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ABSTRACT

This paper reviews the association between delay of gratification and future time perspective, which can be incorporated within the theoretical perspective of self-regulation of learning. It proposes that delay of gratification in academic contexts along with facilitative beliefs about the future increase the likelihood of completing academic tasks. Discussed are (1) classic and current theoretical views of delay of gratification; (2) future time perspective and its association with delay of gratification; and (3) evidence for the association between delay of gratification and future time perspective that enhances the understanding of academic success from a self-regulated learning approach. Suggestions for further research and implications for instruction are also discussed. (Contains 58 references.) (Author/SLD)

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Academic Delay of Gratification, Future Goals, and Self-Regulated Learning

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Abstract

We review the association between delay of gratification and future time perspective, 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) future time perspective and its association with delay of gratification, c) evidence for the association between delay of gratification and future time perspective that enhances our understanding of academic success from a self-regulated learning approach. Suggestions for further research and implications for instruction are also discussed.

Academic Delay of Gratification, Future Goals, and Self-Regulation of Learning

An ideal student who routinely goes home after school, has a snack, studies until dinner (i.e., stays on task), then continues until bedtime will likely be 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 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 temporally remote and presumably more important goals. Mischel's (1974, 1981, 1996) delay of gratification paradigm, which presents persons with the choice between an immediate reward and a more attractive delayed reward, captures essential elements of the student's dilemma. The perceived instrumentality and future orientation of her task's engagement will influence whether the student will remain task-focused or whether she will give up.

Considerable research has used Mischel's paradigm to examine the person and contextual determinants of delay. In the present context, in addition to the immediate attractiveness of studying (e.g., whether it is interesting), compared to the alternatives, whether the student delays immediate gratification would depend on the utility value of studying. Utility value is a function of whether successful test performance and earning high grades are believed 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 (Gjesme, 1979; Husman & Lens, 1999; Husman, Smith, & Johnson, 2001; Klineberg, 1968; Lessing, 1968). Considering future consequences is

related to self-regulation and strategy use (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996). As will be discussed, one difficulty in understanding the association between delay of gratification and future time perspective in a learning context is that research using the Mischel (1996) paradigm has focused primarily on non-academic outcomes. Recent studies, however, have addressed this deficiency by assessing students' delay tendencies when pursuing academic objectives and examining how these tendencies are related to their academic motivation and self-regulated learning activities.

Both delay of gratification and future time perspective can also be viewed as features of self-regulated learning. *Future time perspective* refers to an individual's beliefs or orientation toward the future concerned temporarily distant goals (Gjesme, 1979; Husman & Lens, 1999; Husman, Smith, & Johnson, 2001; Klineberg, 1968; Lessing, 1968). Likewise, Simons, Maarten, & Lens (this issue) define future time perspective as "the present anticipation of future goals." In general terms, *delay of gratification* refers to an individual's preference for a larger reward temporarily distant over a smaller reward immediately available (Mischel, 1996). *Self-regulated learning* refers to a learner's "self-generated thoughts, feelings, and actions for attaining academic goals" (Zimmerman, 1998, p. 73).

From this perspective, delay of gratification can be 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 the individuals' future time perspective (Klineberg, 1968). Our purpose here is to: a) review theoretical views of delay of gratification, specifically, classic and current research on delay of gratification, b) review theoretical views of future time

perspective and its association with delay of gratification, c) review contemporary empirical and correlational studies supporting the association between delay of gratification and future time perspective, including how considering both delay of gratification and future time perspective enhances our understanding of academic success from a self-regulated learning approach, d) draw implications for instruction, and e) offer suggestions future research.

Theoretical Overviews of Delay of Gratification

Delay of Gratification: The Classic Paradigm and Theoretical Approach

In the now classic delay of gratification paradigm, children are given the choice between accepting an immediately available small reward (e.g., one cookie) and a larger reward (e.g., two cookies) if they wait a given period of time (Ayduk et al., 2000; Mischel, 1996; Sethi & 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, Shoda, and Peake (1988), for example, reported that children, who as preschoolers were able to delay gratification, as adolescents, were more academically oriented and socially competent than were children who succumbed to the immediately available smaller reward. In a subsequent follow-up longitudinal study, when 30 years old (Ayduk et al., 2000), those children 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 focusing on consummatory interactions with the

stimuli, such as imagining how the food would taste (Mischel, 1974; Mischel & 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 (Mischel, Ebbesen, & Zeiss, 1972).

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 has been studied extensively in children (e.g., Funder & Block, 1989; Funder, Block, & Block, 1983); Mischel, Shoda, & Rodriguez, 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, and behavioral learning and volitional strategies are very 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 are in different categories. The temptation of the immediate reward may be similar to that used in the classic delay paradigm (e.g., having yet another snack), but not the delayed reward. Since factors that affect the attractiveness of the immediate reward are motivationally similar,

such as distraction and cognitive techniques that focus students on its non-consummatory features, proposed to account for delay of gratification with material rewards could be operative in an academic setting when applied to the immediate gratification alternative (e.g., food, social activity, entertainment). However, the delayed reward (e.g., performing well on a test or obtaining a diploma) would not. It is not clear how these proposed systems would be relevant for the delayed outcome alternative, the attractiveness of which is determined by very 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, would appear to be 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 & Karabenick, 1998). This research is guided by the general presumption that more self-regulated learners would be more likely to delay gratification, but there had been 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), 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 found that students higher in ADOG reported more frequent use of learning strategies as measured by the Motivated Strategies for Learning Questionnaire (MSLQ; Pintrich, Smith, García, & McKeachie, 1993). These include cognitive strategies of elaboration, organization, and rehearsal, and resource management strategies of regulation of time and study environment, effort regulation, help seeking, and peer learning.

Similar relationships were obtained with both regularly-admitted African American and Caucasians college students and conditionally-admitted African American college students (Bembenutty & Karabenick, 1997). Kim, Chung, Lee, and Kwon (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 & 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 future time perspective (Bembenutty & Zimmerman, 2003).

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 depends on the value of the reward and the expectation that engaging in the activity will be successful (Atkinson, 1966; Eccles, Wigfield, & Schiefele, 1998; Feather, 1993). 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 gratification.

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 has been linked to more successful academic motivation and performance (Bandura, 1997; Zimmerman 1985) 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 of 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 it 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 very concept of self-regulation, which is initiated when goals are set, encompasses future time perspective. Zimmerman's *self-regulation cyclical model* has been used to explain success in education (Zimmerman, 1998, 2000), and it can aid in understanding how delay of gratification and future time perspective 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, 1998; Zimmerman & Martínez-Pons, 1986) by stressing the function of self-regulation in learning (see Figure 1).

According to Zimmerman (2000), successful students are those who engage in self-regulation of their motivation, cognition, environment, and behavior. 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, 1998). 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 generalized lack of ability). The cyclical model incorporates important learning components necessary to turn less skilled into more skilled learners (Zimmerman, 1998, 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* (pre-performance) 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*

(post-performance) 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 the learners engage in the task, they use self-regulatory strategies and during self-reflection phase, they will evaluate their learning progress.

When viewed within a self-regulatory framework, delay of gratification can 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, since 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 would be 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 pre-performance (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 in which future time perspective influences present motivation is through different levels of action identification, expressed as goals (Vallacher & Wegner, 1987). A longer term goal would be 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, Pintrich, & Zeidner, 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 future time perspective and recognize its influence on contemporaneous behavior. Recent reviews of future time perspective in student motivation (Husman & Lens, 1999; Lens, Simon, & Dewitte, 2001) suggest additional factors that determine when delay of gratification takes place, such as perceived instrumentality, intrinsic versus extrinsic motivation, goal valence, and self-regulation, which can affect student motivation. In this section, we will discuss a) value of the future goal, b) the 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 future time perspective and 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 future time perspective, would affect the value of distant rewards. Persons with longer future time perspective perceive a given interval as less extended than do those with shorter future time perspective. Since the perceived value of the delayed reward is greater for those with longer future time perspectives, they should be more willing to delay gratification (Husman & Lens, 1999). Furthermore, the experiential difference due to future time

perspective would be 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 future time perspective—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 & Lens, 1982). The incentive value (i.e., attractiveness) of a valued future achievement objective (e.g., a college degree), therefore, would be a direct function of a student's future time perspective. Although future time perspective was not assessed directly, evidence that students who place greater value on academic outcomes are more likely to delay gratification (Karabenick & 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) would also be expected if students with higher delay tendencies were also higher in future time perspective. At the extreme, it would be difficult to conceive of learners delaying non-task relevant immediate gratification if there were no connection between a current task and a valued future goal, exclusive of the motivation engendered by intrinsic task value.

Self-regulation of learning

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 known to be associated with high academic performance and achievement

(Zimmerman, 1998, 2000). According to Zimmerman's (2000) self-regulated cyclical model, learners with a long future time perspective would be more engaged during the forethought phase in task analysis and develop self-motivational beliefs to achieve temporarily distant goals. Their goals would be specific and challenging rather than diffuse and easy. Learners would also engage in strategic planning by choosing specific tasks and subgoals that were challenging and specific rather than easy and diffuse. They would also enhance their motivational beliefs, such as self-efficacy, outcome expectancies, intrinsic interest, and goal orientation (Zimmerman, 2000; see Figure 1).

During the performance phase, adopting a future time perspective would be associated with learners engaging in volitional control processes such as self-instruction, imagery, attention focusing, self-recording, and self-experimentation. During the self-reflection phase, having an extended future time perspective would be characterized by evaluating one's action and progress, examining causal attributions, evaluating the level of satisfaction with task completion, and by 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 (1998) noted, when competing alternatives vie for attention while pursuing goals "gratification must be delayed" (p. 2000). 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 (1998) 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, future time perspective 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 future time perspective directly, whereas others only provide empirical results from which that relationship can be interred. For example, Ward et al., (1989) examined the association between African-American university student leaders' preferences for delay of gratification and their career and academic interests. Using a questionnaire similar in structure to the 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 future time perspective (i.e., career objectives) is related to students' delay of gratification. Similarly, Witt (1990a; 1990b), found that college students' delay of gratification, measured with a survey (Ray & Najman, 1986), was related to satisfaction with and commitment to the university where they were attending. Again, delaying gratification was linked to the attainment of goals that are temporally, and psychologically, remote.

One aspect of research described earlier has implications for the association between delay of gratification and future time perspective: the utility value of academic outcomes.

Two studies (Bembenutty, 1999; Karabenick & Bembenutty, 1998) examined the association between students' delay of gratification tendencies and the utility value of academic and non-academic tasks. In addition to responding to the ADOGS, students rated the utility of the academic and the non-academic tasks (e.g., staying home studying is something that would be useful for me). The differences between academic task and the non-academic task for perceived utility was related to delay of gratification ($r = .38$). To the degree that utility value involves future time considerations, and in a way a proxy for future time perspective, the relationship can be considered support for the 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 significantly correlated to delay of gratification ($r = .50$), which is consistent with the results obtained among college students (Bembenutty & Karabenick, 1998).

Perhaps one of the most direct measures of the association between future time perspective and delay of gratification was conducted by Bembenutty and Zimmerman (2003). Outcome expectancy is a construct consistent with future time perspective and perceived instrumentality (Husman & 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 the exam will help them to attain their future career and academic goals. Bembenutty and Zimmerman (2003) found that outcome expectancy was associated with delay of gratification (r = .32), self-regulation (r = .31), intrinsic interest (r = .36), math midterm course grade (r = .35), and math final course grade (r = .37). These findings suggest the important of understanding the contextual factors associated with future time perspective (Simons, Maarten, & Lens, this issue) because learners' conception of their future goals develop and is sustained within an interpersonal context in which element form the self, social, environmental, motivational, and cognitive factors play key roles to secure goal attainment and enactment.

Where Do We Go From Here?

One of the challenges of research on delay of gratification is that while we can assess and describe it, 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 future time perspective, embedded with a self-regulatory framework may help to address this ambiguity. With that in mind, there is a clear need for systematic studies that directly test the proposed connections. First, since all

of the studies cited have been correlational, experimental studies that manipulate future time perspective would be informative. Second, there is a need to focus on the conditions (e.g., achievement goal structures) that moderate the relationship between future time perspective and delay. Third, we might consider developmental differences in delay of gratification and future time perspective, with the expectation that they would have similar trajectories.

Instructional Implications

Given their important role in educating children, teachers might serve their students well by modeling how they themselves confront attractive alternatives and describe to students how they 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 allows students to practice delay of gratification, as well as other activities that increase student motivation, such as enhancing self-efficacy beliefs associated with delay, which include 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, evaluating their self-system of beliefs and values, as well as 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 also could focus their instruction on highlighting the importance of intrinsic motivation in conjunction of 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 & De Groot, 1990) planning, and developing a future time perspective (Gjesme, 1979; Husman, & 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 & Schunk, 2002). The ideal student, described at the outset, exemplifies that perspective by engaging in self-regulation, which includes resisting immediate gratification, to reach valuable long-term goals. Her future time perspective plays an important part of that regulation and the likelihood she will succeed.

Conclusion

Although all of the determinants and mechanisms by which future time perspective affects delay of gratification have yet to be specified, there is sufficient evidence to suggest an influence that is important for learners' ability to successfully sustain learning over time and obstacles. In this review, we suggest that delay of gratification is a self-regulatory mechanism by which future time perspective or perceive instrumentality of present tasks are cognitively enhanced and behaviorally crystallized. We view delay of gratification as an essential mechanism by which learners could transform their expectations and beliefs about the future into actual self-regulated behavior (Zimmerman, 2000). Our conclusion regarding that short-term future perspective is associated with tendencies to prefer smaller immediately available rewards and having long-term future perspective is associated with

preference for larger but delayed rewards is consistent with Simons, Maarten, and Lens (this issue), who suggest that having a short future time perspective is associated with setting goals in a near future and having a long future time perspective (see also Klineberg, 1968; Lessing, 1968). In this regard, Klineberg (1968) suggests that the ability to delay gratification depends on a individual's time perspective tendencies.

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 goal or anticipating outcomes or consequences of behavior (Bembenutty & Karabenick, 1998). 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 transforming their expectations and beliefs about the future into self-regulated behavior (Zimmerman, 2000).

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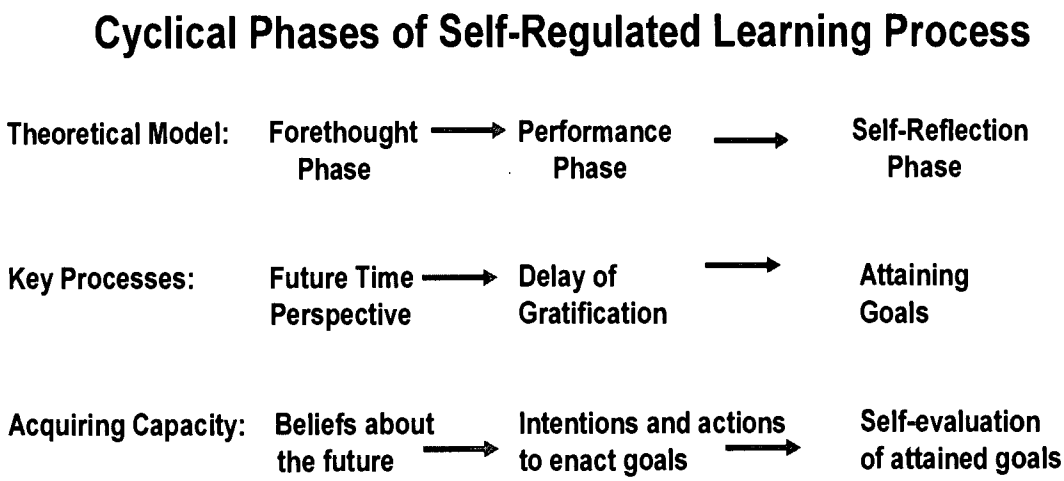
Figure 1

Cyclical Phases of Self-Regulated Learning Process



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