ing task which is being performed, etc. Some of us are beginning to suspect that we may find growth patterns when we examine the developmental processes of groups which may not be too different in their nature from the developmental patterns found for the individual. Perhaps someday we will be able to spell out the growth and development patterns for different kinds of groups.

It seems that the classroom situation is a group situation because of the interdependence and interrelationships which exist there. This gives to those of us who are working in the fields of psychology related to classroom learning two responsibilities: (1) to clarify, through the development of theory and research the group processes which are going on in the classroom, and (2) to help the teacher who is being sent out to the classrooms in our schools to recognize these processes as they occur in the classroom so that he may be better able to contribute to the on-going learning situation. These two jobs will keep many of us busy for a long time to come.


SOCIALLY RELATIONS IN THE CLASSROOM
AND GRADING PROCEDURES

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Editor's Note: To compare the competitive and cooperative systems of grading, the author conducted an experiment with ten sections of five students each in beginning psychology classes, five sections being told that the section as a whole would receive the same grade and five sections instructed that each student would receive a different mark on the basis of his comparison with the other four students. The results of the study are given here.

During the present century there have been marked and far-reaching changes in our conception of education. Perhaps the most fundamental change has been a shift from a rigid emphasis upon having students reach given levels of attainment in certain subject matters to an emphasis upon creating school environments which allow for maximum development of the personality and capacities of the individual student. This shift to a broader view of the function of education has brought with it an increasing interest in both the relationships between the school and other social institutions (e.g., the church, the family, the recreational center, the factory) and in the relationships between teachers and pupils.

Flowing from this interest, there have been many experimental modifications of standard educational policies and procedures. One such modification, a modification of grading procedure, has recently been a matter of considerable controversy. A number of educators have felt that the competitive grading system long employed in many of our schools is harmful to the development of healthy interpersonal relationships. These educators, by and large, have felt that a grading procedure which emphasized cooperative interpersonal relationships would be more beneficial to the social and personality development of the pupils. On the other hand, the proponents of the competitive grading system believe that such a system is necessary to produce maximum individual motivation.
Without such motivation, they argue, the students will not devote sufficient efforts to learning.

The respective merits and demerits of the competitive versus cooperative grading system have been widely discussed, but there has been practically no research which would permit an objective appraisal of these two grading systems. Clearly such research is urgently needed. It is because of this need that we are presenting here a summary of a research study which, though conceived for a different purpose, has relevance to the appraisal of the cooperative and competitive grading systems.

Experimental Procedure

The study was conducted with students who were taking an Introductory Psychology course at the Massachusetts Institute of Technology. At the first meeting of this course, it was announced that the department was interested in doing research on its Introductory Psychology course and that, as part of the research, it was planning to form some small sections to be composed of five students and one instructor. It was asserted that the experimental sections would meet once weekly as a substitute for the regularly scheduled three-one-hour meetings. Nothing specific was stated about the research except that it was research which had the purpose of improving the Introductory Psychology course.

The volunteers were then administered a number of psychological tests—“The A-S Reaction Study”, “The University of California Ideology Questionnaires”, “Wide Range Vocabulary Test”. On the basis of these tests and other “face-sheet” data about them, the most deviant students were eliminated as subjects. From the remaining volunteers, 10 sections of five students each were formed.

All sections met once a week for six consecutive weeks. During the first week the ten sections were observed and rated as they discussed a human relations problem (“A Problem of Discipline in a Children’s Camp”); the ratings of the discussion productively were used to pair off equated sections. Five pairs were thus formed. One section of each pair was then assigned by a random procedure to be graded under a cooperative system, the other to a competitive grading system.


All 10 sections were told that at each class meeting they would be asked to consider themselves as a board of human relations experts. As such, they would be presented with a problem and would be allowed a total of 50 minutes to discuss the problem and to make recommendations, as a group, concerning it. All groups were informed that their course grades would be largely dependent upon the goodness of their discussions and recommendations with respect to the weekly problems. However, different statements were made to the “cooperative” and “competitive” groups concerning the basis for their grades.

The sections that were to be graded cooperatively were told, in essence, that the section as a whole would receive the same grade. The grade would be determined by how well the discussions and recommendations of the section rated in comparison with the efforts of four other similarly constituted sections. The sections that were to be graded competitively were told that each student would be rated in comparison with the other four students composing his section; the grade that each student would receive would be different and would be determined by the relative contributions of each to the solution of the problem with which they were confronted.

To give some feeling for the types of problems that were discussed, three are briefly summarized below:

1. A college president is bothered by the amount of cheating at college and requests help in both the diagnosis and the remedy of the situation.

2. A Jewish person who was a spectator to an anti-Semitic incident in a barber shop requests help in understanding why the incident occurred and suggestions for effective action if he is the object of such an incident or even if only a spectator.

3. A friend of a soldier who is deeply disturbed by infidelity while overseas asks how he can help his soldier friend. The soldier feels extremely guilty and wishes to tell his wife in order to relieve his guilt but fears that his wife, embittered by his father's repeated unfaithfulness to her mother, will break up the marriage. The soldier's problem is complicated by the fact that the girl with whom he had an affair, while overseas, has recently written asking him to send food parcels.

Data were collected by three observers who observed each of the sections discuss the problem it was assigned, in each of the weekly meetings. They observed and recorded such phenomena as: who spoke to whom, the “function” of each participation during the discussion, “attentiveness”, “communication-difficulties”, “acceptance-rejection”, etc. In addition, they rated such things
as the productivity of group discussion, the contributions of each individual, self-centeredness, involvement, friendliness.

The subjects filled out lengthy questionnaires every week after the discussion of the human relations problem. The items on this questionnaire consisted for the most part of rating scales which roughly paralleled those filled out by the observers. Besides such scales as attentiveness, communication difficulties (both as communicator and communicatice), and acceptance-rejection, the subjects rated: interest, group feeling, amount of cooperation in the group, group productivity, productivity of the individual students, anticipated reactions of the others to their own contributions. In addition to the weekly questionnaires, the subjects filled out a lengthy questionnaire one week after the last experimental meeting. This questionnaire covered such things as: when first and last names were learned, amounts and kinds of social activities mutually engaged in by students outside of class hours, reactions to the instructor, to the course, to the grading system, etc.

The Experimental Results

We shall not be able to present the research findings in full here; instead we shall select those findings which bear most directly upon an appraisal of the cooperative and competitive grading systems. The data bear on such questions as: What effects do the two grading systems have upon inter-personal relationships? What effects do they have on inter-personal communication? What effects do they have upon group productivity and learning? What effects do they have upon motivation and orientation to work?

Effects upon inter-personal relationships. The data clearly indicate that the sections which were graded cooperatively were characterized by much friendlier discussions. This result is not only evident in the overall ratings of the "atmosphere" of the section and in the rapidity with which the names of fellow students were learned but also in the categorization of the participations of each student. A greater percentage of encouraging and approving remarks were made in the course of discussions in the cooperative sections; in the competitive sections, on the other hand, there were a considerably larger proportion of aggressive remarks. Further, in the competitive sections, there were more instances of obstinate, obstructive, negativistic behavior. Some students would stubbornly and persistently oppose, without advancing any reason, the views of another student. Similarly there were more instances of "self-defensive" behavior such as "dramatic error", criticizing others who were critical of one's proposals, etc., in the competitive sections.

Not only was the discussion atmosphere friendlier in the cooperative sections, but also the students in these sections evaluated the contributions of their fellow students more positively when asked to rate: "How good were the contributions of the others?" They also were more willing to admit that their thinking during the discussion had been helped by the contributions of the other students and, in discussion, to agree with the suggestions of the students. Further, in contrast to the students in the competitive sections, they were more pleased with the outcome of their group discussions on the various human relations problems.

In addition to having a more positive orientation to the contributions of other group members, the students in the cooperative sections felt that their positive feelings were being reciprocated. That is, they were more likely, than students in the competitive sections, to feel that the other students were paying attention to their ideas and were reacting favorably to them.

Both a stronger feeling of obligation to the other students in the section and a greater desire to win their respect is found in the cooperative sections. Thus, the cooperative situation tends to bring with it a greater sense of identification with the attitudes of others — or, to use a term G. H. Mead has made famous, a greater internalization of the attitude of the generalized other.

The cooperative and competitive sections differ little with respect to the measures of friendliness outside of class. No differences were obtained with respect to frequency or kinds of outside activities jointly engaged in. This result, probably, reflects the relatively small impact of the experimental variation in grading in an Introductory Psychology course upon the total life of the student at M.I.T. In addition, there is evidence to indicate that the thoroughly structured day of the M.I.T. student acts as a restraint against any inclination toward increased sociability which may result from such situations as we were able to create.

Interpersonal Communication. It is relevant to consider the process of communication during the discussion of the problems among the students in the two types of sections. Let us briefly summarize the pertinent results in terms of four aspects of the communicative process: the amount of communication, the attentiveness of the communicators to the communications, the creation of common signification or meaning, and the appraisal of the communications.

2. We shall not present the statistical analysis of our results here. However, the reader should note that any comparative statement, in the text, about cooperative and competitive sections (unless otherwise specified) is significant at the 5% level or better. For a presentation of the results in statistical form, see Deutsch, op. cit.
First of all, it is interesting to note that there is a greater volume of participation among the students in the competitive sections. That is, students in competitive sections talk more frequently than do the students in the cooperative situation. They feel under a greater pressure to express their ideas to each other. However, they feel under less compulsion to listen to each other. Thus, the observers’ ratings indicate rather more attentiveness to each other among students in the cooperative sections. Similarly, the ratings of the students in the competitive, as contrasted with those in the cooperative, sections reveal that they were paying less attention to the others as they spoke and they felt that the others in their section were paying less attention to them.

From this relatively greater inattentiveness in the competition sections, one would expect greater communication difficulties. And so the results indicate. There were more frequent misunderstandings, more frequent need for repetition of what was just said, etc., in the competitive sections. These misunderstandings often slowed up considerably the discussion and helped to create confusion as to where they were in their discussion. The students in the competitive sections more often point out that they not only had difficulty in making sense of what the other members were saying but also that they more often felt frustrated over their inability to communicate their ideas to the others.

The observers rate that there is more acceptance of each other’s ideas in the cooperative sections. Similarly, the ratings by students in such sections reveal that they were more often in agreement with the ideas and suggestions of others and, in addition, that they perceived more agreement from the others than did the students in the competitive sections.

Group productivity and learning. At this point, it is relevant to distinguish between individual productivity and group productivity. Individual productivity refers to the ratings of the contributions of the individual students to the group discussion; group productivity ratings referred to the ideas that were agreed upon and accepted as a basis for action by the group. Thus, if two members of a group each had good ideas which were in conflict and no agreements were reached nor actions taken by the group, group productivity was rated as being low. From the results presented previously, it should follow that the cooperative sections, as groups, would be characterized by a higher productivity. The nature of their group discussions (as rated by the observers), as well as the recommendations they wrote as a group (as rated by independent experts), clearly support this inference— the cooperative sections were more productive both in a quantitative and in a qualitative sense than the competitive sections.

However, the same results are not found with respect to measures of individual productivity. Here the results indicate no significant differences between the individuals in the two types of sections. As individuals, the students in the competitive sections tended to make contributions to the discussion which were rated to be about as good as the contribution made by the students in the cooperative sections.

Similarly, though the differences favor the cooperative students, there are no statistically significant differences in amount of learning from the course. The students in the cooperative and competitive sections, though graded individually and without knowledge of the section from which they came, received approximately the same grades on assignments done outside of class. Also, the reports of the students themselves about their amount of learning from the course indicate no significant difference in this respect between the students exposed to the two different grading systems.

Motivation. Ratings by the observers, as well as by the students themselves, indicate that the students in both types of sections were equally interested and involved in the group discussions. However, the students in the sections that were being graded cooperatively were more strongly motivated by the group goal than were the students in the competitive sections. That is, they felt more pressure to come out with a good set of group recommendations— or, in other words, to complete satisfactorily the task which they were assigned as a group. This is in line with our previously noted finding of a greater sense of group responsibility and feeling of obligation to other students among the students in the cooperative sections.

The students in the competitive sections, on the other hand, were more oriented toward excelling the other members of their section. In addition, the reports by the students reveal that the competitively graded students felt more dependent upon the instructor’s good will and thus they were more often guided in their discussion by thoughts of what would please him. Similarly, the reports of students in the competitive sections disclose that they were rather more self-conscious in the presence of the observers than were the students in the cooperative sections.

One final note. It is of interest to report that the students in the competitive sections at the end of the experiment, by and large,

3. The actual results indicate that the cooperative students made slightly, but not significantly, better contributions than the students in the competitive groups.
stated that they preferred the competitive grading system. On the other hand, the students in the cooperative sections reported that they preferred the cooperative grading system. That is, the students in each type of section came to prefer the grading system to which they had been exposed.

Summary and Conclusions

We have presented results from an experimental study which bears on the controversy over the relative merits and demerits of the cooperative and competitive grading systems. Our results suggest that the inter-communication of ideas, the coordination of efforts, the friendliness and pride in one's group which are basic to group harmony and effectiveness appear to be disrupted when students see themselves to be competing for mutually exclusive goals. There is some indication that competitiveness produces greater personal insecurity (expectations of hostility from others) than does cooperation. In addition, it is evident that greater group productivity will result when members of a group are cooperative rather than competitive in their relationships. However, our study reveals no evidence to indicate that either the cooperative or competitive grading systems produces greater student interest or involvement in his work. Nor is there any evidence in this study that one rather than the other grading system results in greater learning.

The limitations of the experiment should, of course, be kept in mind in evaluating its results. The experimental contrasts in the grading systems took place in only one of many courses that the students were taking. It took place in the context of a long history of student experiences with the competitive grading system. Different results, perhaps more striking results, would have occurred if the systems being studied were compared with respect to the whole school experience rather than with respect to one isolated course.

Despite the obvious limitations of our study, it seems fair to conclude that many educators might well reexamine the assumptions underlying their common usage of a competitive grading system. One may well question whether a competitive grading system produces the kinds of interrelationships among students, the task-directedness, and personal security that are in keeping with sound educational objectives.

ANXIETY IN THE COLLEGE CLASSROOM*

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Editor's Note: This paper surveys the results of several experiments conducted to explore the factor of student anxiety as present in a variety of teaching techniques.

We college teachers seldom stop to face the fact that we know very little about how we affect our students' behavior either in class or out of class. Too often we look upon the classroom as a place in which a teacher utilizes the laws of learning to present material for students to absorb. We become concerned about the personal characteristics of the teacher, neglecting the role he plays in the classroom and his interpersonal relationships with his students. My chief aim in this paper is to suggest that classroom behavior is understandable in terms of students' needs and perceptions. I intend to emphasize anxiety as one of these factors which may influence classroom performance and to interpret experimental results from the viewpoint of the operation of this factor.

The college student who looks toward the front of the classroom sees personified in his instructor the grades which will determine whether he can remain in school, enter graduate school, or obtain a good position upon graduation. It seems reasonable to suppose that he enters the classroom with some anxiety, for grades represent a major gateway in his path toward his major vocational and social goals. In this situation the instructor is the gatekeeper. He can determine whether or not the student passes.

Thus the student's dependence upon the instructor is great. On the one hand he can gain much in prestige and self-satisfaction

*Substantial portions of this paper will appear in the proceedings of the Michigan Academy of Science, Arts and Letters for 1950.