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교육학석사학위논문

The Effects of Autonomy and Task Value
on Students' Perception of Temptation:
The Moderating Role of Individual Differences
in Self-Regulation

자기조절 능력에 따른
자율성과 과제가치가 학생들이 지각하는 유혹에 미치는 영향

2014년 2월

서울대학교 대학원
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이 논문을 교육학 석사학위논문으로 제출함

2013년 10월

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김여은의 석사학위논문을 인준함

2013년 12월

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Abstract

The Effects of Autonomy and Task Value on Students' Perception of Temptation: The Moderating Role of Individual Differences in Self-Regulation

The present study investigated how students perceive temptation differently across time depending on their self-regulation ability and context. In an experimental setting, students were asked to perform a task in the presence of an attractive alternative. Study 1 examined whether perceived level of temptation changes across time depending on individual differences in self-regulation. It was found that high self-regulatory group students' perception of temptation decreased across time, while low self-regulatory group students' perception of temptation increased across time. Study 2 examined whether two educational manipulations, provision of autonomy and task value, can help students to engage in the target task in face of temptation. It was found that providing autonomy or task value can help students resist temptations, although low self-regulatory group benefit more. These findings suggest that the level of temptation can be perceived differently depending on individual difference in self-regulation, time, and task context.

Key words : temptation, self-regulation, autonomy, task value

Student ID : 2012-21321

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INTRODUCTION

Students pursue a diversity of goals including both academic and non-academic goals (Boekaerts, de Koning, & Vedder, 2006). Recently, it is increasingly recognized in educational research that students pursue multiple goals (Boekaerts et al., 2006; de Lemos & Gonçalves, 2004) in and out of the classroom. A variety of goals students strive for include both academic and non-academic goals, such as “being a successful student” or “trying to have fun” (Wentzel, 1989). Hofer (2007) indicated that since students pursue diverse goals at the same moment, it is important to coordinate academic and non-academic goals for students to maintain their task engagement.

The conflicting and competing motivational tendencies consistently influence students in many ways (Hofer, 2007) since some goals can interfere with other goals. With the limited resource that we have in our ability to self-regulate, two or more goals cannot be realized at the same moment. Since pursuing a specific goal means abandoning other possible goals, in many cases, students can experience internal dilemma (Hofer, Schmid, Fries, Kilian, & Kuhnle, 2010). Students have to give up positive rewards and advantages from the alternative, while participating in the target task. These situations, which require difficult choices, are frequently encountered in our lives. However, motivational processes in the case of competing motivational tendencies remain not clearly explained (Grund, 2013).

We all experience these choices, which are sometimes difficult to make. In the face of temptation of attractive alternatives, students can become easily distracted and have difficulty maintaining concentration on their task (Hofer et al., 2007). Attractive alternatives, or temptations, can vary in daily situations (i.e., watching television, meeting friends, and playing games) that tempt and affect students' self-regulation. Consequently, students frequently experience motivational interference.

Unfortunately, students often encounter learning activities that do not interest them at all (Hidi & Harackiewicz, 2000), and these situations are highly energy draining for students to continue their task. Hofer (2007) suggested that when an alternative activity is interesting enough, with higher attractiveness relative to the current activity, students may prefer doing alternatives and switch to off-task behaviors. As perceived incentives and valences of alternatives increase, students are susceptible to experience motivational conflict.

Even if we do not notice or regard them as temptations, attractive alternatives are always prevalent in real-life settings. Obviously, the presence of an alternative itself does not play a role as a temptation for everyone. It is only for the certain individuals and conditions that these alternatives can turn into temptations (Fries & Dietz, 2007). Then, the following question can be asked: when does an alternative become temptation? If an alternative becomes more attractive than the present task, the motivation for an alternative rises, making students lose their concentration and persistence toward the present task. Thus,

when the attractiveness of an alternative exceeds that of the current task, students feel tempted (Hofer, 2007).

However, students' perception of temptation is not stable over time and context. It may wax and wane in accordance with time and situational context. Level of temptation that an individual perceives can vary greatly not only within a person, but also across persons. However, relatively few studies have paid attention to how students regulate their learning when there is temptation from attractive distracting tasks.

Two main issues motivated this study: Why is it especially difficult for someone to resist temptation? How can we help students to resist temptation successfully and maintain their boring activities? It is the purpose of this paper to examine how the level of temptation changes when they encounter an attractive alternative. Furthermore, the present study suggests two educational approaches to reduce temptation in the presence of an attractive distracter.

According to previous studies concerning individual differences in self-regulation, students with poor self-regulatory abilities are easily influenced by external cues (Baumann & Kuhl, 2005). Dewitte and Schouwenburg (2002) also demonstrated that students with low self-regulatory abilities postponed their work because they failed to resist attractive alternatives. Thus, individual differences in self-regulation should be taken into account. Since lack of self-regulation abilities can make it hard for students to concentrate and engage in a task, low self-regulatory students especially may require extra support.

This study proposes that perceived temptation from distracting task can fluctuate depending on how much autonomy and value students perceive

from an academic activity. Supporting autonomy can be effective manipulation in helping students resist temptations. Opportunities of making decisions and choosing what to do can enhance intrinsic motivation in the activity they are doing. When students' need for autonomy was met, reported positive influences included increased interest, intrinsic motivation, task engagement, and persistence (Black & Deci, 2000; Katz & Assor, 2007; Patall, Cooper, & Wynn, 2010).

Another way to enhance task engagement is to discover how valuable and meaningful a task is to the individual. Understanding the meaning and reasons for doing an activity can help students stay focused in that activity. When students cannot find purpose or meaning in a task, it becomes impossible for students to be engrossed in that task (Wigfield & Eccles, 1992; Wigfield, Tonks, & Klauda, 2009). Also, students expend more time and effort when a task is useful and relevant to them (Jang, 2008). This is in line with previous researches concerning motivational strategies. Presence of a rationale can be a powerful motivational strategy during uninteresting activities (Reeve, Jang, Hardre, & Omura, 2002).

To summarize, the aim of this study is to understand the dynamics of motivation, especially in the face of temptations. Focusing on how the level of temptation fluctuates, it will be possible to discover how students perceive temptation. The study especially examines the interaction of personal factor and contextual factors. Personal factor concern with the individual differences in self-regulation, and contextual factors include educational manipulations of providing autonomy and highlighting utility value of the task. Study 1

examines how students perceive temptation differently depending on their self-regulation ability. Furthermore, Study 2 suggests two educational manipulations which can be helpful for students to lower their perceived level of temptation.

RESEARCH QUESTIONS

This study starts from the following two questions: How do students perceive temptations differently depending on their self-regulation ability? How can we help students to resist temptations successfully and persist in their academic activities? To explore the answers of these issues, two experimental studies were designed. Study 1 examined how the perceived level of temptation varies depending on their self-regulation ability. The purpose of Study 2 was to explore a potential educational approach of decreasing the level of temptation. Two manipulations include the provision of autonomy and value. Study 2 investigates how individual differences in self-regulation interact with different types of educational manipulations to reduce level of temptation. The specific research questions were as follows:

Study 1.

1. Does self-regulation ability affect students' perception of temptation?
2. Does students' perception of temptation differ across time depending on their self-regulation ability?

Study 2.

1. Does provision of autonomy or value affect students' perception of temptation?
2. Are there any interactions among condition (autonomy or value), self-regulation, and time on level of temptation?

LITERATURE REVIEW

Temptations can interfere with task engagement, which can be detrimental to the learning process (Baumann & Kuhl, 2005; Patterson & Mischel, 1976). When tempting alternatives are present, students have a hard time maintaining their work and show poor performance. Fries and Dietz (2007) suggested that the negative impact from temptations comes from lowering motivation for the learning activity. The incentive and valence of alternatives may be perceived as “opportunity costs” because the alternatives must be abandoned. Since certain amount of time and effort is needed for each task and there are limited resources available for us, missed alternatives can induce conflict in students’ minds. Students can experience distractibility and cognitive intrusions from tempting situations (Fries & Dietz, 2007).

With the opportunity to initiate alternative activities, performance can be impaired even more (Fries & Dietz, 2007; Heise, Gerjets, & Westermann, 1997). In the face of temptation from attractive alternatives, students’ motivation can be interfered and they may feel tempted to choose the alternative option (Fries & Dietz, 2007; Hofer et al., 2007; Kilian, Hofer, Fries, & Kuhnle, 2010). Even if they use strategies to reduce off-task behaviors by removing possible temptations (Purdie & Hattie, 1996; Wolters, 2003), it is not an easy task to stick to the uninteresting task in the face of temptation.

Students often encounter attractive alternatives when working on academic activities. And especially when non-academic motivations become

active, the multiple goals can compete with each other. As a consequence of two or more rivaling goals, *motivational interference* or *motivational conflict* can occur (Fries & Dietz, 2007; Fries, Dietz, & Schmid, 2008; Schmid, Hofer, Dietz, Reinders, & Fries, 2005). Motivational interference is the cognitive, affective, and behavioral deficit coming from the attractiveness of an alternative (Hofer, 2007). This phenomenon is related with the negative effect on the current activity that comes from the motivational features of the alternative activity.

Experiencing motivational conflicts can also have a negative influence on the learning process, achievement, and psychological well-being of students (Fries & Dietz, 2007; Hofer et al., 2007; Kilian et al., 2010; Riediger & Freund, 2004). According to a previous study, students showed lower persistence, higher distractibility, lower achievement, and bad mood under motivational interference (Schmid et al., 2005). The presence of a tempting alternative reduced motivation to persist in the target task by giving distraction and annoyance to students during a learning session. Unfortunately, even if students successfully resist temptations and maintain their performance on a task, the mere possibility of the alternatives can disturb the chosen task, having detrimental effect on both motivation and achievement (Hofer, Fries, et al., 2010; Kilian et al., 2010).

The majority of educational studies have focused on task itself, neglecting tempting situations or distracting tasks. Nevertheless, students' ability to self-regulate does not depend only on the valences of the target task, but also on the valences of the distracting task (Fries et al., 2008; Grund &

Fries, 2012; Hofer, 2007; Hofer, Fries, et al., 2010). Thus, incentives and valences for both the target task and the distracting task must be considered.

Many researches have demonstrated that being interested in the task is a key components in educational process (Alexander & Jetton, 1996; Deci & Ryan, 1985; Hidi, 1990; Schiefele, 1991; Schiefele, Krapp, & Winteler, 1992; Schraw & Lehman, 2001) because interest helps maintain attention and active engagement in pursuing the activity (Lipstein & Renninger, 2007). Self-regulation ability is also closely related to a high level of interest (Sansone & Thoman, 2005).

However, the level of interest in the target task and the distracting task can both affect the learning process greatly (Baumann & Kuhl, 2005). Hofer (2007) indicated that interestingness of the target task and attractiveness of the alternative are the predictors of motivational conflict. As the level of interest in the target task gets higher, distracting effect from the alternative decreases. If a student considers the target task as attractive and enjoyable, there will be less (or no) temptation. On the other hand, as the attractiveness of the alternative gets higher, the probability of motivational conflict will increase. If a student is highly interested in the distracting task, there will be much more temptation. Hence, lower target task interest and higher distracting task interest contribute to a high degree of temptation. The important factor is not the target task interest in itself, but the relationship between the two. Consequently, it is essential to consider the relationship between the target task and the distracting task (Hofer, 2007).

In the present study, the difference in task interest between target task and distracting task was considered as the perception of temptation. In other words, in order to focus on the motivational conflict that students go through, the perception of temptation was explored by examining how students perceived the attractiveness of the distracting task relative to the target task.

Resisting tempting situations and maintaining their motivation on the task can put high demand on self-regulatory process. Despite the detrimental effect of temptations, the empirical studies are rarely done (Fries et al., 2008). Most of the research so far has conducted studies concerning motivational interference by using self-report questionnaires or conflict scenarios (Grund, 2013; Hofer, Fries, et al., 2010; Hofer, Kuhnle, Kilian, Marta, & Fries, 2011; Kilian et al., 2010; Kilian, Hofer, & Kuhnle, 2013). It is crucial to demonstrate an experimental study to examine how students react to the challenge of self-regulation, trying to maintain their academic goal in the presence of attractive alternatives. In this sense, the present study conducted an empirical based study to provide evidence of how students actually reacted to tempting situations.

Much previous research concerning self-regulation drew keen attention to self-regulation failure, which focused on how and why people fail at self-regulating process (Baumeister & Heatherton, 1996; Kirschenbaum, 1987). Self-regulatory performance is closely related with the ability to concentrate on the target task in the presence of tempting alternative activities (Baumann & Kuhl, 2005). Maintaining a boring task, despite the opportunity to switch to an attractive distracter, can be a great burden that requires high levels of self-regulatory ability.

This research demonstrates meaningful attempts to find out educational approaches to help students regulate their learning in face of temptation. Since it is not easy for students to stick to boring activities with successful resistance to attractive alternatives, helpful educational approach is essential. The present study examined the effects of two possible educational manipulations of providing value and autonomy.

Autonomy support is one way to help students to resist temptation. Self-determined motivation is facilitated when the social context is autonomy supportive, whereas self-determined motivation is undermined when the social context is controlling (Black & Deci, 2000; Pelletier, Fortier, Vallerand, & Briere, 2001; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Pelletier et al. (2001) demonstrated that perceptions of autonomy support brought intrinsic motivation and identified regulation, which were positively related to persistence over time. It is possible to support students' autonomy in the classroom by allowing students to make their own voice and choice (Chirkov & Ryan, 2001; Niemiec & Ryan, 2009). Autonomy supportive style, or teaching practice, can play a critical role in making positive changes.

Much literature actually demonstrated that offering meaningful choices can increase interest, intrinsic motivation, task engagement, and persistence (Black & Deci, 2000; Cordova & Lepper, 1996; Grolnick & Ryan, 1987; Katz & Assor, 2007; Miserandino, 1996; Patall et al., 2010; Schraw, 1998; Schraw, Flowerday, & Lehman, 2001; Standage, Duda, & Ntoumanis, 2006; Swann & Pittman, 1977; Tsai, Kunter, Lüdtke, Trautwein, & Ryan, 2008; Zhou, Ma, & Deci, 2009; Zuckerman, Porac, Lathin, & Deci, 1978). Giving students choices

in their task can greatly affect their learning process. According to self-determination theory (Deci & Ryan, 1985; Deci & Ryan, 2000), choice satisfies the need for autonomy, which can positively influence students while performing their task. By allowing and supporting students' basic needs for autonomy, autonomous self-regulation for learning can be promoted (Niemiec & Ryan, 2009). The relationship between self-determined motivation and motivational interference was emphasized in numerous studies (Hofer, 2007; Ratelle, Senècal, Vallerand, & Provencher, 2005). Autonomy can play a positive role in decreasing motivational conflict.

Supporting autonomy facilitates internal regulation and makes students more engrossed in the learning material when compared to the controlling condition (Assor, Kaplan, & Roth, 2002). Indeed, teachers also indicated that choice provides students the sense of responsibility and self-control, thus making them more involved and engaged in academic activities (Flowerday & Schraw, 2000). This is especially important and effective for low-interest students and less-self-regulated students (Flowerday & Schraw, 2000; Schraw et al., 2001).

However, some literature also pointed out that too many options or opportunities can bring negative effects, making students overwhelmed and depleted (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Iyengar & Lepper, 2000; Schwartz, 2000). Providing proper amount of options should also be carefully considered.

Another way to help students' resistance to temptation is by providing value to the task that they are involved in. As many researches have pointed out,

helping students find value and meaning in their academic activities can promote motivation and achievement (Hulleman, Godes, Hendricks, & Harackiewicz, 2010). With the recognition of value in the activity, students become more absorbed in the activity (Hidi & Renninger, 2006).

Task value can be explained as perceived importance of the task (Eccles et al., 1983). Students discover task value when they recognize that the task is useful and relevant to their lives (Eccles, 2009). Perceived utility value has great potential in educational approaches since it is greatly associated with both motivation and performance (Bong, 2001; Cole, Bergin, & Whittaker, 2008; Durik, Vida, & Eccles, 2006; Eccles et al., 1983; Harackiewicz, Rozek, Hulleman, & Hyde, 2012; Hulleman, Durik, Schweigert, & Harackiewicz, 2008a; Lens & Decruyenaere, 1991; Malka & Covington, 2005; Simons, Dewitte, & Lens, 2004; Updegraff, Eccles, Barber, & O'brien, 1996; Wigfield, 1994). With its external nature, utility manipulation possesses amenability and applicability in the classroom setting. In addition, providing information about the importance of the task is rather simple than other manipulations.

By providing students the opportunity to find connections between the task and their lives, task value manipulation can make significant changes in students' interest and engagement toward the task. According to the four-phase model of interest development presented by Hidi and Renninger (2006), development of interest depends on the experience of positive affect, which comes from perceiving value and developing knowledge of the domain. Understanding the value of an activity contributed to the development of interest and deepening of existing interest over time. Emphasizing task value

can also boost task engagement, which is essential for experiencing excitement and interest, putting more effort, and eventually showing high achievement (Brophy, 1999; Cordova & Lepper, 1996; Csikszentmihalyi, 1990; Deci, Eghrari, Patrick, & Leone, 1994; Eccles et al., 1983; Green-Demers, Pelletier, Stewart, & Gushue, 1998; Hulleman et al., 2010; Jang, 2008; Reeve et al., 2002; Sansone, Weir, Harpster, & Morgan, 1992; Sansone, Wiebe, & Morgan, 1999). When the task is perceived as a valuable activity, students tend to pay more attention and try to learn more thoroughly, which in turn, brings the experience of true task engagement.

Provision of a rationale leads to greater identified regulation and interest-enhancing strategies, task engagement, persistence, and achievement (Jang, 2008). In contrast, students with no reasons to participate usually demonstrate low motivation, resulting in effortless engagement and poor concentration (Legault, Green-Demers, & Pelletier, 2006; Wigfield & Eccles, 2000).

This rather simple manipulation of providing task value can actually promote subsequent interest as well (Durik & Harackiewicz, 2007; Godes, Hulleman, & Harackiewicz, 2007; Hulleman, Durik, Schweigert, & Harackiewicz, 2008b; Hulleman et al., 2010; Hulleman & Harackiewicz, 2009; Shechter, Durik, Miyamoto, & Harackiewicz, 2011; Simons, Dewitte, & Lens, 2003), although there are some individual difference in the effect (Durik & Harackiewicz, 2007). Students with poor performance and low success expectations usually benefit more by increasing perceptions of task value (Hulleman et al., 2010; Hulleman & Harackiewicz, 2009). Low achieving

students with low competency might have difficulty in perceiving the value of the task on their own (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002), thus special manipulations should be quite effective.

The effects of these two manipulations can vary as a function of individual differences in self-regulation. Depending on students' ability to regulate their learning, susceptibility to temptation can differ greatly (Hofer, 2007). Self-regulatory ability can play a critical role especially when maintaining concentration on a boring but necessary task. According to Baumann and Kuhl (2005), students with poor self-regulatory abilities are more vulnerable and dependent on situational factors compared to students with high self-regulatory ability. Students with low self-regulation capability show greater dependence on contextual aspects (Koole & Jostmann, 2004). It is very difficult for them to ward off temptations, resulting in postponing their academic intentions in favor of enjoyable alternatives (Dewitte & Schouwenburg, 2002). Sansone and Thoman (2006) also indicated that motivational deficit or lack of motivation is closely related to an inability to self-regulate. Thus, it is important to consider individual differences of self-regulation when examining the effects of educational manipulations.

To summarize, this study demonstrated two experimental studies, focusing on how students perceive level of temptation across time. Both personal factor and environmental factor were considered which can affect the level of temptation. Individual difference in self-regulation ability was examined in Study 1. The main purpose of Study 1 was to investigate how students perceive temptation differently across time depending on their self-

regulation ability. Furthermore, Study 2 added the effects of two manipulations, provision of autonomy and value. The aim of this study was to see how individual differences in self-regulation interact with two types of manipulations.

RESEARCH HYPOTHESIS

Based on the theoretical review, specific research hypotheses were developed as follows:

Study 1.

1. Self-regulation ability will affect students' perception of temptation.
 - 1-1. High self-regulatory group will perceive less temptation when compared to low self-regulatory group.
2. Students' perception of temptation will differ across time depending on their self-regulation ability.
 - 2-1. High self-regulatory group's level of temptation will decrease across time.
 - 2-2. Low self-regulatory group's level of temptation will increase across time.

Study 2.

1. Provision of autonomy or value will affect students' perception of temptation.
 - 1-1. Students will perceive less temptation when autonomy or value is provided.
2. There will be interactive effect among condition (autonomy or value), self-regulation, and time on level of temptation.
 - 2-1. For high self-regulatory group, provision of autonomy or value will not bring difference on level of temptation across time compared to control condition.
 - 2-2. For low self-regulatory group, provision of autonomy or value will decrease level of temptation across time compared to control condition.

STUDY 1

The main purpose of Study 1 was to investigate how students perceive temptation differently across time depending on their self-regulation ability. In an experimental setting, students were asked to perform a task (target task) in the presence of an attractive alternative (distracting task). Their perception of temptation was determined by the difference score between target task interest and distracting task interest, which indicates how interesting the distracting task was compared to the target task. In order to find out how students perceive temptation differently across time, students' perception of temptation was checked twice, before and after the task. In short, Study 1 focused on exploring how high and low self-regulatory group perceive temptation differently across time.

Method

Participants

Thirty-seven undergraduates from a university in Seoul, Korea participated in this study. Two students were excluded from the final analysis due to computer program error during the experiment. Participants included 18 sophomore students and 17 junior students (7 male and 28 female), with mean age of 21.54 years.

All participants volunteered to participate in this experiment and signed an IRB-approved informed consent. No extra credit or reward was offered for their participation.

Experimental design

Mixed design with one between-subjects factor and one within-subjects factor was used. Self-regulation ability (high or low) and Time (T1 or T2) were used as independent variables, and perception of temptation was used as dependent variable. The participants were classified into either high or low self-regulatory group on a relative basis according to their self-reported self-regulation measure. The difference between distracting task interest and target task interest was regarded as the level of temptation. To be more specific, level of temptation was identified by subtracting target task interest from distracting task interest. Students' perception of temptation was examined twice, before (T1) and after (T2) the actual task, to reveal how perception of temptation changes across time.

Materials

Target task As a target task, Operation Span (OSPAN) task developed by Turner and Engle (1989) was slightly modified for the purpose of this study. OSPAN is a prototypical working memory task. This task was chosen as a main task to make sure there is no effect of prior knowledge or prior preference concerning the task. Also, since this study concerns self-regulation in presence

of attractive alternative, a task which requires high level of concentration was appropriate for the experiment.

As a target task, equation-word string was presented one by one on the computer screen (e.g., $7 \times (3+5) = 56$, pig). Students were asked to verify whether each of the mathematical equation was correct by pressing 'true' or 'false' button. At the same time, they attempted to remember a list of words presented in order. Each series contained five equation-word strings. At the end of each series, students had to type a sequence of words that they had memorized in order. The target task was presented on the left side of the computer screen. Figure 1 shows an example screen of the actual target task.

Distracting task In order to distract students, Tetris game was provided. This game was especially chosen since Tetris game is one of the most popular games in the world. Everyone should have played this game at least once. It was important to avoid novelty of the game because novelty can bring great difference in task interest. Before the actual experiment, the instructor checked to see if there were any students who had never played Tetris game before. All of the students confirmed they were familiar with the game and played it at some time or another.

To maximize temptation of the distracting task, Tetris game was presented on the right side of the computer screen while performing the target task. Figure 1 shows an example screen. The presence of the distracting game was designed to consistently distract students' attention on the task and be a constant source of temptation as they continued their task.

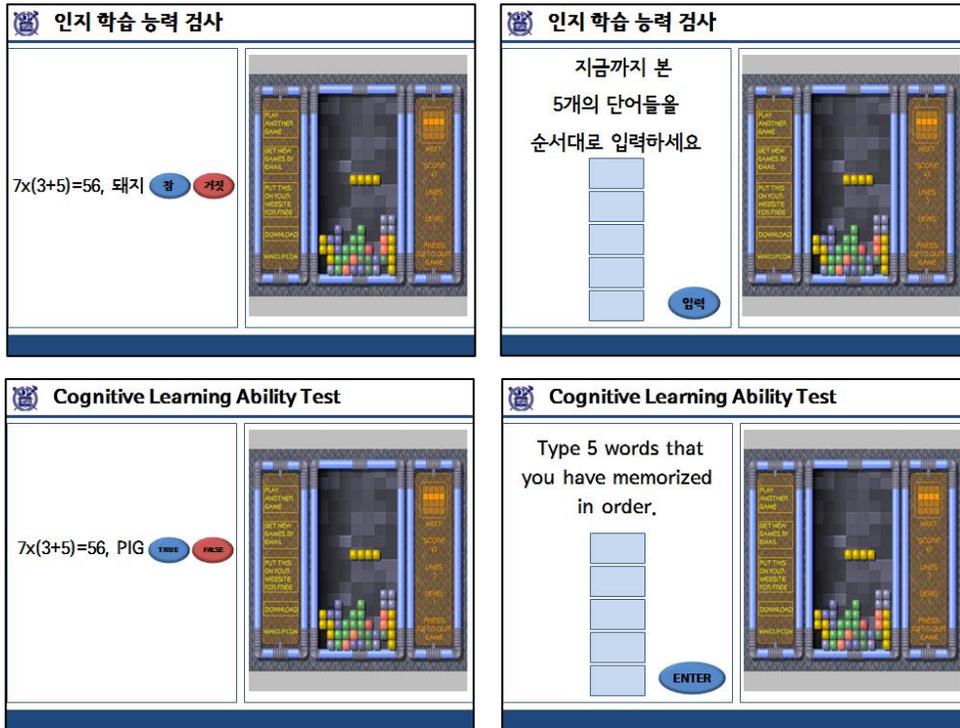


Figure 1. Example screen including target task and distracting task (Korean version in first row; English version in second row)

Measures

Task interest Students self-reported their task interest and task enjoyment by answering four items. Enjoyment-interest subscale of the Intrinsic Motivation Inventory (IMI; Ryan, 1982; McAuley et al. 1989) was modified for the purpose of this study. Four items were used with a 6-point Likert-type scale rating from 1 (not true at all) to 6 (exactly true). This scale was used for both target task and distracting task. Two items assessing task interest were “I am interested in this task (game)” and “I find the things covered in this task (game) interesting”. Two items assessing task enjoyment were “I enjoy doing this task

(game)” and “I look forward to doing this task (game)”. These items were administered to assess participants' interest in the target task and the distracting task. The internal reliability (Cronbach's α) for target task interest was 0.97 in T 1 and 0.93 in T 2. The internal reliability (Cronbach's α) for distracting task interest was 0.93 in T 1 and 0.95 in T 2.

Self-regulation To measure self-regulation ability, students were asked to indicate how capable they were in self-regulation. The items were adapted and modified from previous scales concerning self-regulation (Pintrich et al., 1991; Zimmerman et al., 1992). Students answered seven items with 6-point Likert-type scale rating from 1 (not true at all) to 6 (exactly true). Sample items were “I can study when there are other interesting things to do” and “I can motivate myself to do schoolwork”. The internal reliability (Cronbach's α) for self-regulation was 0.80.

Procedure

Permission from the Institutional Review Board (IRB) was obtained for collecting data for this study (IRB No. 1030/001-016). The whole procedure was held in the computer lab of a university. A trained experimenter conducted all experimental sessions according to standardized instructions. After brief orientation of the study, written informed consent was obtained from all participants reported in this study. Participants were informed that the purpose of the experiment was to evaluate their cognitive learning ability. To examine their unaffected task interest, it was indispensable to disguise the real aim of the

experiment, thus no mention was made about task interest or temptation. The overall procedure of the experiment is shown in figure 2.

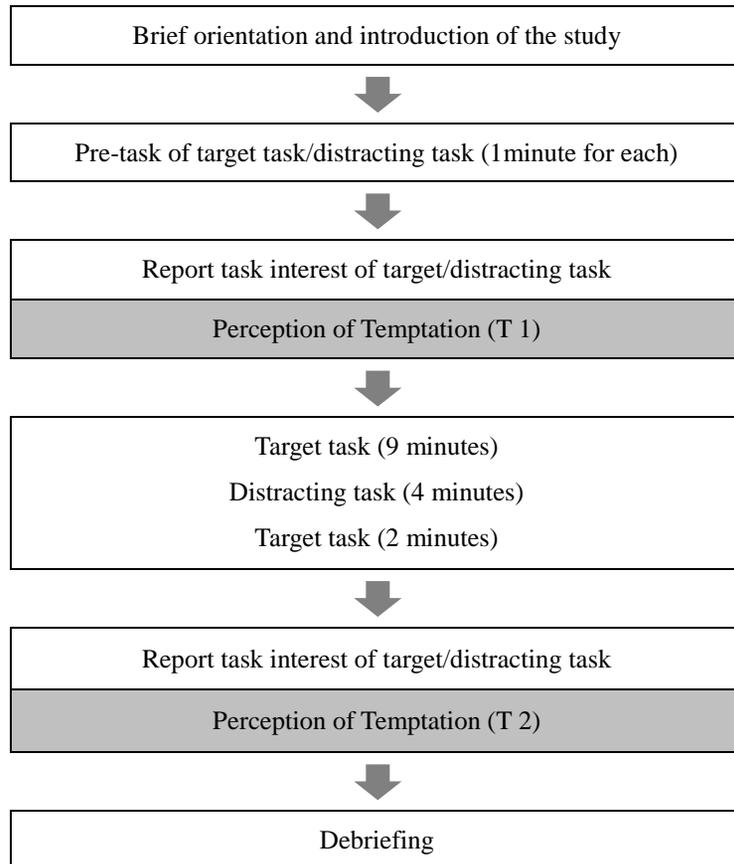


Figure 2. Overall procedure of the experiment

Students sat in front of a computer and conducted each session of the experiment. Instruction for target task performance and one set of practice problems were given. The task interest of the target task in the baseline (T 1) was assessed by asking students how interesting the task was. Then, students

had 1 minute to play Tetris game (i.e. distracting task) to get themselves familiarized with the game. The task interest of the distracting task in the baseline (T 1) was assessed by asking students how interesting the Tetris game was. To summarize, the level of temptation in T 1 was examined before doing the actual task.

The main goal of the task was presented to students which were to solve the problems as correctly and as quickly as possible. Students conducted the actual target task for 9 minutes. Students were exposed to a distracting task while working on the target task. Target task was shown in the left side of the screen and distracting task was shown in the right side of the screen. Although students could see the other task while engaging in the task, they were not able to switch back and forth to the other task. After 9 minutes of target task, a notification was given on the screen, “Now you can play Tetris for 4 minutes.” Students engaged in the distracting task for 4 minutes, then returned to the target task again for 2 minutes. Task interest of both target and distracting task was assessed once again (T 2) with the same questions which were asked in T 1. Likewise, the level of temptation in T 2 was examined after doing the actual task.

After the experimental session, students answered few questions about the task and themselves. Finally, they were debriefed regarding the structure of the study, and the actual purpose of the study was revealed. Finally, all participants signed the IRB-approved consents once again in the debriefing session. The whole experiment took about 50 minutes.

Results

Table 1 summarizes the means and standard deviations of main variables in high and low self-regulatory groups. The participants were divided into two groups, high or low self-regulatory group, on a relative basis according to their self-reported self-regulation measure (median split; median = 3.57). The high self-regulatory group had significantly higher level of self-regulation ($p < .001$) than low self-regulatory group.

	Self-regulation	Target task interest		Distracting task interest		Perception of temptation	
		T1	T2	T1	T2	T1	T2
High self-regulatory group (n= 19)	4.35 (.17)	4.11 (1.12)	4.22 (.88)	4.57 (1.16)	4.12 (1.13)	.46 (1.77)	-.11 (1.20)
Low self-regulatory group (n=16)	3.02 (.13)	4.22 (1.52)	3.97 (1.00)	4.42 (1.05)	4.66 (1.22)	.20 (.98)	.69 (1.01)
Total (N=35)	3.74 (.93)	4.16 (1.30)	4.11 (.93)	4.50 (1.10)	4.36 (1.18)	.34 (1.45)	.26 (1.17)

Table 1. Statistical descriptions of main variables in Study 1

Level of temptation was obtained by comparing the interest of target task and distracting task and getting the difference score between them. This variable indicates how interesting and enjoyable the distracting task was compared to the target task.

The data were analyzed performing a 2 (self-regulation: high or low) \times 2 (Time: T 1 or T 2) repeated measures analysis of variance (ANOVA) with time as a within-participants variable. Table 2 shows the result of repeated measures ANOVA. Main effect of time and self-regulation were both not significant ($F=.03, p>.05$; $F=.49, p>.05$). Consistent with the hypothesis, a significant interaction between self-regulation and time was revealed for level of temptation, $F=5.59, p<.05$.

Variable	SS	df	MS	<i>F</i>	<i>P</i>
Between-subjects	83	31			
Self-regulation	1.27	1	1.27	.47	.50
Error	81.73	30	2.72		
Within-subjects	30.19	41			
Time	.02	1	.02	.02	.99
Self-regulation \times Time	4.25	1	4.25	4.92	.03
Error	25.92	39	.86		

Table 2. Summary of repeated measures ANOVA of effects of self-regulation and time on level of temptation

As can be seen in Figure 3, interaction effect was observed. An inverse pattern was found between high and low self-regulatory groups. Students perceived temptation differently across time depending on their self-regulation ability.

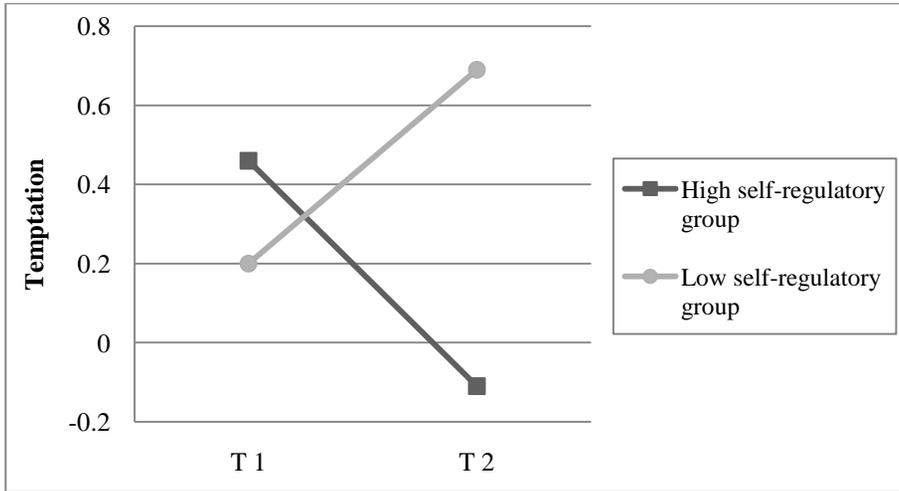


Figure 3. Level of temptation as a function of self-regulation and time

High self-regulatory group students' level of temptation decreased across time. On the other hand, low self-regulatory group students' level of temptation increased across time. Furthermore, simple effect analysis showed no significant difference in T 1 ($F=.27, p>.05$), but a significant difference in T 2 ($F=4.40, p<.05$) between high and low self-regulatory groups.

Discussion

The main question of Study 1 was whether the level of temptation is perceived differently across time depending on students' self-regulatory ability. To investigate the difference in level of temptation between high and low self-

regulatory groups, students were engaged in the target task in the presence of attractive distracting task. Temptation from an attractive alternative, Tetris game, was prevalent throughout the experimental sessions. And the level of temptation was examined before and after the task.

The result of Study 1 suggest that temptation can be perceived differently with the matters of *who* and *when*. Individual differences in self-regulation and time affected the level of temptation. Study 1 provides meaningful findings that the two groups, high and low self-regulatory group, go through different intrapersonal psychological process when they are under motivational interference. In case of high self-regulatory group, the level of temptation decreased as time advanced. The level of temptation even became negative, which means that they thought the target task was more interesting than the distracting task. This shows that they were deeply engaged and engrossed in the activity. Successful resistance to temptation was shown by high self-regulatory group. The distracting task was no longer working as a “temptation,” instead, the game was became the “distraction” to the target task.

On the other hand, in the case of low self-regulatory group, the level of temptation increased greatly while participating in the task. They were tempted to engage in the distracting task, which led to motivational interference. These findings are in line with past research findings suggesting that students with poor self-regulatory abilities are more vulnerable to external cues (Baumann & Kuhl, 2005; Koole & Jostmann, 2004). While being more interested in the distracting task, students are more likely to think about the attractive alternative.

Previous research also indicated that the thinking about other alternatives can impair regulation in learning (Hofer, Fries, et al., 2010; Kilian et al., 2010). Although the two groups were both in the same situation, low self-regulatory group may suffer even more because they actually perceive higher level of temptation from the distracting task.

With the findings from Study 1, another important question remains to be explained: How can we help students to focus on their task and not feel tempted by attractive alternatives? Study 2 was designed to examine whether different context can make a difference in perceived level of temptation. Two potential educational approaches of decreasing the level of temptation were explored.

STUDY 2

Study 2 was designed to examine whether different context conditions can change the perceived level of temptation. Two educational manipulations, including the provision of autonomy and value, were given to students. The main procedure was the same with Study 1. The perceived level of temptation was examined before (T 1) and after (T 2) the main session. The aim of this study was to see how individual differences in self-regulation interact with two types of manipulations.

Method

Participants

Participants in this study included 130 undergraduates from a university in Seoul, Korea. Seven students were excluded from the final analysis due to their insincere answers. The mean age of the participants was 19.83 years (24 men and 99 women). All participants volunteered to participate and signed an IRB-approved informed consent. No extra credit or reward was offered for their participation. Participants were randomly assigned to one of three conditions; control (n = 45), autonomy (n = 37), or value (n = 41) group.

Experimental design

Mixed design with two between-subjects factors and one within-subjects factor was used. Time (T 1 or T 2), condition (control group, autonomy group, or value group) and self-regulation ability (high or low) were used as independent variables. A median split was used to dichotomize participants into a high or low self-regulatory group, relative to their self-reported self-regulation measure. As was done in study 1, level of temptation was used as dependent variable. Participants indicated their level of temptation twice, before (T 1) and after (T 2) the actual task.

Materials and Measures

The materials and measures were the same as those in study 1.

Procedure

IRB permission was obtained for all samples reported in this study as well. The procedure was identical to that of study 1. The only difference was that the condition had been added. For the control group, the same procedure was repeated as in the previous study. For the autonomy group, opportunity to select the theme of the words was given during the task. For example, by clicking the “animal” button, the names of the animals were presented in each of the equation-word string. Figure 4 shows the example screen that was added only for the autonomy group.

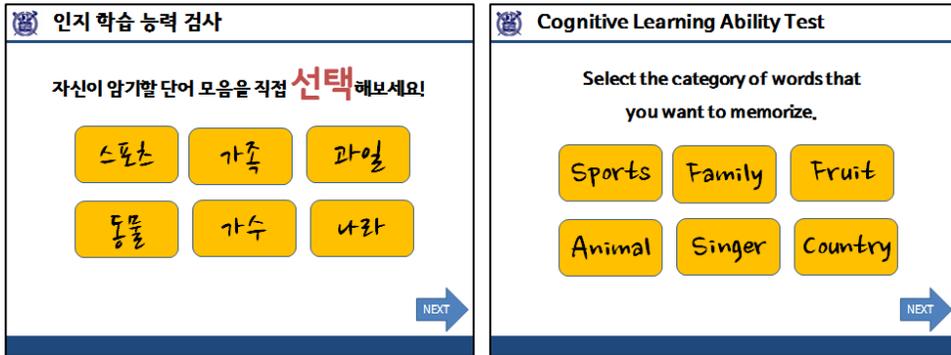


Figure 4. Example screen for autonomy group
(Korean version on the left; English version on the right)

For the value group, the instructor especially emphasized the importance of the task before the experimental session. Students were well explained about the usefulness of the task. To highlight the usefulness of the task, the instructor explained how it could help them as well. By providing a meaningful rationale to students, students were well informed about the value of the target task. The target task was introduced with the following explanation in the screen; “This task assesses your ability of cognition, perception, and memorization. The result of this test is related with your intelligence. According to multiple previous studies, high scores of this task predicted high academic performance. Also, by exercising and training with this task, you can improve your ability of cognition, perception, and memorization.”

Results

Table 3 summarizes the means and standard deviations of main variables in high and low self-regulatory groups. The participants were divided into two groups, high or low self-regulatory group, on a relative basis according to their self-reported self-regulation measure (median split; median = 3.86).

		Self-regulation	Target task Interest		Distracting task interest		Perception of temptation	
			T1	T2	T1	T2	T1	T2
Control Group (n= 45)	High self-regulatory group (n= 25)	4.46 (.49)	4.07 (.90)	4.20 (1.04)	4.40 (.84)	4.14 (.98)	.33 (1.13)	-.06 (1.14)
	Low self-regulatory group (n=20)	3.21 (.51)	3.75 (1.41)	3.45 (1.28)	3.86 (1.06)	4.18 (.90)	0.11 (1.39)	.73 (1.53)
Autonomy Group (n= 37)	High self-regulatory group (n= 17)	4.57 (.58)	3.97 (1.10)	4.35 (.98)	4.66 (1.09)	4.50 (1.26)	.69 (1.11)	.15 (1.09)
	Low self-regulatory group (n=20)	3.34 (.43)	3.69 (1.22)	3.98 (1.05)	4.03 (1.06)	4.20 (1.18)	.34 (.93)	.23 (.77)
Value Group (n= 41)	High self-regulatory group (n=17)	4.52 (.69)	3.99 (1.10)	4.03 (.82)	4.07 (.98)	4.06 (.89)	.09 (1.21)	.03 (.68)
	Low self-regulatory group (n=24)	3.37 (.49)	3.64 (.71)	3.84 (.65)	4.06 (.97)	3.99 (.80)	.43 (1.33)	.15 (.97)

Table 3. Statistical descriptions of main variables in Study 2

The high self-regulatory group and low self-regulatory group showed a significant difference in self-regulation ability for control group ($p < .001$), autonomy group ($p < .001$), and value group ($p < .001$). In control group, same pattern was found as Study 1. The level of temptation increased across time in low-self-regulatory group, and decreased across time in high self-regulatory group. This reconfirms the findings from Study 1.

The data were analyzed using a 2 (self-regulation: high or low) \times 2 (time: T 1 or T 2) \times 3 (condition: control group, autonomy group, or value group) repeated measures analysis of variance (ANOVA) with time as a within-participants variable. Table 4 shows the result of repeated measures ANOVA.

Variable	SS	Df	MS	<i>F</i>	<i>P</i>
Between-subjects	233.96	126			
Condition	.67	2	.34	.18	.84
Self-regulation	1.98	1	1.98	1.05	.31
Condition \times Self-regulation	2.63	2	1.31	.70	.50
Error	228.68	121	1.89		
Within-subjects	84.74	127			
Time	.30	1	.30	.48	.49
Condition \times Time	.92	2	.46	.74	.48
Self-regulation \times Time	3.87	1	3.87	6.21	.01
Condition \times Self-regulation \times Time	4.18	2	2.09	3.35	.03
Error	75.47	121	.62		

Table 4. Summary of repeated measures ANOVA of effects of condition, self-regulation, and time on level of temptation

Although no main effect of self-regulation, $F=.46$, $p>.05$, no main effect of time, $F=1.77$, $p>.05$, no main effect of condition, $F=.30$, $p>.05$, was detected, significant interactions were found. Once again, a significant interaction was obtained between self-regulation and time, $F=4.32$, $p<.05$. This result reconfirms the findings of Study 1. And as hypothesized, condition \times self-regulation \times time interaction was significant for level of temptation, $F=3.47$, $p<.05$.

This three-way interaction was explored in more detail by conducting separate repeated measures ANOVAs for each group. In each of the high and low self-regulatory groups, a two-way repeated ANOVA was performed to examine the interaction of time (T 1 and T 2) and condition (control, autonomy, and value group).

For high self-regulatory group, the main effect of condition and interaction between time and condition were both not significant ($F=.75$, $p>.05$; $F=.78$, $p>.05$). However, the main effect of time was significant, $F=4.63$, $p<.05$. Students in all three conditions showed a decreasing pattern from T 1 to T 2.

For low self-regulatory group, the main effect of time and condition were both not significant ($F=.36$, $p>.05$; $F=.10$, $p>.05$). However, a significant interaction between time and condition was revealed for level of temptation, $F=5.06$, $p<.01$. Control group showed an increasing pattern, while autonomy and value group showed a decreasing pattern for level of temptation across time.

In Figure 5, three-way interaction among condition, self-regulation, and time is shown. Figure 5 contains a plot of high self-regulatory group in the top panel and a plot of low self-regulatory group in the bottom panel.

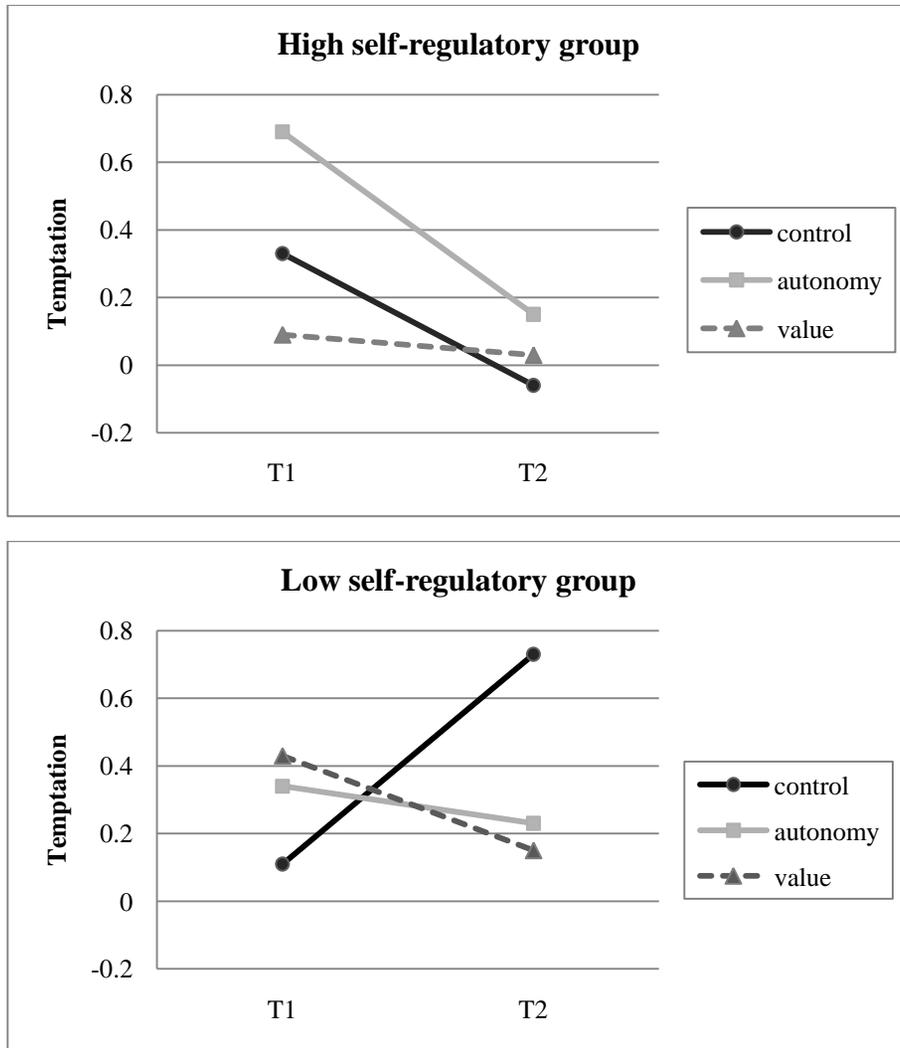


Figure 5. Level of temptation as a function of time and condition for high self-regulatory group (top panel) and low self-regulatory group (bottom panel)

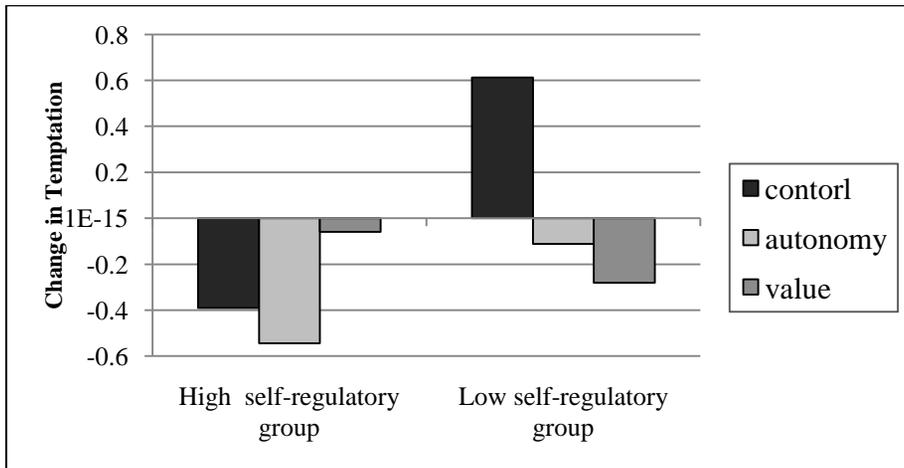


Figure 6. Changing pattern of temptation across time

For better understanding, figure 6 shows the changing pattern of temptation from T 1 to T 2. To investigate whether level of temptation increases or decreases over time, change in temptation was determined as the difference between T 1 and T 2. Increase in temptation results in a positive bar, and decrease in temptation results in a negative bar.

Discussion

The main purpose of Study 2 was to explore possible educational approaches for students who face temptation. Students participated in one of three condition groups: control group, autonomy group, and value group. Under each condition, the perceived level of temptation was examined across time for

both high and low self-regulatory groups. By testing practical manipulations, Study 2 provides evidence that different context conditions can bring different results.

The effects of the three conditions varied depending on students' self-regulation ability. For the high self-regulatory group, the level of temptation decreased across time regardless of conditions. On the other hand, low self-regulatory group showed a big difference depending on what condition they are in. Without any manipulations, they feel more tempted to the distracting task as time passes. However, with autonomy or value provided, level of temptation did not increase anymore.

The findings from Study 2 suggest that providing autonomy and value to students can help students resist temptation, especially for low self-regulatory group. It is quite plausible to conclude that autonomy supportive context and perception of task value can prevent students from being tempted to attractive alternatives. The results are in line with previous research that showed low self-regulatory group could benefit more from manipulations (Flowerday, Schraw, & Stevens, 2004; Hulleman et al., 2010; Hulleman & Harackiewicz, 2009; Schraw et al., 2001). Although this manipulation did not dramatically benefit the high self-regulatory group, they were not harmed by the manipulation. High self-regulatory group may not be affected by the manipulation since they already hold a strong engagement and involvement with the target task.

GENERAL DISCUSSION

With two experimental studies, the current research concerns how perceived level of temptation changes across time. Both personal factor and contextual factor affected the level of temptation. There were two main questions which motivated this study. First, is the level of temptation perceived differently depending on self-regulation ability? Second, can we help students successfully resist temptations with educational manipulations?

The findings demonstrate that high and low self-regulatory groups go through different intrapersonal psychological processes when faced with temptation. Experiencing motivational conflict in the presence of temptation can be a crucial obstacle for successful self-regulated learning. While the high self-regulatory group's level of temptation decreased across time, the low self-regulatory group's level of temptation increased across time. Depending on individual differences in self-regulation, students showed an opposite pattern of being tempted. This can be explained by previous studies that demonstrated students with poor self-regulatory abilities are more vulnerable to environmental factors (Baumann & Kuhl, 2005; Koole & Jostmann, 2004). In addition, the findings of the present study demonstrate the level of temptation can differ depending on environmental conditions. When autonomy or value is provided, students are more likely to successfully resist temptations. This was especially effective for low self-regulatory group.

The results of the present study revealed several important implications. First, an important intrapersonal psychological process people go through in the presence of distracting task was revealed. Depending on the individual difference in self-regulation, students experience different intrapersonal psychological process.

Second, this study extends prior research by providing an empirical based study. Since most of the researches concerning motivational interference were conducted with self-report questionnaires or conflict scenarios, this study can provide meaningful evidence.

Finally, practical implications can be made for teachers or parents dealing with students. This study provides two adaptive manipulations to help students stick to their academic activities in the presence of attractive alternatives. Hofer (2007) also emphasized structuring the environment as a positive method to help students when they are experiencing motivational conflict. Based on individual and situational factors, perceived level of temptation can vary across time. Thus it becomes apparent that different context brings different psychological mechanisms of self-regulation. Providing autonomy and value to students both turned out to be helpful, although the students with poor self-regulation ability benefit more.

Under autonomy-supportive conditions, students stayed focused on the target task and resisted temptation. Providing autonomy can affect students in a positive way by enhancing intrinsic motivation, psychological well-being, and achievement (Black & Deci, 2000; Grolnick & Ryan, 1987; Reeve et al., 2002). Making choices and deciding what to do can make students more active during

learning. Also, it is more likely for them to internalize the regulation, leading to self-determined motivation (Pelletier et al., 2001). It is important to give meaningful choice opportunities to students in order to promote their on-task engagement (Schraw et al., 2001).

Also, students resist to temptation better when they find their task useful. Provision of meaningful rationale for the task can be very beneficial since they increase the perceived need to continue the task. By encouraging students to understand “why I am doing this activity,” and discover the value of the activity, we can help students be engaged in the task more deeply. Hulleman et al. (2010) proposed that helping students connect the material and their lives can promote task engagement, both emotionally and behaviorally. In addition, by finding personal meaning and relevance in the task, identified regulation can be demonstrated (Deci & Ryan, 1985; Jang, 2008; Reeve et al., 2002; Ryan & Deci, 2000). With a little external support of giving a rationale or good reasons to participate, students may reconsider the characteristics of the task and perceive that the engagement in the task is worthwhile and meaningful (Reeve et al., 2002). This change can make a significant difference in favor of successful learning processes.

Sansone et al. (1992) demonstrated that there is an important self-regulatory process or mechanism in individuals; that individuals can regulate their own motivation to perform the task. To be more specific, when an individual encounters a boring, but necessary task, meaningful attempt is actively carried out by making the task relatively more interesting (Green-Demers et al., 1998). The “interest enhancing strategies” can be demonstrated,

which brings the regulation of motivation. Other researchers also suggest that those who can regulate their motivation would show more engagement and persistence on their task (Schwinger, Steinmayr, & Spinath, 2009; Wolters, 2003). The ability to self-regulate motivation is a critical part in self-regulatory process (Boekaerts & Corno, 2005; Sansone & Thoman, 2005). However, ability to promote interest and regulate motivation can vary depending on individual difference and surrounding context (Harackiewicz, Abrahams, & Wageman, 1987; Sansone & Thoman, 2006; Sansone et al., 1999; Smith, Wageman, & Handley, 2009). The results of the present study may be interpreted that it is the ability to regulate motivation deciding the level of temptation.

As Hofer (2007) pointed out in his paper, the issue of “what makes an alternative more attractive” has not been studied very well. It is crucial to explore the nature of temptation since resistance to temptation is closely related to regulation in learning. Although the present study implicates some important issues concerning how the level of temptation changes, more study is needed to understand motivational interference. Since the sample of this study was limited to undergraduate students, the study needs to be extended to how adolescents react to tempting situations for generalization. Also, future research needs to explore how students perceive temptation differently with different task characteristics, individual differences, or environmental contexts.

To sum up, this study focused on motivational interferences that students can experience in the face of attractive alternatives. Since regulation in learning can be affected by valences of both current and distracting tasks, the

relationship between the two tasks were examined. The present study suggested that students perceive the level of temptation differently depending on their self-regulation ability. In addition, provision of autonomy and value can help students resist to temptation and be engaged in the target task.

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APPENDIX

1. Questions of target task interest

번호	문항
1	나는 이 과제에 흥미가 있다.
2	나는 이 과제가 제시하는 것들이 흥미롭다고 생각한다.
3	나는 이 과제를 하는 것을 즐긴다.
4	나는 이 과제를 하는 것이 기다려진다.

2. Questions of distracting task interest

번호	문항
1	나는 이 게임에 흥미가 있다.
2	나는 이 게임이 제시하는 것들이 흥미롭다고 생각한다.
3	나는 이 게임을 하는 것을 즐긴다.
4	나는 이 게임을 하는 것이 기다려진다.

3. Questions of self-regulation

번호	문항
1	나는 늦지 않게 숙제를 다 한다.
2	나는 다른 재미있는 일이 있어도 공부를 한다.
3	나는 학교 공부에 집중을 잘한다.
4	나는 수업시간에 다른 내용들을 잘 기억한다.
5	나는 방해없이 공부할 수 있는 공간을 마련한다.
6	나는 학교공부를 하도록 내 스스로의 학습 의욕을 자극한다.
7	나는 수업시간에 이루어지는 발표나 토론에 잘 참여한다.

국 문 요 약

I. 서론

학생들을 유혹할 수 있는 매력적인 방해과제는 늘 주변에 존재하기 마련이다. 현재 수행하고 있는 과제보다 방해과제가 더 매력적이고 흥미롭다고 인식하게 되면 학생들은 유혹을 경험하게 되고, 더이상 과제에 몰입하기 어려워진다. 이처럼 두 가지 이상의 목표가 충돌할 때 학생들이 겪는 딜레마는 동기적 갈등으로 이어지게 된다.

본 연구는 학생들이 경험하게 되는 동기적 갈등에 주목하여, 학생들이 지각하는 유혹이 자기조절 능력과 맥락적 조건에 따라 어떻게 변화하는지 탐색하고자 하였다. 이를 위해 학생들이 본 과제에 비해 방해과제를 얼마나 매력적으로 느끼는지 조사하였다. 매력적인 방해과제가 있는 상황에서 학생들이 느끼는 유혹의 정도가 시간에 따라 어떻게 변화하는지 이해하기 위해 두 개의 실험 연구를 진행하였다.

연구 1에서는 개인이 지각하는 유혹의 크기가 자기조절 능력에 따라 다르게 지각되는지 살펴보았다. 방해과제가 있는 상황에서 본 과제에 참여하도록 하였을 때, 학생들이 과제의 전과 후에 유혹을 얼마나 느꼈는지 조사하였다. 더 나아가, 연구 2에서는 학생들이 매력적인 방해과제가 있는 상황에서 자기조절을 더 잘할 수 있도록 도와주는 두 가지 교육적 접근을 탐색하였다. 자율성을 제공하는 경우와 가치를 부여하는 경우를 살펴보고 맥락적 조건에 따라 학생들이 지각하는 유혹이 달라지는지 알아보았다.

II. 연구 1

1. 연구 방법

매력적인 방해과제가 있는 상황에서 학생들이 느끼는 유혹의 정도가 어떻게 변화하는지 이해하기 위해 37 명의 대학생들을 대상으로 실험 연구를 실시하였다. 모든 과정은 IRB 승인 후, 참여자들의 자발적 동의를 얻어 진행되었다. 참여자들은 개별적으로 컴퓨터 화면을 보면서 실험에 참여하였다. 컴퓨터 화면의 왼편에는 본과제를, 오른편에는 방해과제(테트리스)를 제시하여 지속적으로 유혹을 느끼도록 하였다. 방해과제가 본과제보다 흥미롭다고 느끼는 정도를 유혹으로 보고, 학생들이 본격적으로 과제에 참여하기 전(T 1)과 후(T 2)에 유혹을 느낀 정도를 확인하였다. 이를 통해 유혹의 정도가 시간의 흐름에 따라 어떻게 변화하는지 알아보았다. 또한 학생들의 자기조절 능력에 따라 상, 하 집단을 나누어 분석하였다.

2. 연구 결과

연구 결과, 학생들은 자기조절 능력에 따라 서로 다른 심리적 과정을 거치는 것으로 나타났다. 시간과 자기조절 능력의 상호작용 효과가 유의하였다. 자기조절 능력이 높은 학생들은 시간의 흐름에 따라 유혹을 느끼는 정도가 감소하는 경향이 나타났고, 자기조절 능력이 낮은 학생들은 시간의 흐름에 따라 유혹을 느끼는 정도가 증가하는 경향이 나타났다.

III. 연구 2

1. 연구 방법

매력적인 방해과제가 있는 상황에서 자기조절을 더 잘할 수 있도록 도와주는 두 가지 교육적 접근으로서 자율성과 가치의 효과를 탐색하였다. 총 130 명의 대학생들을 대상으로 연구가 진행되었으며, 학생들은 통제 집단, 자율성 집단, 가치 집단 중 하나의 집단에 배치되었다. 자율성 집단의 경우, 본과제를 진행하는 과정에서 지속적으로 직접 테마를 선택할 수 있는 선택권을 부여하여 자율성을 느낄 수 있도록 하였다. 가치 집단의 경우, 본과제의 중요성 및 가치에 대해 강조하여 과제에 보다 높은 가치를 부여하도록 하였다. 이외의 전반적인 연구방법은 연구 1 과 동일하며 맥락적 조건에 따라 학생들이 지각하는 유혹이 달라지는지 알아보았다.

2. 연구 결과

연구 결과, 조건적 맥락에 따라 학생들이 지각하는 주관적인 유혹의 크기는 달라질 수 있었다. 특히 자기조절 능력이 낮은 학생들에게 자율성이나 가치를 부여하는 경우, 통제 집단 학생들에 비해 더 성공적으로 유혹에 저항할 수 있었다.

IV. 논의 및 결론

본 연구를 통하여 자기조절 능력이 높은 학생들과 낮은 학생들은 시간의 흐름에 따라 유혹을 느끼는 정도가 달라진다는 것을 확인하였다. 자기조절 능력이 높은 학생들은 시간이 지날수록 본과제에 강하게 몰입하여 유혹을 느끼는 정도가 감소하는 반면, 자기조절 능력이 낮은 학생들은 시간이 지날수록 방해과제로부터 더 큰 유혹을 느끼는 것으로 나타났다. 또한 매력적인 방해과제가 있는 상황에서 자율성이나 가치를 학생들에게 부여함으로써 학생들이 보다 성공적으로 자기조절을 하는 경향이 나타났다. 이는 자기조절 능력이 낮은 학생들에게 특히 효과적이었다. 본 연구는 학생들이 지각하는 유혹이 자기조절 능력, 시간, 그리고 맥락에 따라 달라질 수 있기 때문에 이에 대한 종합적인 고려가 필수적임을 시사한다.

국 문 초 록

자기조절 능력에 따른 자율성과 과제가치가 학생들이 지각하는 유혹에 미치는 영향

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본 연구는 학생들이 지각하는 유혹이 자기조절 능력과 맥락적 조건에 따라 어떻게 변화하는지 탐색하고자 하였다. 이를 위해 매력적인 방해과제가 있는 상황 속에서 동기적 갈등을 경험하도록 하는 두 개의 실험 연구를 진행하였다. 연구 1에서는 학생들의 자기조절 능력에 따라 개인이 지각하는 유혹이 변화하는지 살펴보았다. 그 결과, 자기조절 능력이 높은 학생들은 시간의 흐름에 따라 유혹의 정도가 감소하는 경향이 나타났고, 자기조절 능력이 낮은 학생들은 시간의 흐름에 따라 유혹의 정도가 증가하는 경향이 나타났다. 연구 2에서는 학생들이 유혹에 성공적으로 저항할 수 있도록 도와줄 수 있는 두 가지 교육적 접근을 탐색하였다. 그 결과, 방해과제가 있는 상황에서 자율성이나 과제가치를 제공해주는 경우에 자기조절을 더 잘하는 것으로 나타났다. 이는 특히 자기조절 능력이 낮은 학생들에게 효과적이었다. 따라서 본 연구는 학생들이 지각하는 유혹이 자기조절 능력, 시간, 그리고 맥락에 따라 달라질 수 있기 때문에 이에 대한 종합적인 고려가 필수적임을 시사한다.

주요어 : 유혹, 자기조절, 자율성, 과제가치

학번 : 2012-21321