A PREFERENCE SCALE FOR THE MEASURE OF
COOPERATION AND COMPETITION IN THE
COMMUNITY COLLEGE CLASSROOM

A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Education, Educational Psychology

by

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To Marianne

for her patience, persistence, perseverance and "Sisu"
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ABSTRACT

A PREFERENCE SCALE FOR THE MEASURE OF
COOPERATION AND COMPETITION IN THE
COMMUNITY COLLEGE CLASSROOM

by

John Paul Benage

Master of Arts in Educational Psychology

The purpose of this study was to develop a scale
that would measure the preferences of community college
students for a competitive or a cooperative classroom
environment.

Items that were used in the development of the
scale were taken directly from three previously developed
scales, modifications of items in these three scales, or
developed by the author of this study, based on the results
of a study on Soviet education. The thirty-three original
items were reduced to fourteen final items on the basis of
an item analysis. This analysis was conducted following
administration of the thirty-three item scale to forty-five
graduate level students. These students were chosen for this administration of the scale because their primary profession was teaching. As professionals in the field of education these graduate students could be considered authorities on classroom environments and thus provide content validity for the scale through a post-test interview.

Reliability for the scale was obtained by administering the fourteen item scale to sixty community college students and deriving a reliability coefficient from the resultant scores. The reliability coefficient was obtained by dividing the sixty scores into half scores through the use of the odd-even method, obtaining a rank-order correlation coefficient, and estimating the reliability of the full length test by the application of the Spearman-Brown prophecy formula.

Construct validity was obtained for the fourteen item scale by the use of a "t" ratio for the difference between means of two groups of forty-five students at different academic levels.

The resulting fourteen item scale is not recommended for any use other than as a research tool. Although significant reliability and validity were observed the samples used may not have allowed for sufficient measure and no norming data has been provided in this study.
Chapter I

THE TASK

The task of this study is to develop a scale that will measure the preferences of community college students for a competitive or a cooperative classroom environment. As of this writing there are no known instruments for these preferences at the community college level. There has been, however, a scale developed to measure these preferences in sixth grade students (Johnson, Johnson and Bryant, 1973). The study by Johnson et al. found three character traits (inducibility, positive cathexis and substituteability) to be significantly more prevalent among students in a cooperative setting than in a competitive setting. Based upon these traits, a fourteen item scale is being developed herein. The fourteen items are operational definitions of these three character traits.

Background and Significance of the Study

Classrooms in the United States have been competitively oriented for the most part throughout the history of American education. In 1949 a major challenge to this orientation was presented in a published theory of
cooperation and competition (Deutsch, 1949). This challenge confronted the way individual and group processes are organized in competitive classrooms. Deutsch continued to research the concepts of cooperation and competition in successive studies through 1962. It was in 1962 that Deutsch described a series of traits which he found to be more highly developed in cooperative groups than in competitive ones. Based on the theoretical work of Morton Deutsch, a study was later published on the classroom environment preferences of students (Johnson, Johnson and Bryant, 1973). In this study by Johnson et al., the series of traits described by Deutsch were synthesized under three headings for the study of preferences for cooperative classroom settings as opposed to competitive ones in sixth grade pupils.

The cumulative levels, described by Johnson et al., have been included as the basis for designing the fourteen items developed herein. As mentioned above, these levels (inducibility, positive cathexis, and substituteability) were found to be better developed in cooperative group settings than in competitive ones (Deutsch, 1962; Johnson et al., 1973). Since there is evidence that these traits are better developed in cooperative settings when compared to competitive ones it appears evident that they should normally be chosen as preferable environmental classroom
settings by cooperatively oriented students more frequently than by competitively oriented students.

Both of the research studies mentioned above have developed systems for measuring the constructs now being considered. Deutsch's system does not lend itself readily to classroom situations. Johnson, Johnson and Bryant's study is aimed at a sixth grade level. Neither of them are described adequately enough in the literature to allow for replication nor is sufficient statistical data provided that would justify the use of either form of measure. A third scale was reviewed prior to attempting the one contained in this report (Sawyer, 1966). But the instrument developed by Sawyer measures more than just cooperation and competition.

The purpose of the instrument being developed here is to measure the preferences of community college students for a cooperative or a competitive classroom environment.

**Definition of Terms**

Appendix IV contains a glossary of terms which may help the reader to more readily understand the text of this report. The operational definitions presented here are for the purpose of describing the major terms to be used in this study.

1. **Competition**—"A striving on the part of two or more persons for the same objective, especially for the
goal of being superior" (English and English, 1970). In the classroom the objective is usually seen as the grade of A; given only to those few individuals at the high end of a grade curve. In terms of scores on the instrument currently being discussed: each item which is scored as either a value of one or two is considered a competitive preference response, a total score of 41 or less on the final fourteen item scale is considered to indicate that the subject is competitively oriented.

2. Cooperation—"... the promotion of common ends or objectives, in such a way, that, the greater the success of one party to the interaction, the greater the success of the other party or parties" (Fairchild, 1974). In the classroom the end or objective need not be a grade but rather the acquisition of knowledge. If the objective is the acquisition of knowledge, the better the understanding one student has of a concept--the more easily assisted are the other students by his/her knowledge. In terms of scores on the instrument currently under discussion: each item which is scored as either a value of four or five is considered a cooperative preference response, a total score of 43 or greater on the final fourteen item response scale is considered to indicate the subject is cooperatively oriented.
3. **Inducibility**—a receptivity toward efforts to persuade. In the fourteen item scale, items 2, 3, 8, 10, 12 and 13 are operational definitions of this term (see Appendix III).

4. **Positive Cathexis**—favorable evaluation by peers within a group. In the fourteen item scale, items 1, 4, 5, 7, 11 and 14 are operational definitions of this term (see Appendix III).

5. **Substituteability**—the factor of interchangeable action or activity within a group. In the fourteen item scale, items 6, 7, 9 and 13 are operational definitions of this term (see Appendix III).

**Limitations and Objectives of the Study**

This study was limited primarily by financial considerations. Further development of the instrument would have been desirable for the purposes of additional reliability and validity tests. Norming data at a local, district and/or national level would also have been desirable but was not attainable when considering the time and money factors. The lack of these qualities provides the instrument with considerable limits. The resulting fourteen item scale should be used only as a research tool in its present form.

The primary concern of this study was to develop an instrument which would measure the preference of
community college students for either a cooperative or competitive classroom environment. A further goal was to perform and describe the development sufficiently enough to allow for possible replication. It was also an objective to develop an instrument with adequate reliability and validity.

**Basic Assumptions**

It is assumed in this report that the items which were borrowed from other sources for the instrument under consideration have an already established construct validity.

It is also assumed that the community college students who participated as subjects during the construction of the fourteen item scale are not atypical members of the community college district population.

**Organization of the Remainder of the Report**

Chapter two consists of a literature review which is divided into two main headings: the first section deals with the comparison of cooperation and competition, the second section reviews previous attempts to measure cooperation and competition. Chapter three considers the methods and procedures used in collecting and analysing the data. It also describes the test development procedures. Chapter four reports the statistical findings.
Chapter five provides a summary, some conclusions and recommendations regarding the scale. The four appendices include item graphs from the initial run, the original draft of the instrument, the final draft and a glossary of terms.
Chapter II

A REVIEW OF THE LITERATURE

The literature on cooperation and competition in the classroom is extensive and requires some background information prior to the actual review of these two environments. After the background material has been provided, this review compares cooperation and competition as alternate environments in the learning process. Finally, the review considers some previous attempts at measuring cooperation and competition.

Competitive classroom environments have been a tradition in the United States throughout its history. This environment, as will any, has left certain social influences upon the individual personality. Permanent social influences on the individual personality occur early in school (Roff, 1960 and 1961). Peer group acceptance as learned and demonstrated in these years has proven to be a significant prediction of early delinquency and early school dropout (Sells and Roff, 1962). This learned peer group acceptance seems to demonstrate a positive correlation with attitudes toward a learning environment. Thus a student who is rejected by his peer group will also
normally show less desirable attitudes toward a learning situation than will the accepted members of the same peer group. Yet these attitudes can be modified through other experiences in school (Gordon, 1966). It is because these attitudes can be modified that society must provide optimum means for growth. Gordon (1966) suggests that this optimum means for growth can be accomplished if the curricula takes into account social and emotional factors so as to consider the student as well as the subject field. Rogers has noted in *On Becoming a Person* (1961) that our present system of formal education has built into it a growing conformity of knowledge, values and attitudes. If this is disturbing to our minds then perhaps a system which allows the student to develop in uniqueness, self-direction and encourages self initiated learning ought to be employed. Perhaps students themselves can give the instructor some indications as to what might prove to be beneficial conditions for learning. The considerations of both Gordon and Rogers seem to indicate a need to seek student attitudes toward classroom climates. The classroom setting, being a primary factor to be considered, seems to surface as the starting point.

In the United States the primary classroom setting has encouraged more competition than cooperation. A direct challenge to this approach was issued by Morton Deutsch in 1949 on at least two separate occasions and was renewed and
expanded upon in 1962. His first assertion, stated in "A Theory of Cooperation and Competition" (1949), maintains that all other factors being equal, the individual in a cooperative setting will possess a greater feeling of unity toward psychological grouping than will the individual in a competitive setting. He also contends that the same trend is evident for sociological grouping. Deutsch's experimental study which supported these findings concludes that it might be well advised for educators to reconsider the assumptions that have been made in support of a common competitive grading system. He rhetorically considers the conduciveness of grading systems toward good student inter-relationships, task-directedness and personal security.

In 1962 Deutsch published a list of findings that were born out of the results obtained in the above mentioned study. The experimental groups referred to in the list consist of a cooperative group which he calls protively oriented to one another and a competitive group which he calls contriently oriented to one another. The list of results indicated:

. . . groups of individuals who were protively oriented to one another, as compared with groups of individuals who were contriently oriented to one another, showed: (a) more coordination of efforts; (b) more diversity in amount of contributions per member (c) more subdivision of activity; (d) more achievement pressure; (e) more communication to one another; (f) more attentiveness to fellow members; (g) more mutual comprehension of communication;
(h) more common appraisals of communication; (i) greater orientation and orderliness; (j) greater productivity per unit time; (k) better quality of product and discussion; (l) more friendliness during discussions; (m) more favorable evaluation of the group and its products; (n) more behavior directed toward helping the group improve its functioning; (o) greater feeling of being liked by fellow members; and (p) greater feeling of obligation and desire to win respect of others (p. 285).

These findings have been grouped for research purposes under the cumulative headings: substituteability, positive cathexis and inducibility (Johnson, Johnson and Bryant, 1973). For the purposes of this study these headings are considered the constructs measured by the scale developed herein. Each item in the scale must describe a situation which includes one or more of the three levels.

Some Comparisons of Cooperation and Competition in the Learning Process

In a study of sixth grade students it was observed that they could generally recognize a competitive classroom setting as being competitive and as being like their own classroom (Johnson et al., 1973). A great number of these students demonstrated a preference for a cooperative classroom environment. These students appeared concerned about this problem but also demonstrated a feeling of helplessness when asked how the change to a cooperative classroom environment might be achieved.

A study of Soviet classroom settings demonstrates that the students there are not only permitted to involve
themselves in the collective educational process but are required to do so (Bronfenbrenner, 1962). Students in the Soviet classroom attend to the collective behavior of the group and claim the responsibility for that group's actions as a single entity. These students not only view the situation as a chance to do something regarding their own education but seem to enjoy learning and helping others learn simultaneously. While it is not the intent here to elevate the Soviet process of education above that of the United States, the comparison does pose some serious questions regarding the effectiveness of our traditional system of education. Although this international comparison is of considerable concern to this report there are further studies regarding only American students which need to be included here.

Pope (1953) found that lower-class boys valued traits such as loyalty and friendliness whereas Lippitt and Gold (1959) found that middle-class boys valued traits such as activity and competition. Lippitt and Gold (1959) also noted that there was considerably less difference between social classes for girls; in both social classes they valued social skills and cooperation.

In a discussion on "Diagnosing Classroom Cohesiveness," Schmuck and Schmuck (1975) noted that in cohesive groups the greater percentage of cooperative relations are
within the group while the greater percentage of competitive relations are external.

Cooperation and Competition
in Terms of Security

A study was conducted to attempt support of a hypothesis regarding the relationship between degree of similarity of the task and competition (Hannah, 1970). Although no single relationship was found Hannah was able to support the theory of Morton Deutsch regarding insecurity in competitive situations. She noted that there appeared to be negative effects on behavior brought about by the insecurity of working alone and by a lack of commonality in task activity.

In Non-support of Cooperative Settings

Although Deutsch has struck a blow for cooperation as an alternative to competition in the classroom as an effective setting for learning, there are certain drawbacks to be considered regarding cooperation as well.

Simon (1968) observed that children in cooperative settings were more conforming than those in competitive settings. In light of the remarks— noted earlier in this chapter— on the growing conformity in education, these findings by Simon do not seem to favor a cooperative approach.
When investigating the attraction to task, Furukata (1964) noted that paired team members of cooperative environments showed no greater attraction toward each other after the task than did paired team members who competed against each other.

In considering work performance of trainable adults there were indications that competition may be a primary factor for trainable retarded subjects (Huddle, 1966). It was further noted in this same study that the poorest working situations resulted when placing these same subjects in a competitive situation without providing a tangible reward.

Some Previous Attempts at Measuring Cooperation and Competition

Although the literature on cooperation and competition is extensive, the instruments used in measuring preferences for these environments are few. Those being reviewed here are representative of what has been published.

Through the use of puzzles and detailed problems in human relations, Morton Deutsch measured the effects of cooperation and competition on group process (1949). The system which was used to measure these effects consisted of fifty-minute periods once a week for twenty weeks and involved fifty subjects. The subjects were first asked to solve logic puzzles and later to solve problems dealing with human relations. Prior to the presentation of the
logic puzzles the subjects were divided into experimental groups which were in turn provided with a set of guidelines that would create either a cooperative or a competitive environment. Trained observers were used to record the data to be used in the measure of the effects of the two environments. Deutsch's study demonstrates numerous results as mentioned earlier in this review. His measuring procedure, however, is too cumbersome and time consuming for the purposes which the scale being developed herein to be used. Also, Deutsch is measuring the effects of cooperation and competition on group process whereas the instrument currently being considered attempts to measure student preferences for a cooperative or a competitive environment.

An instrument for the measure of student preferences for a cooperative or competitive environment was developed by Johnson, Johnson and Bryant (1973). Johnson and his associates provided forty students with three pairs of photographs including captions describing the activity represented by each photograph. Johnson et al. contend that each pair of photographs contains one representation of a cooperative classroom and one of a competitive classroom. Each pair of photographs deals with one of three subjects: either interaction, substituteability, or positive cathexis. The students were shown these photographs during interviews between ten- to fifteen-minutes duration. Each student was asked which depicted situation
was more like school and why. Next each was asked which depicted situation they preferred and why. On the basis of the three response sets these students were classified as perceiving their classroom as either cooperative or competitive and as preferring a cooperative or a competitive classroom. This procedure appears reasonably quick; however, the pictures and descriptions are not available at the present time. It is also doubtful how useful this tool would be at the college level, the subjects in Johnson's study were sixth graders. Further, no statistical data is available on the instrument described by Johnson and his associates.

An earlier scale, described by its authors as an altruism scale, has provided statistical data on its validity and reliability (Sawyer, 1966). This scale by Sawyer proposes to measure cooperation, individualism, and competition as a range of scores. The range provided is from +1.0 to -1.0 with .5 increment steps over the range. Five statements are provided for the subject. The subject is asked to choose one statement as being his/her preference. The preference is assigned a score which is defined in the instrument as being one of the following: competitive preference, between competitive and individualistic preference, individualistic preference, between individualistic and cooperative preference, or cooperative preference. An effort was made to incorporate a modification of the
Sawyer instrument into the scale now being attempted; however, the "Altruism Scale"—as modified for incorporation in this scale—conflicted with the results of the remaining items of the scale herein presented in such a way as to indicate that the measure of individualistic preferences concurrently with the cooperative and competitive preferences conflicted with the overall measure of difference between cooperation and competition. A further discussion of this problem in chapter three will define and describe this conflict more completely.

While this review is by no means exhaustive on the subject of cooperation and competition, it provides a reasonable cross section of the thinking in this field. Since no instrument with available statistical support and/or descriptive procedures has been provided for replication thus far, it is hoped that this attempt toward a viable research tool will provide new and supportive information to the study of this difficult problem.

Summary

The following statements are a summary of the literature just reviewed.

1. Based upon the considerations of Gordon (1966) and Rogers (1961), this study begins an attempt to seek student attitudes toward classroom climates.
2. Morton Deutsch (1949 and 1962) has challenged the traditional competitive classroom environment in several ways.

3. Based upon Deutsch's work and a subsequent study by Johnson, Johnson and Bryant (1973), this study attempts to develop an instrument to measure the constructs of substituteability, positive cathexis and inducibility as levels of cooperation and competition.

4. After considering some comparisons of cooperation and competition in the learning process this review considers three previous attempts at measuring cooperation and competition. This review of scales includes reasons why each scale is inappropriate for the purpose of measuring cooperation and competition in the community college classroom.
Chapter III

METHODS AND PROCEDURES

Chapter two provided some information on previous attempts at measuring cooperation and competition in the classroom. This chapter will be concerned with providing ways to develop an instrument to measure community college student preferences for cooperation and competition in the classroom. Included in these methods for development are the number of subjects used for each step in the development, how the subjects were selected, the academic level of these subjects, how items were selected for the scale, sources from which these items were drawn, ways by which items were included or excluded from the test through an item-analysis, procedures for collecting the data for all portions of this study, and how this data was treated in determining the final outcome of this instrument under construction here.

Subjects

The subjects for the initial study were 45 graduate level students from the Department of Educational Psychology at California State University, Northridge. This level of student was chosen for the initial run so as to obtain a
form of content validity for the retained items, as well as an item discrimination analysis that will demonstrate how items that are retained measure in the same manner and direction as the full scale. Most of these subjects are instructors by profession as well as being students. This instructor-student dual role provides these subjects with a certain expertise regarding classroom environments. These subjects were, therefore, given post-test interviews in order to obtain their authoritative opinions regarding content validity.

Next, 60 community college students from Los Angeles Pierce College were obtained as subjects for reliability testing. Community college students being the target population of the instrument under construction here, employment of these subjects was deemed appropriate for reliability data.

In order to provide the scores for a difference coefficient, 45 high school seniors from Bishop Alamane High School in Mission Hills, California and 45-fourth semester-community college students from Los Angeles Pierce College in Woodland Hills, California were selected.

The selection of the subjects in all of the above runs were on the basis of availability and accessibility. In view of the minimal finances available and the short time span allowable, large blocks of subjects were needed. Although numerous classrooms full of students were available
most of them were inaccessible due to school codes and/or
teacher apprehensions. The subjects that were selected
were chosen on the basis of prior acquaintances the author
had made with their current instructors.

Developing the Instrument

Items for the first draft of the instrument being
developed here were taken primarily from previously
developed scales. A detailed description as to where these
items were obtained from and all modifications made follows
immediately.

Items one through seven of section one are minor
modifications of items used in a teacher evaluation form
developed by "XY Factor" (1975). Items eight through
seventeen of section one are minor modifications, by addi-
tion, to an unpublished teacher evaluation form (Benage,
Jorgensen, Saliem, and Simmons, 1975). Items 2, 6, 12,
and 14 of section two are items constructed by the author
based on research conclusions and observations of Bronfen-
brenner (1962). Items 1, 4, 11, 13 and 15 of section two
are minor modifications of a social attitude scale
(Robinson and Shaver, 1962). Items 7 and 8 of section two
are directly transcribed from the above mentioned social
attitude scale. Items 3, 5, 9, and 10 of section two are
minor modifications of items used in a scale for individual
preference of social norms (Robinson and Shaver, 1962).
Item sixteen of section two is a modification of what has been called an altruism scale by its author (Sawyer, 1966).

All of these items were selected on the basis of how observable the situation described by each item was in a classroom. With the exception of items 2 and 6 of section one and items 2, 3, 7, 8, 10, and 16 of section two, all of the items were also selected on the basis of how well the situation represented one or more of the three character traits—substituteability, positive cathexis and inducibility. Item two of section one and items three and eight of section two were included as attempts to measure the preference of cooperation and competition directly. Item six of section one and items 2, 7, 10, and 16 of section two were included as an attempt at a sub-scale for the measure of preferences for an individualistic classroom environment.

After all of the items were selected and the directions formulated, the first draft of the instrument was given to 45 graduate level students for the purpose of obtaining data for an item analysis. Following the administration of the scale these students were asked individually to comment about the instrument in general and any items in particular that they noticed. The specific comments regarding particular items are included in the item analysis which follows immediately.
The scores for the 45 graduate students in the initial run of this instrument were distributed and the distribution was then divided into quarters using the 25th, 50th and 75th percentiles as dividing points. Mean scores within each quarter were then obtained for each item. These mean scores are plotted on item graphs in Appendix I. The item graphs are set up with a line bisecting the origin and extending out at a 45 degree angle to both axis. This bisecting line might be thought of as representing $r_{11} = +1.00$ on a scattergram. Since the mean scores represent the rank order of the respective quarters, ideally, each graph line should closely resemble the bisecting diagonal line. The closer a graph line resembles this diagonal line, the better the agreement of that particular item to the entire scale.

On the basis of these graph lines for item discrimination and the results of the post-test interviews for content validity, items were selected to remain in the scale or not. The items are considered below in five categories: first are the items intended to define substitutability; these will be followed by those items concerned with positive cathexis; next, those regarding inducibility; then, the items which seemed to directly define cooperation and competition in the classroom; and finally, those items which were intended to produce a sub-scale regarding the
student preferences for an individualistic classroom environment are considered.

**Items Referring to Substituteability**

The items intended to define substituteability which are to be retained for the second draft of the instrument are items 12 and 13 of section one and items 5 and 13 of section two. These four items are considered separately below.

**Item 12, Section One**

Instructors should (as opposed to) Cheating and other forms of collective behavior should never be allowed.

This item is to be modified so as to avoid the word "cheating." In post-test interviews the resounding complaint seemed to be a distinct difficulty with the social context of this one word. The initial intention here was to describe an extreme form of collective behavior in order to balance away from what seemed to be a probable heavy favorite at all levels of the range. Because of this reaction and after viewing the results of the item-graph it seems likely that the item should measure in accordance with other retained items, if slightly modified. The modification chosen here is to insert "Note comparison" for "Cheating."
**Item 13, Section One**

Instructors should make choices available to students. (as opposed to) Well ordered classrooms with specific assignments and schedules are the most sufficient means of education.

The item-graph demonstrates reasonable increase over the first three mean points. The slight drop from $\bar{X}_q^1$ to $\bar{X}_q^2$ seems attributable to the use of the word "instructor." The results demonstrated by this item's graph along with the results of other items using this word prompted further investigation. As a result of this late search, it was discovered that vertical cooperation has been cited as a source for horizontal competition (Stallings, 1971). Therefore it appears that the use of the word "instructor" in this item may have been viewed by the subjects in the final quarter as a competitive situation.

**Item 5, Section Two**

I can depend on another student's notes. (as opposed to) Another student's judgment is probably misleading.

With the exception of a brief upsurge in quarter 2, the item-graph shows a reasonable direct relationship of score increase over quarters. This increase is indicative of an inter-rater reliability. The upsurge in quarter two may have been due to what one subject called a lack of good specificity in the item.
Rewards and punishments should be (as opposed to) applied by comparing one member in reference to the whole. The entire group should benefit or suffer as a consequence of the conduct of the individual members.

While the difference over quarters for this item is only slight, the relationship is direct. According to subjects in the post-test interview the item not only refers to the classroom environment in terms of substituteability but also in terms of inducibility.

In addition to considering the retained items that were designed to define substituteability this section also needs to consider those items intended to define substituteability that are to be excluded from the second draft of the instrument. These items are item one of section one and item one of section two (see Appendix II). The item-graphs for these two items demonstrates a lack of reliability across quarters.

**Items Referring to Positive Cathexis**

Items which define positive cathexis and are to remain in the scale are items 3, 8, and 11 of section one and items 9 and 15 of section two. These items are considered separately below.
Item 3, Section One

The instructor should adapt the course work (as opposed to) to meet the ongoing academic needs of the students.

The course work should normally be established by the instructor at the initial class meeting.

This item demonstrates one of the best item graphs of the scale. The concept of positive cathexis as represented in this item appears to have been recognized and accepted by the cooperatively oriented students while being rejected in favor of a more goal oriented selection by the more competitive students.

Item 8, Section One

Instructors should offer alternative explanations for debatable material. (as opposed to) One sound school of thought should be stressed throughout the program.

The item-graph shows a direct relationship over all four quarters. The scores are admittedly high; however, this was expected as it has been demonstrated in the literature that most students seem to prefer cooperative settings to competitive ones (Johnson et al., 1973).

Item 11, Section One

Teachers should divide the time in class according to an original plan. (as opposed to) Classroom time should be determined by the needs of the students.

The item-graph for these statements shows a good positive, direct relationship of mean score increases across quarters.
Students with a concept of and a preference for positive cathexis would apparently tend to favor classroom time spent as it seems to be appropriate whereas the goal oriented-competitive student would more probably seek to anticipate what will be done next.

**Item 9, Section Two**

There is no place for friendship in academic life. (as opposed to) The schools first function is to meet a social need.

From the item-graph a reasonable amount of inter-rater reliability is observed. The item encompasses, to some degree, all three concepts under consideration but is primarily included as a measure of preference for or against positive cathexis.

**Item 15, Section Two**

If a classmate asks for academic help, it is better to try to avoid lending it. (as opposed to) Being able to help those in need is part of the joy of living.

Fairly strong inter-rater reliability and content validity is indicated. The concept of positive cathexis is afforded a good operational definition in this item.

Three additional items were originally included as definitions of positive cathexis; however, they were all excluded due to a lack of any relationship over quarters. These were items 9 and 16 of section one and item 4 of section 2 (see Appendix II). In addition, item 4 of
section two caused some difficulty for subjects because they found the word "man" as used in this item to be undefinable.

**Items Which Define Inducibility**

Items 5, 7 and 14 of section one as well as items 6, 11 and 13 of section two provide operational definitions of inducibility. With the exception of item 13 of section two which has been considered under substituteability, these items are each considered separately below.

**Item 5, Section One**

All projects completed by students should be (as opposed to) afforded public exposure.

Completed projects are for teacher evaluation only. Although the item graph does not demonstrate a high relationship, it does show a tendency toward a direct relationship. The first three quarters demonstrate this specifically with only a slight drop from quarter three to quarter four.

**Item 7, Section One**

The student should be aided in the technique of meaningful research. (as opposed to) There need be no research training available to the student.

The item-graph shows a direct relationship over all four quarters. The scores are admittedly high; however, this was expected as brought out in the discussion of item eight of section one under positive cathexis.
**Item 14, Section One**

Instructors need to encourage class discussion. (as opposed to) Lectures without flagrant interruption are the surest method of disseminating information.

The item-graph demonstrates reasonable increase over the first three quarters with a very slight drop from $\bar{X}q^3$ to $\bar{X}q^4$. This item was not given any significant attention by subjects in the post-test interview.

**Item 6, Section Two**

The American public educational systems (as opposed to) should place great emphasis on developing people who are well adjusted to society and who take an active responsible role in social life. The American public school system should encourage a self-dependent and individualistic attitude towards life.

The item-graph for this item shows only slight reliability yet the content of the item is in keeping with the scale and is a useful aid in defining inducibility. It was also noted in post-test interviews that this item was of considerable length. This factor may have contributed to the irregularities in the item-graph.

**Item 11, Section Two**

When groups are formed in a class, (as opposed to) competition between groups should be utilized as the principal mechanism for motivating achievement. In group situations individuals should compete for positions within the group.
A very moderate amount of inter-rater reliability is indicated by the item-graph; however, the item defines inducibility well and is otherwise in keeping with the intent of the scale.

Also included in the first draft of this scale in an effort to define inducibility were items 4, 10, 15 and 17 of section one and items 12 and 14 of section two as presented in Appendix II. None of these items showed any tendency toward a direct relationship per the item-graphs in Appendix I. Since these direct relationships are necessary to provide inter-rater reliability, the above mentioned items are excluded from the second draft of this instrument.

Items Intended to Define Cooperation and Competition Directly

While the basic criterion for developing items for this instrument was operational definitions of substitute-ability, positive cathexis and inducibility--three items were discovered during the research which seemed to define cooperation and competition directly. These three items were, therefore, included in the first draft of the instrument. Item 2 of section one and items 3 and 8 of section two were found to have no substantial inter-rater reliability and were not included in the second draft of this scale.
Items Developed for Use in a Sub-scale

The final component included in the first draft of the instrument was a group of items which would hopefully produce a measure of student preferences for an individualistic approach to classroom learning. Item 6 of section one and items 2, 7, 10 and 16 of section two, however, did not produce any usable inter-rater reliability from the first run of the instrument (see Appendix II for the actual items and Appendix I for the item-graphs of these items). Since all of the potential sub-scale items were lacking inter-rater reliability it was decided to drop the sub-scale completely.

Procedures for Collecting Data

Data collected for the above item analyses as well as for the remainder of the study was collected by the researcher. In collecting the data for these item analyses, permission was obtained from three professors at California State University, Northridge to seek the responses of their graduate students to the 33 item scale found in Appendix II of this report. Once the responses of these students were obtained the forms were scored by the investigator and then rank ordered by quarter as described in the item analyses above.
Completion of the item analyses left fourteen items remaining in the scale. These items were renumbered one through fourteen and became the second draft of the instrument (see Appendix III). This second draft was administered to sixty students comprising two Psychology I classes at Los Angeles Pierce College. The procedure for administration and scoring of these responses was the same as used in the run for item-analyses data with the exception that quarter divisions were not used this time.

The final run of the fourteen item scale included two groups. The procedure described above for the sixty Los Angeles Pierce College students was repeated using forty-five fourth semester students from Pierce College for one group. The other group's scores were obtained through the assistance of Sister Lucille Durso and Sister Ellen Hanolan of Bishop Alamaney High School in Mission Hills, California. The forty-five high school students' scores were tabulated from the forms returned to the investigator by Sisters Lucille and Ellen after they had administered them to their respective classes. The forms were then scored to obtain raw scores for both groups.

**Treatment of Data**

Once the data were collected for the first run of the instrument, it was used to develop the item-graphs in Appendix I. These item graphs in turn helped to establish
the consistency of measure between individual items and the full scale as discussed previously in the item-analyses.

Data obtained from the second run of the scale, the fourteen item second draft, were divided into two scores per subject by the odd-even method. From these split halves a rank-order coefficient was obtained. This obtained coefficient was then applied to the full length of the scale as a measure of reliability through the use of the Spearman-Brown Prophecy Formula.

Data from the two groups in the final run of the fourteen item instrument were compared against each other for significant difference by use of a two tail t test.

**Summary**

This chapter has considered the selection of subjects, how the instrument was developed, the way in which the data was collected for each statistical analysis, and how the data is to be treated in each analysis. Chapter IV will be concerned with the findings of this study according to the results of these analyses.
Chapter IV

FINDINGS OF THE STUDY

Chapter III discussed the methods and procedures to be used in developing the fourteen item scale that is the subject of this report. This chapter is concerned with the results of these methods and procedures. The discussions regarding these results will consider the item discrimination analysis, the reliability of the scale, the content validity and the construct validity.

**Item Analysis**

It was found in Chapter III that the items which remained in the scale following the item analysis were items 3, 5, 7, 8, 11, 12 (with modification), 13 and 14 of section one and items 5, 6, 9, 11, 13 and 15 of section two. These items have been renumbered one through fourteen for the second draft of the instrument (see Appendix III). Each of these items demonstrated a reasonable consistency between the single item scores and the total test scores as discussed in the previous chapter and demonstrated on the graphs in Appendix I. Thus, when each of the scores from these retained items is compared to total scores of these
subjects--a form of internal consistency is observed over all retained items,

Reliability

Efforts to estimate reliability are presented here. Sixty community college students, as described in Chapter III, responded to the fourteen item instrument. The mean score for the group was 50.93 with a standard deviation of 4.92 in a possible score range of 14 to 70. Each of these sixty completed scale form scores were divided into halves by the odd-even method. These half-scores were then used to obtain a correlation coefficient through the employment of the rank-order correlation formula. The obtained coefficient of .94 was then used in the Spearman-Brown prophecy formula for split-half reliability. This computation resulted in an estimated reliability coefficient for the full-length test of +.97 from the single administration to these sixty subjects. This obtained coefficient is an indication of good reliability for the fourteen item scale.

Validity

With the results of the item analysis and the correlation coefficient derived from the scores of the sixty community college students there is good evidence that the fourteen item instrument measures something. Whether or not it is measuring what it has been designed
to measure needs to be determined through validity studies. As mentioned in Chapter III, content validity for this fourteen item scale is based on the post-test interviews of forty-five graduate students, most of whom are teachers by profession. It is assumed that because of their profession these subjects are authorities on classroom environments. Although some of the items in the thirty-three item first draft were rejected by one or more of these subjects as not measuring a given situation of cooperation as opposed to competition, none of the items which have been retained for the second draft were challenged (with the previously mentioned exception of item 12, section one) by any one of these forty-five subjects. Therefore, on the authority of these forty-five professionals, the items contained in the second draft appear to measure cooperation and competition in the classroom.

Having established content validity for this fourteen item scale, a determination must be made regarding whether or not it measures student preferences for one environment as opposed to the other. In order to measure this construct a procedure must be described and used. In *Scales for the Measurements of Attitudes*, Marvin Shaw and Jack Wright (1967) report on a procedure, previously described by Chronbach and Meehl (1955), for the consideration of construct validity. The procedure contends that where there is believed to be some difference between two
groups regarding a construct, the measure of that difference by use of an instrument may provide some validity to the instrument used.

It is necessary here to establish a difference between the group of 45 high school seniors and the group of 45 fourth semester community college students described at the beginning of Chapter III. Based on the findings of Roff (1960 and 1961) and Sells and Roff (1963), students from their earliest days of formal education are consistently and continually selected out (a large portion through competitive practices). It is believed that the longer students continue in school the more competitive they become. This belief is supported by the considerations of Rogers (1961) as mentioned in Chapter II, our present system of formal education has built into it a growing conformity of knowledge, values and attitudes. One of these values is competition. A preference for competition may not always be the criterion for any given student's academic success. However, in a random group of those more advanced students it would appear that the learned value of competition has become a greater preference to them than it would have to a lesser advanced academic group. Thus, according to Chronbach and Meehl, the fourteen item scale under consideration here might be provided with some construct validity by comparing the two 45 member groups.
previously mentioned. These two groups were therefore asked to complete the fourteen item second draft of the scale.

Figure 1 on the following page is a representation of the results of the two groups. "U" being the upper level or community college students and "L" being the lower level or high school students. The upper level group mean of 44.18 should normally be considered a relatively low mean. This is in agreement with the findings of Johnson et al. (1973) that most students, regardless of how they perceived their own classroom, seemed to prefer cooperative settings over competitive ones. The lower level group mean of 51.75, however, is at a point just below the upper extreme of the upper level scores, that is 54. A secondary purpose of this graph, however, is to demonstrate the overlap of the two groups. This overlap is both expected and desirable in a validity test of this nature. According to Chronbach and Meehl (1955), without the overlap one might well question the relatedness of the two groups. The comparison for validity purposes is presented here in terms of a "t" ratio of -6.64 with 88 degrees of freedom and is found to have significance at a p = .01 level. The difference in mean scores between the high school and community college students was not likely due to chance. The higher mean for the high school students is consistent with the
$\overline{U} = 44.18$
$\overline{U} = 4.38$
$\overline{L} = 51.75$
$\overline{L} = 6.34$

$U =$ UPPER LEVEL STUDENTS
$L =$ LOWER LEVEL STUDENTS

FREQUENCY OF SCORES

RAW SCORE RANGES

FIGURE 1 COMPARISON OF GROUPS BY SCHOLASTIC LEVEL
reasoning that younger students will have a higher preference for cooperative classroom settings and the validity of scale is supported.
Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The task that has been addressed in this study was to develop an instrument, to be used in research, for the measure of community college student preferences for cooperation and competition in the classroom. The first step was to provide operational definitions for cooperation and competition along with other primary terms to be used. This was followed by some assumptions regarding the procedure used in developing the scale currently being discussed. Next, a review of the literature on cooperation and competition was presented. In this review the primary work considered was that of Morton Duetsch (1949 and 1962) and Roger Johnson, David Johnson and Brent Bryant (1973).

Once this review was completed the original draft of the instrument contained herein was developed. This development was accomplished through direct use, modification and adaptation of items from four separate sources. The original draft of thirty-three items was reduced to fourteen items by means of an item analysis following the first tryout of the instrument. The remaining fourteen items composed the second draft which was then tested for reliability by use of the split-half method. Data for the
reliability estimate was obtained from sixty community college students rating the fourteen items. The items were then divided into two halves by the odd-even method. The scores of the halves were correlated through the use of the rank-order formula for correlation coefficients and corrected to the full-length scale by the use of the Spearman-Brown prophecy formula.

After establishing reliability it was necessary to establish validity. In a preference scale such as this, the two types of validity normally desired are content and construct. Based upon the expert opinions of forty-five instructors the fourteen items in the second draft were reported to hold a content validity. Construct validity is reported in terms of a "t" ratio.

According to the results of the above described procedures the fourteen item instrument is reported to have: good internal consistency and good reliability with a coefficient of +.97, good content validity, and evidence favoring construct validity as reported in terms of a "t" score for difference between means of -6.64. This "t" score demonstrates significance at a p = .01 level with 88 degrees of freedom.

Uses of the Instrument
The instrument developed here has not been intended for any purposes other than purely as a research tool.
Therefore, no meanings are attached to or provided for individual subject scores. This assigning of a value to individual scores would require norming data which at this point has not been attempted and is not desirable until after further research is completed on this scale.

This instrument is reasonably short and can be administered in approximately fifteen to twenty minutes to groups of forty to sixty subjects by one examiner. Statistical use of the data is set up according to a very standard method and could be easily handled by a previously prepared or "canned" computer program. The scale is set up for easy adaptation to IBM Scan-Tron forms should this prove more economical in terms of time and/or money. All the limitations and justifications considered, the instrument appears to be a viable research tool for the purpose to which it was constructed.

Further Work on the Instrument

While the instrument does seem to demonstrate enough soundness at this point to proceed with the research for which it was developed, it is severely limited for a number of reasons. The method of obtaining subjects may not have allowed for a sufficient cross section of the target population to be considered. The inter-item reliability and construct validity coefficients need further support through additional data collection. Only
after the additional support is provided, the research for which the instrument was built is completed, and norming data are established should any other uses outside of research be considered regarding this instrument.
REFERENCES
REFERENCES

Benage, John; Jorgensen, Norval; Saliem, Maher; and Simmons, Jack, under the guidance of Jack Thomson Ed.D. Unpublished instrument, 1975.


APPENDICES
Appendix I

ITEM GRAPHS
ITEM 9
SECTION 1

SCORE RANGE

QUARTER MEANS

ITEM 10
SECTION 1

SCORE RANGE

QUARTER MEANS
ITEM 13
SECTION I

ITEM 14
SECTION I
ITEM 2
SECTION 2

SCORE RANGE

ITEM 3
SECTION 2

SCORE RANGE

QUARTER MEANS

QUARTER MEANS
ITEM 4
SECTION 2

ITEM 5
SECTION 2
ITEM 6
SECTION 2

ITEM 7
SECTION 2
ITEM 8
SECTION 2

ITEM 9
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ITEM 10
SECTION 2

ITEM 11
SECTION 2
ITEM 14
SECTION 2

ITEM 15
SECTION 2
ITEM 16
SECTION 2
Appendix II

THE FIRST DRAFT OF THE INSTRUMENT
Directions

Please answer all questions in accordance with your stronger feeling, that is mark your response in the direction to which you favor more than the alternative offered.

This is NOT a test.

1. You may use pen or pencil.
2. After completion of all items return the evaluation form to the examiner.

PLEASE DO NOT PUT YOUR NAME ON THIS FORM

ALL RESPONSES ARE STRICTLY CONFIDENTIAL

Response Example

Contained in this evaluation form there are thirty paired statements which define the bounds of the response question. Between these defining statements are five response spaces. You are asked to place a mark in the space which best approximates your CONSIDERED JUDGMENT relating to that question. Fill in the space with your mark completely please.

Classes should be shorter. || || || Classes are clearly too short.

A selection of this sort suggests that class sessions could be a little shorter but perhaps are not now extensively long. A mark to the right of center, in this case, would suggest that class sessions could be slightly
longer. The farther a mark moves from center the more extreme the evaluation. Center marks should be used for neutral and non-applicable situations.

### Section I

1) **Instructors should isolate the topic from other disciplines.**

   *Instructors should integrate other fields of study with the topic at hand.*

2) **Instructors should provide for student involvement through group or individual projects.**

   *There is no need for provision of student group or individual projects.*

3) **Instructors should adapt the course work to meet the ongoing academic needs of the student.**

   *The course work should normally be established by the instructor at the initial class meeting.*

4) **Students should normally be confined to the topic.**

   *Students should be encouraged to seek knowledge beyond the topic.*

5) **All projects completed by students should be afforded public exposure.**

   *Completed projects are for teacher evaluation only.*
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<td>6)</td>
<td>The classroom climate should be restrictive to free academic expression.</td>
<td>The classroom climate should be conducive to free academic expression.</td>
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<tr>
<td>7)</td>
<td>The student should be aided in the technique of meaningful research.</td>
<td>There need be no research training available to the student.</td>
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<td>8)</td>
<td>Instructors should offer alternative explanations for debatable material.</td>
<td>One sound school of thought should be stressed consistently throughout the program.</td>
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<td>9)</td>
<td>The instructor should control the flow of his own subject matter.</td>
<td>Direction of the subject matter should be decided collectively.</td>
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<tr>
<td>10)</td>
<td>The instructor should stimulate student interest by raising questions for discussion.</td>
<td>The instructor's role is to direct the type of response appropriate to a given situation.</td>
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<tr>
<td>11)</td>
<td>Teachers should divide the time in class according to an original plan.</td>
<td>Classroom time should be determined by the needs of the students.</td>
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<tr>
<td>12)</td>
<td>Instructors should initiate group activity among the class.</td>
<td>Cheating and other forms of collective behavior should never be allowed.</td>
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<td>13)</td>
<td>Instructors should make choices available to students.</td>
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<td>Well ordered classrooms with specific assignments and schedules are the most sufficient means of education.</td>
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<th>14)</th>
<th>Instructors need to encourage class discussion.</th>
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<tr>
<td>Lectures without flagrant interruption are the surest method of disseminating information.</td>
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<tr>
<th>15)</th>
<th>Instructors should permit students to express opinions which differ from his own.</th>
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<tr>
<td>The professor is the authority on the subject and therefore should supply the most plausible solution.</td>
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<tr>
<th>16)</th>
<th>Instructors need to encourage students to think for themselves.</th>
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<tr>
<td>Multiple choice exams with one direct, singularly correct response are the best measures of learning today.</td>
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<tr>
<th>17)</th>
<th>Instructors should provide helpful comments on papers or exams.</th>
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<tr>
<td>Evaluative tools are ex post facto by nature and need not be considered beyond a derived score.</td>
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### Section II

<table>
<thead>
<tr>
<th>1)</th>
<th>Confidence in fellow students is seldom misplaced.</th>
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<tr>
<td>If you lend knowledge, you will hurt your own academic standing.</td>
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</table>
2) Schools and colleges should teach their students to accept the morals of society and to adjust themselves to community life. The primary purpose of education is to make the student independent and to help him develop his own conceptions of life, moral values.

3) Working for others is a situation of basic insecurity. Group study is the best academic security that a person can have.

4) Since man is basically evil he must be taught to accept society and his innate spontaneity must be constrained by regulations. Man is fundamentally good and will always develop his good faculties under positive environmental conditions.

5) I can depend on another student's notes. Another student's judgment is probably misleading.

6) The American public educational systems should place great emphasis on developing people who are well-adjusted to society and who take an active responsible role in social life. The American public school system should encourage a self-dependent, and individualistic attitude towards life.

7) You can't beat city hall. Where there's a will there's a way.
8) Fraternity life is too dominant because it does not give students a chance to stand entirely on their own feet, to get a real estimation of themselves and to develop their own social relations.

9) There's no place for friendship in academic achievement. The schools first function is to meet a social need.

10) There are no basic values worth striving for except those which come from the individual himself. Man should strive to meet fundamental values which are pointed out by society through formal education in school.

11) When groups are formed in a class competition between groups should be utilized as the principle mechanism for motivating achievement. In group situations individuals should compete for positions within the group.

12) The behavior of the individual should be evaluated primarily in terms of its relevance to the goals and achievements of the group. Individual behavior should always be assessed in terms of personal achievement.
Rewards and punishments should be applied by comparing one member in reference to the whole. The entire group should benefit or suffer as a consequence of the conduct of the individual members.

Students should have a voice in evaluating classmates behavior and in dispensing rewards and sanctions as a result of these evaluations. The objective view of the instructor as a casual observer is the best means of behavior evaluation.

If a classmate asks for academic help, it is better to try to avoid lending it. Being able to help those in need is part of the joy of living.

For this final question a given situation is described below, after you have read this description please respond to one and only one of the five statements provided by circling the corresponding letter.

Suppose you have enrolled in a seminar in which you find that only one other student has enrolled. Each of you will receive a grade of A, B, or C.

Statement A: I am equally interested in how good his grade is and how good my grade is.

Statement B: I am half as interested in how good his grade is as I am in how good my grade is.

Statement C: I am only interested in how good my grade is; how good or poor his grade is makes no difference to me.

Statement D: I am equally interested in how much better my grade is than his and in how good my grade is per se.

Statement E: I am only interested in how much better my grade is than his; I do not care how good my grade is per se.
Appendix III

THE SECOND DRAFT OF THE INSTRUMENT
Directions

Please answer all questions in accordance with your stronger feeling, that is mark your response in the direction to which you favor more than the alternative offered.

This is NOT a test.

1. You may use pen or pencil.

2. After completion of all items return the evaluation form to the examiner.

PLEASE DO NOT PUT YOUR NAME ON THIS FORM
ALL RESPONSES ARE STRICTLY CONFIDENTIAL

Response Example

Contained in this evaluation form there are fourteen paired statements which define the bounds of the response question. Between these defining statements are five response spaces. You are asked to place a mark in the space which best approximates your CONSIDERED JUDGMENT relating to that question. Fill in the space with your mark completely please.

Classes should be shorter. || || || Classes are clearly too short.

A selection of this sort suggests that class sessions could be a little shorter but perhaps are not now extensively long. A mark to the right of center, in this case, would suggest that class sessions could be slightly longer. The farther a mark moves from center the more extreme the evaluation. Center marks should be used for neutral and non-applicable situations.
1) Instructors should adapt the course work to meet the ongoing academic needs of the student. The course work should normally be established by the instructor at the initial class meeting.

2) All projects completed by students should be afforded public exposure. Completed projects are for teacher evaluation only.

3) The student should be aided in the technique of meaningful research. There need be no research training available to the student.

4) Instructors should offer alternative explanations for debatable material. One sound school of thought should be stressed consistently throughout the program.

5) Teachers should divide the time in class according to an original plan. Classroom time should be determined by the needs of the students.

6) Instructors should initiate group activity among the class. Note comparisons and other forms of collective behavior should never be allowed.

7) Instructors should make choices available to students. Well ordered classrooms with specific assignments and schedules are the most sufficient means of education.

8) Instructors need to encourage class discussion. Lectures without flagrant interruption are the surest method of disseminating information.

9) I can depend on another student's notes. Another student's judgment is probably misleading.
10) The American public educational systems should place great emphasis on developing people who are well-adjusted to society and who take an active responsible role in social life.

11) There's no place for friendship in academic achievement.

12) When groups are formed in a class, competition between groups should be utilized as the principal mechanism for motivating achievement.

13) Rewards and punishments should be applied by comparing one member in reference to the whole.

14) If a classmate asks for academic help, it is better to try to avoid lending it.

The American public school system should encourage a self-dependent, and individualistic attitude toward life.

The schools first function is to meet a social need.

In group situations individuals should compete for positions within the group.

The entire group should benefit or suffer as a consequence of the conduct of the individual members.

Being able to help those in need is part of the joy of living.
Appendix IV

A GLOSSARY OF TERMS
This glossary has been developed primarily to provide operational definitions for key terms used in this thesis. The secondary reason—and the one which provided the need for the glossary form—is the need to separate the uses of certain terms, here, from the uses and synonyms contained in much of the literature not referred to in this writing.

**Competition**—"A striving on the part of two or more persons for the same objective especially for the goal of being superior. ___ Personal opposition, usually mutual, is implied: i.e., one works against the competitors success as well as for one's own."¹ The striving, "in its pure form . . . is unconscious, unrecognized, and impersonal;" It is, "... short of open conflict."² "The essence of competition is a clash of interests of such a sort that gratification on the part of one individual or unit precludes gratification on the part of another individual or unit. The basis of competition is found in the finite character of the earth, and in the limited emotional and aesthetical resources of society."³ "... The interaction (among competitors) is normatively regulated, may be direct or indirect, personal or impersonal, and tends to exclude the use of force and violence."⁴
are limited in supply, and demand exceeds supply. Competition is goal- or object-directed."

Types of competition which are specifically not being considered here are:

Self- or Natural Competition--"... the innate desire to improve one's own standards and achievements; competition with oneself to do better than one has done; 'intrinsic motivation.'" 6

Competition according to the early human ecologists--"... The process of competition was seen as occurring without social communication, without personal antagonism, often without even an awareness of the identity of one's competitors. It was seen, in essence, as a basic struggle for existence in a limited environment." 7

Cooperation--"Action on the part of individuals or groups integrated toward a single effect or toward the achievement of a common purpose." 8 "... the promotion of common ends or objectives, in such a way that, the greater the success of one party to the interaction, the greater the success of the other party or parties;" 9 "... the crucial characteristic of cooperation ... is the mutual advantageousness of the relationship." 10

A form of cooperation under specific consideration: Horizontal Cooperation--"Agreeable, helpful relations beyond those actually required among persons of equal rank in a department or industry." 11
Two forms of cooperation which are considered and can be homogeneously grouped:

**Direct Cooperation**--"Cooperation involving the performance of like activities carried out side by side because the individuals engaged in these activities want to do them together, even though they could be done individually. Picking berries and hunting in a group would be examples." 12

**Indirect Cooperation**--"Cooperation based on the performance of unlike activities that complement each other and together achieve a common goal. Indirect cooperation involves a division of labor and the performance of specialized tasks." 13

Types of cooperation which are specifically not being considered:

**Cooperation, Vertical**--"Agreeable, helpful relationships beyond those actually required by the tasks at hand among persons of different ranks in industry or in any hierarchical organization." 14

**Antagonistic Cooperation**--"Cooperation where inevitable antagonisms are suppressed in view of the actually experienced, or forecasted, superior expediency of making common cause." 15

**Coerced Cooperation**--"A distorted semblance of cooperation in which the purposes promoted are not shared by all the individuals or groups whose activities are combined, but where one or more of the individuals or groups join
activities with the others in order to escape punishment rather than for the sake of the activity itself or its direct results."^16

Inducibility--receptivity toward efforts to persuade.

Positive Cathexis--favorable evaluation by peers within a group.

Substituteability--the factor of interchangeable action or activity within a group (If one member has completed an action the others need not.).
Glossary Footnotes


7. Theodorson and Theodorson, op. cit.

8. Good, op. cit.


12. Theodorson and Theodorson, op. cit.

13. Ibid.


15. Fairchild, op. cit.

16. Ibid.