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Academic delay of gratification (ADOG), its motivational determinants, and different time allocation between high and low ADOG students

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The present study reviews the relationship between academic delay of gratification (ADOG) and motivation, as well as self-regulated learning strategy. In addition, the motivational determinants of ADOG (for example, interest, importance, utility and task value) and the difference between high and low ADOG students is discussed from the time allocation point of view when they prepare for consequential and long term academic goals. We review (1) delay of gratification in general domain, (2) delay of gratification in academic context, and (3) the limitation of current studies and the suggestion for the future research.

Key Words: academic delay of gratification, motivation, self-regulated learning strategy, time management

Introduction

In order to achieve an academic goal, such as gaining a high score on a test, or getting a diploma, it is helpful for learners to have a plan, maintain high motivation, and continue learning activities efficiently. A lot of research indicates that self-regulated learning positively relates to academic performance. In addition, a person who has good self-regulated skills fits social request better than others. The self-regulated learners are likely to use metacognitive, cognitive and motivational learning strategies more effectively than other learners who can not self-regulate (Schunk and Zimmerman, 1994).

During a long term learning process, there are many distractions which may disturb one's efforts on academic tasks, such as an invitation from friends, an important sports event, or an interesting TV program. When facing these kinds of situation, successful self-regulated learners usually know how to control their actions and maintain the academic goals despite the task is difficult (Pintrich & Zusho, 2007). One factor related to self-regulated learning is an ability called

Academic Delay of Gratification (ADOG). This ability is a subset of a more commonly studied phenomenon known as delay of gratification (Mischel, 1974; Mischel, Shoda, & Peake 1988). ADOG is important because if a learner succumbs to temptation, he could not continue the long term learning process. ADOG is an ability to help learner to block the distraction and move to the next step, which is using self-regulated learning strategy to achieve academic goals (see Fig.1). A student who has high ADOG is considered to be able to overcome immediate temptations, maintain motivation to study, and efficiently use learning strategies. As an important relevant factor of self-regulated learning, it is necessary to clarify the difference between high ADOG students and low ADOG students when they pursue an academic goal. The purpose of this paper is (1) to review delay of gratification in general domain; (2) to review delay of gratification in a certain academic context- Academic delay of gratification (ADOG); (3) to indicate the limitation of current studies and give suggestions for the future research.

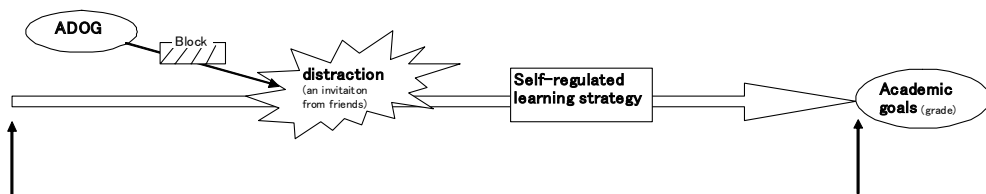


Fig.1 A long-term learning process

Delay of gratification

Delay of gratification is an ability or competence (Mischel et al., 1988) that children develop over time and as a relatively stable generalized disposition (Funder, Block, & Block, 1983) which is conceived necessary for children's development of self-control and willpower, as well has a big influence on children's future success in academic and social contexts. For these reasons, a considerable body of research has examined delay of gratification in children, adolescents and adults. Mischel and his colleagues conducted a series of studies to examine children's delay of gratification and the situational determinants which has a positive or negative effect on children's ability to delay gratification. The original study (Mischel 1974; Mischel & Baker, 1975) was a dilemma experiment which offering children the choice between an immediate available smaller, tangible reward (such as a marshmallow), or a larger reward (such as two marshmallows) if they were willing to wait. In addition, two systematic experimentally introduced sources of variation, the types of objects available for attention during delay and the types of instructions given were also explained by the experimenter. The result found that children are more likely to delay gratification when they focus on abstract (e.g., the shape of marshmallow) rather than consummatory features (e.g., how the candy tastes) of an immediately available alternative. Several years later, Mischel, Shoda & Peake (1988) carried out a sequential studies based on the same population. They found that if a person who had high delay of gratification when he was a child, he would be more academically oriented and social competent as an adolescent; Besides these, if a student had high DOG when he was an adolescent, he also had higher achievement motivation, higher level of productivity and aspiration, higher social perception and responsibility and higher mental ability when becoming an adult (Funder & Block, 1989; Funder et al., 1983; Mischel et al., 1988; Mischel, Shoda, & Rodriguez, 1989; Shoda, Mischel, & Peake, 1990). Metcalfe and Mischel (1999) postulated a HOT / COOL system to explain delay of gratification. The cool system is cognitive, emotionally neutral, reflective, pliable, combined, coherent, slow and strategic, which is the mainstay of self-regulation. On the other hand, the hot system is emotional, reflexive, stimulus controlled, which is basic for emotional conditioning and weaken efforts on self-control. Mischel and his colleagues' longitudinal studies successfully examined children's delay of gratification which closely relates to children's future life.

However, there are several limitations of Mischel and his

colleagues' research because the methodology they used is difficult to be applied for older population and other domains. For the methodology reason, although there are many studies on children's DOG, few studies are conducted to examine adolescents and adults' DOG despite DOG is a pretty crucial factor to influence their performance, goal orientation or future success in academic and occupation contexts (Ayduk, 1999; Durden, 1997; McCann, 1999; Witt, 1990a,b). In Mischel and his colleagues' paradigm, they used a small reward (such as a candy) or a larger reward (such as two candies) which has meaning for preschool children but not for adolescents and adults (Wulfer et al, 2002). Therefore, different assessment of delay of gratification which fits older population better needs to be considered because adults have different cognitive, social, and behavioral leaning strategies from younger children. Especially, since delay of gratification expects children's future academic success, it is necessary to find an appropriate way to examine a person's delay of gratification in academic setting. Different from Mischel's general delay of gratification paradigm, the immediate and delay alternatives in academic context are not simply choosing from a small reward or a large reward. The immediate reward (distraction), such as watching an interesting TV program, would have similar nature as the small reward in the classic delay paradigm. Both of them are affected and determined by the similar motivational and cognitive factors which focus on the consummatory or nonconsummatory features of hot and cool systems (Bembenutty, 2004). However, the delay alternative in academic setting, such as getting a high score in a consequential exam, is not necessarily to be a large version of the small reward like in classic delay of gratification paradigm. It has a different feature and category from the immediate reward. Further research needs to be conducted to clarify the factors that affect and determine the delay alternative in academic context.

The current research of academic delay of gratification

Some researchers tried to investigate adults' delay of gratification by using new methods. For example, Ray and Najman's (1986) scale assessed students' general disposition to delay gratification. Ward, Perry, Woltz and Doolin (1989) developed a multidimensional delay of gratification scale that focused on academic contexts. More recently, Bembenutty & Karabenick (1998) examined the college students' delay of gratification in academic context. They gave a definition of Academic Delay of Gratification (ADOG) as "students postponement of immediately available opportunities to satisfy

impulses in favor of pursuing academic rewards or goals that are temporarily remote but ostensibly more valuable” (Bembenutty & Karabenick, 1998, p.329). Due to the lack of the tool, they developed a 10-item ADOG scale for college students, and both reliability and construct validity was ensured by examining the relationship between ADOGS and DGQ (Deferment of Gratification Questionnaire, used to examine generalized delay of gratification), IS (Impulsivity Scale, used to examine impulsivity). ADOG scale is a two alternatives questionnaire by following three criteria. Two choices were presented to students. “One is immediately available alternative and another could be obtained after a delay interval. Each alternative explicitly indicated, or assumed, an academic outcome if that alternative was selected. Selecting the delayed academic alternative presumable increased the probability of long-term academic success. In contrast, the competing alternative produced immediate gratification but diminished the probability of long-term academic achievement. The more delayed academic alternative should be considered more valuable by the students than its competing alternative” (Bembenutty & Karabenick, 1998, p.333). ADOG can be viewed as a strategy that has the same manner as other learning strategies, such as cognitive, metacognitive strategies, which facilitate goal-directed behavior to achieve an academic goal. Therefore, ADOG is expected to relate to self-regulated learning strategy. In order to clarify the relationship between students’ ADOG and motivation, self-regulated learning strategy, as well as academic performance, they examined the correlation between ADOG and motivation, self-regulated learning strategy by using the Motivation Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and colleagues (1993). The result found that there is a positive relationship between ADOG and motivation, learning strategies included in MSLQ, and a relationship between ADOG and achievement. In particular, resource management (time and study environment, effort regulation) shows the highest connection with ADOG. A high ADOG student is more likely to set up a study schedule, choose a place where he or she can concentrate more on study, and continue to make an effort than a low ADOG student. Furthermore, the relationship between ADOG and motivation also has been confirmed, especially self-efficacy, task value, goal orientation showing the high correlation with ADOG. In Kim and his colleagues’ study (Kim et al., 2001), they also found that task value correlated to ADOG by investigating the middle school students in Korea.

Motivational determinants, such as interest, importance, utility, and task value are known to influence delay preference

in particular (Mischel, 1996). Bembenutty (1999) conducted a study to examine the differences among students in their task, performance-approach, and performance-avoidance goal orientations on academic delay of gratification, motivational determinants by using survey. These differences may be explained by learners’ goal orientation because the purpose of school activities is to master the tasks, demonstrate high ability or avoid failure. The result found that academic delay of gratification and its motivational determinants differ as a function of goal orientation. The high task-goal-orientated learners have high preference for delay of gratification which related to their high intrinsic interest in the task and willing to master the task. These factors help them to maintain the motivation and delay immediate alternative when they pursuit a long-term academic goal. This type of learners also can use motivational regulation strategy more efficiently than the other two groups. The high task-high performance-approach goal-orientated learners, who are oriented to demonstrate their ability in schoolwork and at the same time to master the task, are also willing to delay of gratification since extrinsic goal orientation also positively related to delay of gratification (Bembenutty, 1997; Bembenutty & Karabenick, 1998). Doing better than other students in schoolwork does not preclude students from pursuing a long term academic goal. The learners with low task goal-low performance-approach-low performance-avoidance goal orientation reported low delay of gratification because they prefer to choose nondelay alternative which they think more important, interesting and valuable than delay alternative. They do not consider the academic task as important as the other two type students think, and they can not control their motivation and use motivational regulation strategy efficiently when they face difficulties in academic context. This type of learners is considered as a group that who may not deeply involved in academic tasks. This study gives an implication to educational researchers that it is important to maintain students’ motivation which relates to delay of gratification and other factors during the learning process, especially when they pursue a long-term academic goal. In order to make this issue more clear, Bembenutty (2008) carried out another study to investigate whether differences in expectancy and value dimension, which are considered as motivational determinants of delay of gratification, between immediate and delay alternatives would be related to students’ willingness to delay gratification in college students by using survey. They used regression analyses to assess how well liking, importance and expectancy predict delay of gratification. Moreover, the correlations for individual situations between delay preferences and differences between liking,

importance and expectancy for nondealy and delay alternatives and how well each individual situation predict delay of gratification were examined. The result showed that when students pursue a long-term academic goal, their willingness to delay gratification is associated with their motivation-related judgments (e.g. value and expectancy) of delay and nondelay alternatives. This founding is consistent with Mischel (1996)'s perspective, which asserts that willingness to delay of gratification depends on their expectancies, beliefs and values. According to the knowledge drawing from these studies, it is necessary to examine students' self-regulated learning strategy, delay of gratification, volition and behavior integrally but not separated in order to help learners' to maintain motivation and earn academic success in the future research.

The future research for academic delay of gratification

As mentioned above, ADOG has been investigated by several studies. However, four issues need to be clarified in the future research.

The first one is, up to now, few studies on the self-regulated learning have examined individual differences such as gender and ethnic differences even though it is an important issue to help educators to give appropriate instruction to students with diverse background. Bembenuity's study (Bembenuity, 2007) examined gender and ethnicity differences in the relationship between ADOG, self-regulation, motivation and academic performance of 364 college students which were coded as Caucasian students and minority students (including African Americans, Asian Americans, Hispanics, Native Americans and other ethnic groups). The result showed that the correlation between ADOG, self-regulation, motivation and academic performance might depend on the gender and ethnicity of the group, for example, the positive correlation between ADOG and academic performance was found for Caucasian students but not for other minority students. According to Ormrod (2008a), an ethnic group sharing same culture could be of similar race or national origin and could have a common religious background. Some studies have found that students from underrepresented population often obtain low scores in standardized tests compared with Catucasin students (Pintrich & Zusho, 2007; Schunk et al., 2008). However, since the result was ambiguous, more future research needs to be conducted to clarify the gender and ethnicity differences in the relationship of these factors. In addition, most research on delay of gratification has been conducted in Western societies, which suggests the need for studies in non-Western cultures, especially those

with stronger collectivistic values and where younger children in particular have greater filial allegiances that result in stronger pressures for high academic performance (e.g. Chong, 2007).

The second one is, all the ADOG studies mentioned above used college students or middle school students as subjects, and no study is about elementary school students. It would be important to verify that similar results would obtain for younger students, such as elementary school students because work habits and styles are developed much earlier (Corno, 2004). For the absence of the tool, an ADOG scale for children (ADOG-C) needs to be created first, then the relationship between ADOG and MSLQ needs to be examined. We would expect that ADOG of elementary school students also positively relates to motivation, self-regulated learning, as well as academic performance, which is similar to those of college students (Bembenuity & Karabenick, 1998). Secondly, in order to standard psychometric evidence of ADOG-C scale's reliability and stability, children's self-reported tendencies to delay gratification needs to be corroborated by other methods, such as using parents and teachers' evaluation.

The third one is, since ADOG relates to most elements included in MSLQ, it is important to look at the differences, such as time allocation between high ADOG students and low ADOG students. When struggling for a long term learning task like test studying, a student who has a high ADOG would use the learning strategies more efficiently and obtains a higher test score. This result reveals the importance to train learners' ADOG. For example, in school education, it may be necessary to teach students not only curriculum, but also a learning ability ADOG. In order to give more valuable and effective implication on instruction and intervention of ADOG training, the difference between high and low ADOG students needs to be clarified by their time management when they pursue an academic goal, such as a high stakes examination because a significant association between ADOG and time management was found in Bembenuity & Karabenick's study (Bembenuity & Karabanick, 1998). We expect that high ADOG students use more time on study and less time on play from the start point than low ADOG students. On the other hand, low ADOG students will not begin engaging the preparation for the exam until the last minute because they are easy to be distracted by temptation, for example, a favorite TV program. In other words, we predict that not the whole learning process is important but some particular parts (e.g. at the beginning of preparation) when a learner is pursuing an academic task (e.g. preparing for a test). The low ADOG

students would begin engaging in the learning activities because the strong situational demand may activate their hot system right before the test and facilitate them to concentrate on the learning activities. If teachers and parents give students appropriate support on the crucial time, it may help children delay their gratification more effectively and have more possibility to gain a high score in a test. For example, parents and teachers can help students make a rational plan from the first day of test preparation to the test day by considering the situation of students themselves, the level of test and the left time they have; after making a plan, parents and teachers can supervise their students' progress everyday. If the actual behaviors deviate from the plan, parents and teachers can help children to find the reason, support their learning activities or revise the plan in order to make it fit their children and the real situation better. As known, the learning process is complex and dynamic which includes various factors. In order to clarify the differences between high ADOG students and low ADOG students during their learning process, besides of time management aspect, more aspects, such as planning modification, cognitive and metacognitive strategy usage need to be considered in the future research.

At last, the correlation between academic delay of gratification and motivation, self-regulated learning strategies, as well as grade has been clarified in several studies (Bembenutty & Karabenick, 1998). However, the causal relationship between these factors is still not clear. More studies need to be conducted to show the causal relationship between these factors, maybe by using a path model. The causal relationship between ADOG and its relevant factors will give educators and researchers more valuable knowledge and suggestions in their future work. We expect that motivation, cognitive strategy and resource management included in MSLQ are estimated as the factors which directly influence grades. It is because students with high motivation are more likely to keep on studying for a long term. Cognitive strategies and resource management are learning methods, therefore, the students who choose more appropriate learning are expected to get better test scores than others. Metacognitive strategy included in MSLQ is an ability to monitor, control and regulate one's learning methods, therefore, it mediates cognitive strategy and resource management to influence grades indirectly. In addition, it can be predicted that ADOG has a positive effect on motivation, meta-cognitive strategy and resource management included in MSLQ because during the long term learning process, many kinds of distraction maybe exist, such as an invitation from friends or a favorite TV program. These kinds of distraction, which would disturb the process of

studying, occur frequently. If a learner is easy to succumb to the distraction and put off the test studying, he might not maintain the motivation to work hard towards the academic goal. Furthermore, even though he can use learning strategies efficiently and has the ability to regulate the metacognition, as a result, the study time to make these ability function well is not ensured.

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付 録

和文タイトル

学業場面における満足の遅延, その動機的な決定要因, 及び満足の遅延の高いと低い学生の時間配分の違い

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和文要約

本研究は学業場面における満足の遅延 (ADOG) と動機付け, 自己制御学習方略との関連性をレビューする。更に, ADOG の動機的な決定要因 (例えば, 興味, 重要性, 実用性と課題価値), また長期間に渡る重要なアカデミックゴールを準備する過程における満足遅延の高い学生と低い学生の違いが時間配分という視点から議論される。私達は, (1) 一般的領域における満足の遅延, (2) 学業場面における満足の遅延, (3) 従来の研究の限界点と将来の研究に対する提案, をレビューする。

キーワード: 学業場面における満足の遅延, 動機付け, 自己制御学習方略, 時間マネジメント