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# Intrinsic Motivation and Academic Achievement

## *What Does Their Relationship Imply for the Classroom Teacher?*

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### ABSTRACT

**E**NCOURAGING CHILDREN'S INTRINSIC MOTIVATION CAN HELP THEM TO ACHIEVE ACADEMIC SUCCESS (ADELMAN, 1978; ADELMAN & TAYLOR, 1986; GOTTFRIED, 1983, 1985). TO HELP STUDENTS WITH AND WITHOUT LEARNING DISABILITIES TO DEVELOP ACADEMIC INTRINSIC MOTIVATION, IT IS IMPORTANT TO DEFINE THE FACTORS THAT AFFECT MOTIVATION (ADELMAN & CHANEY, 1982; ADELMAN & TAYLOR, 1983). THIS ARTICLE OFFERS EDUCATORS AN INSIGHT INTO THE EFFECTS OF DIFFERENT MOTIVATIONAL ORIENTATIONS ON THE SCHOOL LEARNING OF STUDENTS WITH LEARNING DISABILITIES, AS WELL AS INTO THE VARIABLES AFFECTING INTRINSIC AND EXTRINSIC MOTIVATION. ALSO INCLUDED ARE RECOMMENDATIONS, BASED ON EMPIRICAL EVIDENCE, FOR ENHANCING ACADEMIC INTRINSIC MOTIVATION IN LEARNERS OF VARYING ABILITIES AT ALL GRADE LEVELS.

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**I**NTEREST IN THE VARIOUS ASPECTS OF INTRINSIC and extrinsic motivation has accelerated in recent years. Motivational orientation is considered to be an important factor in determining the academic success of children with and without disabilities (Adelman & Taylor, 1986; Calder & Staw, 1975; Deci, 1975; Deci & Chandler, 1986; Schunk, 1991). Academic intrinsic motivation has been found to be significantly correlated with academic achievement in students with learning disabilities (Gottfried, 1985) and without learning disabilities (Adelman, 1978; Adelman & Taylor, 1983). However, children with learning disabili-

ties (LD) are less likely than their nondisabled peers to be intrinsically motivated (Adelman & Chaney, 1982; Adelman & Taylor, 1986; Mastropieri & Scruggs, 1994; Smith, 1994). Students with LD have been found to have more positive attitudes toward school than toward school learning (Wilson & David, 1994). Wilson and David asked 89 students with LD to respond to items on the School Attitude Measures (SAM; Wick, 1990) and on the Children's Academic Intrinsic Motivation Inventory (CAIMI; Gottfried, 1986). The students with LD were found to have a more positive attitude toward the school environment than toward academic tasks. Research has also shown that students with LD may derive their self-perceptions from areas other than school, and do not see themselves as less competent in areas of school learning (Grolnick & Ryan, 1990).

Although there is only a limited amount of research available on intrinsic motivation in the population with special needs (Adelman, 1978; Adelman & Taylor, 1986; Grolnick & Ryan, 1990), there is an abundance of research on the general school-age population. This article is an attempt to use existing research to identify variables pertinent to the academic intrinsic motivation of children with learning disabilities. The first part of the article deals with the definitions of intrinsic and extrinsic motivation. The next part identifies some of the factors affecting the motivational orientation and subsequent academic achievement of school-age children. This is followed by empirical evidence of the effects of rewards on intrinsic motivation, and suggestions on enhancing intrinsic motivation in the learner. At the end, several strategies are presented that could be used by the teacher to develop and encourage intrinsic motivation in children with and without LD.

## DEFINING MOTIVATIONAL ATTRIBUTES

### ***Intrinsic Motivation***

*Intrinsic motivation* has been defined as (a) participation in an activity purely out of curiosity, that is, from a need to know more about something (Deci, 1975; Gottfried, 1983; Woolfolk, 1990); (b) the desire to engage in an activity purely for the sake of participating in and completing a task (Bates, 1979; Deci, Vallerand, Pelletier, & Ryan, 1991); and (c) the desire to contribute (Mills, 1991).

Academic intrinsic motivation has been measured by (a) the ability of the learner to persist with the task assigned (Brophy, 1983; Gottfried, 1983); (b) the amount of time spent by the student on tackling the task (Brophy, 1983; Gottfried, 1983); (c) the innate curiosity to learn (Gottfried, 1983); (d) the feeling of efficacy related to an activity (Gottfried, 1983; Schunk, 1991; Smith, 1994); (e) the desire to select an activity (Brophy, 1983); and (f) a combination of all these variables (Deci, 1975; Deci & Ryan, 1985). A student who is intrinsically motivated will persist with the assigned task, even though it may be difficult (Gottfried, 1983; Schunk, 1990), and will not need any type of reward or incentive to initiate or complete a task (Beck, 1978; Deci, 1975; Woolfolk, 1990). This type of student is more likely to complete the chosen task and be excited by the challenging nature of an activity. The intrinsically motivated student is also more likely to retain the concepts learned and to feel confident about tackling unfamiliar learning situations, like new vocabulary words.

However, the amount of interest generated by the task also plays a role in the motivational orientation of the learner. An assigned task with zero interest value is less likely to motivate the student than is a task that arouses interest and curiosity. Intrinsic motivation is based in the innate, organismic needs for competence and self-determination (Deci & Ryan, 1985; Woolfolk, 1990), as well as the desire to seek and conquer challenges (Adelman & Taylor, 1990). People are likely to be motivated to complete a task on the basis of their level of interest and the nature of the challenge. Research has suggested that children with higher academic intrinsic motivation function more effectively in school (Adelman & Taylor, 1990; Boggiano & Barrett, 1992; Gottfried, 1990; Soto, 1988). Besides innate factors, there are several other variables that can affect intrinsic motivation.

### ***Extrinsic Motivation***

Adults often give the learner an incentive to participate in or to complete an activity. The incentive might be in the form of a tangible reward, such as money or candy. Or, it might be the likelihood of a reward in the future, such as a good grade. Or, it might be a nontangible reward, for example, verbal praise or a pat on the back. The incentive might also be exemption from a less liked activity or avoid-

ance of punishment. These incentives are *extrinsic motivators*. A person is said to be extrinsically motivated when she or he undertakes a task purely for the sake of attaining a reward or for avoiding some punishment (Adelman & Taylor, 1990; Ball, 1984; Beck, 1978; Deci, 1975; Wiersma, 1992; Woolfolk, 1990).

Extrinsic motivation can, especially in learning and other forms of creative work, interfere with intrinsic motivation (Benninga et al., 1991; Butler, 1989; Deci, 1975; McCullers, Fabes, & Moran, 1987). In such cases, it might be better not to offer rewards for participating in or for completing an activity, be it textbook learning or an organized play activity. Not only teachers but also parents have been found to negatively influence the motivational orientation of the child by providing extrinsic consequences contingent upon their school performance (Gottfried, Fleming, & Gottfried, 1994). The relationship between rewards (and other extrinsic factors) and the intrinsic motivation of the learner is outlined in the following sections.

## MOTIVATION AND THE LEARNER

In a classroom, the student is expected to tackle certain types of tasks, usually with very limited choices. Most of the research done on motivation has been done in settings where the learner had a wide choice of activities, or in a free-play setting. In reality, the student has to complete tasks that are compulsory as well as evaluated (Brophy, 1983). Children are expected to complete a certain number of assignments that meet specified criteria. For example, a child may be asked to complete five multiplication problems and is expected to get correct answers to at least three. Teachers need to consider how instructional practices are designed from the motivational perspective (Schunk, 1990).

Development of skills required for academic achievement can be influenced by instructional design. If the design undermines student ability and skill level, it can reduce motivation (Brophy, 1983; Schunk, 1990). This is especially applicable to students with disabilities. Students with LD have shown a significant increase in academic learning after engaging in interesting tasks like computer games designed to enhance learning (Adelman, Lauber, Nelson, & Smith, 1989). A common aim of educators is to help all students enhance their learning, regardless of the student's ability level. To achieve this outcome, the teacher has to develop a curriculum geared to the individual needs and ability levels of the students, especially the students with special needs. If the assigned task is within the child's ability level as well as inherently interesting, the child is very likely to be intrinsically motivated to tackle the task. The task should also be challenging enough to stimulate the child's desire to attain mastery.

The probability of success or failure is often attributed to factors such as ability, effort, difficulty level of the task,

and luck (Schunk, 1990). One or more of these attributes might, in turn, affect the motivational orientation of a student. The student who is sure of some level of success is more likely to be motivated to tackle the task than one who is unsure of the outcome (Adelman & Taylor, 1990). A student who is motivated to learn will find school-related tasks meaningful (Brophy, 1983, 1987). Teachers can help students to maximize their achievement by adjusting the instructional design to their individual characteristics and motivational orientation. The personality traits and motivational tendency of learners with mild handicaps can either help them to compensate for their inadequate learning abilities and enhance performance or retard their academic achievement by intensifying their learning deficits (Adelman, MacDonald, Nelson, Smith, & Taylor, 1990; Black, 1974; Grolnick & Ryan, 1990; Soto, 1988; Switzky & Schulz, 1988; Wilson & David, 1994).

Students in one classroom may differ in their levels of cognitive development. To develop a curriculum that will challenge and motivate each learner, it is crucial to know the developmental level of the children (Gottfried, 1983). Piaget's theory of child development stipulates that children act on their environment, and vice versa, and that it is through this interaction that learning takes place. An environment that promotes mastery motivation is one where children are likely to perceive successful outcomes of their actions (Gottfried, 1983; Weiner, 1979).

### ENHANCING INTRINSIC MOTIVATION—RESEARCH BACKGROUND

A student's lack of achievement in school may be a result of her or his expecting to perform poorly on an assigned task or perceiving school personnel and activities as threats to her or his self-determination, competence, or sense of relatedness (Adelman & Taylor, 1990). With this in mind, intervention should focus on strategies to replace threatening or intimidating situations and tasks. This could be achieved by (a) eliminating, or at least minimizing, external pressures (e.g., rewards); and (b) by developing an intrinsically motivating activity. Classroom climate and teacher interaction with students have been found to play a crucial role in influencing student achievement and motivation (Brophy, 1987; Cunniff, 1989; Grolnick & Ryan, 1990).

Options alone are not sufficient to enhance intrinsic motivation (Woolfolk, 1990). Also necessary is a structure that encourages and supports student involvement in the decision-making process. Feedback on student progress must include effectiveness of the decisions made by the student, in addition to evaluation of the task performance (Adelman & Taylor, 1990; Deci & Ryan, 1985). In some settings, intervention strategies might need to focus on alternatives capable of stimulating greater feelings of self-determination, of competence, and of being related to

others (Adelman & Taylor, 1990; Brophy, 1987). Some researchers have found that the academic intrinsic motivation of students with LD can be increased with attribution training (Adelman & Chaney, 1982; Borkowski, Weyhing, & Carr, 1988; Rawson, 1993; Schunk & Cox, 1986; Shelton, Anastopoulos, & Linden, 1985). However, other research has shown no significant difference after attribution training (Fulk, Mastropieri, & Scruggs, 1992; Okolo, 1992).

Motivational analyses of the problem to be tackled can point to corrective steps for implementation by teachers, clinicians, parents, or the students themselves. The intervention must deal with the initial attitudes these youngsters are likely to bring, and be able to enhance the youngsters' motivational readiness and maintain the youngsters' positive intrinsic motivation. A variety of empirically validated strategies to enhance intrinsic motivation in the classroom are presented at the end of this article.

### REWARDS AND MOTIVATION— RESEARCH BACKGROUND

Although external rewards have been used in the classroom for more than a century to bring about desired behavior, their efficacy is being questioned by educators and parents alike. Researchers have found that tangible rewards and other extrinsic motivators can have detrimental effects on the intrinsic motivation of the learner (Beck, 1978; Deci, 1975; Deci & Ryan, 1985; Greene & Lepper, 1974; McCullers et al., 1987; Rummel & Feinberg, 1988; Zbrzezny, 1989). If a student is told that she or he will earn a desired reward for participating in or successful completion of a task, that student is less likely to tackle the same task when no incentive is offered. (For more information on the effects of rewards on intrinsic motivation, read meta-analyses by Cameron & Pierce, 1994; Rummel & Feinberg, 1988; and Wiersma, 1992.)

Rewards or punishment used to control behavior are often perceived by the learner as stressful (Deci & Ryan, 1985). Self-determination can be limited if students perceive rewards as controls upon their task performance (Adelman & Taylor, 1990; Dollinger & Thelen, 1978; Harackiewicz, 1979; Zbrzezny, 1989). Intrinsic motivation prompts an individual to seek out challenges, to choose to participate in a task, to feel competent, and to feel part of a community (Deci & Ryan, 1980; Deci et al., 1991; Gottfried, 1983; Woolfolk, 1990). Rewards contingent on task performance or level of achievement can, therefore, affect the forces of intrinsic motivation negatively.

In one study, students who were offered rewards not relevant to their performance lost interest in the task even when they had been successful during a previous attempt (Karniol & Ross, 1977). Some professionals suggest that educators should consider employing reinforcers related to academics or school activities, for example, choice of home-

work, grade points, field trips, more free time, and computer use (Reynolds, Salend, & Beahan, 1992).

There are, however, researchers who have found the opposite to be true. For example, Kruglanski et al. (1975) found that tangible reinforcers associated with the task enhanced intrinsic motivation, but those not associated with the task decreased intrinsic motivation in the learner. However, the effects of noncontingent rewards on the intrinsic motivation of the student are not clear (Calder & Staw, 1975; Karniol & Ross, 1977). In some cases, positive feedback has been shown to enhance intrinsic motivation, independent of any other reward offered (Cameron & Pierce, 1994; Harackiewicz, 1979; Zbrzezny, 1989), or to have no effect on subsequent intrinsic motivation of the subject (Dollinger & Thelen, 1978).

There is also a body of research that has yielded mixed results. Rewards in the form of verbal praise were found to enhance the intrinsic motivation of boys but inhibit that of girls (Boggiano, Main, & Katz, 1991; Zinser, Young, & King, 1982). If the reward is unexpected, it usually does not have any effect on the intrinsic motivation of the learner (Greene & Lepper, 1974; Lepper & Greene, 1975). In a study done on 24 preschool children, those who initially had high interest and received a reward had lost interest when observed a week later, whereas the children who initially had low interest who were rewarded gained interest (Loveland & Olley, 1979). In a study by Boggiano, Harackiewicz, Bassette, and Main (1985), performance-contingent rewards were found to enhance the intrinsic motivation of the 65 kindergartners studied, whereas task-contingent rewards did not enhance subsequent intrinsic motivation. Therefore, teachers who assign a task without offering any type of reward or incentive contingent upon task participation or completion, and then reward the participant for tackling or completing the task, will probably not affect the intrinsic motivation of the learner. Also, teachers should be cautious about praising female learners, stating the conditions for receiving a reward, and offering rewards to already motivated students. Such caution, however, is appropriate only if the empirical evidence supporting these hypotheses is reliable. It is possible, for instance, that other variables might be affecting the influence of rewards on intrinsic motivation. The influence of some of these variables depends to a great extent on the measures used to operationalize intrinsic motivation (Wiersma, 1992).

Motivational orientation can change with the cognitive development of the learner. Those students who are able to delay the gratifying effect of a reward are considered more mature and less likely to be affected by the quantity of the reward (Sarafino, Russo, Barker, Consentino, & Titus, 1982). Research has also shown that the ability to delay gratification is not associated with the intrinsic interest of the subjects observed (Ross, Karniol, & Rothstein, 1976). The effect of rewards on subsequent intrinsic motivation of the learner might also be affected by the type of

reward offered. When the reward is highly desirable to the subject, intrinsic interest in the task is likely to decrease (Ross, 1975).

Reynolds, Salend, and Beahan (1992) examined the reinforcement preferences of 110 secondary students with disabilities. They hypothesized that students are more likely to be motivated to perform an assigned task when they select the reinforcer themselves. The sample consisted of

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81 males and 29 females, all with disabilities. The students were asked to rate 90 potential reinforcers using a 3-point Likert scale. A reinforcement survey, the Children's Reinforcement Survey Schedules Form C (Cautela, Cautela, & Esonis, 1983), was adapted for secondary students. The sample group was found to prefer less intrusive higher level reinforcers. The majority of potential reinforcers were academically or activity oriented. The students also indicated a preference for reinforcers delivered by their parent(s).

Kruglanski et al. (1975) investigated the interaction between intrinsic motivation and extrinsic motivators on 48 boys between the ages of 14 and 15 years. The researchers hypothesized that intrinsic motivation would be enhanced by a reward whenever it is associated with a task, but that the introduction of a reinforcer not normally associated with the task may decrease the desire to engage in the task. The results of this experiment supported their hypotheses. They also found that interest in an activity that was stimulating and engaging for the subject decreased when rewards were made contingent only upon participation. These researchers contended that reinforcing mere participation in an activity may not be as beneficial as has been believed. Also, linking a reward too closely and too often to a task may be harmful to long-term maintenance of that behavior.

Research has also shown that rewards may not have a detrimental effect on the subsequent intrinsic motivation of learners. In a study done by Vasta, Andrews, McLaughlin, Stirpe, and Comfort (1978) on 12 kindergarten and first-grade children, the data showed that extrinsic reinforcers did not undermine the intrinsic motivation of the subjects. However, these researchers cautioned against using reinforcers indiscriminately. In a meta-analysis of 101 experi-

mental studies, Cameron and Pierce (1994) evaluated the effects of rewards and reinforcement on intrinsic motivation. They concluded that, overall, rewards and reinforcement do not decrease intrinsic motivation, but that verbal praise can increase intrinsic motivation. They also found that expected tangible rewards given for simply completing a task can have a detrimental effect on the individual's intrinsic motivation. The subjects in the studies were a mixture of adults and children, in a variety of settings.

## SUGGESTED APPLICATIONS

Professionals in the field of special education have found that there is a paucity of research on motivation in students with LD (Adelman & Taylor, 1986; Deci & Chandler, 1986). Researchers and educators have expressed the need to explore psychophysiological interventions and expand the variety of instructional practices to improve the efficacy of students with LD (Adelman & Taylor, 1986). They have suggested that teaching styles, curriculum content, and evaluation procedures and policies should be flexible enough to meet the needs of each child in the classroom. The activities should be such that they stimulate interest and curiosity, especially in students with LD. These practices are likely to result in academic as well as social success for the learner.

Researchers have identified some of the variables that are used to measure the intrinsic motivation of an individual. Academic intrinsic motivation can be affected by attention span and persistence (Brophy, 1983; Gottfried, 1983); curiosity to learn (Brophy, 1987; Gottfried, 1983); feeling of efficacy (Gottfried, 1983; Schunk, 1991; Smith, 1994); and choice of activity (Brophy, 1983). A student is said to be motivated when he or she chooses to spend time on an activity until it is completed, selects an activity purely for the sake of knowing more about the related concepts, and experiences a rise in self-esteem on completion of that activity or mastery of a skill.

Following are some recommendations, based on empirical evidence, to enhance intrinsic motivation in all learners, irrespective of their ability level.

### ***Involve the Student in the Learning Process***

Teachers can enhance the intrinsic motivation of their students by allowing the students to feel that they are in control of their own learning (Boggiano, Main, & Katz, 1988; Skinner, Wellborn, & Connell, 1990). Care should be taken to not let guidance be mistaken for surveillance. The student should not feel that he or she is being controlled while the teacher is helping the student to achieve learning. Even very young learners have shown less subsequent interest in the activity when they were placed under adult surveillance (Lepper & Greene, 1975). The student's perception of the amount of control he or she has over

learning is strongly influenced by the teacher. One way to achieve this is by allowing the students to monitor their own progress. Intrinsic motivation can be developed when students are encouraged to monitor and reinforce their progress themselves (Brophy, 1983; Fulk & Montgomery-Grymes, 1994; Pintrich & DeGroot, 1990).

Another way is to teach unfamiliar concepts by letting learners discover for themselves. Intrinsic motivation will be maintained and even enhanced when the student is given the opportunity to feel competent by learning through discovery (Adelman, 1978). This will require some planning on the part of the teacher. For example, to clarify the concept of germination in seeds, the students could be asked to plant and watch the germination of a pea. (If peas or garbanzo beans are placed between pieces of wet cotton in a container, and kept in a warm place, they will sprout rapidly.) The teacher could then ask students to draw or write about the growth of their own plant as each stage of germination is reached. Each time the expected outcome is achieved, the drawing or writing could be put up on a bulletin board in the classroom. The teacher should allow students some flexibility by giving them a range of possible outcomes for as many tasks as possible. Imposing controls on the students has been shown to undermine intrinsic motivation (Koestner, Ryan, Bernieri, & Holt, 1984).

### ***Respond Positively***

Positive responses to questions posed by students can enhance intrinsic motivation (Gottfried, 1983). For example, the student might ask about something unrelated to the situation or topic under discussion. In such instances, the teacher should respond positively, at the same time guiding the student back to the current context. For example, the class is involved in a discussion about the Battle of Gettysburg, when one of the students asks the teacher about the cost of lunch in the school. The teacher tells the student that she or he will talk to her or him about it after that period. The teacher then asks the student a question related to the topic, and one to which the student is likely to know the answer. Positive responses instead of reprimands will also help the student to maintain high self-esteem.

### ***Praise Students***

Praise helps the learner to develop a feeling of competence (Brophy, 1981; Gottfried, 1983; Swann & Pittman, 1977). Reward the student with verbal reinforcement when she or he exhibits desired behavior. For example, the teacher might say, "Well done!" when the student gets the correct answer to a multiplication problem after attempting to solve it for the second time. Verbal praise has been found to increase intrinsic motivation (Cameron & Pierce, 1994). However, praise should not be given indiscriminately, and so often that it loses its value. Sometimes encouragement might be more suitable, for example, when the stu-

dent is attempting to reach the desired goal but has not yet achieved it.

### **Promote Mastery Learning**

Achieving mastery motivates the student intrinsically (Borkowski et al., 1988; Gottfried, 1983; Harter, 1974, 1977). When a student completes an assignment that does not meet the expected criteria, give her or him one or more opportunities to tackle the task again, with guidelines on how to achieve the desired result. One way to do this would be to help the student break the task up into manageable components and to set goals for completing each step. This will also imbue the student with a feeling of success as each goal is achieved. Proximal goal setting has been shown to be self-motivating because it cultivates a feeling of competency in learners (Bandura & Schunk, 1981).

### **Challenge and Stimulate**

A variety of stimulating and challenging activities is likely to attract and hold the student's interest in the task (Adelman, 1978; Gottfried, 1983; Harter, 1974, 1978). Both students without disabilities and students with mental delays have been shown to derive pleasure from challenging tasks (Harter, 1977). School learning should be interesting as well as challenging for the student. Providing the learner with challenges can enhance intrinsic motivation (Pittman, Emery, & Boggiano, 1982). However, the task should not be so far above the student's ability level that the student has no likelihood of success. Tasks should be designed to provide some level of success initially (Mastropieri & Scruggs, 1994), leading the student to progressively difficult levels. When the student is successful, verbal reinforcement instead of a tangible reward should be given. It is also important for students to feel that they are in control of their learning. For instance, learners have shown a preference for less challenging tasks when they were offered task-contingent rewards (Harter, 1978; Pittman et al., 1982), but their preference for challenging school tasks increased when they perceived themselves as being in charge of their own learning (Boggiano et al., 1988). The teacher's role is to assign tasks that the student finds challenging but is likely to succeed at. If tasks are too easy, the student is likely to become bored.

### **Evaluate the Task, Not the Student**

Evaluation should be based on the task, rather than comparison with the performance of other students. This kind of evaluation has been shown to increase intrinsic motivation (Butler, 1989; Harackiewicz, Abrahams, & Wageman, 1987). Competition should be based on the outcome of the task, instead of pitting students against each other, because interpersonal competition has been shown to decrease intrinsic motivation in students (Epstein &

Harackiewicz, 1992). Provide the student with feedback about the task accomplished. Feedback regarding effort has also been found to enhance intrinsic motivation by helping students to attribute successful outcomes to their own effort (Schunk & Cox, 1986). Teachers should encourage students to rely on their own efforts for successful outcomes.

## **CONCLUSIONS**

Enhancing the intrinsic motivation of students with learning disabilities can result in improved learning (Adelman, 1978; Adelman & Chaney, 1982; Adelman & Taylor, 1983; Schunk, 1991). Educators need to keep in mind that individual differences are likely to influence the efficacy and outcome of the strategies used to enhance academic intrinsic motivation. In addition, they should attempt to involve parents in the process of bringing about desired changes in the students' behavior by enhancing their intrinsic motivation (Ginsburg & Bronstein, 1993; Gottfried et al., 1994; Reynolds et al., 1992). A student who has a fear of failure or low self-esteem is less likely to develop positive motivation to learn (Adelman, 1978; Adelman & Taylor, 1986; Brophy, 1983; Mastropieri & Scruggs, 1994; Smith, 1994).

Tangible reinforcers have been used for many years to bring about desired learning as well as behavior modification in students with disabilities. In recent years, however, their efficacy has been questioned. The use of extrinsic rewards and incentives in modifying behavior in students with mild handicaps may be contrary to the instructional considerations and approaches endorsed by current theories of motivational orientation (Switzky & Schulz, 1988). There is empirical evidence to support the detrimental effects of extrinsic rewards on the intrinsic motivation of learners with and without learning disabilities (Adelman & Taylor, 1983; Beck, 1978; Deci, 1975; Woolfolk, 1990). In addition, a student's attributions for participating in an activity that is inherently interesting can be negatively affected by the introduction of task-contingent extrinsic rewards (Brockner & Vasta, 1981; Harter, 1978; Pittman et al., 1982). The result could be a decrease in intrinsic motivation related to that activity. However, it is difficult to generalize about the influence of reward systems, such as the token economy system that is typically used in schools, because so many variables are involved in motivation in the school setting.

Teachers concerned with the academic achievement of their students will be able to develop an effective intervention program, keeping the above-cited cautions in mind. The suggested strategies for enhancing intrinsic motivation are adaptable for a variety of student needs and abilities. The efficacy of even a well-developed intervention program is questionable, however, unless it also targets enhancement of academic intrinsic motivation in the learner (Adelman, 1978). ■

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