A Model of Future-Oriented Motivation and Self-Regulation[1]

Raymond B. Miller[2,4] and Stephanie J. Brickman[3]

This article presents a theoretically grounded model of motivation and self-regulation that places personally valued future goals at its core. We attempt to integrate two lines of theorizing and research that have been relatively independent of one another: the social–cognitive perspective on self-regulation (e.g., Bandura, A., 1986) and theories of more future-oriented self-regulation (e.g., Markus, H., and Nurius, P., Am. Psychol. *41: 954–969, 1986; 1986; Nutin, J.,* Motivation, Planning, and Action: A Relational Theory of Behavior Dynamics, *Erlbaum, Hillsdale, NJ, 1984; Raynor, J. O.,* Motivation and Achievement, *Winston, & Sons, New York, Chap. 7, pp. 121–154, 1974). We argue that personally valued future goals influence proximal self-regulation through their impact in the development of proximal subgoals leading to future goal attainment. The development of a system of proximal subgoals increases the likelihood that proximal tasks are perceived as instrumental to attaining future goals. Proximal tasks that are perceived as instrumental to reaching personally valued future goals have greater overall incentive value and meaning than proximal tasks lacking this instrumental relationship, and their impact on task engagement is correspondingly greater. Research supporting these claims is*

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[2]Department of Educational Psychology, University of Oklahoma, Norman, Oklahoma.
[3]School Services Programs, School of Education, Southwestern Oklahoma State University, Wealtherford, Oklahoma.
[4]Correspondence should be addressed to Raymond B. Miller, Department of Educational Psychology, University of Oklahoma, 820 Van Vleet Oval, Norman, Oklahoma 73019; e-mail: rmiller@ou.edu.

reviewed and the implications of this model of future-oriented self-regulation for research and intervention are discussed.

A frequently cited charge for educators today is to help students become motivated and self-regulated learners (e.g., Alderman, 1999; Ames, 1992; Brophy, 1998; Covington, 1992; Nicholls, 1989). In other words, we should encourage students to commit themselves to meaningful educational goals, strive to benefit from their educational experiences, monitor their progress toward their goals, make adjustments in their efforts when necessary, and establish new, more demanding goals as they accomplish earlier ones. Considerable research has been directed toward understanding the variables that influence students' motivation for learning. For example, research on such factors as achievement goals (e.g., Dweck and Leggett, 1988; Nicholls, 1989), attributions for success and failure (e.g., Weiner, 1986), self-efficacy (e.g., Bandura, 1986, 1997), and self-regulation processes (e.g., Bandura, 1986; Schunk and Zimmerman, 1994; Zimmerman and Schunk, 1989) has done much to identify the adaptive and maladaptive ways students think about school and how factors in the school setting (e.g., assessment policies, teaching practices) affect the adaptiveness of students' approaches to school learning.

Although this work has been important for developing our understanding of students' motivation for learning and for developing interventions that foster such learning, many of these contemporary efforts have focused on short-term (proximal) motivational and self-regulatory issues and excluded potentially important personally valued, distant goals in their analysis (see Husman and Lens, 1999, for a similar perspective). We hope to illustrate that the addition of personally valued future goals to the study of student motivation and self-regulated learning can lead to even greater understanding and potentially more influential interventions. To accomplish this end, we first provide an overview of the work of social–cognitive theorists who have focused on proximal motivation and self-regulation. This is followed by a discussion of the impact of personally valued future goals on the self-regulation process and by the introduction of a model that synthesizes the work of social–cognitive theorists on proximal motivation and self-regulation, and of theorists who have focused on future-oriented motivation and self-regulation. Finally, we examine some of the problems that can arise when future-oriented regulation and motivation are disrupted, and suggest some possible interventions derived from our model. We begin by reviewing the social–cognitive perspective on proximal self-regulation and achievement goals.

SELF-REGULATION: THE SOCIAL–COGNITIVE PERSPECTIVE

In Bandura's social–cognitive theory, most human actions are thought to be goal directed (Bandura, 1986). Typically this means that actions are performed to obtain anticipated and valued outcomes or to avoid dreaded ones. Individuals engage in actions that they believe result in desirable consequences such as increased understanding and receiving rewards, status, and affiliation, or they try to avoid undesirable consequences such as pain, loss of status, or loss of affiliation. Bandura (1986) has referred to these anticipated outcomes as *outcome expectations*. They serve as incentives for action. They guide the choice of actions and influence the level of effort and persistence directed toward attaining the outcomes. The greater the personal value of the anticipated outcomes and the stronger the belief that one is capable of generating the behaviors needed to obtain the outcomes (*self-efficacy* beliefs), the greater the likelihood that action will be taken to obtain them and that effort will be expended in their pursuit. Thus, the combined impact of outcome and efficacy expectations provides the motivation for taking and sustaining action to attain valued outcomes. However, merely wanting certain outcomes does not produce the actions needed to obtain them. For anticipated outcomes to influence action, they must be incorporated into the larger self-regulatory system (Bandura, 1986; Corno, 1989).

According to Bandura (1986), self-regulation involves three component processes: (a) self-observation or behavioral monitoring; (b) self-evaluation of progress or self-judgment; and (c) self-reaction, including both affective and tangible self-initiated consequences. The operation of each of these components hinges on the existence of what Harackiewicz and Sansone (1991, 2000) called a "target goal." A target goal is the cognitive representation of the particular behavior (action) or performance one wishes to produce and the associated standards for their execution. The target goal serves as the immediate (proximal) goal of self-regulatory functioning. According to Bandura (1986, 1991, 1993), the target goal serves three important functions. First, it defines the immediate performance we hope to produce. Second, it highlights which aspects of the performance we should observe or monitor during self-regulation. Finally, the target goal and associated standards serve as the criteria for self-evaluation of performance. This self-evaluative aspect of self-regulation is a critical source of continuing motivation for goal-directed activity due to its relationship to self-reaction and self-efficacy.

Self-reactions are the affective and tangible consequences that people provide themselves following their actions (Bandura, 1986). Self-reactions are determined by the degree to which performance is judged to have

met the target. Performances matching or exceeding one's personal standards typically lead to affective self-reactions of satisfaction and pride (unless attributed to external causes; Weiner, 1986) and often are followed by tangible self-rewards, such as engaging in leisure or social activities, or enjoying consumable rewards such as food. Performances that fall short of one's personal standards typically lead to self-recrimination, frustration (depending on attributions; Weiner, 1986), denial of self-rewards, and more importantly, continued effort toward satisfactory performance (the latter occurring when self-efficacy judgments remain positive). Because of their incentive value, the anticipation of these self-evaluative reactions helps maintain behavior over long stretches; that is, the anticipation of these self-initiated consequences serves to motivate action (Bandura, 1986).

In addition to these self-reactive influences, self-evaluation of performance against personal standards also influences self-efficacy for goal pursuit (Bandura, 1986, 1991, 1993). Performances that match or exceed personal standards typically maintain or increase self-efficacy (when attributed to internal causes), whereas performances failing to meet personal standards typically decrease self-efficacy (when attributed to internal causes). These performance-induced changes in self-efficacy then influence subsequent choice of target goals, difficulty of personal standards set, effort, and persistence. In this manner, self-evaluative reactions, including self-efficacy judgments, influence an individual's motivation and future goal pursuits.

In summary, the social–cognitive perspective on self-regulated learning paints a picture of goal-directed behavior aimed at obtaining desired outcomes (both tangible and affective). Self-perceptions of efficacy influence both initiation and continuation of goal pursuit. The ongoing processes of self-observation, self-judgment, and self-reaction also affect continued goal pursuit. Clearly goals are central to the self-regulatory process. They represent the target goals and anticipated outcomes associated with the current actions being performed.

Research has indicated that clear and specific proximal goals (target goals) produce higher levels of achievement and personal satisfaction than vague and distant goals (for reviews, see Bandura, 1986, 1991, 1993; Locke and Latham, 1990; Schunk, 1990, 1994; Zimmerman, 1989). Nevertheless, Bandura (1986, p. 336) recognized that distal (future) goals play a role in human motivation when he said, "Many activities are directed toward outcomes projected into the future. People do things to gain anticipated benefits or to avert future trouble. The anticipation of distal outcomes provides general direction for choosing activities, and it raises the level of involvement

in them." In the next section, we explain why future goals are important to the process of self-regulation.

THE IMPACT OF FUTURE GOALS ON PROXIMAL SELF-REGULATION

To facilitate thinking about self-regulated learning, we propose a model we developed (Brickman, 1998; Brickman and Miller, 2001; Miller and Brickman, 1997) that synthesizes aspects of contemporary social–cognitive theory, primarily Bandura's thinking, and aspects of theory focusing on future goals (e.g., Markus and Nurius, 1986; Nuttin, 1984, 1985; Raynor, 1974). The model (see Fig. 1) reflects the factors influencing self-regulated learning and their interrelationships. For many individuals, one or more of these factors may be either missing or configured in such a way that self-regulation may not occur in some aspects of their lives. Later in the article we discuss some of these instances; however, for now the discussion focuses on how the pieces come together in successful self-regulated learning.
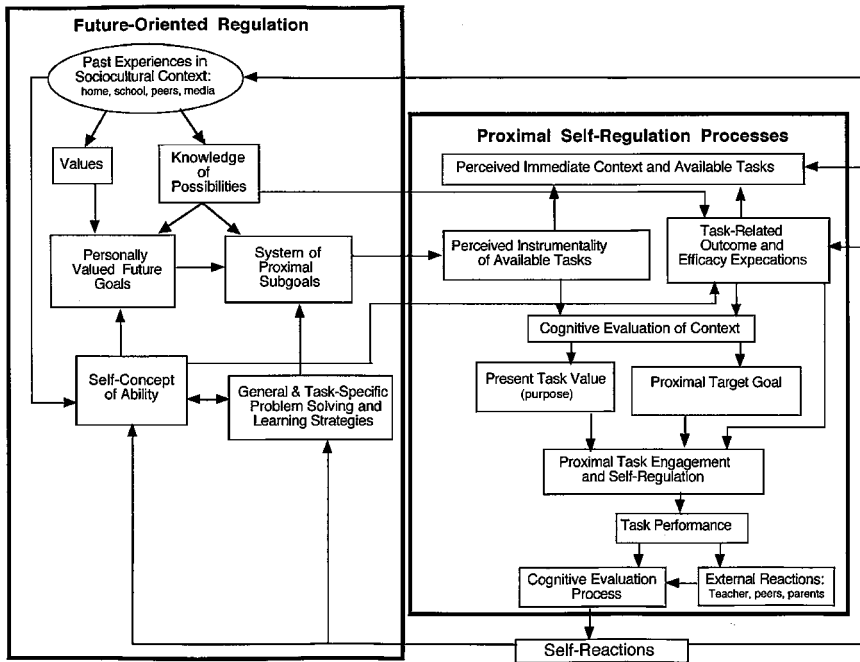

Fig. 1. A model of future-oriented motivation and self-regulation.

Future Goals and Proximal Subgoal Systems

All goals are representations of the future; however, they vary in their extension into the future (Nuttin,1985). The goals at the heart of the social–cognitive account of self-regulation are rather proximal target goals, at least in the ideal case (Bandura, 1986; Locke and Latham, 1990). The future goals to which we refer are self-relevant, self-defining goals that provide incentive for action. In Ryan and Deci's (2000) terms these are self-determined goals (Ryan and Deci, 2000). They regulate behavior through self-identification with the goals or the integration of the goals into the system of self-determined goals. Such goals are more similar to outcome expectations than target goals. These goals include, but are not limited to, important personal aspirations such as getting an education, striving for a career or job, developing intimate personal relationships, and making a contribution to society. They are future-oriented in that successful performance on the current task does not, in itself, produce the desired consequence. In fact, some goals, such as becoming an educated person or making a contribution to society, may have open-ended futures in which the ultimate goals are never fully reached. Rather, they are continuous pursuits (Emmons, 1989). Others have referred to such future-oriented goals as life tasks (Cantor and Kihlstrom, 1987), personal strivings (Emmons, 1989), current concerns (Klinger, 1977), personal projects (Little, 1987), and possible selves (Markus and Nurius, 1986).

The emergence of future goals is usually cast as part of the developmental process that occurs in the individual's sociocultural context. Various researchers have suggested that future goals of this type surface as culturally determined developmental tasks, such as completing school, getting a job, or starting a family (e.g., Cantor and Kilhstrom, 1987; Nurmi, 1991). Ryan and his colleagues (Ryan *et al.*, 1985, 1992) suggest that these internalized goals are the result of the identification process. The sociocultural influences on goal development are depicted in the upper left portion of Fig. 1. They include such contextual factors as the home, peers, school, and the media, which are known to shape individual values (Kilby, 1993; Rokeach, 1979) and influence knowledge about what is possible in the present and future (Maehr and Braskamp, 1986). Values and knowledge of possibilities are two major contributors to the development of personally valued future goals and the subgoals operating in their service.

Individuals assess the value of perceived possibilities for action prior to deciding their level of investment in those actions, and this is certainly true for personally valued future goals (Maehr, 1984; Maehr and Braskamp, 1986). Such decisions reflect the culmination of the individuals' past experiences and the sociocultural contexts in which they operate. Additionally,

prior to goal commitment, individuals evaluate the general feasibility of goal attainment (Bandura, 1986, 1997; McCombs, 1989). This is probably a judgment drawn without careful and detailed analysis of the steps involved in goal attainment because it is unlikely that careful analysis of the steps occurs prior to some initial commitment to a goal. Rather, it is more likely that goal feasibility is judged on the basis of more general self-efficacy beliefs, self-concepts of ability at the domain level, or self-schemas (Cantor, 1990; Markus and Nurius, 1986). This role for general self-concept of ability is shown in Fig. 1 below the personally valued future goals. An illustrative example might be an individual with a low self-concept of ability for athletics (i.e., a self-schema in which personal images of smooth and coordinated physical movements are not present) who is unlikely to aspire to become a world-class gymnast after watching an Olympic gymnastics competition, despite valuing the beauty of the performances and the adulation the athletes receive. In this way, general self-schemas (self-perceptions or self-concepts) have an early impact on the development of future-oriented goals, the paths one follows, and the skills one develops (Bandura, 1986, 1997; Markus and Nurius, 1986). In a similar fashion, perceived obstacles to goal attainment, such as systemic bias or interference from peers, can preclude initial commitment to particular future goals (Bandura, 1986; Brickman, 1998; Brickman and Miller, 2001).

Although the personally valued future goals under consideration have incentive value, their incentive value is typically viewed as being "too far off, or too general, to shepherd specific actions in immediate situations that present many uncertainties and complexities. People have to create for themselves proximal guides and self-motivators for courses of action that lead to distal attainments" (Bandura, 1986, p. 336). Thus, the initial commitment to a valued distant goal is the catalyst for the process of developing proximal goals (Nurmi, 1991; Nuttin, 1984). When people initially commit themselves to personally valued future goals, they are in a position to purposefully generate a coherent framework or system of proximal subgoals to guide action toward the attainment of those valued future goals. These proximal subgoals serve the role of target goals; that is, the specific behaviors and standards of performance that guide action and self-regulation. As the system of subgoals becomes clearer and particular subgoals are accomplished, the level of commitment to the future goals grows stronger (Marcus and Ruvolo, 1989).

We should note that merely adopting a valued future goal, in itself, does not lead to the development of a system of proximal goals. Rather, the initial commitment to obtaining valued future goals sets the stage for the process of proximal goal development. As can be seen in the left-hand portion of Fig. 1, this process draws on the individual's knowledge of the future goal itself and

knowledge of possibilities derived from the sociocultural context, and the individual's goal-specific and general problem-solving strategies (Cantor and Kihlstrom, 1987; Nurmi, 1991). People vary in their knowledge of the paths their lives must take to achieve their long-term goals. Such knowledge is acquired through sociocultural experiences such as exposure to role models and the media, and explicit instruction in school and at home. However, gaps in one's knowledge can be overcome if the individual is efficacious enough and possesses the strategies needed to solve problems and acquire information. As discussed later, individuals lacking either the relevant sociocultural knowledge or the cognitive strategies for problem-solving may fail to develop a system of subgoals for attaining the future goals they desire.

Developing a path of subgoals from one's current state to desired future goals has obvious pragmatic value. As Bandura (1986) and other self-regulation researchers (e.g., Locke and Latham, 1990; Schunk, 1990; Zimmerman, 1989) have clearly noted, people with a plan of proximal subgoals for attaining their distal goals function more effectively than those without a plan. It is the system of subgoals that makes self-regulation possible in the pursuit of distant future goals. Markus and Ruvolo (1989) maintain that continued pursuit of a future goal (possible self) requires keeping it active in the current concept of self. They suggest that this is most likely to occur when the path of subgoals to the future goal (possible self) is well elaborated. It is this system of specific proximal subgoals that distinguishes reality-based future goals from empty dreams and fantasies (Nuttin, 1984).

Although the inherent importance of a system of proximal subgoals to effective self-regulation of behavior is supported by empirical research (see Bandura, 1986; Locke and Latham, 1990, for reviews), this should not overshadow the importance of the future goals to which they are anchored. As Bandura (1986, p. 476) has indicated, "personal development is best served by combining distal aspirations with proximal self-guidance." Having a context of personally valued future goals in which proximal subgoals are imbedded not only makes pursuit of the future goal possible and attainment feasible, it gives meaning to our proximal behavior. Without future goals and related subgoal systems, human behavior would be guided only by immediate needs and immediate consequences. It is the higher order self-regulation engendered by the pursuit of distant, personally valued goals that gives the proximal tasks we engage in meaning beyond their immediate positive or negative consequences (Cantor and Kihlstrom, 1987; Markus and Nurius, 1986). The availability of these future-oriented subgoal systems makes it easier to reconcile conflicts among competing proximal incentive systems because subgoals that are anchored to personally valued future goals have the benefit of both proximal and distal incentives (Bandura, 1986; Little, 1987). In the next section, we describe in greater detail the way in which the

incentive value of future-oriented goals manifests itself in the self-regulatory process.

Future Goals: Task Value and Self-Regulation

When a system of proximal subgoals for attaining future goals is identified, proximal self-regulation can take effect, task engagement can ensue, and the processes of self-observation, self-evaluation, and self-reaction can be put into operation. As noted earlier, proximal self-regulation is guided by the dual incentives created by the anticipation of the outcomes for reaching the proximal goal (e.g., praise, recognition, improved understanding) and the anticipation of self-reactions (e.g., satisfaction, pride) following performance. However, following the thinking of theorists who focus on future goals (e.g., Nuttin, 1984; Raynor, 1974), we believe there is an increase in the incentive value for reaching the proximal goal when attainment of that goal is viewed as instrumental to attaining valued future goals.

As can be seen in the right-hand section of Fig. 1 (Proximal Self-Regulation Processes), we believe individual perceptions of the instrumentality of presently available tasks for achieving personally valued future goals are vitally important for proximal self-regulation toward those goals. Judgments about which of the many tasks available in the present context are perceived as instrumental to future goal attainment are largely influenced by the individual's system of proximal subgoals and knowledge of possibilities for action. Relevant tasks in the present context tend to be perceived as instrumental to the future if individuals have sufficiently well-developed subgoals that map onto those tasks in the current setting. Knowledge of what is possible delimits the perceptions of what the immediate context offers in the way of opportunities for obtaining desired outcomes and highlights potential obstacles to obtaining those outcomes. Together, perceived instrumentality and individual perceptions of task-related outcome and efficacy expectations contribute to the cognitive evaluation of the immediate context, and, through it, influence the proximal target goals individuals choose to pursue. Individual outcome expectations, based on past experiences in similar settings and self-efficacy beliefs related to the tasks perceived as available, both influence evaluation of the current context. If either self-efficacy or outcome expectations are low for a perceived task, the likelihood of that task being selected as the target goal in the present situation decreases (Brickman, 1998; Brickman and Miller 2001).

In addition to its importance in the selection of proximal target goals, perceptions of instrumentality are also important because of the value dimension they bring to proximal self-regulation. When a proximal target

goal is perceived to be instrumental to future goal attainment, engagement in the proximal task is supported by both the incentive value of the direct outcomes of achieving the proximal goal itself and the incentive value of its anticipated distal outcomes, albeit somewhat diminished as a function of their distance into the future (Bandura, 1986; Nuttin, 1984). Also, there is the incentive value of anticipated self-evaluative reactions (Nuttin, 1984; Raynor, 1974), both the anticipated immediate self-reactions associated with accomplishment of the proximal goal itself (e.g., anticipating treating yourself to a tangible reward after reaching a proximal goal), and the anticipated self-reactions associated with the accomplishment of a step in the path to a personally valued distal goal (e.g., anticipating the pride you will feel for attaining an ultimate goal).

Although anticipated future outcomes are thought to have relatively weak incentive value compared to proximal outcomes (Bandura, 1986; Nuttin, 1984), this may not be the case for self-evaluative reactions related to future goals. When proximal achievements are perceived to have instrumental relationships to personally valued distal goals, their self-evaluative payoffs may be as powerful or more so than those simply anchored to the proximal achievements themselves. For example, when school work is perceived to be unrelated to attainment of anticipated future goals (i.e., it is not instrumental), its incentive value stems only from the anticipated immediate outcomes (e.g., looking competent compared to classmates, avoiding immediate embarrassment, receiving praise or avoiding punishment, the end of the assigned work), and the anticipated immediate self-evaluative reactions resulting from task performance (e.g., satisfaction of outperforming others, gratitude for rewards received, relief).

On the other hand, when schoolwork is perceived as important for attaining personally valued future goals (e.g., selection for advanced schooling, career entry, providing the knowledge needed to help others or to contribute to society), the student benefits from the immediate consequences mentioned earlier, plus the self-evaluative reactions related to successful progress toward the personally valued future goal. These self-reactions are far more likely to be related to self-esteem, pride, and self-satisfaction than those associated only with performance of the proximal task itself. In fact, it may be these future-oriented self-evaluative reactions that define the most compelling proximal consequences for engaging in school tasks.

Why should school learning be perceived to have incentive value if it is not believed to be of some value beyond the moment? One might answer by pointing to several contemporary perspectives on motivation; however, we believe that including perceived instrumentality and personally valued future goals to the explanation of the incentive value of school tasks adds to our understanding in important ways.

Achievement Goal Theory

From the perspective of achievement goal theory (e.g., Dweck and Leggett, 1988; Nicholls, 1989) one might argue that despite the absence of valued future goals, students may still be motivated by either proximal performance goals (ego involvement) or learning goals (task involvement). Performance goals (the desire to demonstrate competence or avoid appearing incompetent) are compelling proximal incentives for many students; however, adoption of such goals in learning situations often results in low-quality cognitive engagement and poorer achievement, especially when individuals do not have high task-related self-efficacy (e.g., Elliot and Church, 1997; Elliott and Dweck, 1988; Linnenbrink and Pintrich, 2000; Wolters *et al.*, 1996). From an educational perspective this hardly seems desirable and is certainly not representative of students who are self-regulated learners.

Learning goals (the desire to improve competence, skill, or knowledge) also represent compelling proximal incentives for students and they are consistently associated with high levels of cognitive engagement and positive achievement outcomes (Ames and Archer, 1988; Graham and Golan, 1991; Greene and Miller, 1996; Meece *et al.*, 1988; Nolen, 1988; Pintrich and Garcia, 1991). However, students are unlikely to pursue learning goals in contexts where the learning tasks are thought to be unrelated to attaining valued future goals. Students who are oriented toward learning goals are not motivated to learn everything that is cast before them. Rather, they seek learning tasks that present the prospect of improving competence, skill, or knowledge in areas they deem valuable to their personal development. As Dweck (Dweck and Leggett, 1988) and Nicholls (1989) hypothesized, tasks that are not perceived as leading to improved competence (ones that lack sufficient information to provide growth or are perceived as too difficult to provide benefit) do not foster or maintain learning goals. In a similar fashion, we hypothesize that learning tasks judged to be unrelated to personally valued areas of development do not foster or maintain learning goals because they do not lead to increases in competence in valued areas. Human beings simply do not pursue competence in every area open to them. Students must see the personal value of their efforts in order for them to expend effort to learn from (not simply complete) the tasks presented in school.

Support for this proposed relationship between personally valued future goals and learning goals is found in four studies (DeBacker and Nelson, 1999; Greene *et al.*, 1999; Miller *et al.*, 1996, 1999). These studies found a relationship between students' perceptions of the extent to which current school tasks were instrumental to attainment of their personally valued future goals and their proximal learning goals in school. In each of these studies, students'

perceived instrumentality scores were moderately and positively correlated with their learning goal scores (a low of .21 to a high of .72).

Intrinsic Motivation Theory

In contrast to our argument concerning achievement goals, one might use intrinsic motivation theory (Csikszentmihalyi and Nakamura, 1989; Deci and Ryan, 1985) to argue that when students encounter tasks that provide optimal challenge (ones of moderate difficulty relative to their ability), they should experience flow, an intrinsically satisfying state of task involvement (Csikszentmihalyi and Nakamura, 1989). Unfortunately, this may not be the case. Research by Csikszentmihalyi and Larsen (1984) has shown that a sample of U.S. high school students failed to find optimally challenging school tasks intrinsically rewarding (i.e., they were not flow producing). Csikszentmihalyi and Larsen attributed this finding to the general devaluing of school tasks typical of U.S. adolescents. Thus it appears that intrinsic motivation depends in part on perceiving task involvement as having personal value or relevance beyond the moment. Deci and Ryan (1985; Ryan and Deci, 2000) have argued that self-determination of goals is a necessary prerequisite for experiencing intrinsic motivation. Students who do not perceive school learning tasks as related to their own future goals are unlikely to have a sense of self-determination for performing those tasks. Similarly, self-system theorists (e.g., Cantor and Kihlstrom, 1987; Markus and Nurius, 1986) contend that the meaning of tasks stems from their relationships to personally relevant or self-defining future goals.

Achievement Motivation Theory

From yet another perspective, one can point to students' achievement motivation (Atkinson and Birch, 1978; Atkinson and Raynor, 1974). School learning tasks provide an opportunity for students to demonstrate competence against standards of excellence, the very circumstances thought to arouse achievement motives (Atkinson and Birch, 1978). Clearly, students' successful performances in such achievement settings can be a source of pride and satisfaction; however, as Raynor's elaboration of achievement motivation theory predicts (see Atkinson and Raynor, 1974; Raynor and Entin, 1982), when an achievement task is perceived to have no instrumental relationship to future achievement endeavors (a noncontingent path), achievement motivation is not aroused. In a similar fashion, Ryan *et al.* (1992) have argued that students who have not internalized school achievement-related

goals (i.e., those who are external regulators) do not see school achievement as instrumental to attaining self-determined (self-defined) goals and are not likely to experience a sense of self-worth or self-esteem from their academic performances. For many students, school tasks elicit avoidance or self-protective behaviors rather than motives to achieve success or pursue excellence (Covington, 1992). Students often devalue school learning tasks, claiming they are boring, stupid, or too easy. As a result, performance on these tasks holds little immediate value. When put in competition with the other immediate incentives operating in classrooms (primarily social ones), task-related incentives are likely to fare poorly. Thus, on theoretical grounds, there is reason to suspect that students failing to perceive school-related achievement as instrumental to attaining valued personal goals lack an important source of motivation.

Instrumentality and Incentive Value

Research addressing our claims regarding the incentive value of academic tasks perceived as instrumental to the attainment of future goals is limited but supportive. Miller *et al.* (1999) looked specifically at the relationship of perceived instrumentality and students' valuing of academic tasks. Simple correlations indicated that perceived instrumentality was positively correlated with intrinsic (.61) and extrinsic valuing (.74). When perceived instrumentality was entered into a regression equation with learning goals to predict both intrinsic valuing and extrinsic valuing, instrumentality was found to account for a significant and unique source of variance (betas of .30 and .57 for intrinsic and extrinsic valuing, respectively). Other studies (DeBacker and Nelson, 1999; Greene *et al.*, 1999) have also found perceived instrumentality scores to be positively correlated with measures of students' intrinsic valuing of academic tasks. In a qualitative study involving extensive interviews and observation of three students in an alternative high school, Brickman (1998; Brickman and Miller, 2001) found that the extent to which students reported perceiving school work as instrumental to reaching their future goals was related to their perceptions of the intrinsic and extrinsic value of their school work. Specifically, the student who reported the clearest and most detailed instrumental relationship between school achievement and the reaching of personal goals (both family and career) also reported the clearest sense of intrinsic value in school work.

Instrumentality and Task Engagement

If tasks perceived as instrumental to future goal attainment have greater incentive value, then, as depicted in the lower right-hand portion of Fig. 1,

one would assume engagement in those tasks should be more vigorous and achievement on them should be greater than that found for noninstrumental tasks. There is a convincing body of research supporting this claim. Raynor (1970) conducted several studies indicating that undergraduate psychology students who perceived performance in their classes as instrumental to reaching future goals achieved at higher levels than students who did not see the future utility of their class performance. DeVolder and Lens (1982) found that students with high grades and high levels of reported study effort valued distant future goals more highly than students with low grades and low levels of reported study effort. Schutz (1997; Schutz and Lanehart, 1994) found that long-term educational goals were positively correlated with both student grade-point averages and their reports of self-regulation and strategy use. Steinberg *et al.* (1992), in their large-scale study of adolescents, found little difference among ethnic groups in their overall perception of the value of education; however, the group that indicated the strongest perceived contingency between current school success and attainment of future goals was also the highest achieving group. This finding is consistent with our proposed role for instrumentality.

In a pair of studies, Miller *et al.* (1996) found that high school mathematics students' perceptions of the instrumentality of course performance to future goal attainment was positively related to math achievement, but, more importantly, it was also positively related to the use of self-regulation strategies, deep-processing study strategies, effort, and persistence. Interestingly, perceived instrumentality of course performance to future goal attainment remained a significant predictor of both use of self-regulation and deep-processing study strategies even when controlling for the students' other goals (e.g., learning and performance) and perceptions of their math ability. Brickman and Miller (1998) examined the relationship between perceived instrumentality scores and various measures of cognitive engagement. Even when controlling for variations in importance of future goals in a regression analysis, they found moderate, positive, and statistically significant betas for instrumentality with self-regulation (.46), deep-processing (.42), shallow processing (.33), and persistence (.23). Finally, Brickman (1998; Brickman and Miller, 2001), in a qualitative study, found that the extensiveness of students' future goal and subgoal development was related to their perceptions of the instrumentality of school subjects. Their perceptions of instrumentality were in turn related to their engagement on school tasks (the types of strategies used) and the level of their achievement.

Thus, it appears that the perceived relationship between current school performance and attainment of valued future goals is an important factor in students' engagement in their academic pursuits and achievement. When students do not perceive school learning tasks as instrumental to future

achievement opportunities or to attaining personally valued future goals, the achievement-related motives and incentives that might guide students' engagement may not be activated, and self-regulation of academic behavior may be diminished.

In summary, anticipated future outcomes are an important self-regulatory factor in human functioning. Future goals influence self-regulation through their role in the planning of a path of proximal subgoals leading to future goal attainment, their addition to the overall incentive value and meaning of proximal task performance, and their influence on proximal self-evaluative reactions. However, we believe future goals and the system of proximal subgoals generated in their service only have their impact on proximal self-regulation when current task performance is perceived to have some instrumental relationship to the attainment of the future goals. If future goals actually play the important role we have outlined, what implications are there for those interested in fostering students' self-regulated learning and what research needs to be conducted? We address these issues in the next section.

POTENTIAL PROBLEMS IN FUTURE-ORIENTED SELF-REGULATION AND POSSIBLE INTERVENTIONS

In this section, we explain why we think more extensive examination of future goals should be considered. Specifically, we highlight some of the most significant motivation and self-regulation problems that might arise related to future goals and point out the implications of future goals for interventions designed to improve student motivation and self-regulation. In both cases we identify some of the key areas needing further research.

Disruptions in the Future Goal/Self-Regulation Process

In practical terms our perspective on the role of future goals has rather obvious implications, the most central of which is that students must perceive the tasks presented in school as being instrumental to the accomplishment of personally valued future goals or they lose an important incentive for engaging in self-regulated learning. The failure to perceive schooling as instrumental to the future can happen for a number of reasons.

The most elemental problem occurs when individuals fail to develop personally valued future goals that bear any relationship to schooling. As the model in Fig. 1 indicates, this might be due to any one of three factors or some combination of them. People may lack knowledge about what might

be possible in the future as a result of their experiences in the sociocultural context. Such information may simply not be available in their context, or their interactions in the sociocultural context may have been such that they did not attend to or come in contact with relevant information when it was available.

Failure to develop future goals related to schooling may also be due to competing or conflicting value systems communicated by significant others in the sociocultural context. As the work of Ogbu (1992) and Graham *et al.* (1998) suggests, one reason some African American students may perform poorly in school is their devaluing of school achievement. In MacLeod's "hallway hangers" and Willis' "lads" we see similar patterns of devaluing among low-achieving, working-class White students in the United States and Great Britain (MacLeod, 1987; Willis, 1977). Other examples of this phenomenon might include individuals who accept as true the gender-related or ethnicity-based stereotypes about appropriate and inappropriate roles that people might play in society. Acceptance of such stereotypes may lead individuals to put limits on their aspirations (e.g., Steele, 1997). The result is the devaluing of certain life paths and the educational subgoals along those paths.

Finally, future goals may fail to develop because of doubts about ability to affect desired outcomes in a given domain. Research has shown that such self-doubts about ability, or worse, certainty about lack of ability, is an important influence on career and educational aspirations. For example, Hackett's research (Betz and Hackett, 1981; Hackett, 1985) has shown that the math self-efficacy of women is an important mediator of their choice of majors and career paths. Additionally, Brickman's research (Brickman, 1998; Brickman and Miller, 2001) pointed out the role that perceived obstacles to school success play in the development of future goals. For example, at various points in their academic careers, the students in Brickman's study had developed perceptions of teachers and peers as obstacles to school success. As a result they had done little to develop clear and elaborate future goals that might make schooling instrumental. It was only after a dramatic change in context (a move to the alternative school) that the students began to see the obstacles diminish and school-related future goals began to emerge.

Regardless of origin, the failure to identify and commit to personally valued goals would put a halt to the influence of future goals depicted in Fig. 1. There would be no basis for the development of a proximal subgoal system and no basis for perceiving school tasks as instrumental to the future. The lack of perceived instrumentality would mean that the proximal tasks of school would receive none of the incentive value related to future goals. As a result, proximal task engagement would likely suffer. Clearly, the development of personally valued future goals is central to motivation and self-regulation;

however, even when such goals are present, it is possible for things to go awry.

Individuals may hold personally valued goals but fail to develop an appropriate system of proximal subgoals to guide progress to the future goal. As mentioned previously, this might be due to two factors (see Fig. 1). In some cases individuals lack knowledge about the paths people follow in pursuing their future goals because they have not been exposed to such knowledge in their sociocultural context (e.g., no relevant role models or knowledgeable significant others). In other cases the failure to develop a system of proximal subgoals may be due to ineffective or inappropriate problem-solving (Cantor and Kihlstrom, 1987) or planning skills (Kreitler and Kreitler, 1987). The absence of such cognitive skills severely limits the ability of individuals to construct meaningful paths to their future goals, particularly in those cases where the sociocultural context is not supportive in that regard.

When individuals hold personally valued future goals and have a system of proximal subgoals, it is still possible for them to fail to perceive the instrumentality of school tasks to the accomplishment of their future goals. Failure to perceive the instrumentality of school tasks when a system of proximal subgoals is already in place is largely due to lack of knowledge about the instrumental value of specific school tasks for reaching the future goal. As was the case for the development of personally valued future goals and subgoals, this lack of knowledge could be the result of failure to communicate such information, failure of the individual to attend to the information when it was available, or inadequacies in the individual's system of proximal subgoals. In the latter case, the omission of proximal subgoals that highlight the significance of particular school tasks or subjects increases the likelihood that individuals would fail to see the potential relevance (instrumentality) of those tasks and academic subjects.

Finally, even when individuals recognize the instrumental value of school tasks to accomplishing personally valued future goals, they may, nevertheless, be disinclined to engage in them because of negative task-related outcome or self-efficacy expectations. Negative outcome expectations for particular tasks in the immediate context would typically be due to past experiences that have reinforced the idea that successful task performance leads to negative outcomes (e.g., peer ridicule or exclusion), or that task performance and desired outcomes are not contingent (e.g., teacher bias, systemic obstacles, or barriers). Negative self-efficacy expectations for particular tasks would likely be the result of past experiences, persuasive feedback from significant others, or vicarious experiences of similar others all pointing to the individual's lack of competence for the task (Bandura, 1986, 1997). Whatever the cause, the perception that desired performances or outcomes are

unattainable leads to task avoidance, diminished effort and persistence, and ultimately, to disidentification with the associated personally valued future goal.

In light of the problems that might arise in relation to future goals and instrumentality, we next consider the implications for interventions designed to improve motivation and self-regulated learning.

Possible Interventions

If future goals and perceptions of instrumentality play the roles we believe they do, then interventions aimed at improving student motivation and self-regulation to learn may have to broaden their scope if students with the problems described above are to be helped. Although teaching students who are not self-regulated learners to set goals, monitor their progress, evaluate their progress against reasonable standards, and provide themselves with appropriate self-reactive consequences has proven valuable and revealed context-specific improvements (e.g., Albertson and Billingsley, 2001; Butler, 1998; Garcia and Pintrich, 1994; Harris and Graham, 1999; Schunk, 1998), we suspect that a case-by-case analysis would reveal that many of these students still do not perceive school performance as instrumental to their personal goals, and, as a result, do not benefit from the intervention on a continuing basis. Put simply, nothing about the value of schooling has changed; nothing has made schooling more important to the "self" of these students.

From our perspective, interventions targeting proximal motivation and self-regulation are essential to success; however, such interventions need to include support for future goals and subgoals if they are to have a lasting impact on student self-regulated learning. To date, too little research has been done on future goals and subgoals, and particularly on the issues related to fostering their development. At present we can only speculate about the shell of an expanded intervention that would simultaneously address proximal motivation and self-regulation, and future-oriented factors. Specifically, the expanded intervention should include efforts targeting proximal factors such as task-specific self-efficacy, achievement goals, and self-regulatory processes, and devote attention to the future goal triumvirate: development of personally valued future goals that include schooling as part of their path, development of a system of proximal subgoals (a path) to the future goal, and explicit indicators of the instrumentality of schooling for future goal attainment.

Fostering the development of future goals that include school learning as important subgoals is crucial for students who lack them. As Fig. 1 illustrates, development of future goals is influenced by at least three factors: the

values people derive from their sociocultural context, the knowledge they derive from that context about what is possible in the future, and the self-perceptions of ability they derive from their experiences in that context. To initially commit to any future goal, an individual must know that such a goal exists, believe that it has some value, and believe that he or she is sufficiently competent to have a reasonable chance of reaching the goal and overcoming any perceived obstacles. Thus elaborated interventions need to ensure that all three factors are addressed.

Interventions fostering students' proximal self-efficacy and self-regulatory competence are important so students are in a position to perceive that goals and subgoals related to school are attainable. Too many students have had school experiences that crush their confidence and destroy their perceptions of schooling as instrumental to their future aspirations. Before such students can begin to think about school learning playing a realistic role in their futures, they must begin experiencing consistent and meaningful success in school. Likewise, students must have an understanding of what is possible in the future to target reasonable future goals and perceive the instrumentality of school to those futures.

Although not necessarily easy tasks, creating interventions addressing perceptions of ability and knowledge of possibilities seems feasible, given our current understandings in these areas. Research on self-efficacy interventions (Schunk and Hanson, 1985, 1989; Schunk and Rice, 1987; Schunk and Swartz, 1993) is encouraging. Studies suggest that helping students acquire new skills and cognitive strategies that increase the likelihood of success and encouraging positive attributional patterns can improve self-efficacy. In a similar fashion, the development of knowledge about the possibilities in life seems feasible, given our current understandings of career development (Brown and Brooks, 1990; Peterson *et al.*, 1991; Reardon *et al.*, 2000). However, addressing students' negative outcome expectations resulting from beliefs about teacher bias or other external obstacles to school success may be more challenging. Such interventions may require substantial changes in teaching and teacher behavior. For example, teachers may need to find ways to identify the students' perceptions of the obstacles preventing school success, and implement classroom structures and strategies that change the circumstances leading to those perceptions. Once appropriately supportive school environments are created, negative outcome expectations about school are overcome, and the necessary cognitive skills and strategies are acquired, these students are in a position to begin addressing their future goals and subgoals, and issues of school instrumentality.

Another formidable issue is that of perceived value. The greatest problem here is not really the absence of knowledge that education could or should be of value; rather it is the problem of devaluing or opposing the

value of education. The research of Steinberg *et al.* (1992) has indicated that the majority of students, across ethnic groups, recognize the value of education; however, there are still groups of students for whom this is not the case. Such students are members of subgroups whose sociocultural context communicates that formal education (school) is of little or no value to them (MacLeod, 1987; Ogbu, 1992; Willis, 1977). Students who devalue school achievement clearly do not see school tasks as instrumental to their futures or hold future goals that include school success as important subgoals. The challenge here is to find ways to dispel the reasons underlying the opposition and to support the connection between schooling and existing future goals and values. Considerable research must be done before the essential features of such interventions are understood.

One factor that appears most straightforward is explicitly pointing out the instrumental nature of schooling; however, even this task is more complex than it appears on the surface. For this explicit guidance to be helpful, students must already have or be developing personally relevant future goals that include schooling as part of the path to the accomplishment of their future goals. As noted earlier, we cannot simply assume this is the case. Many students do not have school-relevant future goals and subgoals that make the pleas of teachers or family members about the importance of education seem plausible. Even in those cases where students have relevant future goals, pointing out the instrumental nature of schooling may present challenges of its own.

Although parents, teachers, and other role models for students often try to provide incentives for learning by highlighting the instrumental relationship between doing well in school and future economic success, there may be a negative outcome for such a strategy. A study by Nicholls *et al.*, (1985) showed that high school students who viewed economic payoff and power as the primary purposes of education tended to be performance goal-oriented. Although students with positive perceptions of their ability may display an approach form of motivation under these circumstances and be self-regulated, many students who lack confidence in their ability opt for an avoidance form of motivation (Elliot and Church, 1997) and fail to engage in self-regulated learning. Thus, an overemphasis on career and vocational benefits of education may undermine the very motivational patterns they are intended to foster. However, Nicholls *et al.* (1985; see also Brickman and Miller, 1998) also found that students who viewed education as either serving more altruistic ends, such as helping others and making a positive contribution to society, or who viewed education as fostering greater understanding of the world, tended to be learning goal-oriented. Learning goal-oriented students tend to be mastery-oriented and self-regulated learners. Perhaps interventions highlighting these more altruistic types of instrumental values

could be developed as an alternative to the goals of economic benefit and power; but even this would require that students already have, or be in the process of developing, personally valued future goals emphasizing understanding or altruism.

Fostering the development of a system of proximal subgoals seems easy in contrast to the development of future goals. Once personally relevant future goals are in place, interventions could be designed to provide knowledge to students about common paths others have followed to similar goals in the past. Additionally, students could be taught problem-solving skills and knowledge acquisition strategies that enable them to generate their subgoal systems in the future.

CONCLUSION

In this article we have explained why we believe researchers interested in the motivation and self-regulation of students should include students' future goals, subgoals, and perceptions of instrumentality in their thinking about the complex phenomenon of academic motivation and self-regulation. By doing so we do not intend to diminish the importance of research on proximal motivation and self-regulation. To the contrary, we recognize the importance of such research in furthering our understanding of students' engagement in school learning and in providing practical interventions. However, we believe future goals, subgoals, and perceptions of instrumentality, and their impact on students' proximal motivation and self-regulation cannot be overlooked. We argued that future goals guide the development of a system of subgoals for future goal attainment. The extent to which subgoals are clearly and elaborately defined influences the perceptions of instrumentality among the variety of tasks individuals face. It is the perceptions of instrumentality for future goal attainment that transmit the value of the future goal to proximal self-regulation, guides the selection of proximal tasks, and helps determine the individual's level of engagement in those tasks. Those interested in proximal research issues and those with more future-oriented research agendas need to join forces in studying the phenomenon of academic motivation and self-regulation, and in planning interventions designed to improve the lives of the countless students who fail to see the relevance of schooling in their lives.

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