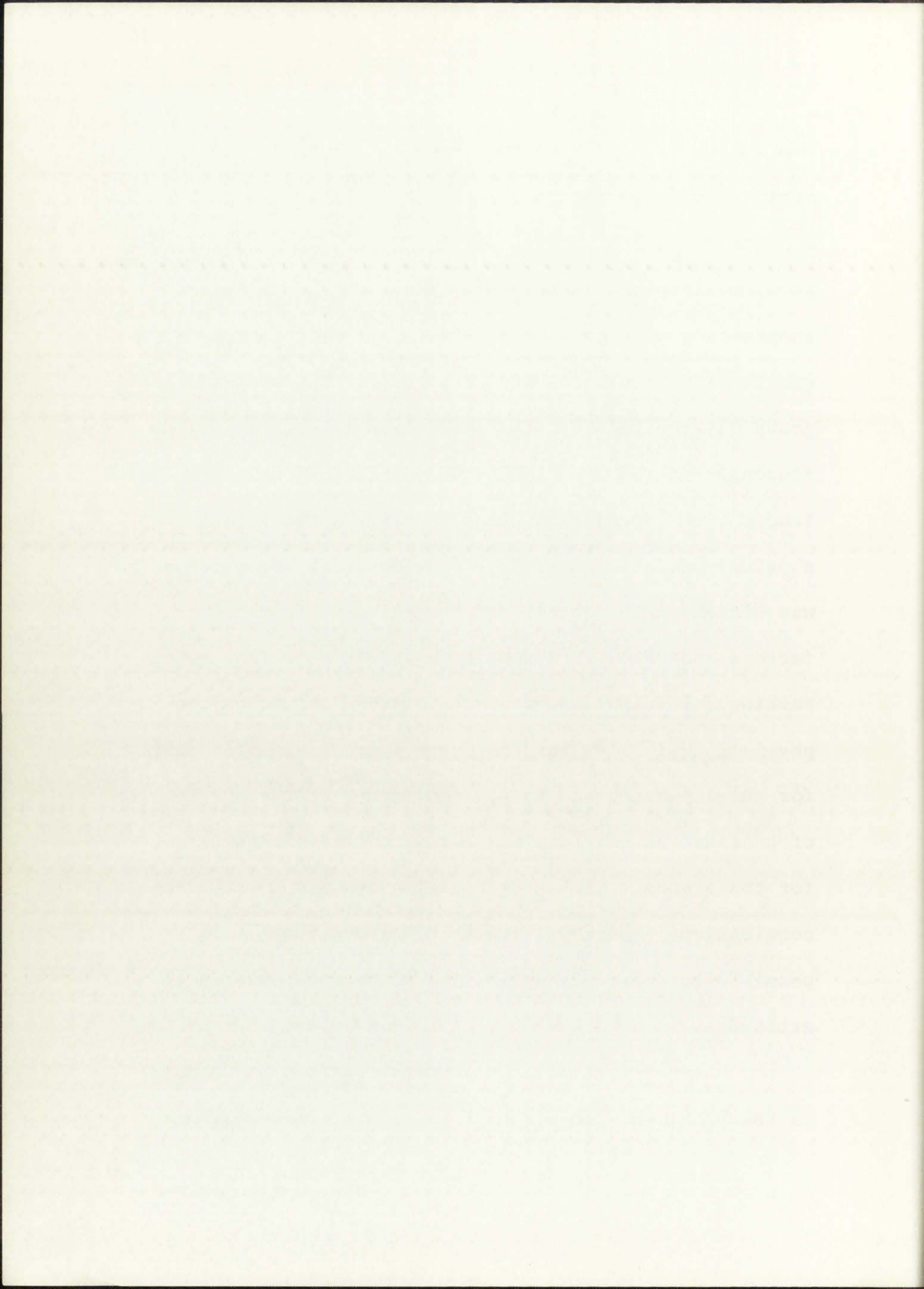
Command Method and the Task Method of Teaching the Fore-
hand and Backhand Tennis Strokes," concluded that the
task method (a student-centered approach) was superior to
the command method in teaching the forehand and backhand
tennis strokes.[60]

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 con-
cluded that a student-centered approach (also referred to
as Gestalt and Task Methods) is more effective for knowl-
edge 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

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 indi-
vidual 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 educa-
tional 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-understand-
ing, gained a more mature perspective of their role, and
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

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

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

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 organi-
zation. 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 cohesive-
ness, 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 sup-
ported the use of small-group methods of teaching.

Summary. The research reported here in this section can best be summarized by citing a comprehensive report by Olmstead, <u>Theory and State of the Arts of Small-Group Methods of Instruction</u>, 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.

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

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. Prin-
> cipal 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 prob-
> ably 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 instruc-

tion. 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 stu-

dent; (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 evalua-

tion 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 percep-
> tions which in reality is what learning is all about.
> Following these rearranged perceptions we have a stu-
> dent who is becoming self-actualized and is improving
> his subsequent problem solving behavior.[81]

Peters designed a study to identify certain con-

ditions surrounding the formation and operation of
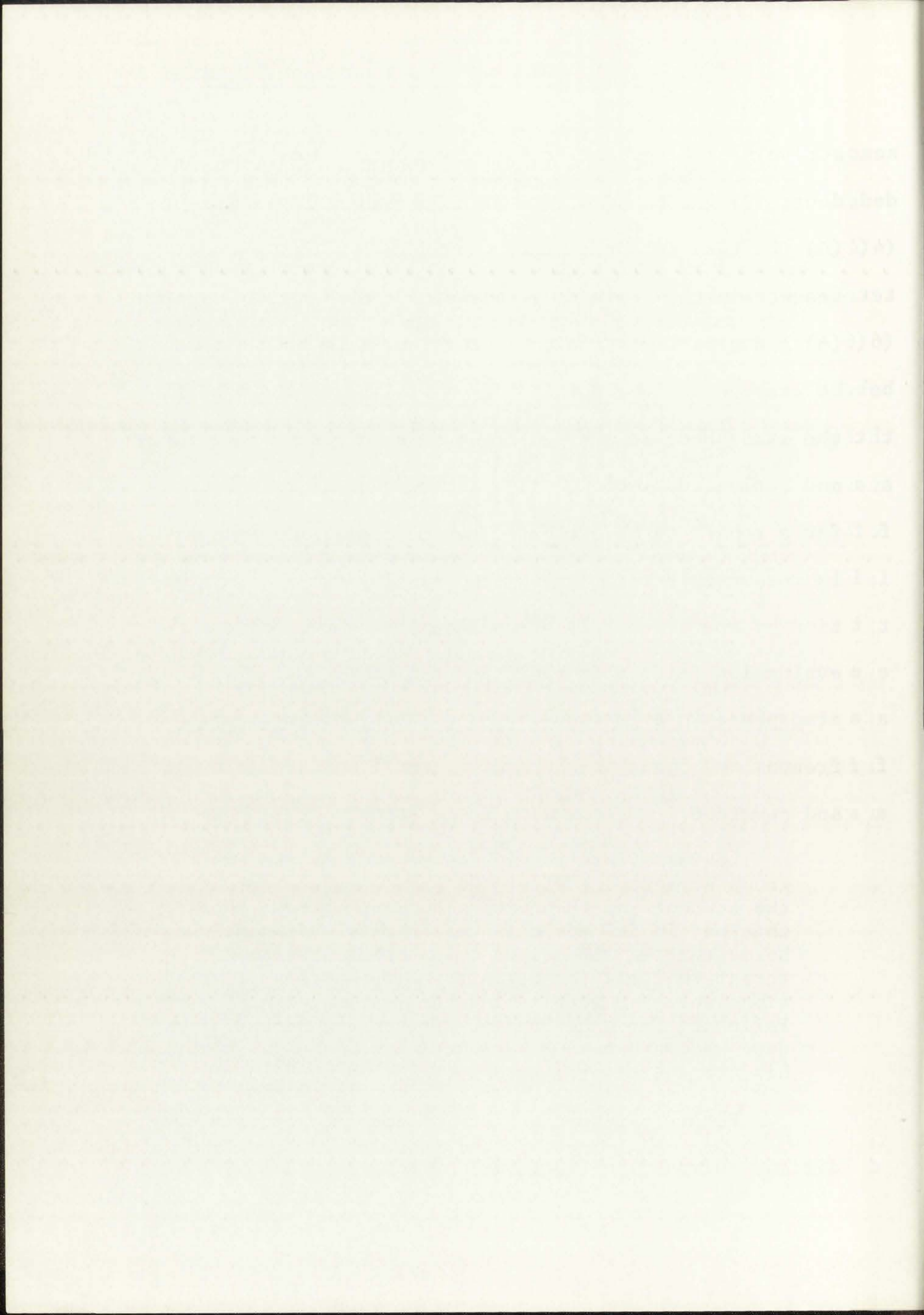
selected small groups, to discover their distinctive

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 com-

patible 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 per-

manent, with regular and frequent meetings; (5) members

should have a common purpose or cause; (6) ideally, all

members should be trained for performance of responsibil-

ities within the group.[82]

Summary. As a result of a review of the litera-

ture in areas of education other than physical education,

it can be concluded that small-group methods can be effec-

tive 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 stu-
dents' attitudes toward classroom group tasks, the follow-
ing 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
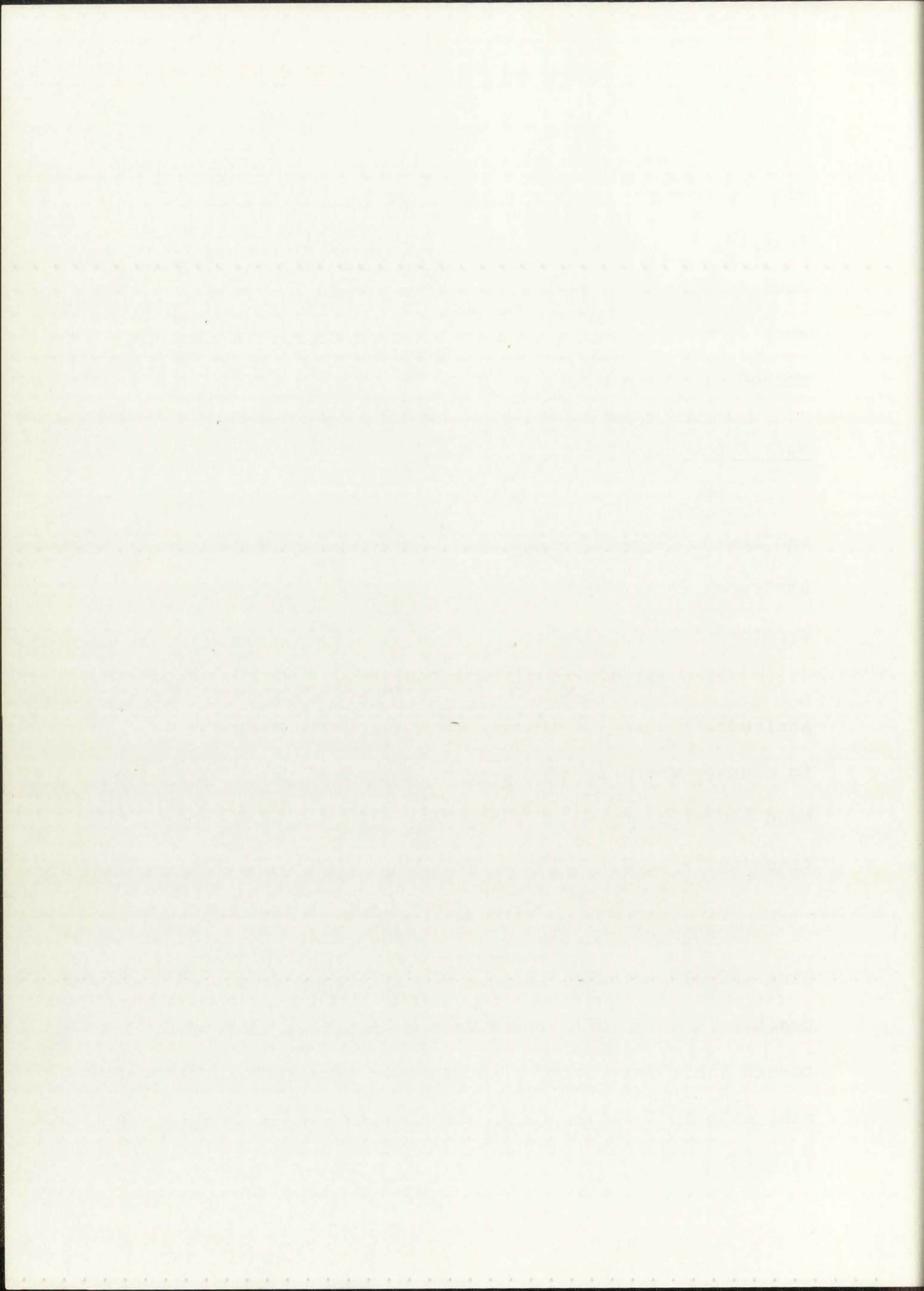of teaching is used.

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

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 begin-
ning 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 stu-
dents in classes where the command method of teaching is
used.

Research hypothesis. Students enrolled in begin-
ning 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

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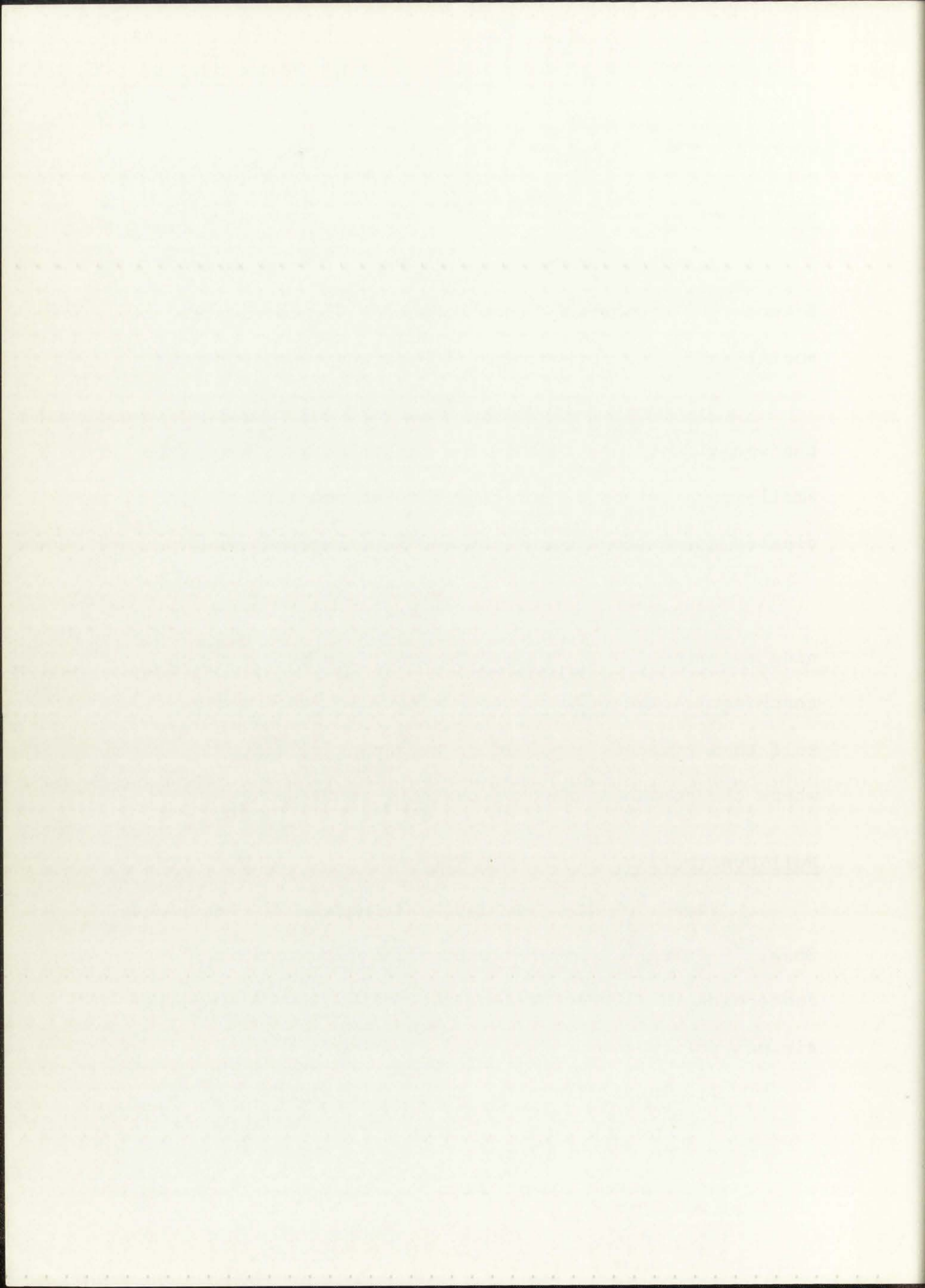
6. There will be no significant difference in the social-self of students who are in classes where the small-group method of teaching is used and students in classes where the command method of teaching is used.

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 begin-
ning 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 leader-
ship produces a more positive classroom climate. Inter-
personal relationships between students is more frequent,
which leads to a better self-image 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 relation- ships. 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 students' self-esteem. Individuals in the group also are more involved when they have access to many communications channels.

Cohesiveness emphasizes an individual's relation-ship 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.
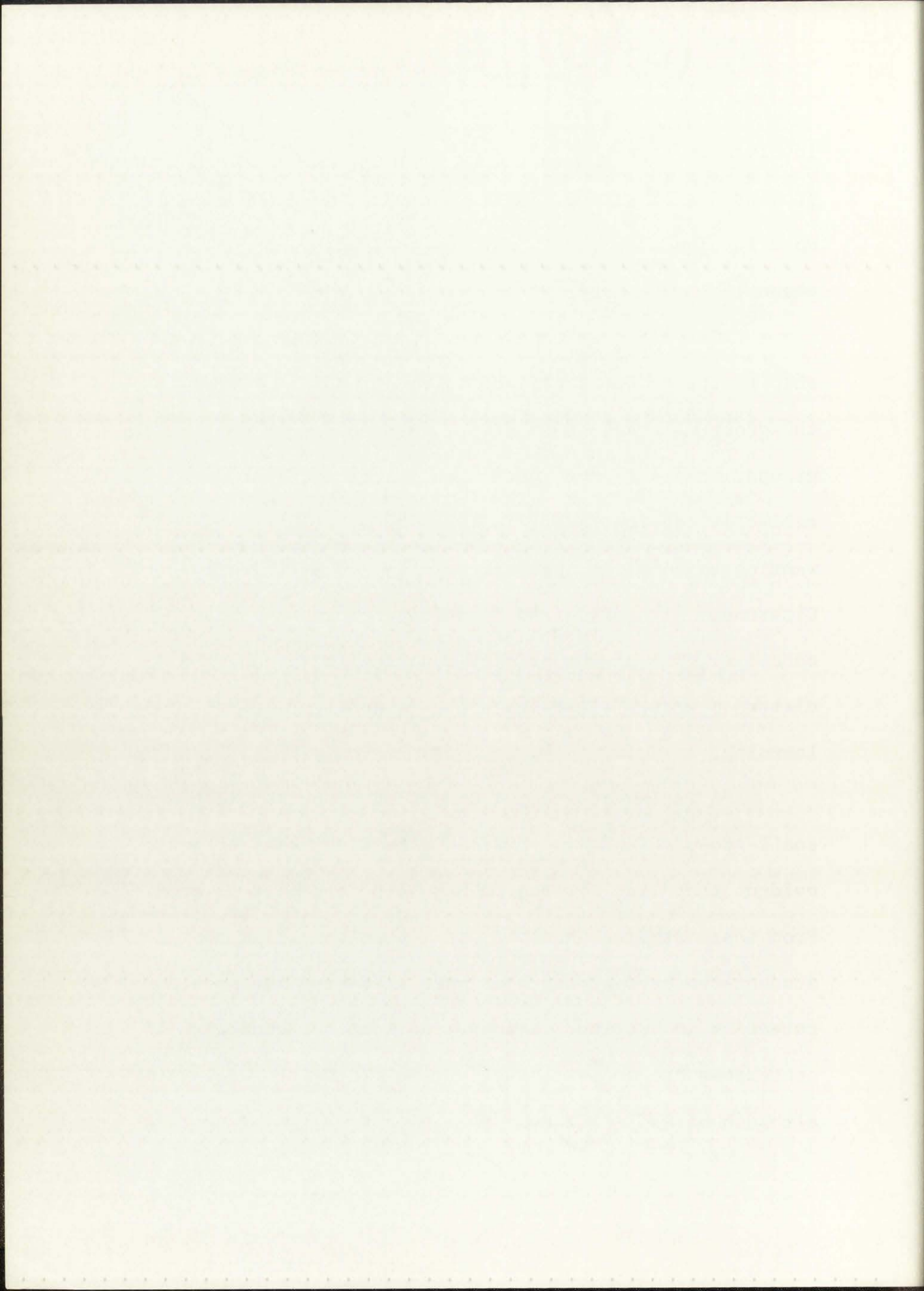
FOOTNOTES

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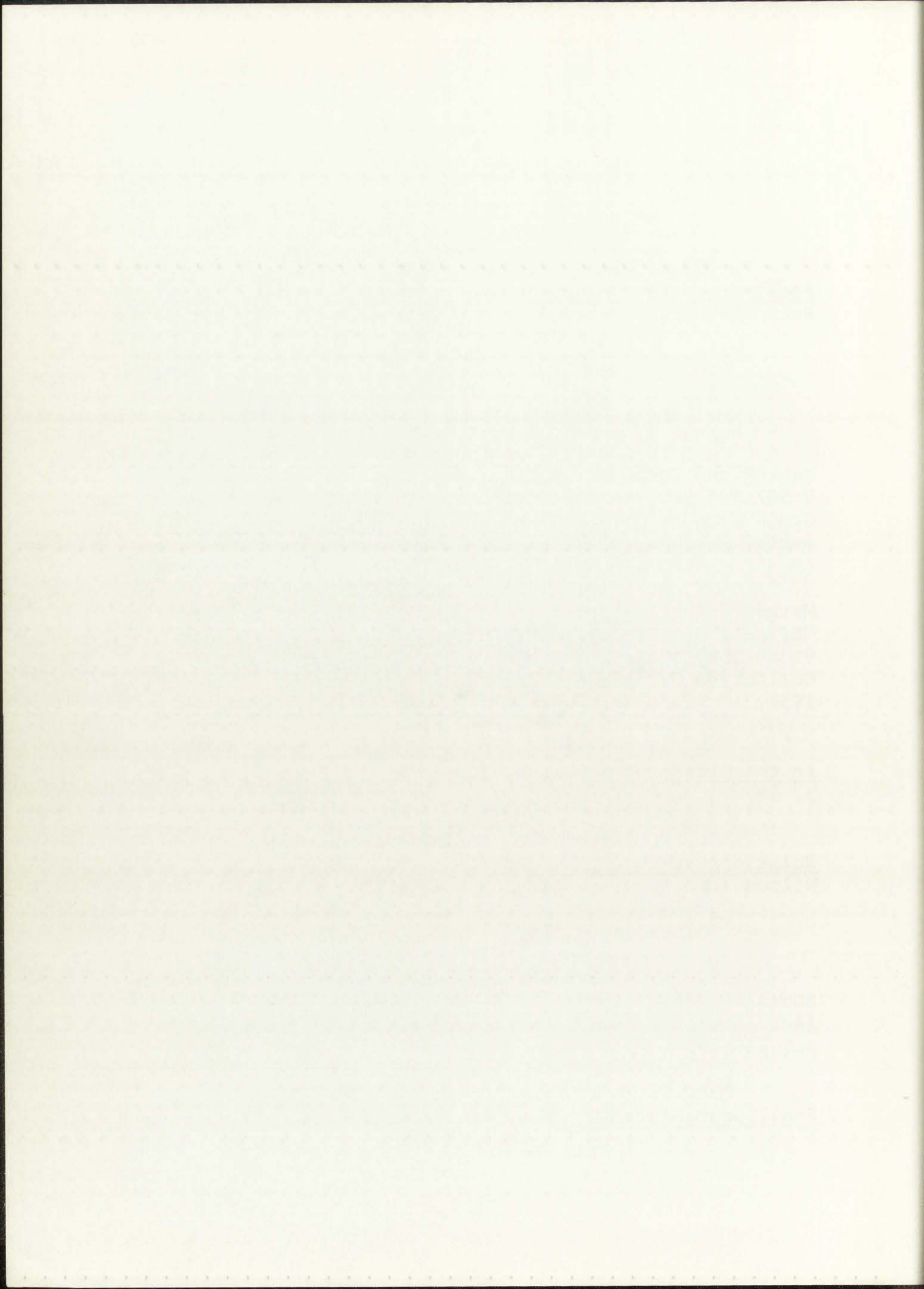
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CHAPTER III

METHODOLOGY AND ANALYSIS OF THE DATA

This study was designed to compare the effective-
ness 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

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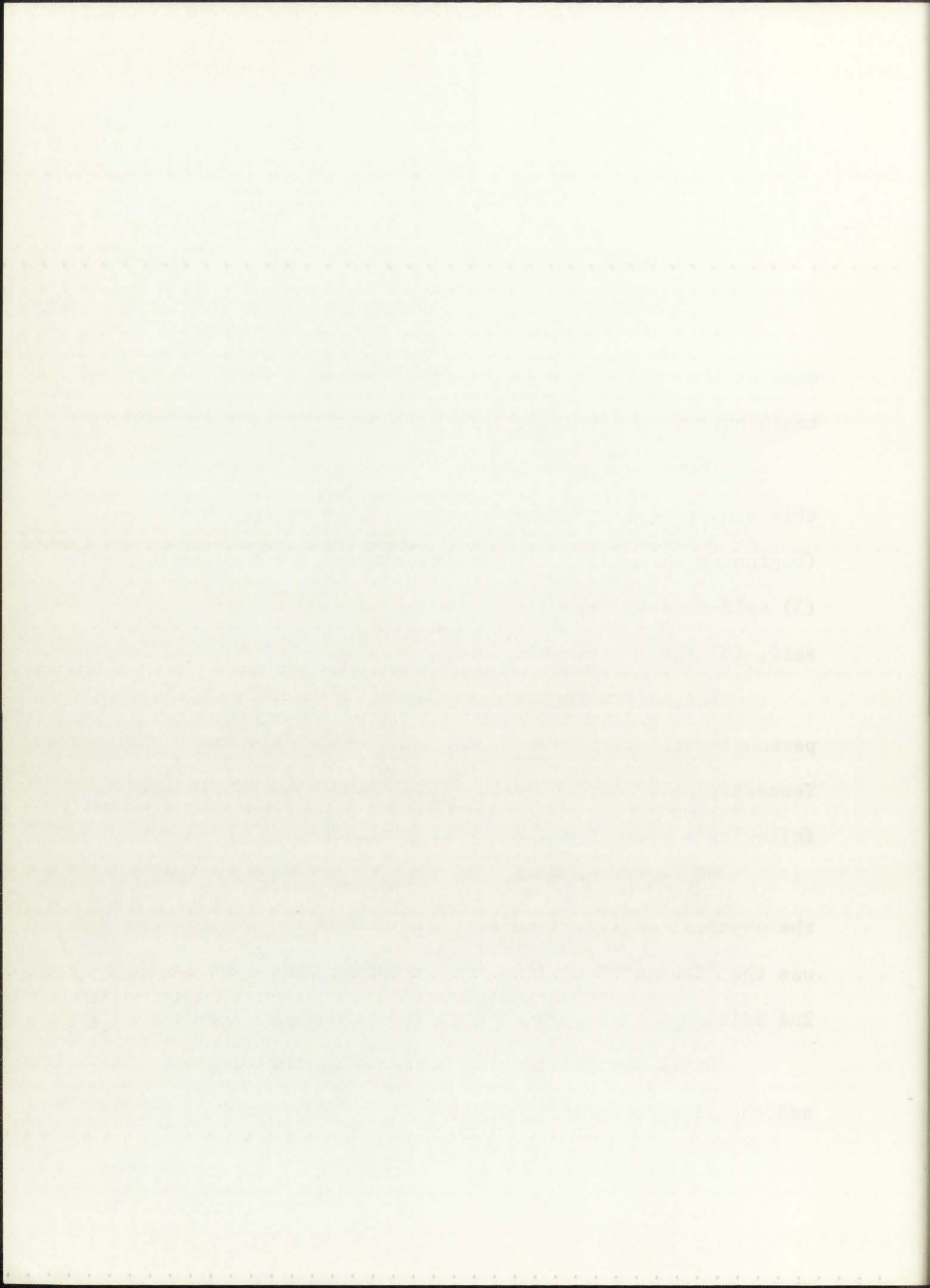
procedures, and therefore was an unobtrusive measure.

The swimming skills measured were the front crawl, the

back crawl, elementary backstroke, sidestroke, and breast-

stroke.

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 Con-

cept 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-descrip-

tive 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-satis-

faction—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]
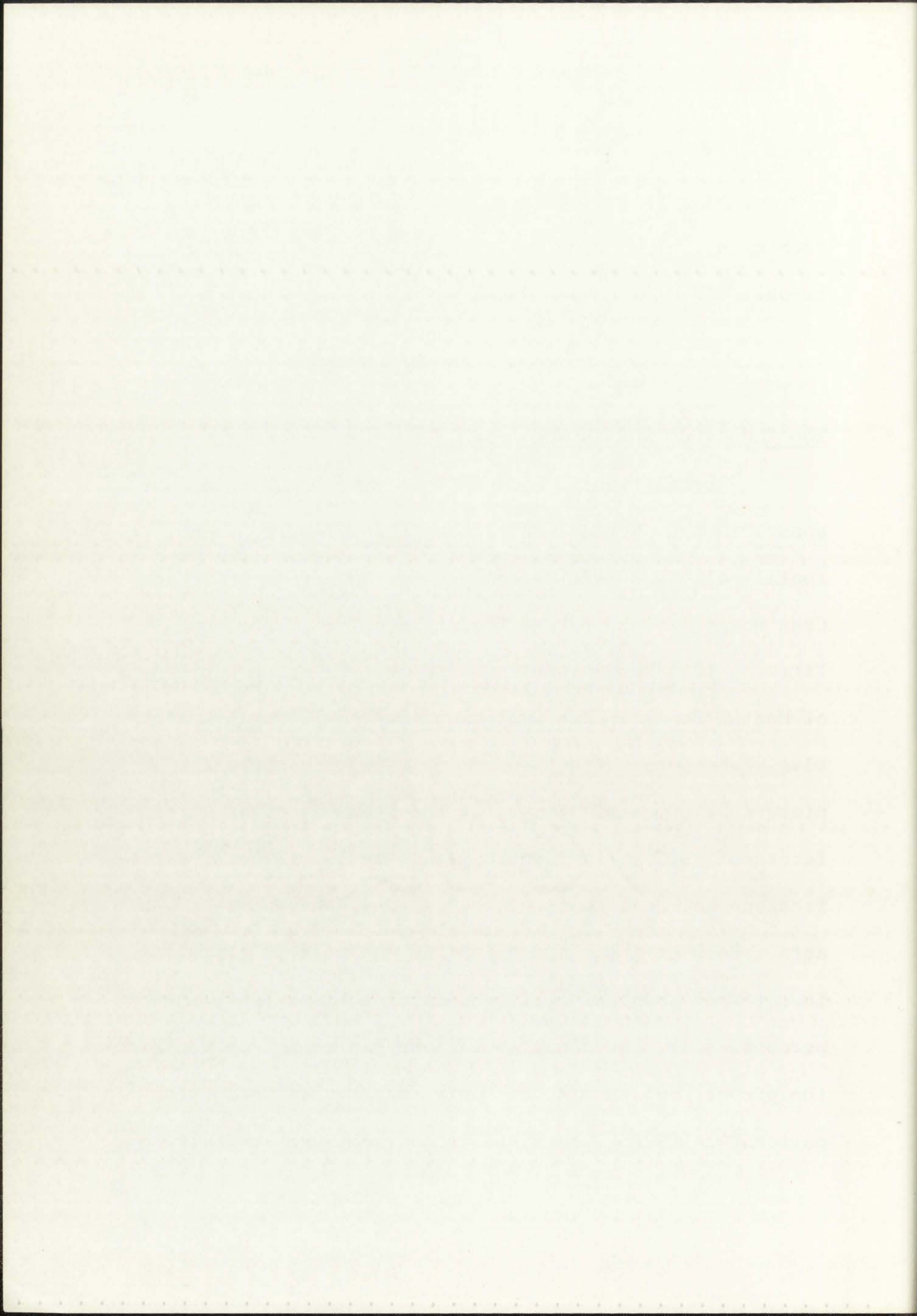
This scheme orders the responses into a 3 x 5 matrix which consists of 45 positive items and 45 negative items, offered to the subjects on a Likert-type scale which indicates the degree to which each item is true of him. The range of responses allowed is from completely false, which is assigned a value 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

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 appli-
cable 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 vari-
ances 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

TABLE 1

INTERCORRELATIONS OF SCORES

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 Student Reaction to Instruction
and Courses, 2nd Edition

The "Student Reaction to Instruction and Courses,
2nd Edition," by Holt and Owens, was developed for measur-
ing teaching effectiveness and identifying instructional
behaviors which are related to effectiveness. "Its pur-
pose 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 scor-
ing the scale in the course in question. (See Appendix B
for a copy of the form.)

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

(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, litera-

ture, 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 appre-
> ciation 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 taxonamies of educational

objectives and synthesized into a smaller set of objec-

tives by means of 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 Univer-

sity, 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 center-

ing 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 dis-
criminate 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

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

[a] Correlations 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

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 swim-

ming 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

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 instruc-
tors to have been selected, they had to meet the follow-
ing 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 vali-
dated 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 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

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.

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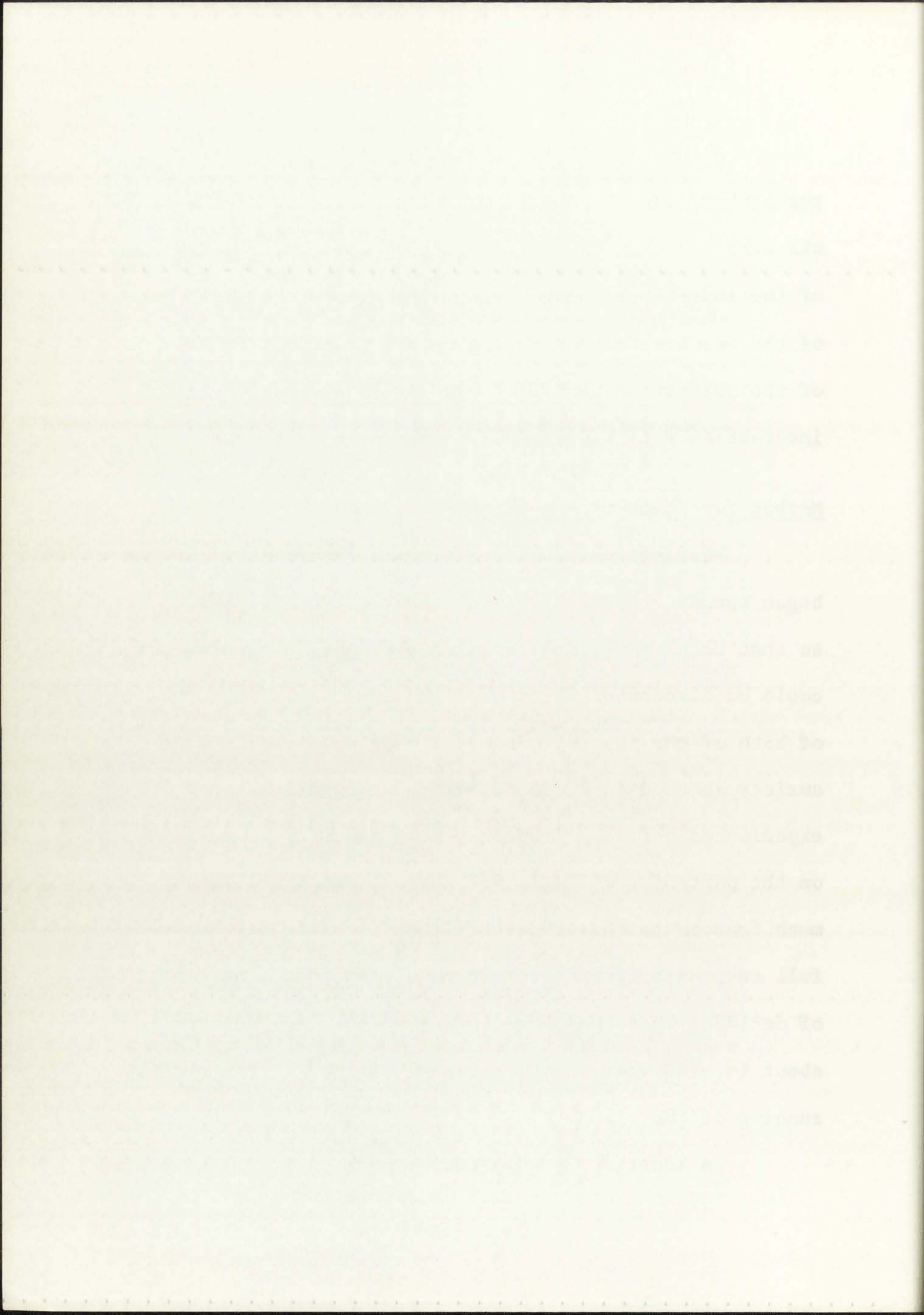
Material on group dynamics, use of small-group
techniques in the classroom, the teacher's role in group
processes, and other reference material was provided the
two instructors one month prior to the beginning of the
experimental period.

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

Our primary reason for using the small-group
method is it allows for the creation of a positive
classroom climate which will allow positive atti-
tudes 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 instruc-

tor 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 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 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
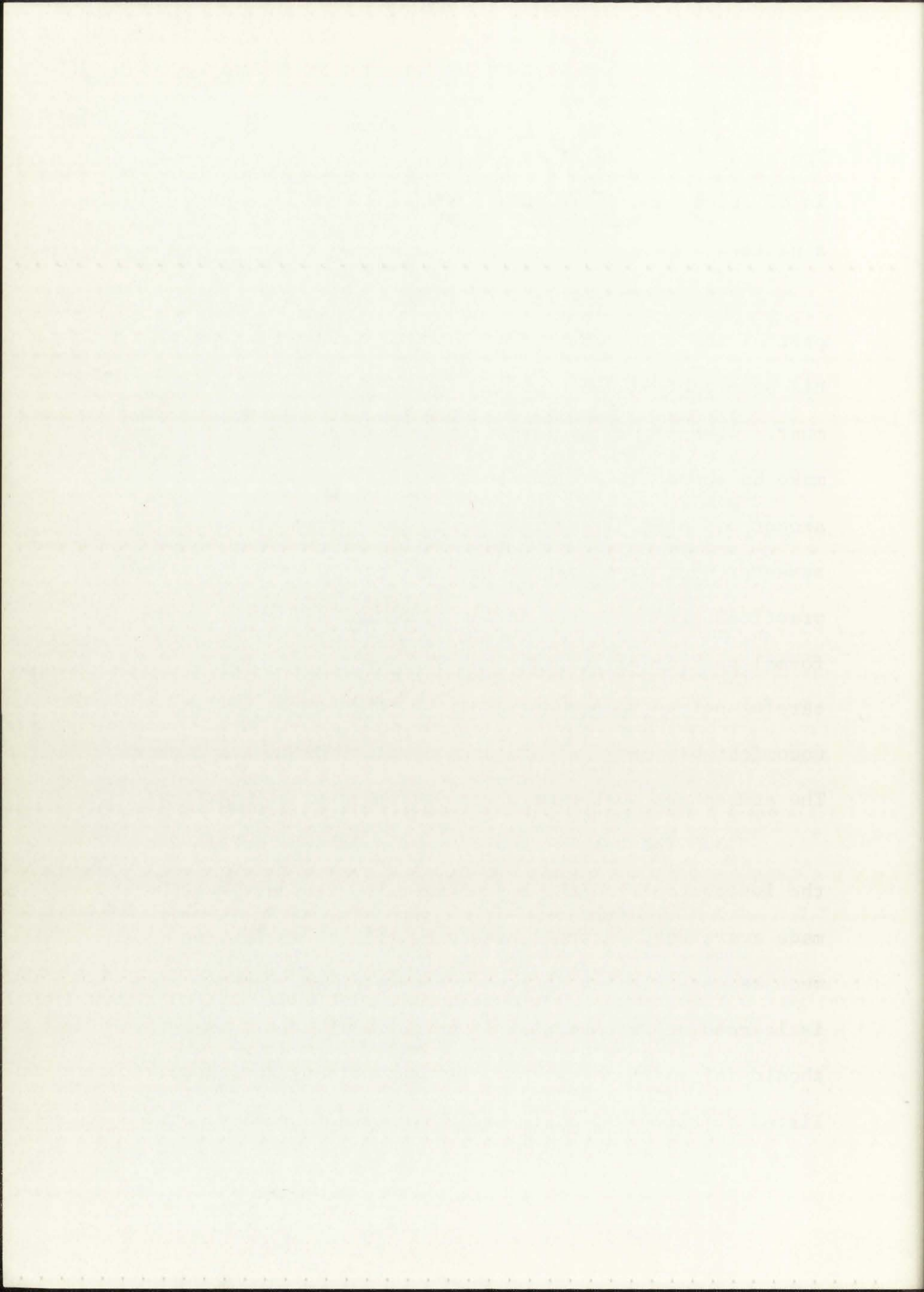
remind them of their commitments and previous decisions.
This is not to say that the objectives cannot be changed,
because mistakes will be made, new and better ways will
be learned as they grow in experience, and changes must
therefore be allowed. Whenever a group feels a change is
necessary, it should 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 gener-
> ally getting to know one another. Occasion-
> ally one of the students looks around to find
> where Linda (the instructor) is.

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

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 partic-

ular 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, stu-

dents 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

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
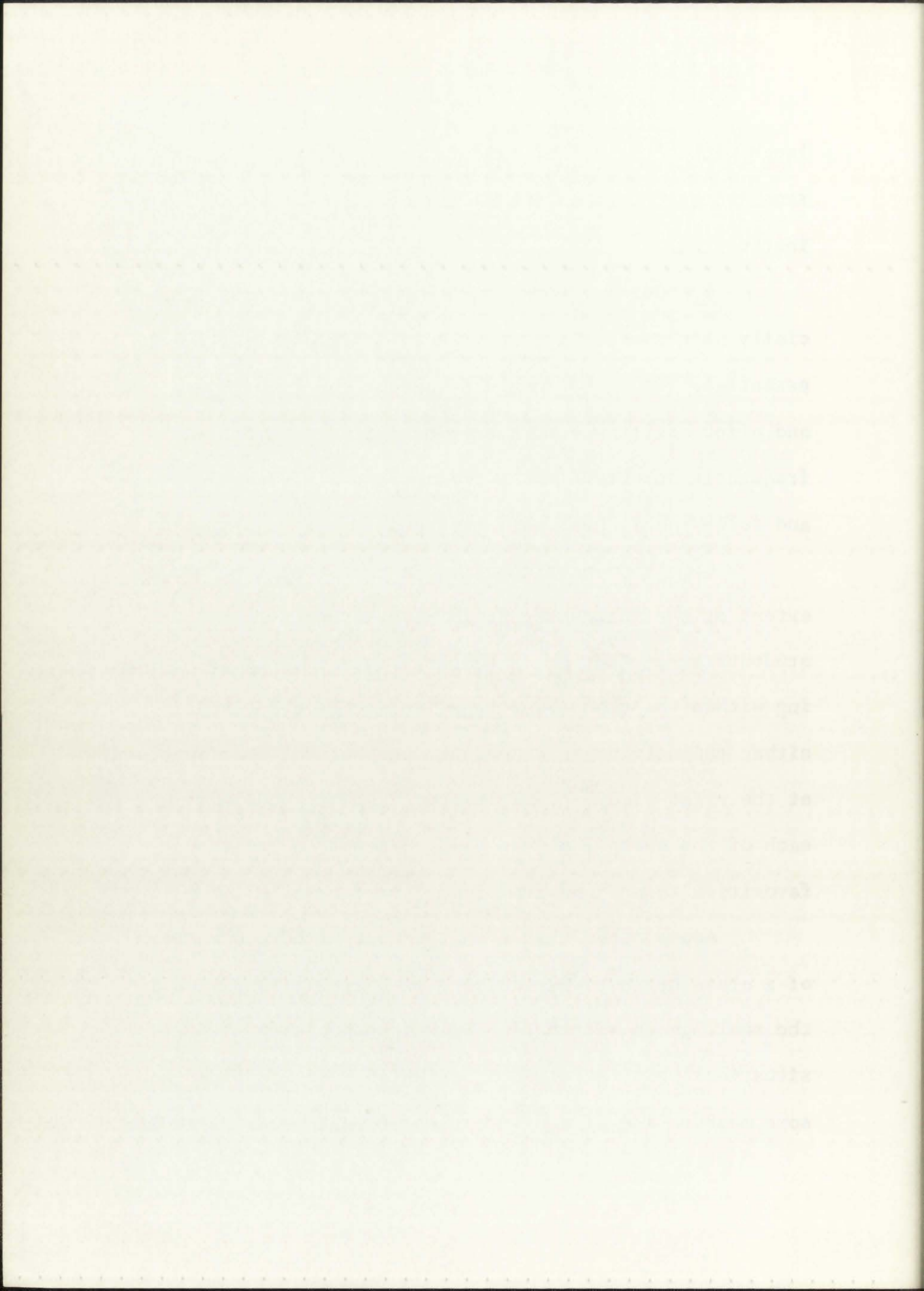
each of the small-group classes to spread those students

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 pre-
> senting that day's activity would divide the class
> into three or four small groups and each member of

>the day's instructional group would help each small
>group. (The first group present set this example.)
>Without any word of encouragement from the instruc-
>tor, the remainder of the groups followed suit. It
>was of tremendous success, causing not only a close-
>ness 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 respec-
>tive 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

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

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 varience 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

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 teach-
ing 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

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.

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

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 investi-
gator 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 state-
ments, the value of which depends greatly on the sensi-
tivity of the observer and on his purpose."[46] The formal
period of observation was conducted during the last four

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 visable 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 observa-
> tional 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 sub-
> sequent 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 indi-

vidual actors for future observation. Further, as a

result of these observations, points of particular rele-

vance to the study were discussed with the instructors,

and the dross 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

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 account-
ing 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 instru-
ment for the gathering of quantitative data. The inter-
action 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.

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

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

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 func-
tion—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 inte-
gration if it is to function or to remain together.[53]
The categories of interaction involving teacher and stu-
dents 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 inter-
action 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.

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 inter- action 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-

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)
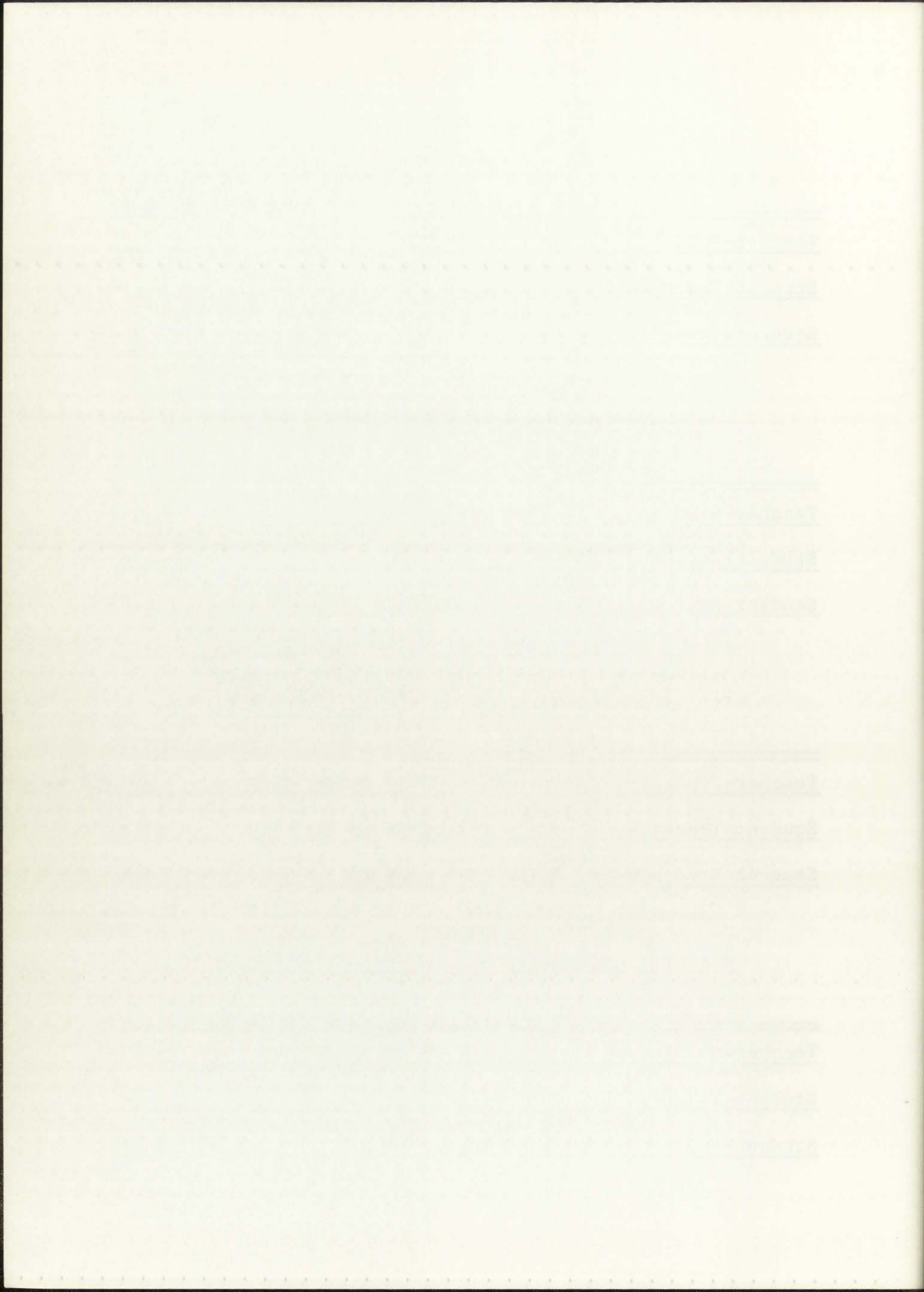
group setting than in the command setting.

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

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 inter-
action 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, stu-
dents 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
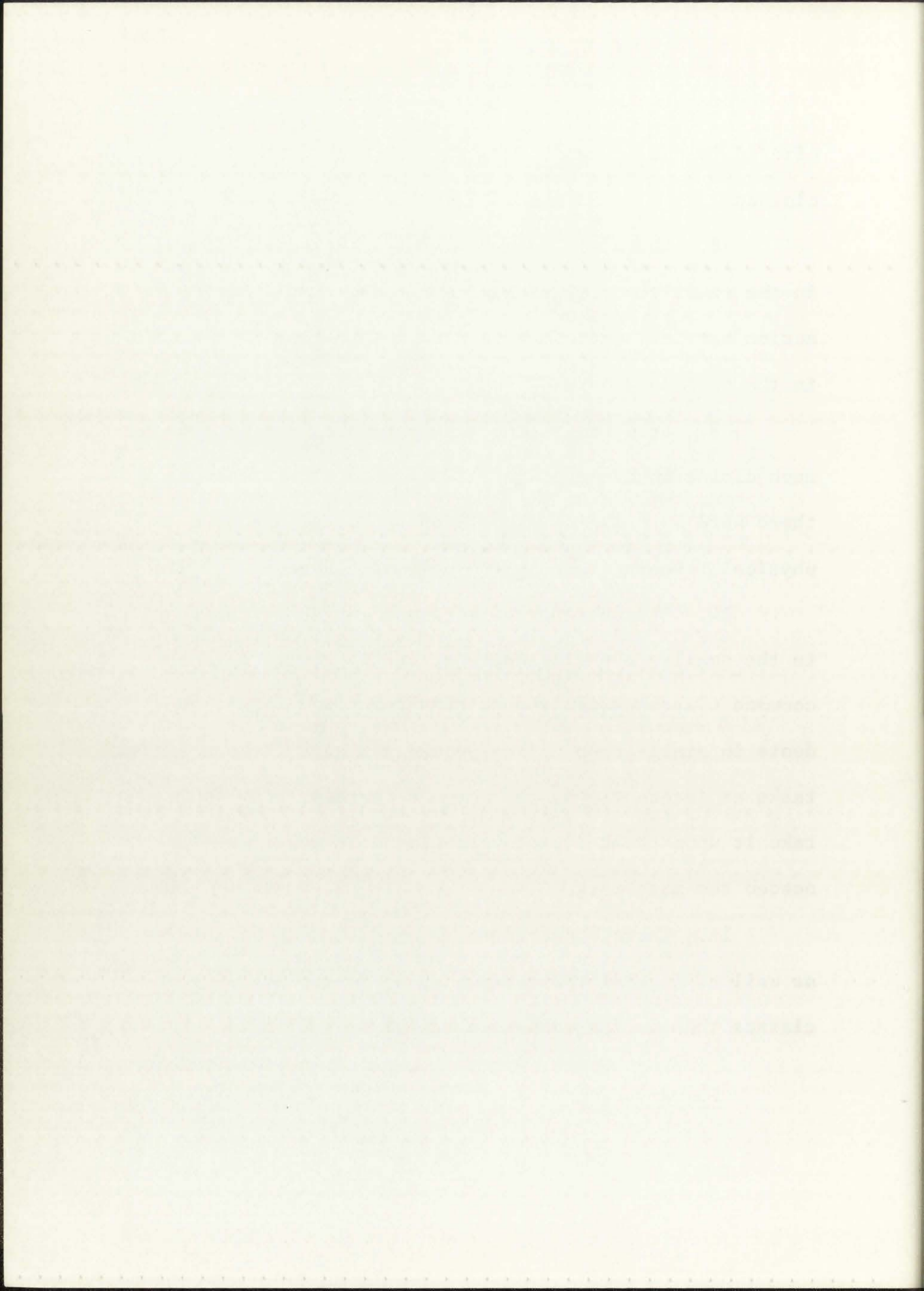
teaching were used, the atmosphere was more relaxed, there was more interpersonal interaction, students decided their own objectives and activities, leadership was shared by more students and changed hands more frequently, the social-emotional needs were fulfilled more during class time, students offered 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.

FOOTNOTES

[1]W. H. Fitts, "Tennessee Self Concept Scale" (a manual published by Counselor Recordings, Nashville, Tennessee, 1965), 31 pp.

[2]D. P. Holt and R. E. Owens, "Student Reaction to Instruction and Courses, 2nd Edition" (a manual published by the Office of Educational Research, Kansas, November, 1973), 13 pp.

[3]Fitts, p. 1.

[4]Ibid.

[5]Ibid., p. 14.

[6]Ibid., p. 1.

[7]Ibid.

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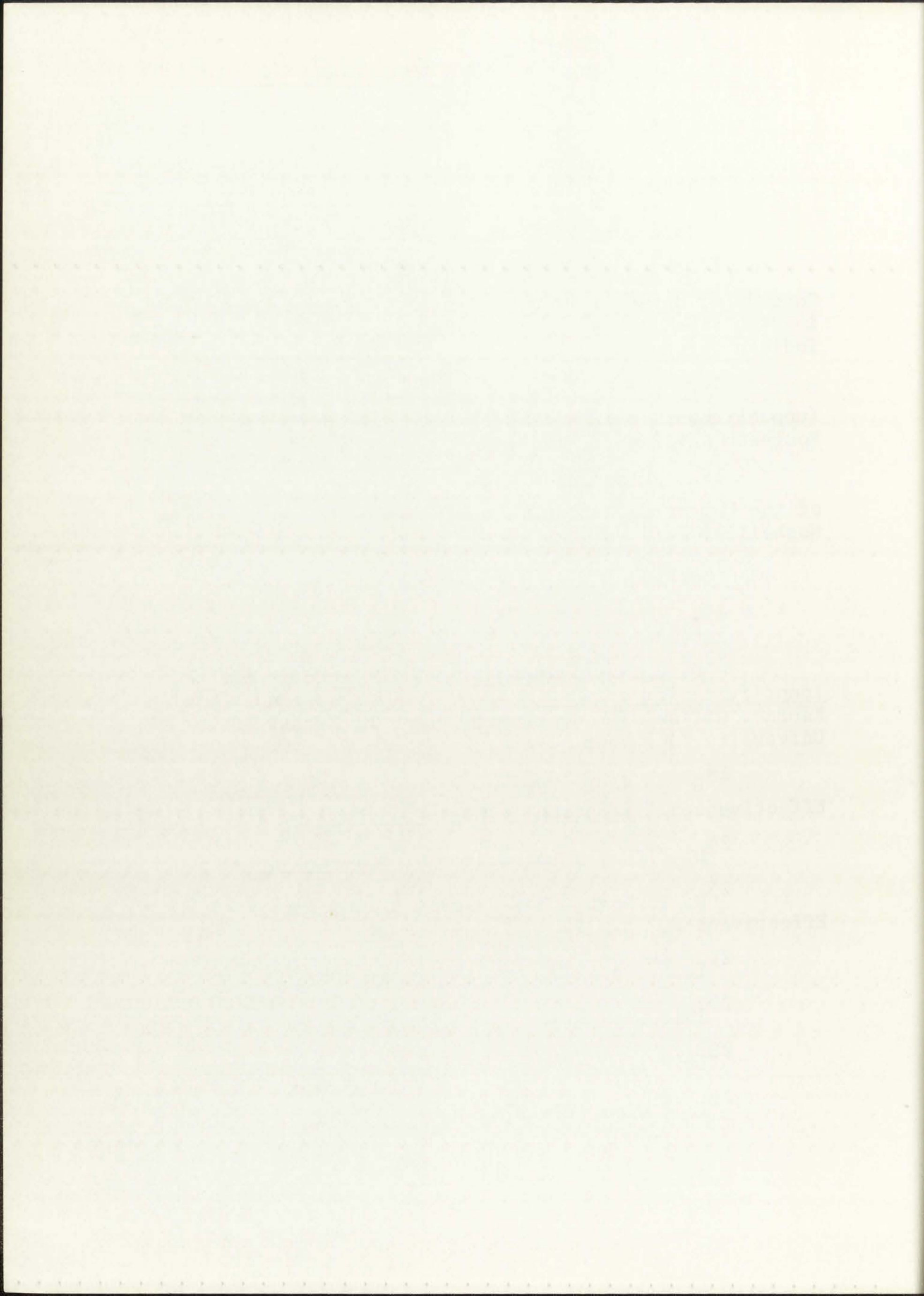
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[34]R. A. Schmuck and P. A. Schmuck, Group Processes in the Classroom (Dubuque, Iowa: Wm. C. Brown Co., 1971), p. 25.

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[43]W. J. Popham, Educational Statistics: Use and Interpretation (New York: Harper and Row, 1967), p. 223.

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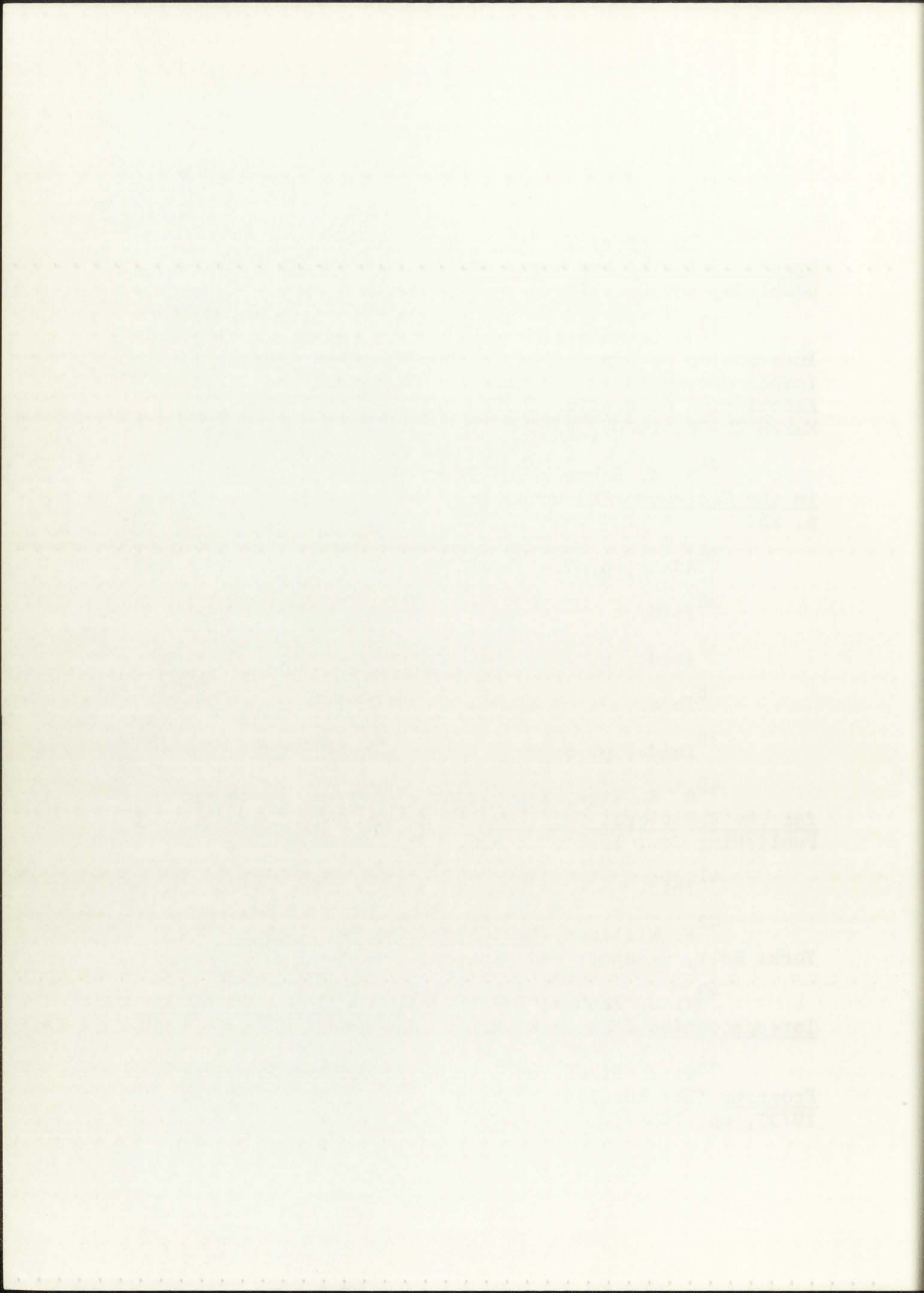
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CHAPTER IV

DISCUSSION, SUMMARY, CONCLUSIONS,

AND RECOMMENDATIONS

DISCUSSION

Although differences in affect between the small-
group method and command method of teaching were hypothe-
sized, 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

they were, they tend to rate it positively on all charac-
teristics. 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 con-
sidered 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
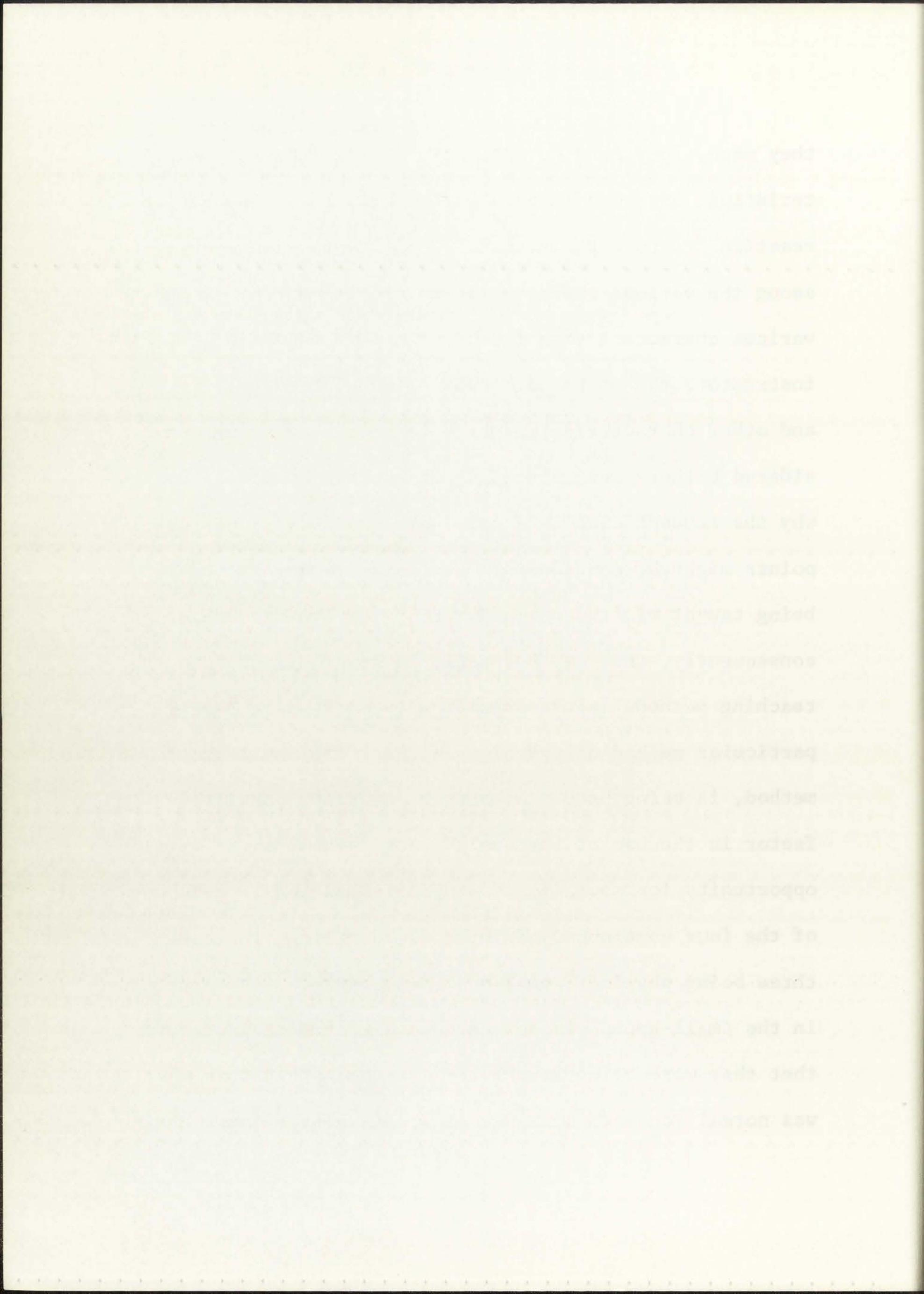
they must have been aware that something was going on,

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 Welch[2] 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. Olmstead[3] and Adams[4] 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 differ-
ences 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 conser-
vatively; 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
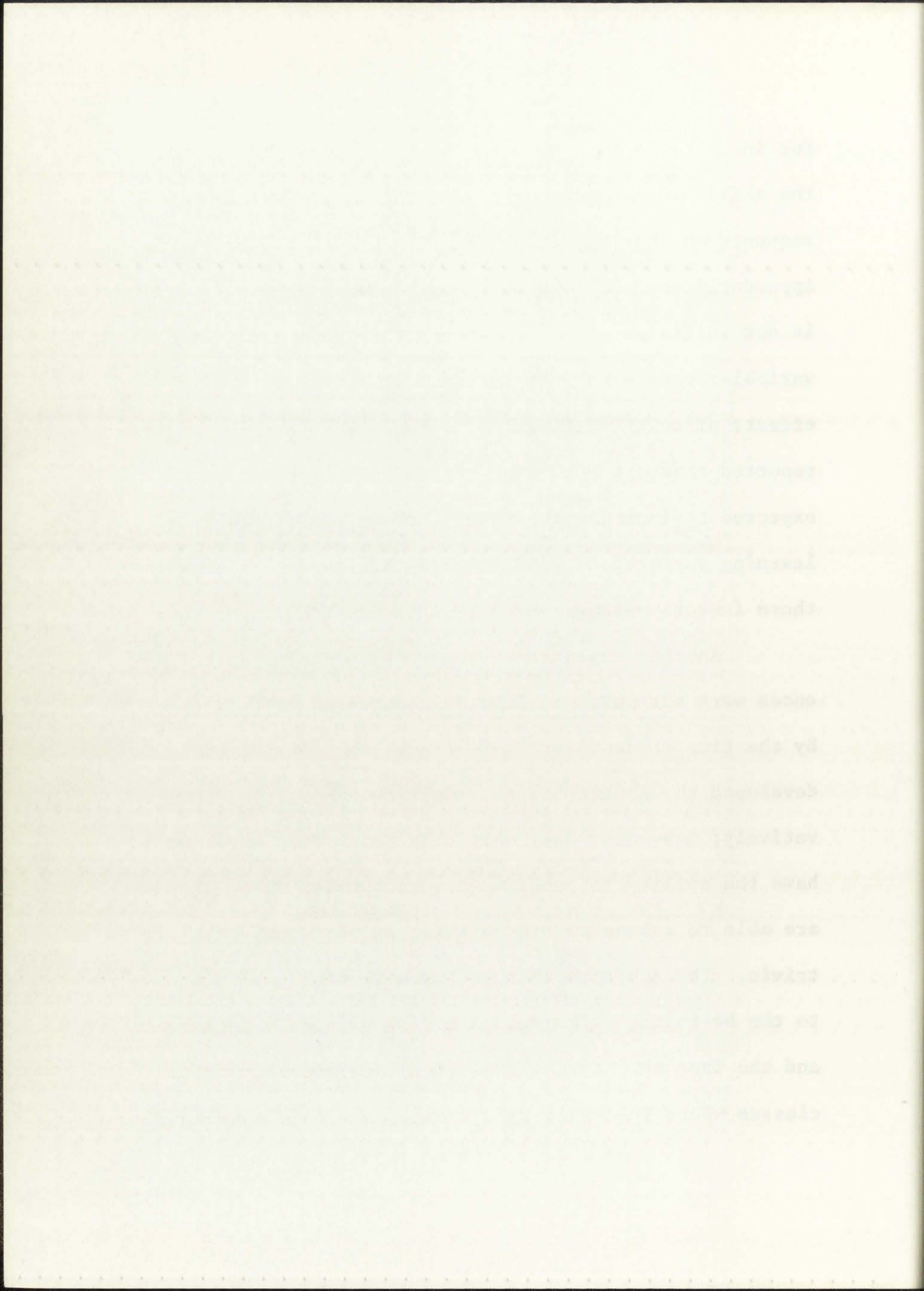
classes where the command method was used went unnoticed. They apparently liked their teacher and learned to swim— and that was "enough" for them.

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 iteself

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

The personality of the teacher and how he relates to his

students may be more important than the method of teach-

ing 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 pro-

gresses.

The opposite was the case for the female instruc-

tor. 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 oppo-
site. 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 varities of small-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 approx-
imately 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:

(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

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 compe-
> tent observers advocate strongly divergent points
> of view, it seems likely on a priori grounds that
> both have observed something about the natural sit-
> uation, 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
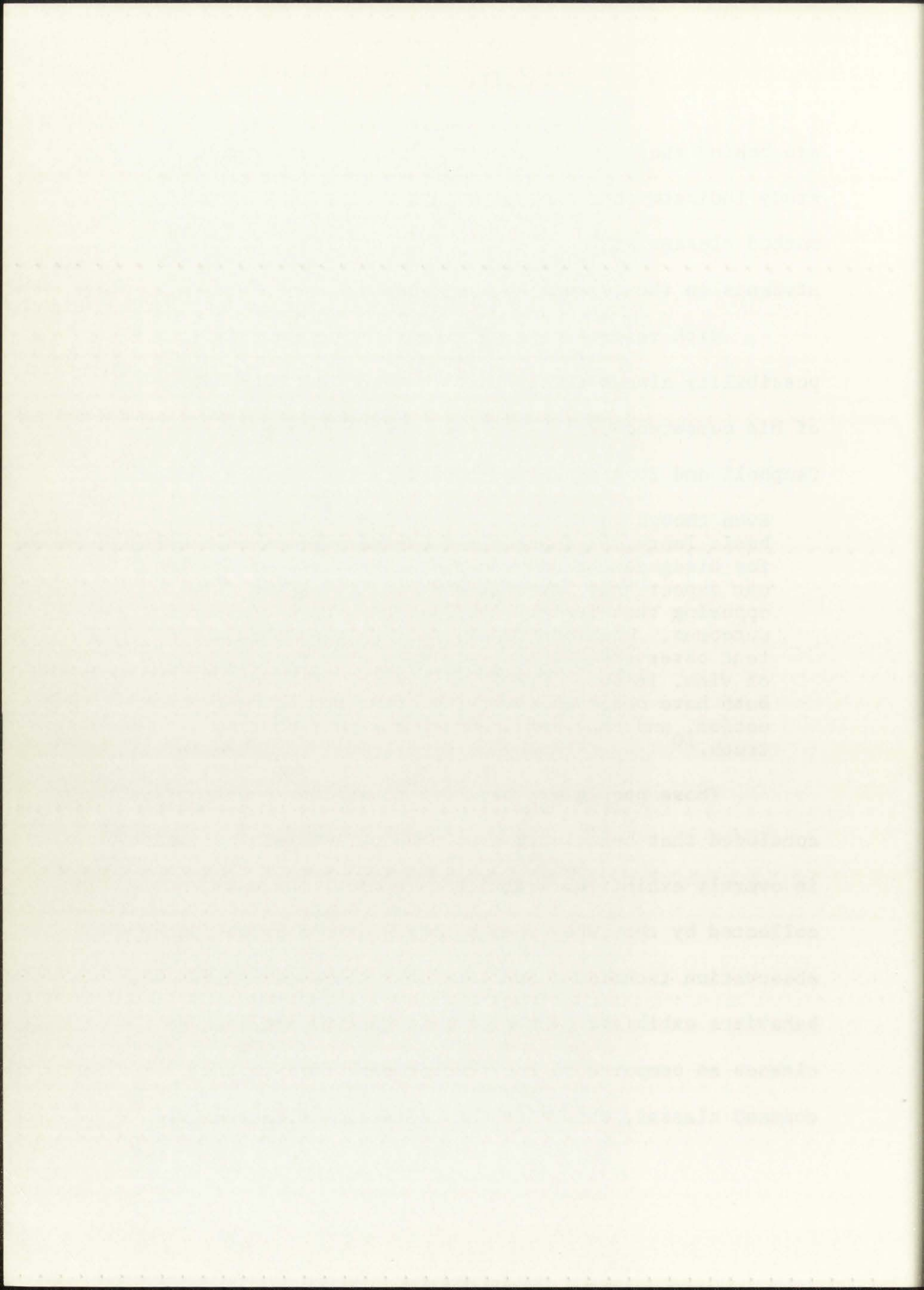
classroom climate as defined by Schmuck and Schmuck.[11]

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

Tennessee Self Concept Scale, as developed by Fitts.
It was administered following a pretest/posttest proce-
dure.

The instrument used to measure students' atti-
tudes 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 swim-
ming skills measured were the front crawl, the back crawl,
elementary backstroke, sidestroke, and breaststroke.

The seven hypotheses were tested using two analy-
ses 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' atti-
tudes 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 teach-
ing 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

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

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

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.

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.

FOOTNOTES

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

[2]W. W. Welch, "Evaluating the Small Group as a Component of Modular Schedules" (paper presented at the American Educational Research Association Symposium, February, 1971).

[3]J. A. Olmstead, Theory and State of the Arts of Small Group Methods of Instruction (Alexandria, Virginia: Human Resources Research Organization, March, 1970).

[4]J. C. Adams, "The Effectiveness of Small Group Interaction as Opposed to Teacher Centered Instruction (paper presented at the American Personnel and Guidance Association Convention in New Orleans, Louisiana, March 22-26, 1970).

[5]F. M. Miller, "Effects of Small Group Instruction on Achievement of Technical Information by Ninth Grade Industrial Arts Students (Doctor's dissertation, Missouri University, July, 1971), EDRS ED 055-178, not available from EDRS.

[6]Hoyt, loc. cit.

[7]A. Combs, "What is a Good Teacher?" The Professional Education of Teachers (Boston: Allyn and Bacon, 1965), pp. 1-9.

[8]W. H. Fitts, "Tennessee Self Concept Scale" (manual published by Counselor Recordings, Nashville, Tennesse, 1965), 31 pp.

[9]E. Rhudy, "Changes in Self-Concept Resulting from Outward Bound Type Activities" (unpublished Master's thesis, The University of New Mexico, May, 1971).

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

[11]R. A. Schmuck and P. A. Schmuck, _Group Processes in the Classroom_ (Dubuque, Iowa: Wm. C. Brown Co., 1971), p. 18.
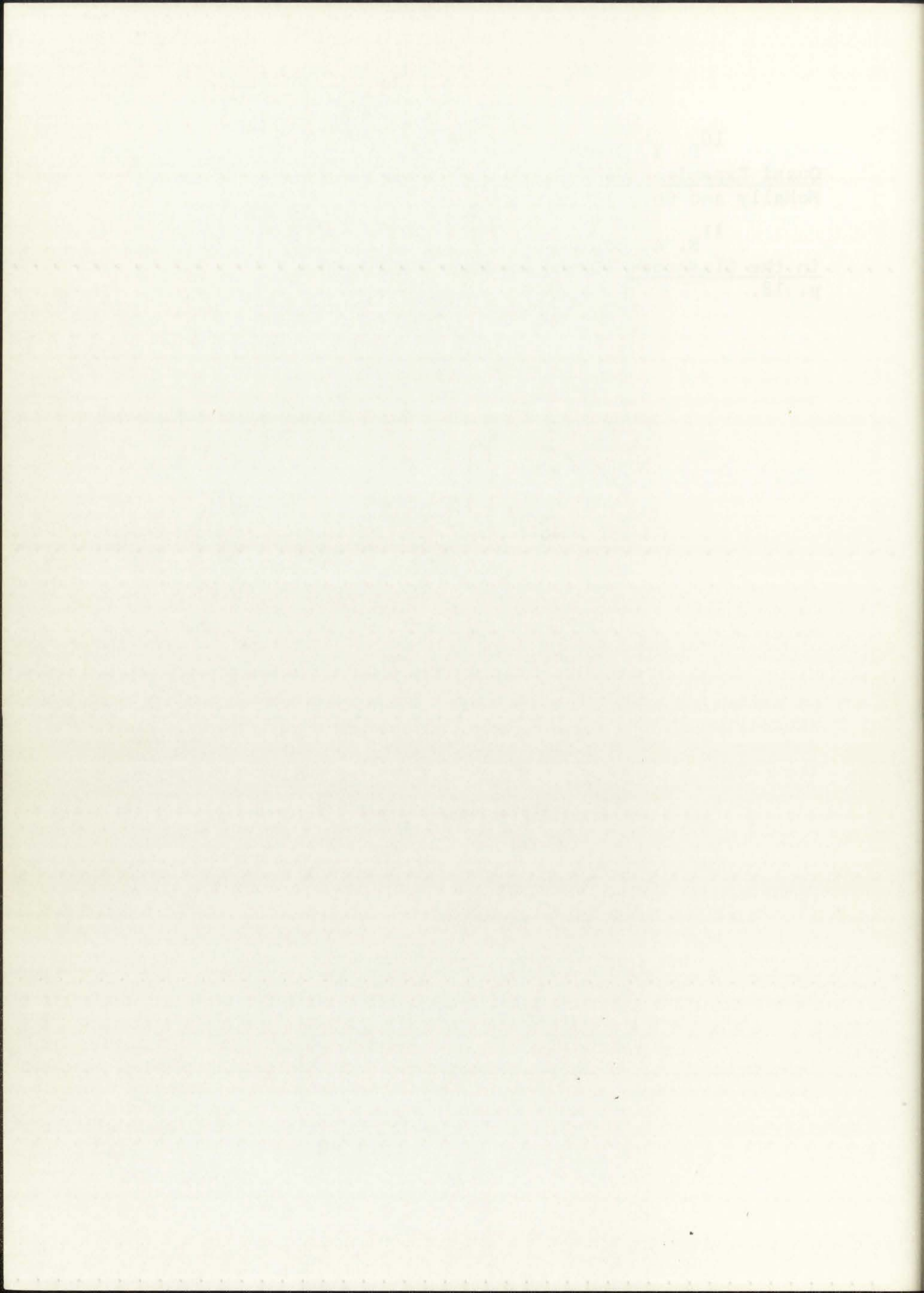
APPENDIXES

APPENDIX A

TENNESSEE SELF CONCEPT SCALE

I. TEST BOOKLET FOR TENNESSEE
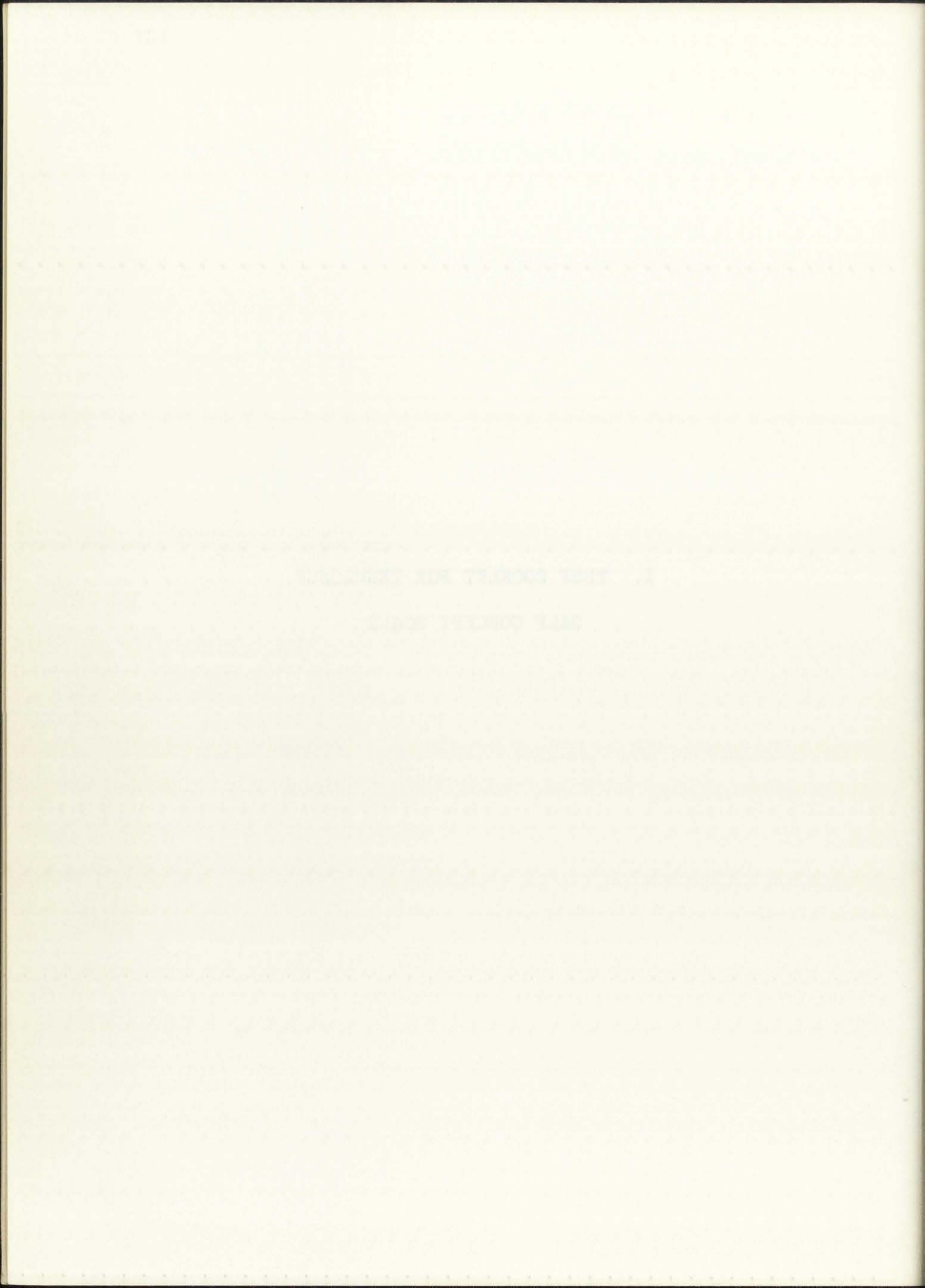
SELF CONCEPT SCALE

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.

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
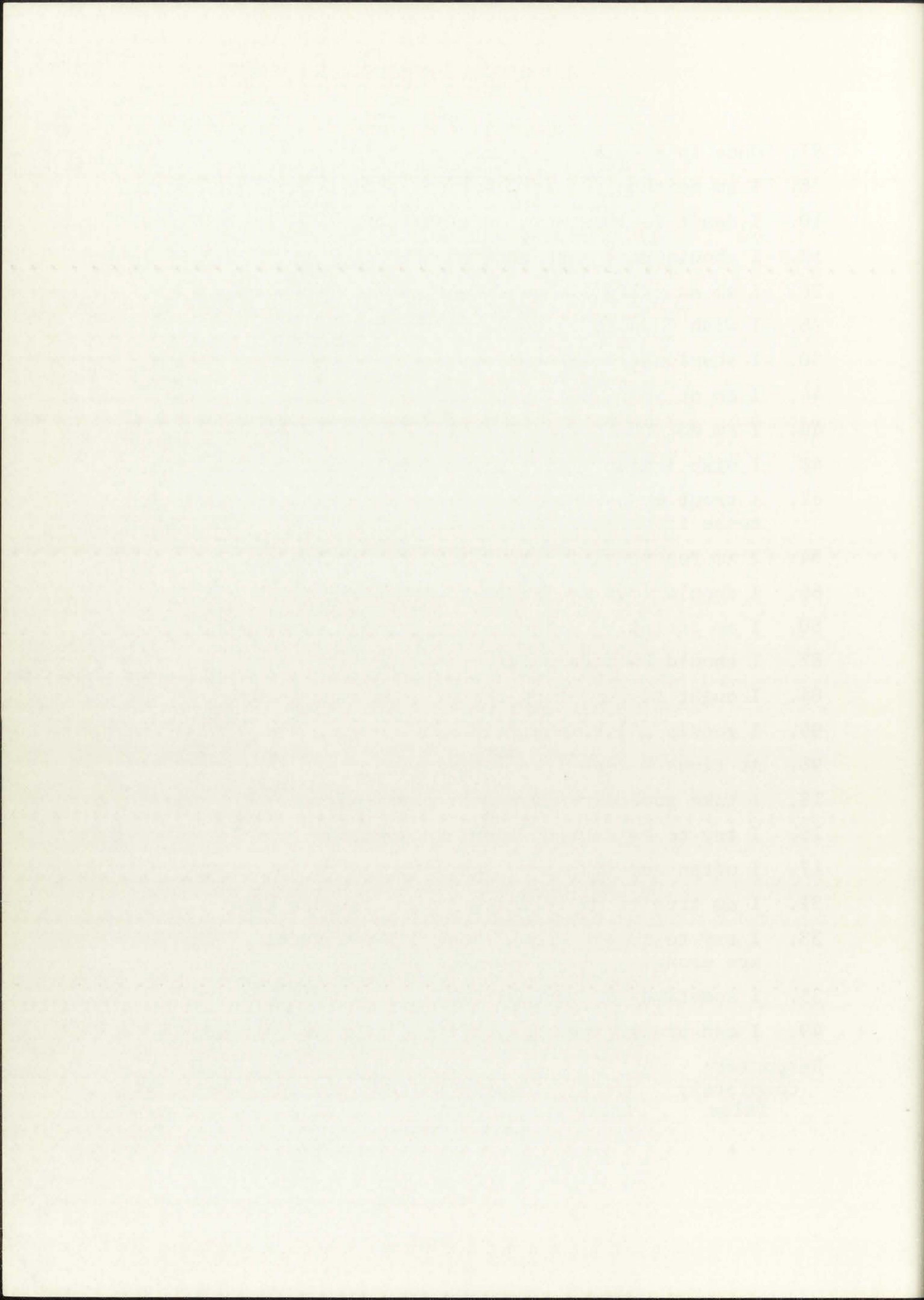
51. I take the blame for things without getting mad.

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

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 3 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

III.   SCORE SHEET FOR TENNESSEE

SELF CONCEPT SCALE

SCORE SHEET

Counseling Form
Tennessee Self Concept Scale

NAME ___ SCHOOL GRADE ___ SEX ___ M ___ P ___ 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 P Col Score |

ROW 1.
IDENTITY
WHAT HE IS

ROW 2.
SELF SATISFACTION
HOW HE ACCEPTS HIMSELF

ROW 3.
BEHAVIOR
HOW HE ACTS

TOTAL POSITIVE (ΣP.)

COLUMN TOTALS

V (Range of Col Score)

Total Positive or P

Row Tot V

Col Tot. V. →

Tot. V.

DISTRIBUTION OF RESPONSES

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

$$TOTALS \quad \overline{5} \times \quad \overline{4} \times \quad \overline{3} \times \quad \overline{2} \times \quad \overline{1} \times = 100$$

$$D = \frac{5 \times}{} + \frac{4 \times}{} + \frac{3 \times}{} + \frac{2 \times}{} + \frac{1 \times}{} =$$

APPENDIX B

"STUDENT REACTION TO INSTRUCTION AND COURSES"

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.

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

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

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

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.
34. I had a strong desire to take this course.
35. I would like to take another class from this instructor.
36. As a result of taking this course, I have more positive feelings toward this field of study.

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

37.
38.
39.
40.
41.
42.

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

APPENDIX C

SKILLS TEST

I. RATING SHEET

SKILLS TEST FOR BEGINNING SWIMMERS

Date_____   Course _____   Grader _____

    Use the following scale for rating students swimming abilility. Be concerned only with style.

Poor   1   2   3   4   5   Excellent

Name	Front Crawl	Back Crawl	Elem. Back	Side Stroke	Breast Stroke	

APPENDIX D

RAW SCORES OF STUDENTS

I. RAW SCORES FOR TENNESSEE SELF CONCEPT

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

TABLE 7

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

	1	2	3	4	5	6
Student						
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
Student						
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
Student						
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

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
Student						
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 11

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

	1	2	3	4	5	6
Student						
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
Student						
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
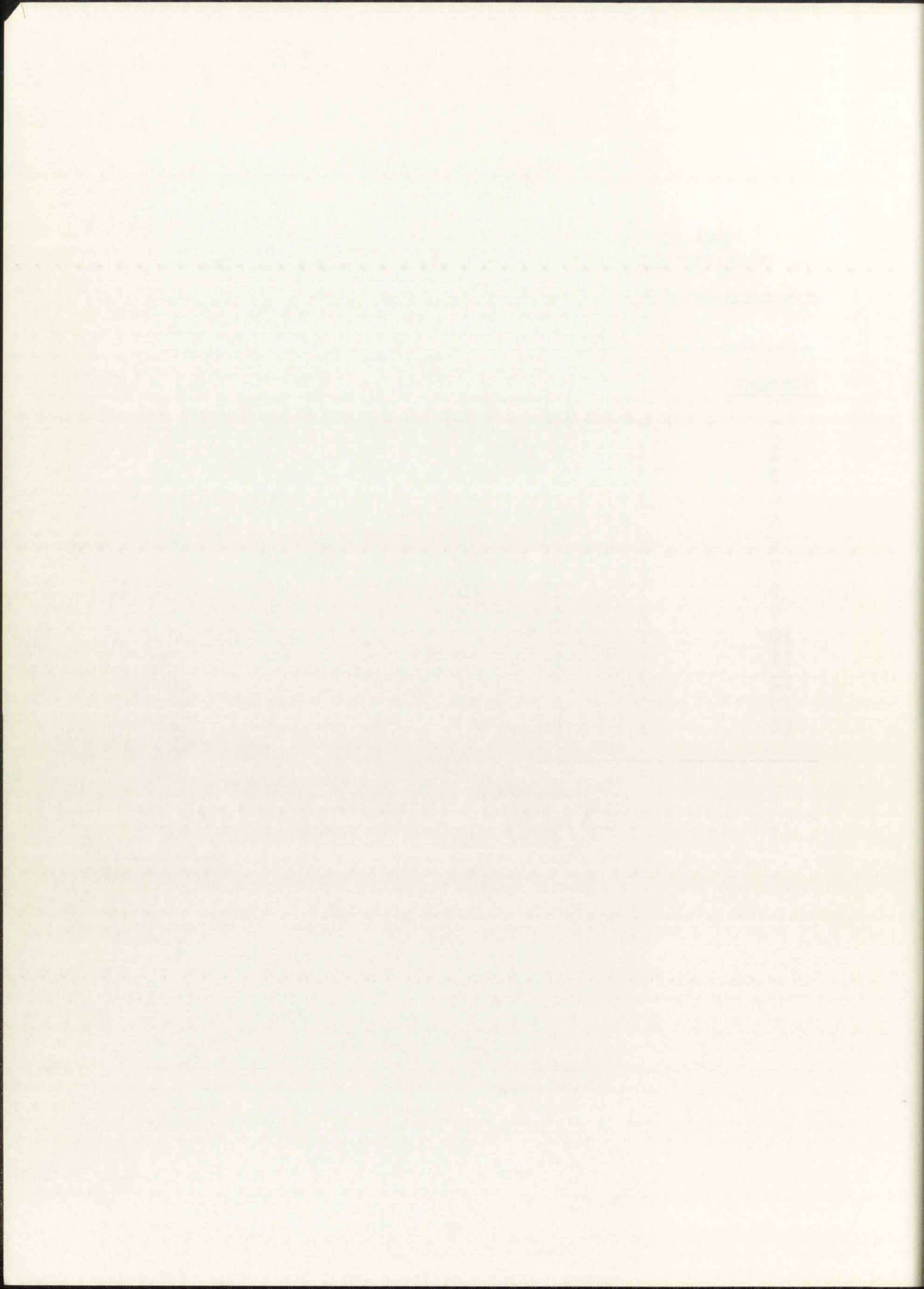
TABLE 13

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

	1	2	3	4	5	6
Student						
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 14

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

	1	2	3	4	5	6
Student						
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

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

Part IV. Methods

	SMALL-GROUPS		COMMAND	
	101-002	101-004	101-001	101-005

A. Involving Students

	101-002	101-004	101-001	101-005
1. Promoted Tchr-Student Discussion	4.4	4.0	3.3	3.7
2. Helped S'S Answer Own Questions	4.3	3.9	3.6	3.9
3. Encrg S'S to Express Selves Freely	4.2	4.4	3.9	4.5
11. Encrg S Comment Even If Irrelevant	4.1	4.0	3.5	3.8

B. Communicating Content and Purpose

	101-002	101-004	101-001	101-005
7. Demonstrated Signif. of Subject	4.1	4.5	3.9	4.4
9. Made It Clear How Much Topic Fit	4.3	4.1	3.9	4.5
12. Summarized in Ways Aiding Retentn.	4.1	4.1	3.5	4.2
14. Stated Course Objectives Clearly	4.2	4.3	4.2	4.4
15. Explained Material Clearly	4.5	4.3	4.4	4.5
16. Related Material to Real Life Sit.	3.8	4.0	3.3	4.2

C. Creating Enthusiasm

	101-002	101-004	101-001	101-005
4. Seemed Enthusiastic About Subject	4.3	4.5	4.1	4.9
6. Was Expressive, Used Varied Tone	4.2	4.2	3.6	4.6
(8) Made Dry and Dull Presentations	1.2	1.9	1.5	1.4
13. Stim Students to High Intel Effort	3.8	3.6	3.1	3.8

D. Sensing Student Needs

	101-002	101-004	101-001	101-005
5. Chgd Approach to Meet New Situation	3.9	3.6	3.5	3.9
10. Explained Reasons for Criticism	4.2	4.1	3.3	3.9

For Items in ( ), Low Scores are Desirable

	SMALL-GROUPS		COMMAND	
	101-002	101-004	101-001	101-005

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

| 1.3 | 1.9 | 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

| 2.3 | 2.1 | 1.8 | 1.6 |

39. I would rate the overall quality of instruction as:

1. Excellent 2. Above Average
2. Average 4. Below Average 5. Poor

| 1.6 | 1.9 | 1.8 | 1.3 |

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
2. Agree 4. Mildly Disagree
5. Strongly Disagree

| 2.9 | 2.7 | 3.2 | 3.1 |

III. RAW SCORES, MEANS SCORES, AND

CORRELATIONS FOR SKILLS TEST

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.

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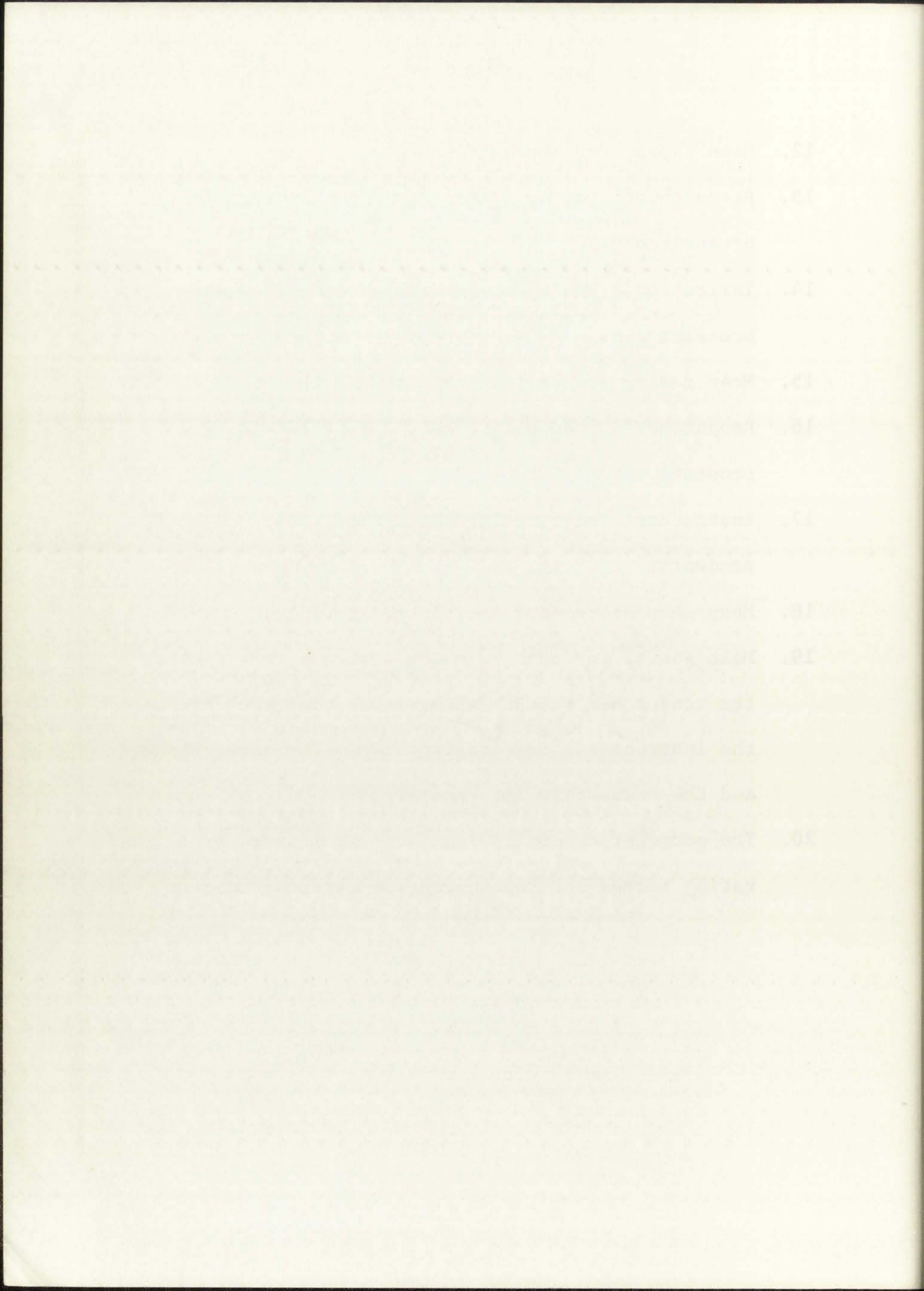
SKILLS TEST, P.E. 101-001, COMMAND GROUP, 4/19/74

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			.593			.507			.802			.691			.833	
		Front Crawl			Back Crawl			Elementary Backstroke			Side Stroke			Breaststroke				

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		

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			.957			.932			.776			.856			.889	
	Front Crawl			Back Crawl			Elementary Backstroke			Side Crawl			Breaststroke					

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			.834			.886			.900			.789			.889	
		Front Crawl			Back Crawl			Elementary Backstroke			Side Stroke			Breaststroke				
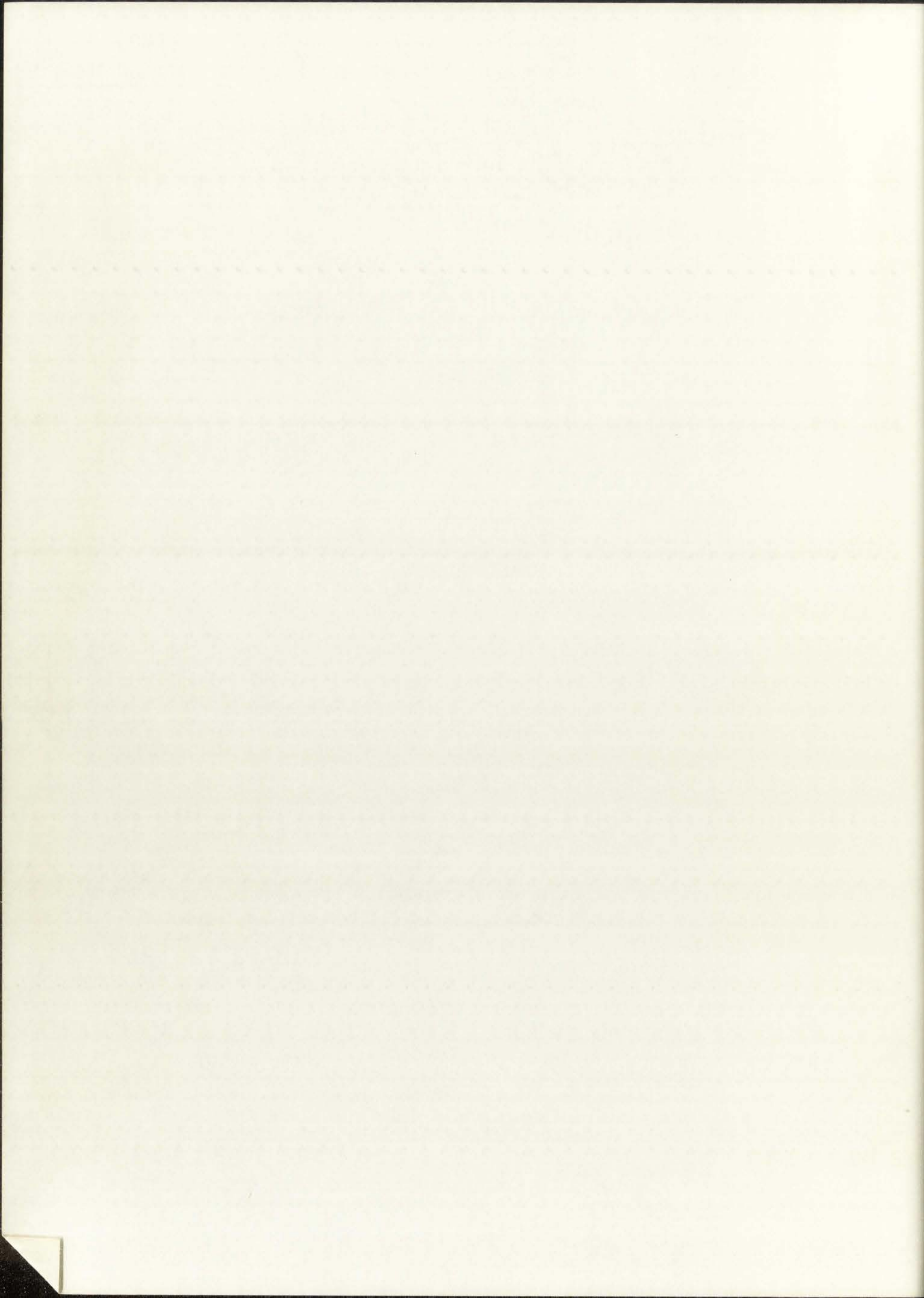
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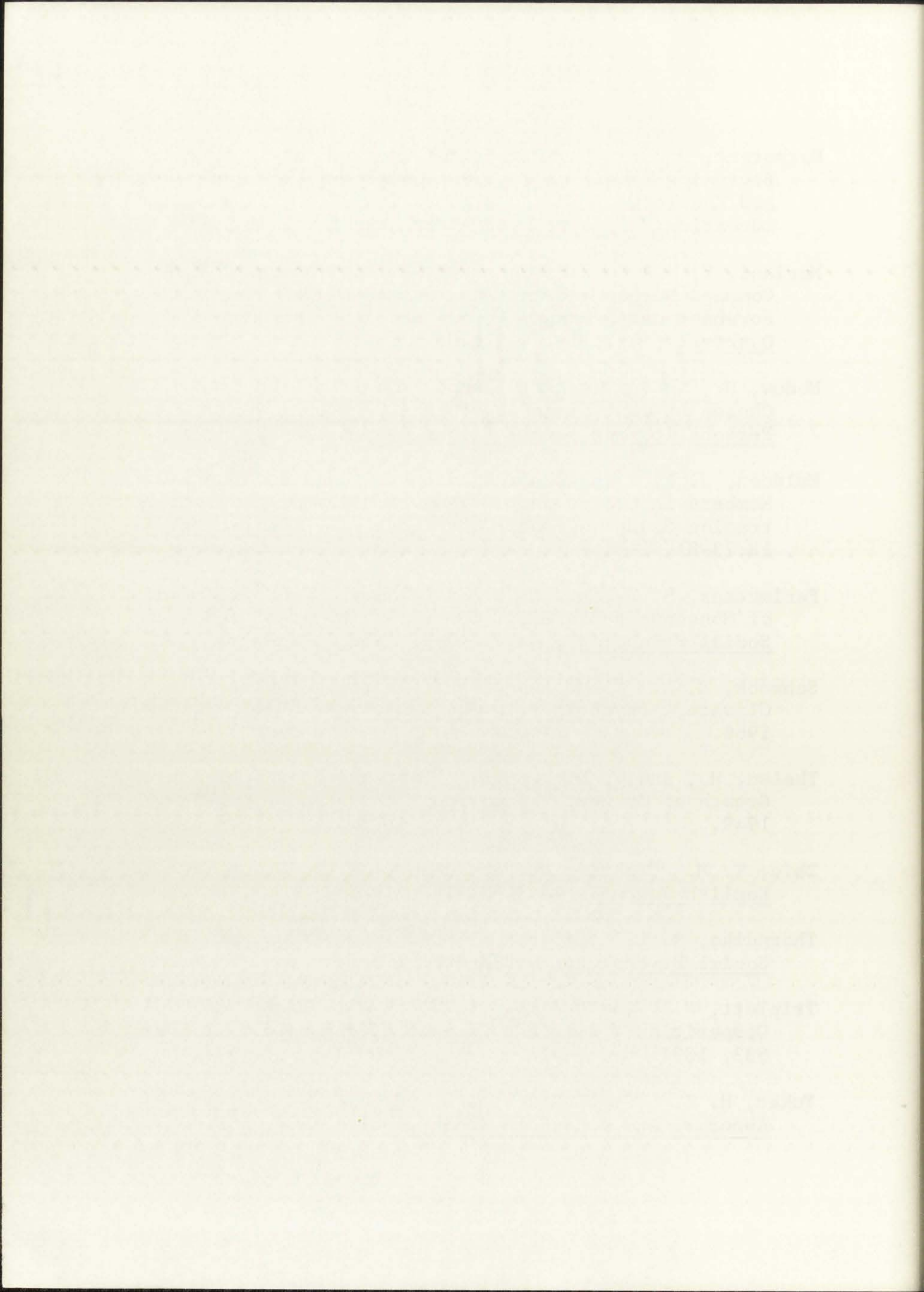
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