

Education and Distributive Justice

Some Reflections on Grading Systems

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ABSTRACT: *This article starts with the unusual assumption that it may be possible to allocate merit and then raises the question of how merit shall be distributed: Who merits an increase in merit? This question is the springboard for a discussion of distributive justice in education which focuses on the distribution of symbols of educational merit, grades. The article discusses the social function of the artificially created shortage of high marks and considers different characteristics of grading systems. The effects of cooperative and competitive distributive systems are summarized. The article concludes with the question, If the competitive-hierarchical atmosphere (induced by the competitive distribution system used with respect to grades in the classroom) is not good for our children, is it good for us?*

Let me begin by asking you to project yourself into a hypothetical future in which biopsychologists have arrived at a deep understanding of the relationship between brain processes and behavior. Also suppose that they have developed a technology that permits brain processes to be altered by complex training procedures that can be employed with anyone who is willing to undertake the training, provided that the individual's brain is not substantially defective or impaired. Further suppose that three basic types of training procedures have been developed: one that approximately doubles the cognitive capabilities of the trained individual, one that doubles the strength of the individual's drive or motivation to be effective, and one that instills a high level of commitment to the dominant moral values held within the individual's society. An additional supposition is necessary: Each of the three types of training procedures is very costly when done properly; when not done properly they lose their effectiveness and have harmful side-effects. Imagine now that you are the philosopher-king in this hypothetical world of the future. How do you assign these costly and, hence, scarce training resources? To paraphrase a legal scholar, M. H. Shapiro (1974), to

whose ideas I am much indebted: Who merits an increase in merit?

Ability, drive, and character are among the most common criteria identified as underlying the judgment of merit. For our present purposes, let us say simplistically that each of these contributes to the socioeconomic merit of the individual. How would you distribute the training programs and, hence, merit within a given population? Would you award it according to the principle of equal opportunity—so that everyone has the same chance of getting merit—by using a lottery, or first come first served, or some other randomizing procedure? Or would you award it to those most in need of merit—to those who had the least initial ability, motivation, or character? Or would you award merit to those who had the most initial merit? Or would you auction merit or sell access to it in the marketplace, allowing those who are willing and able to pay the most to get the training? In making your choice among different principles of distribution, what values would you be trying to optimize? These and other related questions are intimately related to the topic of distributive justice in education, the larger context within which I wish to consider the subject of this article: grading systems.

Before turning to a discussion of different aspects of distributive justice, let me draw out some of the implications of our hypothetical situation for education. Three of the most important objectives of formal education are cognitive development, the development of the motivation to be

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effective and the related sense of personal effectiveness, and the development of social and moral values. The three hypothetical training methods were selected to be relevant to these three important goals of formal education. It is apparent that current training methods are not as effective as we expect our future methods to be. Nevertheless, even our present ones can be said to distribute merit: There is considerable evidence that indicates that one's occupational status and, to a lesser extent, one's income are influenced by the amount and kinds of schooling one has had (Hauser & Daymont, 1977; Juster, 1975).¹ Moreover, there is some suggestion that initial merit prior to formal schooling, as indexed by early IQ and family background, may interact with the merit derived from schooling to augment the total merit one ends up with: Those with high IQs have a higher net return in occupational status and income for each additional year of education than those with low IQs (Hause, 1975; Turner, 1978). This may be in part because those with high IQs receive a better quality of education and more education than those with low IQs (Rosenbaum, 1976), but it is more likely that those with high IQs gain more from a given amount of education than do those with low IQs. Here, too, the rich get richer.

The term *resource attractors* has been employed by Shapiro (1974) to characterize attributes that tend to attract other resources because they give the possessor an advantage in a competition for these other resources. The attributes of merit—ability, drive, and character—are clearly resource attractors. A student with a high rather than a low degree of these attributes is more likely to get into a top-notch university, to work with a first-rate professor, and so on, and is thus more likely to enhance his or her relative advantage to collect further resources. The result of such an accumulation of attributes that function as resource attractors is to give those who have accumulated these valuable resources the power to determine how further resources will be distributed. They may decide who will be awarded the conditions that favor the development of the attributes of merit, or they may redefine the attributes of merit so that race, class background, sex, and other ascribed characteristics rather than ability, drive, and character become the indicators of merit. They may reshape the system of distributive justice to maintain their relative advantage or to pass it on to their children, even when they or their

children no longer merit the advantage. In brief, the accumulation of power tends to corrupt.

The twin tendencies of the rich to get richer and of power to corrupt pose key problems for a system of distributive justice based on the value of individual merit. Yet an opposing problem arises when one contemplates the possibility of doing without a merit system: Will those who have high merit use and make available the results of their meritorious capabilities if the system of rewards within a society is not responsive to their individual merit? Other dilemmas arise when other distributive principles are employed.

I turn now to a more systematic discussion of distributive justice. The concept of distributive justice is concerned with the distribution of the conditions and goods that affect individual well-being. With regard to any system of distributive justice, one may ask a number of questions to identify the key characteristics of the system. I list below five such characteristics and associated questions with each that are drawn from a larger list I am using in current research on distributive systems in the family, the school, the hospital, and at work:

1. *Content, quality, and quantity of the good or harm being distributed.* What is being distributed, how much of it is available for distribution, and what is its quality?

2. *People involved.* To whom is it being distributed and by whom?

3. *Style and timing of the distribution.* How and when is it distributed? Secretly or publicly? With or without explanation of its meaning and its possible consequences? Wittingly or unwittingly?

4. *Values.* What are the values underlying the distribution?

5. *Effects.* What are the effects of the distributive system on individuals within it, on different categories or groups of individuals, on the interrelations among different individuals and groups, and on the cohesiveness and productivity of the entire system? ²

¹ Note that this is not so true for blacks and females; they are subjected to much greater economic than educational discrimination. Also note that about half of the socioeconomic merit derived from schooling appears to be "pseudomerit" due to credentials rather than increased capabilities resulting from increased education (see Juster, 1975).

² In addition to the questions listed in the text, the following additional questions are used in my research on

Educational systems distribute many different rewards and costs to many categories of people—students, teachers, administrators, parents, taxpayers. Different values and procedures may underlie the distribution of different goods. Thus, some of our preliminary research with teachers indicates that they use different values in distributing attention and grades to their students. In the present article it will be impossible to consider the great variety of distributive systems that exist in education. For illustrative purposes I focus on something so widely distributed in our schools that it might be considered the basic currency of our educational system: I am referring to grades.

Let us consider the distribution of grades among students in a classroom in relation to the questions I listed above.

What Is Being Distributed, How Much of It Is Available, and What Is Its Quality?

There are numerous definitions of what a grade or mark is, but most agree that it is an evaluative symbol meant to be of motivational significance to the student, apart from whatever other institutional functions it performs for parents, school systems, and teachers. The student would presumably be motivated not only by immediate approval or disapproval from his or her teacher, family, classmates, and others who are significant to the student as a result of his or her grades but also by the more distal consequences of the grades—the perceived improvement or worsening of his or her chances to get into desired future educational settings and occupations that employ grades as part of their selection procedures. Of course, if no one in the student's family or peer group cares about grades, or if they are only concerned that he or she obtain passing marks, or if the

distributive systems:

6. *Rules or criteria for defining the values.* What are the rules that are employed to represent the values?

7. *Measurement procedures.* How are the rules implemented?

8. *Decision-making procedures.* What are the procedures for making decisions about any of the foregoing?

9. *Scope of the moral community.* What is the scope of the distributive system? To whom does it apply?

10. *Legitimacy.* How legitimate and acceptable is the distributive system considered to be by the various people involved in it?

11. *Violations.* How are the violations and violators of the distributive system treated?

student's educational and vocational aspirations do not require high academic qualifications, then he or she may not be very motivated by grades.

Grades are meant to be of value to students, and because of their value they are meant to influence students to behave in ways that conform to the views of those who control our educational institutions. It is, of course, natural that the schools serve as a socializing influence on children to accept the dominant values within their society. Grades, by serving as a motivating value dispensed by a controlling authority, enormously facilitate the socialization of the young without resort to excessive violence or bribery by those having authority over students.

What are the values that marks are meant to inculcate? The best way to answer this question is in terms of the correlates of grades. The major personal correlates of grades appear to be cognitive ability (as measured by IQ and other aptitude-achievement tests), effort, educational ambition, a pleasing personal style, and personal values similar to those who dispense the grades. However, it appears from research reported by Boyle (1969) that although a creative personal orientation in a student may enhance growth in cognitive capabilities and academic learning, it leads to a relative deprivation in the grades he or she receives. A reasonable degree of conformity to the values of those who dispense grades appears to be a necessary, though not a sufficient, condition for high marks.

If we examine the individual correlates of grades, of educational merit, it seems evident that they are similar to the characteristics of socioeconomic merit described above: ability, drive, and social character. Now, in the context of merit, there is a strange thing about the distribution of grades in most American school systems: There is an artificially created shortage of good grades to be distributed. High grades are typically limited by grading curves or norms which, in effect, restrict the total number of high grades to be distributed within a group of students.³ These distributions

³ The movement toward criterion-referenced testing is, of course, an attempt to get away from comparative grading. I very much favor such an approach to testing. Whenever possible, accomplishments should be measured in relation to objective criteria rather than by comparing students with one another. However, it is my impression from discussion with many teachers and knowledge of many school systems that criterion-referenced testing still plays only a very minor role in the grading in our schools

are not simply reflections of the "natural" normal distribution of educational achievement among students. I believe the opposite is true: Educational achievement is measured so as to conform to an assumed underlying distribution. The social context of most educational measurement is that of a contest in which students are measured primarily in comparison with one another rather than in terms of objective criteria of accomplishment. If educational measurement is not mainly in the form of a contest, why are students often asked to reveal their knowledge and skills in carefully regulated test situations designed to be as uniform as possible in time, atmosphere, and conditions for all students? Individuals vary enormously in terms of the amount of time they need and the kind of atmosphere and circumstances that facilitate or hinder the expression of their knowledge and skills; it is only the comparison of students with one another that requires measures of educational achievement to take the form of contests.

What function is served by the artificially created scarcity of high marks? On the face of it, such an artificial shortage flouts what we know about the cultivation of ability, drive, and character; namely, if these are manifested, recognizing and rewarding them well are apt to foster their development. Disappointing rewards, induced by an artificial scarcity, are likely to hamper the development of educational merit and the sense of one's own value. A strange thing, this artificially induced scarcity of rewards: Its effects are probably quite opposite to its ostensible purpose, discouraging rather than encouraging the growth of educational merit.

Yet perhaps the artificial scarcity of good grades in the educational system can be justified as a preparation for the realities of adult life in the economic system. Occupational prestige, high earnings, and fulfilling jobs are in scarce supply in the world of work.⁴ In the contest for individual success, grades are to the student what occupational status and income are to the adult. The student's struggle for high grades should pre-

and colleges. It must be recognized that the aims of criterion-referenced testing are not easy to accomplish. It is often extremely difficult to specify the objectives of an educational program in measurable terms without making these objectives trivial. Additionally, it takes the highest technical and scientific skills to develop valid, reliable, and generally usable criterion-referenced measures. These skills are rare and are unlikely to be available for use in day-to-day activities in individual classrooms.

sumably prime him or her for the battle for economic success. Although a student's success in obtaining good marks may indirectly contribute to his or her economic success by enabling him or her to get into a "college track," then into a good college, then into a good medical school, and so on, there is little evidence to support the proposition that college students who get better grades have more economic success than those who obtain poorer grades. The skills in making one's mark economically do not appear to be very similar to those involved in making one's mark educationally.

Perhaps one of the main functions of the artificial shortage of good grades is, as Bowles and Gintis (1976) suggested, to contribute to a belief in the competitive meritocratic ideology. This ideology legitimates socioeconomic inequality by assuming that the allocation of scarce, high-socioeconomic positions in society is based on individual merit as reflected in a fair competition, rather than on social advantage. The scarcity of high grades in the educational system presumably enables schools to engage in a meritocratic process of allocation that corresponds to and justifies the principle of allocation in the economic system. It also fosters patterns of personal development that accommodate the socioeconomic inequalities of the occupational world. Through the repeated and pervasive experience of competitive struggle for scarce goods in the classroom, students are socialized into believing that this is not only the just way but also the natural and inevitable way of allocating scarce values in the larger, impersonal, unfamiliar world. They also learn that there are winners and losers in such competitions and that, although it is possible for them to win, they are more likely to lose.

It is, as I suggested above, not surprising that the school system prepares its students to conform to and accept the ideology, beliefs, and practices of the broader society in which they live. It would be surprising were it not so. I have emphasized

⁴Suppose, for contrast, everyone in a community had equally high merit; in terms of ability, motivation, and character, all were equally qualified to do the more interesting, challenging, and rewarding jobs available in the community. Also suppose that only a small percentage of the jobs were desirable. How would one allocate these scarce good jobs? Would people be assigned by seniority or by random selection? Would people bid for the better jobs? Or would the jobs in the community be restructured so that they were equally good? Having a shortage of merit when there is a shortage of good positions helps to avoid difficult decisions.

the function of the grading system as a central element in creating the correspondence between the educational and occupational systems. It would be a mistake, however, to assume that the correspondence is anywhere close to perfect. There appears to be much more equality and reliance on merit in the educational system than in the economic system. It has been estimated that less than 25% of the workers in the United States are paid according to their individual productivity at work, a much smaller percentage, by the way, than in the Soviet Union. And as I indicated above, there is much less discrimination against women and blacks with regard to grades and educational attainment than there is with regard to income and occupational attainment. One would hope that the greater democracy and meritocracy of the schools places continuing pressure on the broader society for improvement in these respects.

So far in my discussion of the content, quantity, and quality of distributive systems, I have focused on the significance of high marks and on their scarcity. I now turn briefly to a consideration of the quality of grades. Most of us have been on the giving and receiving ends of the distribution of grades and are very much aware of their ambiguities and imperfections. Grades and grade point averages are summary evaluative symbols, but they communicate little clear information about what characteristics have been evaluated or how they have been summarized into a letter or numerical grade. Nor do they commonly specify the frame of reference or standard that is employed in making the evaluational judgment. Moreover, different instructors, different departments, and different schools often vary in important aspects of the grading process.

As Thorndike (1969) and Warren (1971) have suggested, it is evident that the specific information transmitted by grades, as they are usually employed, is often very unclear. The clearest feature in a mark is its evaluative component, and even that has considerable ambiguity when one is uncertain about the frame of reference or standard employed in the evaluation. Thus, I conclude my discussion of the first question with the statement that a high grade is a distributive good of uncertain quality and unspecific meaning, which nevertheless has considerable importance because of its evaluative significance and artificially induced scarcity.

To Whom Is It Being Distributed and by Whom?

Grades are almost always distributed by teachers to students, although in recent years, in some colleges, teachers have also been rated by their students. One could imagine other possibilities than the traditional ones. For example, it is by no means self-evident that the object of grading should exclusively be the individual student. In the adult world, achievement is often the result of group and organizational processes and cannot be easily localized in individuals. Although our preconceptions lead us to localize educational achievement in individual students, educational achievement is very much influenced by the interaction processes among students, the social norms that exist among peers, the group climate, and other group and organizational factors. Focusing on an individual as the sole unit to be graded neglects the social context in which students are enmeshed and to which they contribute; this may lead both students and teachers to pay little heed to developing the skills and motivations necessary to produce the social contexts that facilitate learning by diverse students.

Similarly, it is by no means self-evident that teachers are in the best position and have the best information for grading students. Thus, there is research that indicates that fellow classmates in Officer Training School may be better than the teachers in predicting which students will be more successful as officers. Although fellow students often have more full and detailed knowledge of one another than does the teacher, the teacher usually has more expert judgment and experience. This suggests that grading should be more of a joint responsibility between teachers and students.

Such changes in grading procedures presuppose that teachers and students can develop cooperative relations based on the sense of concordant interests. Cooperative relations are less likely when the teacher-student relation is seen as a superordinate-subordinate relation, or in other words, as being part of a system of hierarchical control in which the teacher has unilateral control over the student as a result of the teacher's superior status in the educational system. Superordinate-subordinate relations tend to breed conflicts over power: A grading system that is completely controlled by the teachers helps to enhance the teachers' power over the students and to buttress their superordinate position. By grading students individually, in

comparison with one another, teachers deflect conflict from themselves by encouraging conflict among the students. They inhibit collective action against them by stimulating the students to compete with one another and by fostering the illusion that learning occurs primarily in the superior-inferior relation and not in relations among peers.

For purposes of contrast, consider the situation where a teacher is not in a superordinate position in relation to his or her students, for example, an army major or a civilian with a PhD in social psychology teaching a class of generals a course in organizational psychology, or a social psychologist conducting a workshop in conflict resolution for presidents of leading corporations. In such situations the teacher is often not labeled as a teacher so as to avoid the status distinctions commonly associated with this label (terms like *consultant*, *facilitator*, *resource person*, or *staff* are commonly used). Nor in such situations would it be likely for the teacher, however he or she is labeled, to use the grading practices common in our schools. It seems evident that these practices are part of the system of hierarchical control that typically characterizes teacher-student relations in our educational system. So far as I know, there is no good research evidence that suggests that the learning of students is inferior if they are not in a subordinate relation to their teachers.

What Is the Style and Timing of the Distribution?

There are many issues that could be discussed here. I limit myself to a brief discussion of the openness versus the secrecy of the basis of the distribution and to a short consideration of many versus few contests. It is evident that the students are in a bewildering position if a teacher marks them without telling them in sufficient detail the values, rules, and procedures employed in his or her grading. In such a situation, the mark-oriented students are necessarily anxiously dependent on the teacher's approval, since they have no other basis for guiding their behavior to achieve merit. If the teacher is influenceable by ingratiation, flattery, or bribery, these may be attempted; if not, the student may try to master all topics of potential interest to the teacher. Where the instructor is explicit in his or her style of grading, the student can be more independent of the teacher. The explicitness of the bases of evaluation, however, may lead the mark-oriented stu-

dents either to limit their work to what is being assessed by the procedures employed in the grading or to attempt to outwit the procedures. For example, managers in the Bell System who are graded or evaluated by "profit indices" often outwit the system by postponing routine maintenance costs; the equipment breakdowns only become evident after several years, by which time the successful manager will have been promoted to a new position. It is not easy to resolve such dilemmas in distributing symbols of merit to those who are primarily motivated to obtain the rewards connected with the appearance of merit; grades, like money, have external value no matter how they have been obtained. Such dilemmas are preventable only to the extent that the distribution system fosters the motivation to achieve intrinsic merit rather than its external symbol.

As I noted above, grading in our schools is like a contest. There are two aspects of the frequency of contests that are worth noting here. The more frequent the contests, the more salient will be the competitive atmosphere generated by contests. On the other hand, the more frequent contests are and the more diverse they are in terms of the talents they demand, the more likely it is that there will be many winners. If there are enough different kinds of contests to go around, it is likely that everyone will experience some victories and some defeats. The existence of many diverse contests diffuses competition and reduces the negative implications of losing any particular contest: It is less harmful to one's self-esteem and social standing. Analogously, a grading system can give rise to frequent or infrequent contests; it may give many an opportunity to win a contest or concentrate the opportunity so that there are few winners. In so doing, it can either intensify or diffuse the competitive character of the grading system.

Contests have different forms. Some take the form of elimination tournaments, and some that of a round robin. In an elimination tournament, if you lose or don't qualify in any given round, you are eliminated from the rest of the tournament. In a round robin, even if you lose in one round of the tournament, you get to play in subsequent rounds, and it is your total score over the series of rounds that counts. There is some evidence that the merit contests our schools put their students through are more like elimination than round-robin tournaments. In a study of tracking in a working-class high school, Rosenbaum (1976)

found that movement between tracks was largely in one direction, from upper to lower. In other words, students who were eliminated from an upper track in any given year were rarely able to get back to this track at a later time. Track placement not only affected the content and level of the students' courses but also their chances of getting into a prestigious college or into college at all. Additionally, a student's reputation for smartness, his or her self-concept, and the stability of his or her IQ were strongly influenced by track placement.

What Are the Values Underlying the Distribution?

In the scholarly discussions of the substantive values that underlie distributive justice, a number of key values have repeatedly been identified (Rescher, 1966). Justice has been viewed as the treatment of all people (a) so that they have equal "inputs" (e.g., so that each student has equal educational resources available to him or her), (b) so that they have equal "outputs" (e.g., so that each student has the resources necessary to enable him or her to achieve a given level of educational attainment even if some students require more inputs than others), (c) according to their needs, (d) according to their ability or potential, (e) according to their efforts and sacrifices, (f) according to their performance or according to their improvement in performance, (g) according to the social value of their contributions, (h) according to the requirements of the common good, (i) so that none fall below a certain minimum, (j) according to what others choose to do for them, and (k) according to the principle of reciprocity.

A teacher could thus use any of the values above, singly or in combination, in distributing grades among students. He or she might, for example, decide to give grades so as to produce equal outputs of student motivation, giving a high-ability student a lower grade than his or her performance warranted, and a student with low ability a higher grade than his or her performance warranted. The teacher might believe that this would be the most effective means of motivating maximum learning from each of the two types of students. Or the teacher might decide to give high grades to those who need them most, for example, to those who needed them to avoid military conscription. Or the teacher might decide to give them to those who work the hardest, those who accomplish the most, or those who help

others the most. Similarly, in the distribution of resources for education among different students, any one or more of several of the different basic values might be employed. It might, for example, be decided that all children—no matter what their initial educational assets or handicaps—be allocated equal inputs such that all schools would receive an equal amount of funds per pupil. Or it might be decided that children with special handicaps because of physical disability, social background, or language differences be provided with extra educational resources so that they could achieve educational success (outputs) equal to that of children without these handicaps. Or it might be decided that those pupils who were considered most apt to contribute to the well-being of the community should be given preferred consideration. Or it might be decided that those with most ability or those who had worked hardest should be given the most resources.

It is evident that these different values may conflict with one another: The most needy may not be the most able; those who work the hardest may not accomplish the most; giving everybody equal inputs may not result in their having equal outputs; treating everyone equally may not maximize the common good. Among the many conflicting values for defining justice, are there any that have a claim for an inherent or natural priority? Elsewhere (Deutsch, 1975) I have presented a theoretical analysis that suggests that the distributive values operative within a group or society will and should depend on circumstances: Under some conditions, distributing goods according to individual need will be more just, and under other conditions, allocating goods in terms of individual productivity will be more so. My theoretical analysis suggests that merit based on individual performance will be the dominant principle of distributive justice in situations where an economic orientation predominates; equality will be the dominant principle in situations where a solidarity orientation predominates; need will be dominant in caring-oriented groups or institutions.

In our society, schools serve as a transition between the caring-oriented family group and the economically oriented, impersonal, competitive world of work. One would expect that at the preschool level, the distributive principles would resemble those of the caring-oriented family—that is, need would dominate—but that as the child (particularly if he or she were from a working- or middle-class background) moved closer to en-

trance into the economy, he or she would be exposed increasingly to a competitive grading system based on merit. If the adult world of work were oriented to communitarian-solidarity values as in Israeli kibbutzim, one would expect that a competitive grading system based on individual merit would play little or no role in the educational system; students would be equally valued as members of a community and would be appreciated particularistically rather than compared on universalistic scales meant to weigh one student against another.

What Are the Effects of the Distribution?

Our scientific knowledge of the effects of different distributive systems is at a very early stage. We are just beginning to know something about the effects of cooperative and competitive distributive systems from research in the social psychology laboratory, in schools, and in industry. There are, of course, many varieties of each of these two types of distributive systems, and in each type, I consider a system in which rewards are affected by individual or group achievement. The fundamental character of a competitive system is that the amount of reward that one person obtains, or the probability of receiving a reward, is negatively linked to the amount of reward that others obtain or to their probability of being rewarded; to the extent I win, you lose. In a cooperative system, the amount or probability of reward is positively linked so that as one's personal situation improves or worsens so do those of the others in the system; to the extent I win, you win, and to the extent I lose, you lose.

There have been recent reviews of the efforts of different classroom reward structures by Johnson and Johnson (1974, 1975, 1979), Slavin, (1977), and Michaels (1977); there is a review by Lawler (1977) of the effects of different reward systems in industry; and I have recently reviewed the social psychological literature related to distributive justice (Deutsch, Note 1). From these various reviews, my general knowledge of the relevant social science literature, and my own past and current research in this area, I draw the following conclusions.

THE STRENGTH OF MOTIVATION

As reflected in effort expenditure and willingness to work, the strength of motivation is not induced more reliably or more intensely by one type of reward system as compared with the other. There

seems to be considerable individual and cultural variability, as well as situational and task influence: Some individuals respond more favorably to one system than to the other. Children in societies with a more collectivist, as compared with an individualistic-competitive, orientation tend to be more responsive to a cooperative reward system: One is motivated to compete more intensely against enemies than friends; the opposite is true for cooperation. Within the United States, one would expect more responsiveness to a competitive system, yet a considerable number of studies have shown no consistent differences between the two systems. The conclusion seems inescapable that neither system is *intrinsically* more motivating; however, task requirements, situational determinants, cultural values, and personality characteristics may predispose an individual to be differentially responsive to cooperation and competition.

INDIVIDUAL PRODUCTIVITY

As it is affected by the two systems, individual productivity is very much influenced by the characteristics of the task. If the task is such that individual performance is facilitated by effective communication with others, by the resources or help others can provide, or by the specialization of roles, then the cooperative reward system produces superior performance. If the task is such that communication and coordination with others is distracting and interfering with task effectiveness, the cooperative reward system produces inferior performance if it leads to attempts to work collectively on the task. If individuals work in isolation on tasks that permit separate work, task performance is not consistently different under the two reward systems.⁵ If personality or cul-

⁵ Michaels (1977), summarizing results from a number of relevant investigations, reported that individual competition was more effective than group competition in six studies, more effective than individual reward contingencies in two studies, and more effective than group reward contingencies in two studies. Unfortunately, a number of these studies were basically flawed: They did not equate the objective probability of reward in the reward structures being compared. In an unbiased comparison between two reward structures, an individual in each of the two reward structures would have the same probability of getting an A or the same probability of getting an F. If an individual objectively had a bigger chance of getting an A in one reward structure than in another, this factor alone might affect his or her motivation to perform on the task. My own recently completed, as yet unpublished research showed no systematic differences in performance on isolated work under several different reward systems.

tural factors predispose a greater motivational responsiveness to one reward system than to the other, and the task is such that increased motivation improves performance, then task performance will be greater in the reward system to which the individual is more positively responsive. The conclusion seems clear that there is nothing intrinsic in competitive reward systems that leads to superior task performance. On the other hand, cooperative reward systems have an intrinsic advantage in relation to tasks that are facilitated by effective communication, coordination, specialization, sharing of resources, mutual help, and the like.

INDIVIDUAL LEARNING

Individual learning appears to be affected by the two reward systems in a manner comparable with the way in which individual task performance is affected. Essentially, there are no inherent advantages to a competitive reward system in any type of traditional learning task, but there are intrinsic advantages to a cooperative system in a variety of learning situations (Johnson & Johnson, 1979). However, each of the two reward systems probably tends to promote the acquisition of the particular types of skills that are instrumental to effective functioning in its system. Thus, David Johnson and his colleagues (Johnson & Johnson, 1979) have demonstrated that social perspective taking (the ability to understand how a situation appears to another and how that person is reacting cognitively and emotionally to that situation) is promoted more by cooperative than by competitive learning experiences. Although I know of no research bearing on other skills involved in cooperation, it seems plausible that a cooperative reward system would more likely promote skills related to team functioning and team building, skills in communication, coordination, trust building, supportiveness, self-disclosure, cooperative conflict resolution, and the like. Similarly, it seems plausible that a competitive reward structure would more likely enhance the development of the gamesmanship and power-utilization skills related to manipulating, outwitting, or intimidating one's adversaries. Stephen Potter and Machiavelli provided descriptions of such skills. I suggest, however, that the acquisition of sophisticated skills of cooperation or competition is not likely to result from mere exposure to or participation in such systems; systematic tutelage may be neces-

sary to produce skills that can be transferred to other contexts.

ATTITUDES TOWARD WORK OR LEARNING

Johnson and Johnson (1979), in their review of recent research findings in primary and secondary schools, stated that "cooperative learning experiences, compared with competitive and individualistic ones, promote greater willingness to present one's answers and more positive feelings toward one's answers and the instructional experience, as well as more positive attitudes toward the instructional tasks and subject areas." They also reported several field studies that demonstrated that students experiencing cooperative instruction like the teacher better and perceive the teacher as being more supportive and accepting, academically and personally, than do students experiencing competitive or individualistic instruction. My early study of cooperative and competitive grading systems (Deutsch, 1949), which used students in introductory psychology sections at the Massachusetts Institute of Technology, found similar results.

The more negative attitudes resulting from the competitive process reflect the more hostile and critical atmosphere induced by competition, which leads students to downgrade others in order to promote themselves and to expect that others will attempt to downgrade them. The downgrading is expressed in such behavior as inattentiveness to others, criticism of others' ideas, obstructiveness, and lack of helpfulness. The more positive attitudes resulting from the cooperative process reflect the more friendly and supportive atmosphere induced by cooperation, which leads students to encourage and help one another and to respond attentively and receptively to each other. As could be expected, these differences not only produce differences in attitudes toward learning, they also affect the level of students' anxiety, their self-esteem, and their attitudes toward and relations with other students. All of these are more negative under the competitive as compared with the cooperative grading system: Students are more anxious, they think less well of themselves and of their work, they have less favorable attitudes toward their classmates and less friendly relations with them, and they feel less of a sense of responsibility toward them.

The more positive effects of the cooperative grading system on individuals are paralleled by more positive effects on groups: Group productiv-

ity on tasks involving interdependence of the group members is higher; communication processes are more effective; there is less misunderstanding, less need for repetition, and fuller transmission of information; there is greater development of specialization among group members, with a consequent increase in diversity of individual activity; there is more effective coordination of the activities of group members; and stronger group norms develop regarding mutual helpfulness and the fulfillment of one's obligations to the group and to other group members.

I do not mean to suggest by this comparative review of cooperative and competitive grading systems that there are no problems associated with cooperative systems. There are a number of typical pathologies that often characterize such systems (Deutsch, 1973). These include the development of vested interests in one's specialized role in the cooperative system, the growth of in-group favoritism that may lead to discrimination against out-group members, and the evolution of excessive conformity and reluctance to question the majority opinion. In addition, there are problems associated with dealing with members who are either unable or unmotivated to cooperate effectively and responsibly. Nevertheless, the research evidence strongly suggests that overall, the advantages of the cooperative grading system outweigh its disadvantages.

Nor do I mean to suggest by my review that competition produces no benefits. Competition is part of everyday life, and the acquisition of the skills necessary to compete effectively can be of considerable value. Moreover, competition in a cooperative, playful context can be fun: It enables one to enact and experience, in a nonserious setting, symbolic emotional dramas relating to victory and defeat, life and death, power and helplessness, dominance and submission; these dramas have deep personal and cultural roots. In addition, competition is a useful social mechanism for selecting those who are more able to perform the activities involved in the competition. Further, when no objective, criterion-referenced basis for measurement of performance exists, the relative performance of students provides a crude yardstick. Nevertheless, there are serious problems associated with competitive grading systems. These problems are, in my view, of sufficient magnitude to suggest that competitive grading, when employed, should be a component in a larger context of continuous, everyday emphasis on the co-

operative aspects of learning. Students need to acquire the skills that enhance cooperation as well as those that enable them to compete, and they need to acquire the attitudes that encourage a sense of community rather than a feeling of alienation.

It is beyond the scope of this article to describe what would characterize an ideal grading system. However, let me point out a few of its essential features. First, an ideal system would foster the view among students that they have a positive interest in the educational attainments of one another. Second, instead of emphasizing comparative evaluations, such a system would provide individualized, particularistic feedback aimed at helping individual students and groups of students to function effectively both as individuals and as groups in achieving educational objectives.⁶ Third, when prerequisites of specific skills and knowledge were necessary for students to engage in a course of study, criterion-referenced rather than norm-referenced tests would be developed and employed to assess the specific skills and knowledge. Similarly, criterion-referenced tests rather than norm-referenced tests would be used when it was necessary to certify the level of a student's educational attainments in a given area.

If our schools were to foster a cooperative system of education where each student stood to gain rather than lose by the achievements of other students, would the competitive, meritocratic ideology that helps to legitimate socioeconomic inequality in our society be undermined? It would undoubtedly be weakened, and the threat of this might well be a source of resistance to any basic, widespread change in the nature of our grading system. As educators and social scientists, we must confront this resistance rationally, by communicating the knowledge that we are accumulating about the consequences of different grading systems to teachers, parents, and others who are concerned about the effects of schooling on our children.

⁶ Some researchers, most notably Slavin (1977) and his colleagues, have found that reward structures that combine intragroup cooperation and intergroup competition are highly motivating to students. The research of Johnson and Johnson (1979), however, suggested that intergroup competition may not be necessary to produce a high motivation to achieve. If such competition is not necessary, then an ideal system would not deliberately foster intergroup competition to supplement intragroup cooperation: Doing so would help to foster antagonistic attitudes toward out-group members.

In addition, I believe we must begin to challenge the assumptions underlying the competitive, meritocratic ideology of our society. We must question whether socioeconomic position in our society is actually distributed on the basis of individual merit. In addition, we must raise issue with the notion that merit belongs solely to an individual, as though its possession were not strongly influenced by social and biological circumstances largely beyond the individual's control. And we must raise doubts about the traditional answer to the question, Who merits merit?—namely, those who have most merit as a consequence of having been more favored with the conditions that foster merit. Finally, we must raise the central question: If the competitive grading system in our schools—a less corrupted version of a competitive merit system than the one that characterizes our larger society—does not foster a social environment that is conducive to individual well-being and effective social cooperation, why would one expect that such values would be fostered in a society that is dominated by a competitive, meritocratic ideology? If the competitive-hierarchical atmosphere is not good for our children, is it good for us?

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