Inherent Association Between Academic Delay of Gratification, Future Time Perspective, and Self-Regulated Learning

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We review the association between delay of gratification and future time perspective (FTP), which can be incorporated within the theoretical perspective of self-regulation of learning. We propose that delay of gratification in academic contexts, along with facilitative beliefs about the future, increase the likelihood of completing academic tasks. Discussed are (a) classic and current theoretical views of delay of gratification, (b) FTP and its association with delay of gratification, (c) evidence for the association between delay of gratification and FTP that enhances our understanding of academic success from a self-regulated learning approach, and (d) implications for instruction, and considerations of FTP for understanding achievement-related delay. Suggestions for further research are also discussed.

KEY WORDS: future time perspective; delay of gratification; self-regulated learning.

INTRODUCTION

An ideal student who routinely goes home after school, has a snack, studies until dinner (i.e., stays on task), then continues studying until bedtime is likely more academically successful than one who is not as focused on schoolwork. This goal-directed sequence of activities must often withstand a context that includes an array of attractive distractions, such as watching

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television or interacting with friends. Being a successful student, therefore, depends in large measure on resisting temptations that are immediately gratifying in order to increase the likelihood of accomplishing some temporally remote and presumably more important goal. Mischel's (1974, 1981) delay of gratification paradigm, which presents persons with the choice between an immediate reward and a more attractive delayed reward, captures essential elements of a student's dilemma. The perceived instrumentality and future orientation of the task's engagement influences whether the student remains task-focused or gives up. Considerable research has used Mischel's (1974, 1981) paradigm to examine the personal and contextual determinants of delay. Whether the student in the above example delays gratification depends not only on the attractiveness of studying (e.g., whether it is interesting), but also on its utility value.

Utility value is a function of whether successful test performance and earning high grades are believed to be related to valuable educational and vocational outcomes that are temporally and psychologically remote. Understanding delay of gratification, therefore, entails consideration of beliefs or orientations toward the future, including a student's future time perspective (FTP; Gjesme, 1979; Husman *et al.*, 2001, in press; Husman and Lens, 1999; Klineberg, 1968; Lessing, 1968). Considering future consequences is related to self-regulation and strategy use (Miller *et al.*, 1996). As discussed later, one difficulty in understanding the association between delay of gratification and FTP in a learning context is that research using the Mischel (1996) paradigm has focused primarily on nonacademic outcomes. Recent studies, however, have addressed this deficiency by assessing students' delay tendencies when pursuing academic objectives and by examining how these tendencies are related to their academic motivation and self-regulated learning activities.

Both delay of gratification and FTP can also be viewed as features of self-regulated learning. FTP refers to an individual's beliefs or orientation toward the future concerning temporarily distant goals (Gjesme, 1979; *et al.*, 2001, in press; Husman and Lens, 1999; Klineberg, 1968; Lessing, 1968). Similarly, Simons *et al.*, (in press-b) define FTP as "the present anticipation of future goals." In general terms, *delay of gratification* refers to an individual's preference for a larger, temporally distant reward over a smaller, immediately available reward (Mischel, 1996). *Self-regulated learning* refers to a learner's "self-generated thoughts, feelings, and actions for attaining academic goals" (Zimmerman, 1998a, p. 73).

From this perspective, delay of gratification is construed as a self-regulated learning strategy, which, along with facilitative beliefs about the future, increases the likelihood of completing academic tasks. The development of delay of gratification is a direct function of an individual's FTP

(Klineberg, 1968). Our purpose here is to (a) review classic and current theoretical views on delay of gratification; (b) review theoretical views of FTP and its association with delay of gratification; (c) review contemporary empirical and correlational studies supporting the association between delay of gratification and FTP, including how considering both delay of gratification and FTP enhances our understanding of academic success from a self-regulated learning approach; (d) draw implications for instruction; and (e) offer suggestions for future research.

Classic Theoretical Views of Delay of Gratification

In the now classic delay of gratification paradigm, children are given the choice between accepting an immediately available small reward (e.g., one marshmallow) and a larger reward (e.g., two marshmallows) if they wait a given period of time (Ayduk *et al.*, 2000; Mischel, 1996; Mischel and Ayduk, 2002; Sethi and Mischel, 2000). Research using this technique, sometimes called the *marshmallow test* (Goleman, 1995; see also Mischel 1996), has examined the long-term developmental correlates of delay and the situational determinants that promote or hinder children's ability to delay gratification. Mischel *et al.*, (1988), for example, reported that adolescents, who as preschoolers were able to delay gratification, were more academically oriented and socially competent as adolescents than were those participants who had succumbed to the immediately available smaller reward as children. In a subsequent follow-up longitudinal study, when those adolescents became 30 years old (Ayduk *et al.*, 2000; Mischel and Ayduk, 2002), they were more able to delay gratification, which helped them cope with stress and frustration (Ayduk, 1999). Studies of situational determinants have examined how children represent stimuli during the delay period. For example, having children imagine marshmallows as clouds resulted in greater delay of gratification than when the children focused on consummatory interactions with the stimuli, such as imagining how the food would taste (Mischel, 1974; Mischel and Baker, 1975). Distracting children during the delay period by providing them toys, or even having them imagine playing with toys, also increased their ability to delay.

Recently, Metcalfe and Mischel (1999) posited that *hot* and *cool* systems explain pursuing and enacting goals over time and obstacles (see also Metcalfe and Jacobs, 1998). The *hot system* is emotional, simple, reflexive, fast, accentuated by stress, and stimulus controlled. In contrast, the *cool system* is cognitive, complex, reflective, slow, attenuated by stress, and enhances self-control. The cool system helps to secure enactment of goals and

the reduction of emotional tension, whereas the hot system responds to impulses, with a greater likelihood of instant gratification. Mischel (1974; Mischel *et al.*, 1996) also distinguished between the goal choice phase before engaging in delay and the goal control phase after an intention is established. Goal choice is determined, for example, by the individual's expectancy, trust, and vicarious experiences. In contrast, the goal control phase is a process in which individuals engage cognitively and behaviorally in actions to maintain goal selections. The successful maintenance of actions toward obtaining the distant goal depends upon the individual's use of cognitive strategies to avoid the adverse influences of distracting alternatives (Mischel and Shoda, 1989, 1995).

Mischel and his associates frame these strategies within cognitive–affective personality theory (CAPS); that is, the interaction between the person's construal of situations and cognitive–affective mediating units (Ayduk, 1999; Freitas and Downey, 1998; Mendoza-Denton *et al.*, 1997; Metcalfe and Mischel, 1999; Mischel and Shoda, 1989, 1995). They highlight five personal maneuvers individuals use to interact with their environment and situations: (a) the ways of *encoding* themselves and the situations, (b) *expectancy* for success and *beliefs*, (c) *affective responses*, *emotions*, and *feelings*, (d) *goals* and *values*, and (e) *competencies* and *self-regulatory plans*. In a study examining expectancy among Trinitarian children, the researchers found that those who believed they would not receive the reward due to the sociopolitical situation were not able or willing to defer gratification (Mischel, 1996).

Despite its general relevance, most early research on delay of gratification consists primarily of studies with children faced with deciding between magnitudes of material rewards. This focus limits generalization to older populations and other domains. Wulfert and her associates (Wulfert *et al.*, 2002), for example, discuss such limitations, including the difficulty of finding rewards that have meaning for adolescents within Mischel's paradigm. Thus, although delay of gratification is studied extensively in children (e.g., Funder *et al.*, 1983; Funder and Block, 1989; Mischel *et al.*, 1989), there are few studies of adults despite the critical importance of delay of gratification for obtaining goals relevant to them, such as vocational and academic success (e.g., Ayduk, 1999; Durden, 1997; McCann, 1999; Witt, 1990a, b). There is a clear distinction between assessing children's delay of gratification and assessing adults' delay of gratification because their cognitive, social, behavioral learning, and volitional strategies are different.

Another limitation of previous research is that operationalization of delay of gratification, as a choice between small and large material rewards, does not fully capture the dilemma facing students in academic settings in which the goals may be different categories. The temptation of the immediate reward may be similar to that used in the classic delay paradigm in that

the implemented reward may be small and consummatory in nature (e.g., having a snack) whereas the delayed reward is usually not consummatory or simply a larger version of the smaller reward. Factors that affect and determine the attractiveness of immediate rewards in an academic setting are motivationally and cognitively similar to factors that affect and determine immediate rewards used in Mischel's nonacademic delay of gratification paradigm (e.g., distraction, temptations). These factors focus the students either on the nonconsummatory or consummatory features of the hot and cold systems that are known to account for successful delay of gratification in nonacademic contexts.

In academic settings, delayed reward (e.g., performing well on a test or obtaining a diploma) is not necessarily supported by those same cognitive techniques. It is not clear how these proposed systems are relevant for the delayed outcome alternative, the attractiveness of which is determined by different factors (e.g., the perceived importance of doing well on a test). While retaining the general outlines of the delay of gratification phenomenon, another approach, to which we now turn, appears more suitable.

Academic Delay of Gratification

We have examined students' willingness to delay gratification in a manner that is more directly appropriate for learners in academic settings, one that provides information about the relationships between delay of gratification and other forms of self-regulated learning (Bembenutty and Karabenick, 1998a). This research is guided by the general presumption that more self-regulated learners are more likely to delay gratification, but there is no direct test to confirm that relationship. To narrow the focus of delay to learning contexts, we defined *academic delay of gratification* (ADOG) as students' postponement of immediately available opportunities to satisfy impulses in favor of pursuing academic goals that are temporally remote but ostensibly more valuable.

In the absence of available assessment tools, we developed the Academic Delay of Gratification Scale (ADOGS; Bembenutty and Karabenick, 1998a), which operationalizes ADOG by presenting a series of scenarios that students are likely to encounter, each followed by response alternatives that represent short- versus long-term goals. An example is "Going to a favorite concert, play, or sporting event, even though it may mean getting a lower grade on an exam in this class to be taken the next day" (an immediate gratification option) or "Staying home and studying to increase your chances of getting a higher grade" (a delayed gratification option).

We also assessed the students' use of *cognitive strategies*, such as organization, rehearsal, and elaboration, and students' use of *resource management strategies*, which refers to students' self-management and regulation of their time and study environment, planning, scheduling, effort regulation, and help seeking (Pintrich *et al.*, 1993). Assessed in this way, hypothesized relations were found between students' ADOG and their use of self-regulating cognitive and resource management strategies. Specifically, college students higher in ADOG also reported more frequent use of learning strategies as measured by the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich *et al.*, 1993; Wolters *et al.*, 2003). These included cognitive strategies (elaboration, organization, and rehearsal) and resource management strategies (regulation of time and study environment, effort regulation, help seeking, and peer learning.)

Similar relationships were obtained with both regularly admitted African American and Caucasian college students and conditionally admitted African American college students (Bembenutty and Karabenick, 1997). Kim *et al.*, (2001), using the ADOGS, also found that the students with greater preference for delay of gratification reported greater use of learning strategies and volitional control strategies. These and other studies effectively link ADOG and students' use of learning strategies; specifically, those learners more likely to delay gratification are those who employ cognitive and metacognitive strategies, such as planning, monitoring, and self-regulation (Pintrich and De Groot, 1990). Self-regulation that involves students' structuring their learning environment and time is especially relevant for the association between delay of gratification and FTP (Bembenutty and Zimmerman, 2003).

It should be noted that not all students who delay gratification are efficiently self-regulating. Procrastinators, who chronically avoid academic work, often complete assignments or study for exams at the last minute, which by necessity may require foregoing immediately gratifying activities. In this regard, Dewitte and Lens (1999) observed that an overly positive conception of self-regulation is not warranted. Nevertheless, procrastinators who are less self-regulating (Wolters, 2003) differ from students for whom delay of gratification is among a family of strategic ways to succeed academically. Procrastinators lack a broad action FTP (Dewitte and Lens, 2000). Still, procrastination and delay of gratification are conceptually related. They both involve FTP (e.g., in procrastination, see Dewitte and Lens, 2000). Additional research is required that directly determines how these students differ in their motivational tendencies and their use of learning strategies. Because both delay of gratification and procrastination involve temporal dimensions, FTP is an important dimension that differentiates these two types of students.

Motivational Determinants of Academic Delay of Gratification

In addition to viewing delay of gratification as a capacity, suggested by the phrase *ability to delay gratification*, whether learners persist at academic tasks or succumb to attractive alternatives can be conceived as a motivationally determined choice. Indeed, Mischel (1974) proposed that "it is necessary to consider the determinants of the individual's choice to delay for the sake of more preferred delayed outcomes" (p. 287) that depend on the value of the reward and the expectation that engaging in the activity will be successful (Atkinson, 1966; Eccles *et al.*, 1998). Karabenick and Bembenutty (1998) examined the implications of this perspective by obtaining expectancy and value information for the options presented in the ADOGS scenarios. Specifically, students rated how much they liked and valued each alternative and the likelihood they would achieve their academic objectives if they chose to engage in that activity. As expected, students liked immediate gratification options (e.g., going to a play or movie) more than delay alternatives (e.g., studying for a test), but believed they were more likely to succeed if they chose the delay options that were considered more valuable. Of primary interest were the differences between immediate and delayed gratification alternatives. Summed across situations, interest, value, and expectancy for success difference scores predicted delay preference. That is, the more that students liked, valued, and thought they would be successful by choosing the delayed alternative compared to the immediate gratification alternative, the more likely they were to indicate they would delay immediate gratification.

This motivational analysis presumes that delay of gratification involves a series of choices to persist in goal-directed achievement behavior or engage in nontask-related alternatives, based on an assessment of incentives, benefits, or rewards associated with the options presented. If the commitment to delay is made, then plans to pursue the delayed reward are established and distractors or competing alternatives are identified. Iteratively, the commitment to wait is then reconsidered in light of the competing alternatives. According to this motivational-choice analysis, FTP would influence delay choices by affecting relevant expectancies and values associated with the options. Although FTP could affect the immediate and delayed alternatives, it is more important for the alternative requiring a longer time perspective, the effects of which are discussed subsequently.

An important determinant of motivation and performance is *self-efficacy*, which refers to individuals' beliefs in their ability to perform an expected task (Bandura, 1997; Zimmerman, 2000). Because higher self-efficacy is linked to more successful academic motivation and performance (Bandura, 1997; Zimmerman 1998a, b), it should influence students' delay preferences. Bembenutty (2002) examined the direct and indirect effects of

academic delay of gratification and self-efficacy on academic performance among minority college students enrolled in an introductory writing course as part of a summer immersion program. Results indicated that delay of gratification was a significant mediator between students' self-efficacy and their academic achievement (final course grade). Furthermore, the association between delay of gratification and final course grade was mediated by students' ability to manage their time and effort. On the other hand, self-efficacy had a direct influence on achievement and an indirect effect through its association with students' willingness to delay gratification, use of metacognition, and time management. These findings suggest that students with limited self-regulatory skills can profit from instruction that promotes their willingness to delay gratification, use of time management, and effort regulation when instruction is designed according to their particular instructional requirements.

Delay of Gratification and Self-Regulated Learning

The academic delay of gratification process is initiated when students set temporally distant academic goals. As noted earlier, the concept of self-regulation, which is initiated when goals are set, encompasses FTP. Zimmerman's *self-regulation cyclical model* has been used to explain success in education (Zimmerman, 1998a, 2000), and it can aid in understanding how delay of gratification and FTP fit within the overall self-regulatory process. Zimmerman's model is rooted in Bandura's social cognitive theory (Bandura, 1997), which integrates the triadic contributions of the person, the environment, and the behavior for what constitutes human functioning. Bandura (1986, 1997) posited that social factors are important determinants of efforts to self-regulate during learning. According to this view, there is a reciprocal interaction among the person's cognition, motivation and affect, the environment, and behavior. Social cognitive theory has been used successfully to explain academic studying and the development of personal skill (Zimmerman, 1998a; Zimmerman and Martínez-Pons, 1986) by stressing the function of self-regulation in learning.

Successful students are those who engage in self-regulation of their motivation, cognition, environment, and behavior (Zimmerman, 2000). Self-regulated learners are problem-solving agents (Bandura, 1997). They learn to plan their actions and set specific academic goals in order to achieve them. In addition, they can anticipate problems that could prevent them from achieving those goals. They are highly self-efficacious, are able to self-monitor their academic progress, and make facilitative attributions (e.g., failure due to lack of effort) about their performance (Zimmerman, 1998a,b).

In contrast, less skilled learners are less efficient in identifying facts related to their tasks, have low self-efficacy, engage in ineffective self-evaluations and self-monitoring of their academic progress, and make detrimental attributions (e.g., failure due to generalized lack of ability). The cyclical model incorporates important learning components necessary to turn less skilled into highly skilled learners (Zimmerman, 1998a,b, 2000).

Zimmerman's model proposes that learning is maintained through a cycle of self-regulatory processes that must be self-monitored during task performance and altered as needed. Accordingly, self-regulation involves three phases: The *forethought phase* (preperformance) includes processes that set the stage for action (e.g., goal setting, strategic planning, self-efficacy beliefs, and intrinsic interest); the *performance phase* (during performance) includes the processes that affect attention and action (e.g., attention focusing, self-instruction, and self-monitoring); and the *self-reflection phase* (postperformance) that includes learners' responses to their efforts (e.g., self-evaluation, attributions, self-reactions, and adaptivity). Self-efficacy is a key variable that affects all phases of self-regulation (Zimmerman, 2000). As learners engage in the task, they use self-regulatory strategies, and during the self-reflection phase, they evaluate their learning progress. Although beliefs and behaviors during the forethought and performance phases are actions, and decisions are mindful, choices may or may not be made with full or even partial awareness during the self-reflection phase. Complete awareness also may not be necessary once an individual is highly self-regulated because mindfulness may not be a necessary condition for persistence in goal-directed behavior (Bargh *et al.*, 2001).

When viewed within a self-regulatory framework, delay of gratification could be conceived as a strategy to ensure that goal-directed actions are carried out efficiently and without interruption during the performance phase of the self-regulatory cycle. Other phases could also be involved as well because forethought and reflection are probably also involved in decisions to delay gratification and to persist. Whether students were aware of and/or able to invoke delay to accomplish efficient regulation is affected by the person and situation influences on delay discussed earlier.

It should be readily apparent that temporal considerations play an important role in self-regulatory models, beginning with the planning and goal setting that occurs during the preperformance (forethought) stage. Students, whose time perspective extends to distant future goals, embed their self-regulatory activity within a longer period, have a more elaborated set of goals, and perceive greater instrumentality in reaching them. As discussed by Lens *et al.*, (2001), one way that FTP influences present motivation is through different levels of action identification, expressed as goals (Vallacher and Wegner, 1987). A longer-term goal is indicated by the identification of

studying as making certain one achieves a passing grade in a class, whereas a shorter-term goal might be studying to understand the central point in a chapter.

DELAY OF GRATIFICATION AND FUTURE TIME PERSPECTIVE

To reiterate, models of self-regulation (Boekaerts *et al.*, 2000) and empirical evidence suggest that self-regulated learners are more likely to delay gratification and that delay contributes to an overall regulatory approach to learning. In addition, as stated at the outset, self-regulation in general and delay of gratification in particular imply the existence of FTP and recognize its influence on contemporaneous behavior. Recent reviews of FTP in student motivation (Husman and Lens, 1999; Lens *et al.*, 2001) suggest that additional factors, such as perceived instrumentality, intrinsic versus extrinsic motivation, goal valence, and self-regulation, determine when delay of gratification takes place and affect student motivation. In this section, we discuss (a) value of the future goal, (b) perceived instrumentality, (c) the role of intrinsic versus extrinsic motivation, (d) achievement motivation, (e) goal orientation, and (e) self-regulation, as they relate to delay of gratification and FTP and as to how they can affect student motivation.

Value of Future Goals

Studies of delay of gratification using the Mischel paradigm found that the value (or valence) of the delayed reward decreased with increasing delay intervals (Mischel, 1981). Thus, differences in how people experience time, including their FTP, affects the value of distant rewards. Persons with longer FTP perceive a given interval as less extended than do those with shorter FTP. Because the perceived value of the delayed reward is greater for those with longer FTP, they are more willing to delay gratification (Husman and Lens, 1999). Furthermore, the experiential difference due to FTP are greater with longer temporal intervals, that is, more pronounced with very distant goals (e.g., graduation or employment for younger learners).

Perceived Instrumentality

Perceived instrumentality—the cognitive aspect of FTP—refers to the disposition to anticipate long-term consequences of present actions. Perceived instrumentality is also linked to ascribing higher valence to goals

(De Volder and Lens, 1982; Husman *et al.*, in press). The incentive value (i.e., attractiveness) of a valued future achievement objective (e.g., a college degree), therefore, is a direct function of a student's FTP. Although FTP was not assessed directly, evidence that students who place greater value on academic outcomes are more likely to delay gratification (Karabenick and Bembenutty, 1998) supports this interpretation. The relationship between delay of gratification and expectancy of success (i.e., differences in expectancy between engaging in the delay versus immediate gratification activity) are also expected if students with higher delay tendencies were also higher in FTP. At the extreme, it is difficult to conceive of learners delaying nontask relevant immediate gratification if there is no connection between a current task and a valued future goal, exclusive of the motivation engendered by intrinsic task value.

Intrinsic and Extrinsic Motivation

Bembenutty and Karabenick (1998a) found that college students with greater tendencies to delay gratification were more intrinsically and extrinsically motivated (see Deci and Ryan, 1985). Predictably, students who liked their academic tasks, considered them important, and engaged in learning because of future rewards were more likely to delay gratification. That the intrinsic value of the immediate task (i.e., liking) was related to greater delay is straightforward. The relationship between the immediate task and future (delayed) goals, however, is more complex because it involves the instrumentality between them. Lens *et al.*, (2001) suggest, for example, that greater perceived instrumentality could increase the likelihood that the present activity is initiated but not its persistence or quality once initiated. Alternatively, it could affect initiation as well as the latter two dimensions of motivated behavior. Greater persistence has relevance for delay because it should increase resistance to the influence of alternative activities. Evidence indicates that persistence increases when people are aware of future task goals when performing a task (Husman *et al.*, in press; Lens *et al.*, 2001). However, this only occurs during the initiation and early stages of task performance, and only when tasks are "hindered," which may extend to conditions that tempt persons to abandon tasks (Lens *et al.*, 2001). Additional studies are required to test whether persistence translates to greater delay of gratification.

Research on FTP has also focused on the motivational basis and regulation of immediate tasks by future goals (Husman *et al.*, in press; Husman and Lens, 1999; Simons *et al.*, 2000, in press-b). One variation combines *ex*trinsically motivated and *ex*ternally regulated (E-E) activities, such as studying hard to get good grades, a high paying job, and money to travel

around the world. The activity of studying is extrinsically motivated and the distal outcome is externally regulating because the activity of traveling is not related to studying. Second, learners can be *in*trinsically motivated and *in*ternally regulated (I-I) while pursuing academic tasks. For example, doing well on homework in order to do a good presentation in class. In this example, the person wants to do well, and that success depends on the skills gained by performing the immediate task. In the third type of instrumentality, learners are *ex*trinsically motivated and *in*ternally regulated (E-I) while pursuing academic tasks. For example, "I practice racquetball to win the cash prize in the state tournament and move on to the nationals." In this example, the learners engage in the task for extrinsic reasons, but the engagement is internally regulated because the skills involved in the immediate and future activities are categorically the same.

Although suggestive, no studies to date have tested systematically whether these distinctions are related to delay of gratification. We speculate, however, that this depends on which combination of motivation and regulation engenders more engagement in the immediate task. Because available evidence suggests that achievement goal adoption, which is related to adaptive motivation, is a function of the regulation component (Simons *et al.*, 2000), we predict that delay is more prevalent in I-I than in E-I, and E-E types of activities, respectively.

Attractive and Aversive Consequences

A major difference between the original Mischel paradigm (Mischel, 1974) and academic contexts is that future academic goals may have aversive as well as attractive qualities. This was captured by Raynor's expansion of Atkinson's theory of achievement motivation to include future contingent events (Atkinson, 1964; Atkinson and Feather, 1966; Raynor, 1969). According to Raynor, future goals affect present motivation to the extent they are connected through a series of activities in which each step along a path is contingent on successful completion of the previous step. Approach motivation is increased when future goals are attractive (e.g., for learners whose motivation to approach success was greater than to avoid failure). Avoidance motivation is greater, however, when future goals are aversive (e.g., motivation to avoid failure was greater than motivation to approach success). Thus, the influence of future contingent events is magnified, either positively or negatively, based on the degree of contingency, which students might experience as perceived instrumentality.

The approach–avoidance distinction in achievement goal theory is also relevant (Elliott and Covington, 2001; Elliot and Harackiewicz, 1996; Elliott

and McGregor, 2001; Elliott and Thrash, 2002; Pintrich, 2000). From a multiple goals perspective (e.g., Pintrich, 2000), learners are classified not only on the basis of mastery and performance orientation but also on the basis of approach and avoidance. This classification results in mastery approach and avoidance, as well as performance approach and avoidance. Within this framework, learners who are higher in approach orientation (both mastery and performance) are more likely to delay gratification.

Characteristic of those high in mastery approach orientation is their focus on learning and improvement, which suggests they are less susceptible to attractive alternatives and not as focused on the future (see Husman *et al.*, 1996). Performance approach oriented students, who are more focused on future consequences, might be more susceptible to attractive alternatives and be less likely to delay gratification. However, the relevance of present task activity for positive future consequences (i.e., they are categorically similar) suggests they too would have relatively higher levels of delay. Students who are higher in performance avoid orientation should delay the least. Attention to future consequences rather than on the present task, combined with a negatively valenced FTP, would render them readily distracted by alternative activities. Students high in mastery avoid orientation present a mixed picture. Whereas their focus on the immediate task should make them less susceptible to distractions, concerns about not understanding the material may be aversive enough to render those alternatives relatively more attractive. Evidence partially supports this analysis (Bembenutty, 1999), in that gratification was associated with task (i.e., equivalent to mastery approach) goal orientation. However, delay of gratification was not related either to performance approach or performance avoid goal orientations. Further studies that combine delay tendencies, achievement goal orientation, and FTP are needed to specify the precise way these combine to affect delay and other learning-related outcomes.

One consequence of integrating delay of gratification and FTP, in other words, is to force consideration of how both positive and negative future events affect present behavior. From this perspective, the classic Mischel (1974) delay of gratification paradigm is a special case (choice between two attractive alternatives) within a more general multivalenced framework, which more adequately captures the determinants of delay in learning contexts.

Self-Regulation

As described earlier, an important outcome of optimal self-regulation is remaining task focused, which involves the use of such learning strategies as

comprehension monitoring, help seeking (Karabenick, 1998), time management, and self-evaluation (Zimmerman, 2000). Self-regulatory processes and accompanying self-motivational beliefs are associated with high academic performance and achievement (Zimmerman, 1998a,b, 2000). According to Zimmerman's (2000) self-regulated cyclical model, learners with a long FTP are more engaged during the forethought phase in task analysis, and develop self-motivational beliefs to achieve temporarily distant goals. Their goals are specific and challenging rather than diffuse and easy. Learners also engage in strategic planning by choosing specific tasks and subgoals that are challenging and specific rather than easy and diffuse. They also enhance their motivational beliefs, such as self-efficacy, outcome expectancies, intrinsic interest, and goal orientation (Zimmerman, 2000).

During the performance phase, adopting an FTP is associated with learners engaging in volitional control processes such as self-instruction, imagery, attention focusing, self-recording, and self-experimentation. Having long-tern goals and a FTP drive immediate strategies during the performance phase because inherent to an awareness of the future is the need to engage in present actions, which could result in enacting distant goals. For learners with a FTP, pursuing distant goal is an active action, which begins at the present time while pursuing future goals. Motivation and an orientation toward the future activate present actions and behavior. During the self-reflection phase, in term of long-term goals, having an extended FTP is characterized by evaluating one's action and progress, examining causal attributions, evaluating the level of satisfaction with task completion, and developing an adaptive or defensive reaction toward the performance.

In sum, self-regulation, which includes avoiding succumbing to the immediate gratification provided by competing alternatives and temptations, is essential for long-term goal attainment. As Randi and Corno (2000) noted, when competing alternatives vie for attention while pursuing goals "gratification must be delayed" (p. 667). Further, Sternberg and Williams (2002) reflect that "rewards for delaying gratification can sometimes surface years in the future. The lesson for expert students is clear: It is essential to learn to see tasks through without immediate rewards" (p. 29). And whereas for highly self-regulated learners this may occur with little effort, or even automatically and without awareness, Zimmerman (1998a) suggests that less skilled self-regulated learners "must generate extraordinary personal motivation to delay gratification until distant goals are achieved" (p. 6). Insofar as it affects motivational and other components of self-regulated learning, FTP can have a dramatic effect on delay of gratification and academic success.

DELAY OF GRATIFICATION AND FUTURE TIME PERSPECTIVE-RELATED RESEARCH

Despite their conceptual connection, few studies have examined the relationship between delay of gratification and FTP directly, whereas others only provide empirical results from which that relationship can be inferred. For example, Ward *et al.*, (1989) examined the association between African American university student leaders' preference for delay of gratification and their career and academic interests. Using a questionnaire similar in structure to the Academic Delay Of Gratification Scale (ADOGS), students chose between such alternatives as going to a favorite concert and risk getting a bad grade, or staying home to study to secure a better grade on a test. Achievement-oriented delay of gratification was related to the students' career objectives. Although not measured directly, these findings support the contention that a long-term FTP (i.e., career objectives) is related to students' delay of gratification. Similarly, Witt (1990a,b) found that college students' delay of gratification, measured with a survey (Ray and Najman, 1986), was related to satisfaction with and commitment to the university they were attending. Again, delaying gratification was linked to the attainment of goals that were temporally remote.

One aspect of research described earlier has implications for the association between delay of gratification and FTP: the utility value of academic outcomes. Two studies (Bembenutty, 1999; Karabenick and Bembenutty, 1998) examined the association between students' delay of gratification tendencies and the utility value of academic and nonacademic tasks. Students rated the utility of the academic and the nonacademic tasks (e.g., going to the movie; staying home studying is something that would be useful for me) and completed the ADOGS. The difference in perceived utility between the academic and the nonacademic tasks was related to delay of gratification. To the degree that utility value involves future time considerations, the relationship found in this study supports a relationship between the two.

Kim and his associates (Kim *et al.*, 2001) found similar results, using the ADOGS, among 8th grade students from a middle school in Korea. Two items that capture the temporal dimension of utility value were "I think the course material in this class is useful for me to learn" and "I think I will be able to use what I learn in this course in other courses." Task value was correlated to delay of gratification. This finding is consistent with the results obtained among college students (Bembenutty and Karabenick, 1998a).

In other studies, Bembenutty (1999) and Karabenick and Bembenutty (1998) examined the association between students' delay of gratification tendencies and their perception of the utility value of academic and nonacademic

tasks. College students were asked first to select between two competing choices, such as going to a party or staying home studying for an exam. Then, the students were asked to indicate the perceived usefulness (e.g., going to the movie or staying home studying is something that would be useful for me) of the academic and the nonacademic tasks. The researchers found that the differences between the academic task and the nonacademic task for perceived utility were related to delay of gratification, importance (e.g., this is something that I would like to do), and interest (e.g., this is something that would be interesting to me). Certainly, increased instrumentality of their students' present behavior was associated with students' motivation for the academic task and with postponement of gratification of nonacademic tasks.

Perhaps the most direct measure of the association between FTP and delay of gratification was conducted by Bembenutty and Zimmerman (2003). Outcome expectancy is a construct consistent with FTP and perceived instrumentality (Husman and Lens, 1999). The researchers examined the association between students' outcome expectancy, which refers to students' beliefs about future benefit and outcomes of their behavior, and the students' delay of gratification tendencies, use of self-regulated learning strategies, and course grade. The students responded to a questionnaire including assessment of outcome expectancy, intrinsic interest, self-regulation, delay of gratification, math midterm course grade, and math final course grade. Outcome expectancy was assessed with items indicating that doing well in an exam helps them attain their future career and academic goals. Bembenutty and Zimmerman (2003) found that outcome expectancy was associated with delay of gratification, self-regulation, intrinsic interest, math midterm course grade, and math final course grade. These findings suggest the importance of understanding the contextual factors associated with FTP (Simons *et al.*, in press-b) because learners' conception of their future goals develops and is sustained within an interpersonal context in which elements from the self, social, environmental, motivational, and cognitive factors play key roles to secure goal attainment and enactment.

WHERE DO WE GO FROM HERE?

As this review indicates, academic delay of gratification and FTP are associated with an array of motivational, cognitive, and self-regulatory strategies used by learners to secure academic success. We discussed previous approaches to delay of gratification, such as Mischel's (1974), which provide an account of the mechanisms that underlie successful delay of gratification. Mischel proposed different strategies that individuals adopt to sustain effort

over time in the face of obstacles. One of Mischel's contributions, therefore, was to explain delay of gratification at a macrolevel of personality and motivation. However, the demand for specificity in the analysis of the learning processes requires a microanalytic conception of delay of gratification. It is in this regard that Zimmerman (2000) contributes to our understanding of delay and FTP in a specific academic context. For example, Mischel's goal choice phase corresponds to Zimmerman's forethought phase, and Mischel's goal control phase corresponds to Zimmerman's performance control phase. Mischel does not include a self-reflection phase, but he does speak about emotional reactions, which are similar to the self-reactions discussed by Zimmerman (2000) and Bandura (1997). Mischel does not decompose this approach into cyclical performance efforts.

One advantage of Zimmerman's (2000) cyclical model of self-regulation is that it envisions delay of gratification as a series of learning cycles rather than a single motivational or behavioral event. It assumes that information from on-going learning activities, such as perceived progress, has a lot to do with whether students are willing to continue delaying gratification or maintain a future orientation. It assumes that delay of gratification and orientation toward the future is a sequence of decisions that is determined by a self-regulatory feedback cycle rather than by merely preexisting expectancy or values.

We have also examined the implications of theory and research on FTP for academic delay of gratification, which is related to students' motivational tendencies, and use of cognitive and resource management strategies. Delay and FTP are also embedded within a self-regulated learning framework. In this view, delay and FTP are two of many components of students' toolkits for learning if they are to complete numerous and difficult academic tasks in the face of distractions and over time.

One of the challenges of research on delay of gratification is that its conceptual status is far from certain. Pintrich (1999) put it this way: "It is not clear whether ADOG is a volitional strategy, a cognitive schema, a general disposition, or a personality trait. It may be that it could be represented psychologically in all these ways, depending on the theoretical model" (p. 346). Further, Gjesme (1979) posited that delay of gratification is a culture specific variable with "different manifestations and different meaning depending on the cultural setting" (p. 186). Additional research that links delay of gratification with FTP, embedded within a self-regulatory framework, may help address this ambiguity. With that in mind, there is a clear need for systematic studies that directly test the proposed connections. First, because all of the studies cited are correlational, experimental studies in education that manipulate FTP would be informative. Experimental studies on the effect of experimentally induced FTP on sport motivation

(Simons *et al.*, in press-a) could serve as models for educators and educational researchers. Second, there is a need to focus on the conditions (e.g., achievement goal structures) that moderate the relationship between FTP and delay. Third, we might consider developmental differences in delay of gratification and FTP, with the expectation that they would have similar trajectories.

INSTRUCTIONAL IMPLICATIONS

Given their important role in educating children, teachers might serve students well by modeling how they themselves confront attractive alternatives and by describing how students might use those same strategies. Instructions in self-regulation that increase the likelihood that students are successful, including planning, self-monitoring, and adjusting their behavior accordingly, should help students resist distractions. Teachers could include exercises in their classrooms and homework that allow students to practice delay of gratification and include other activities that increase student motivation, such as enhancing self-efficacy beliefs associated with delay by using phrases such as "I tell myself that I will be able to understand and remember this course material," "I tell myself, 'I can do it" (Bembenutty, 1999).

Teachers could help children enhance their use of learning strategies by focusing them on assessing, understanding, and evaluating their self-system of beliefs and values and their goal orientations. Concretely, teachers could teach children to develop an awareness of their future goals. Similarly, teachers could help learners examine the positive and negative outcomes associated with their goals. Further, teachers could focus their instruction on highlighting the importance of intrinsic motivation in conjunction with the instrumentality of the task for future outcomes. Considering future benefits could enhance learners' present behavior and motivation.

Learners can develop self-management strategies themselves, such as using time effectively and controlling their study environment (Pintrich and De Groot, 1990), planning, and developing an FTP (Gjesme, 1979; Husman and Lens, 1999). Organization, rehearsal, elaboration, and critical thinking are some of the cognitive strategies associated with delay of gratification. Ultimately, these recommendations follow from the prevailing view of the active learner (Pintrich and Schunk, 2002). The ideal student, described at the outset, exemplifies that perspective by engaging in self-regulation, which includes resisting immediate gratification in order to reach valuable long-term goals. The student's FTP plays an important part in that regulation and in the likelihood of success.

CONCLUSION

Although all of the determinants and mechanisms by which FTP affects delay of gratification are yet specified, there is sufficient evidence to suggest an influence that is important for learners' ability to sustain learning over time and obstacles. In this review, we suggested that delay of gratification is a self-regulatory mechanism by which FTP or perceived instrumentality of present tasks are cognitively enhanced and behaviorally crystallized. We also suggested that delay of gratification brings perceived instrumentality into its temporarily present perspective. Further, we proposed that delay of gratification encompasses some of the learning and persistence strategies used by learners to link their beliefs and expectations about the future and the enactment and attainment of distant goals. Further, delay of gratification embraces the cognitive, motivational, and behavioral mechanisms by which learners could merge their intrinsic and extrinsic motivation for learning, their beliefs, and expectations. We view delay of gratification as an essential mechanism by which learners can transform their expectations and beliefs about the future into actual self-regulated behavior (Zimmerman, 2000).

Our conclusion, that short-term future perspective is associated with tendencies to prefer smaller immediately available rewards and that having long-term future perspective is associated with preference for larger but delayed rewards, is consistent with Simons *et al.* (in press-b) who suggest that having a short FTP is associated with setting goals in a near future and with having a long FTP (see also Klineberg, 1968; Lessing, 1968). In this regard, Klineberg (1968) suggests that the ability to delay gratification depends on an individual's time perspective tendencies.

Having an FTP enhances motivation and performance at a present task while considering the temporarily distant goal (Gjesme, 1979; Husman *et al.*, 2001; Husman and Lens, 1999; Klineberg, 1968; Lessing, 1968; Simons *et al.*, 2000). Husman *et al.*, (2000) posited that there is a relationship between learners' use of volitional strategies use and their perceptions of instrumentality. Thus, having an FTP enhances the intrinsic or extrinsic regulation of present behavior (Husman and Lens, 1999; Lens and Rand, 1997; Simons *et al.*, 2000). Similarly, having temporarily distant goals, while considering the instrumentality or utility value of the task, enhances learners' interest, motivation, and self-regulation of behavior in order to pursue those long-term goals. However, perceiving the instrumentality or utility value of long-term goals may not be sufficient for engaging in self-regulation or volitional control of actions (Kuhl, 1985, 2000).

We know that delay of gratification is related to effort regulation, help-seeking, organization, elaboration, time management, metacognition, rehearsal, critical thinking, expectancy beliefs, and value of tasks while pursuing

future goals or anticipating outcomes or consequences of behavior (Bembenutty and Karabenick, 1998a). The action of successful delay of gratification merges the spectrum of the past, present, and the future associated with task selection, task implementation, and task completion. In sum, delay of gratification is an important strategy that helps learners transform their expectations and beliefs about the future into self-regulated behavior (Zimmerman, 2000).

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