EFFECTS OF SITUATIONAL FACTORS ON ACADEMIC DELAY OF GRATIFICATION IN COLLEGE STUDENTS

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College students responded to the Academic Delay of Gratification Scale for eight kinds of hypothetical instruction and learning situations established by manipulating factors such as degree of teacher strictness, class utility value, and class intrinsic value. The main results indicated that when either the utility or intrinsic value of a class was low, a higher degree of teacher strictness was associated with a stronger tendency to delay immediate gratification. In addition, the tendency to delay immediate gratification was strongest when both the utility and intrinsic values of the class were high. These results suggest that situational factors affect the academic delay of gratification among college students in instruction and learning situations.

Key words: academic delay of gratification, college students, intrinsic value, utility value, teacher strictness

One of the hallmarks of self-regulated learning is the ability to remain goal-oriented (e.g., the ability to continue studying hard) by protecting task-specific intentions (e.g., the intention to study hard) from non-task alternatives (e.g., going to the movies). Such protection often involves foregoing an attractive, immediately obtainable goal (e.g., going to the movies) in order to pursue obtaining a college degree by completing study tasks in the present; therefore, this process can be linked to a delay of gratification (Mischel, 1981).

According to Mischel (1981), the delay of gratification is a component of the self-regulatory system necessary for individuals to guide their behavior without an external coercive stimulus. Although the delay of gratification has been shown to be associated with academic achievement, intelligence, and the need for achievement, no comprehensive examination of the delay of gratification in the academic setting has been conducted.

The academic delay of gratification was described by Bembenutty and Karabenick (1998, p. 332) as “students’ postponement of immediately available opportunities to satisfy impulses in favor of pursuing chosen important academic rewards or goals that are temporally remote but ostensibly more valuable.” To investigate the association between students’ academic delay of gratification and self-regulated learning, which consists of academic motivation and the use of cognitive, metacognitive, and resource management learning strategies, Bembenutty and Karabenick (1998) developed a course-specific Academic Delay of Gratification Scale (ADOGS) with psychometric properties.

They found significant relationships between the academic delay of gratification and...
intrinsic and extrinsic motivation, self-efficacy, and course value. They also found that the academic delay of gratification was associated with student use of learning strategies, such as rehearsal, elaboration, organization and critical thinking, as well as metacognitive strategies, including planning, monitoring, and self-regulation. The same was true for resource management strategies such as time and study environment, effort regulation, and help-seeking. The more frequently students reported that they would delay gratification in favor of carrying out academic tasks that would improve their chances of academic success, the more frequently they reported using cognitive, metacognitive, and resource management strategies.

More recently, Ogawauchi, Ryu, Mitsutomi, and Ohtsuka (2013) developed a Japanese version of the ADOGS to investigate the relationship between the academic delay of gratification and self-regulated learning, such as academic motivation and the use of learning strategies.

The purpose of the present study was to investigate the effects of situational factors on the academic delay of gratification in instruction and learning situations among college students, which is important because it is expected to lead to greater academic achievement. Specifically, we investigated the effects of class utility value, class intrinsic value, and degree of teacher strictness on the academic delay of gratification. Class utility value refers to the perception among students that the activities and content of everyday learning in the classroom is valuable for success or happiness, class intrinsic value to the students’ intrinsic interest in and enjoyment of class, and the degree of teacher strictness in the class to how strict the teacher is in response to deviant behavior in the classroom.

The reasons we focused on class situations are as follows. First, many learning activities are performed in the classroom setting, and second, manipulating the utility value, intrinsic value, and degree of teacher strictness is easier in the classroom setting.

An investigation of the effects of the class utility value, class intrinsic value, and teacher strictness on the academic delay of gratification is important from an educational perspective because it could help determine more effective instructional methods for enhancing the academic delay of gratification among students in instruction and learning situations. However, a systematic investigation of the effects of situational factors on the academic delay of gratification in instruction and learning situations might be difficult in reality. Therefore, the present study manipulated various situational factors to establish hypothetical instruction and learning situations.

Previous research has found that the utility value of learning influences the academic delay of gratification among students. Bembenutty (1999) and Karabenick and Bembenutty (1998) examined the association between delay of gratification tendencies in college students and their perception of the utility value of academic and nonacademic tasks. Students were first asked to select between two competing choices, such as going to a party or staying at home to study for an exam. They were then asked to indicate the perceived usefulness of the academic (staying at home to study for an exam) and nonacademic (going to a party) tasks. An association was found between the perceived utility of the academic and nonacademic tasks and the delay of gratification. Increased instrumentality of learning was associated with student motivation and postponement of gratification of nonacademic
tasks (going to a party).

Kim, Chung, Lee, and Kwon (2001) found similar results using the ADOGS among eighth-grade students from a middle school in Korea. Two items that captured 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.” Their results indicated that the perceived utility value of the academic task was correlated with the delay of gratification.

Furthermore, Wakamatsu, Ohtani, and Konishi (2004) examined the relationship between elementary and junior high school students’ perception of the value of learning activities and their motivation for learning. They found that students had increased motivation for learning when they perceived the activities or contents of everyday learning as valuable for success or happiness. Bembenutty and Karabenick (2004) also examined the association between students’ outcome expectancy, which refers to students’ beliefs about the future benefits and outcomes of their behavior, and the tendency to delay gratification. Outcome expectancy was assessed with items indicating that doing well on an exam would help students achieve their future career and academic goals. Bembenutty and Karabenick (2004) reported that outcome expectancy was associated with the delay of gratification.

Therefore, in this study, our first hypothesis was that the tendency to delay gratification in instruction and learning situations would be stronger when the utility value of the class was high as compared to low. The second factor we focused on was the intrinsic value of the class. Bembenutty and Karabenick (1998) found that college students who had a greater tendency to delay gratification were more intrinsically motivated. Predictably, students who enjoyed performing their academic tasks considered them important and engaged in learning based on intrinsic motivation.

Bembenutty and Karabenick (2004) also suggested that the intrinsic value of the immediate task (i.e., enjoyment) was related to greater delays of gratification. In other words, the more students enjoyed the learning material, the more likely they were to indicate they would delay immediate gratification. Similar results were found by Ogawauchi et al. (2013) and Bembenutty and Karabenick (2004).

Therefore, our second hypothesis was that the tendency to delay immediate gratification in instruction and learning situations would be stronger when the intrinsic value of the class was high as compared to low.

The third factor we focused on was student perceptions of the teacher. Wakamatsu et al. (2004) found that students who held a positive view of their teacher were more motivated to learn than students who held a negative view of their teacher. The present study therefore focused on the strictness of the teacher in response to deviant behavior in instruction and learning situations.

When the degree of teacher strictness is low, students seldom anticipate punishment for deviant behavior. Thus, they find it more difficult to resist temptations and to show an academic delay of gratification. On the other hand, students frequently anticipate punishment for deviant behavior when the degree of teacher strictness is high. Thus, they find it easier to resist temptations and to show an academic delay of gratification.
Therefore, our third hypothesis was that the tendency to delay immediate gratification in instruction and learning situations would be stronger when the teacher was stricter.

We established eight kinds of hypothetical instruction and learning situations by manipulating situational factors, including the class utility value (high, low), the class intrinsic value (high, low), and the strictness of the teacher in response to deviant behavior (high, low). We then investigated the effects of these situational factors on the academic delay of gratification in hypothetical instruction and learning situations.

We attempted to test these three hypotheses regarding the main effects of the situational factors described above. However, the hypothesis regarding the interaction effects between the situational factors could not be adequately established. Therefore, in regard to the interaction effects between the situational factors, we decided to conduct an exploratory investigation.

**Method**

A $2 \times 2 \times 2$ factorial design was used for the experiments. The first factor was the utility value of the class; high (H) and low (L) utility value conditions were used. The second factor was the intrinsic value of the class, for which we also used H and L intrinsic value conditions. The third factor was the level of teacher strictness in response to deviant behavior in the classroom; in the H condition, the degree of teacher strictness was high, while in the L condition, the degree of teacher strictness was low. All three factors were treated as within-subject factors.

**Participants**

The participants in this study were 170 Japanese college students (73 females, age range, 18–21 years; 97 males, age range, 18–22 years). Female students were in their first ($n = 14$), second ($n = 19$), or third year ($n = 40$) of college, while male students were in their first ($n = 26$), second ($n = 45$), third ($n = 23$) or fourth year ($n = 3$).

Data were collected in a 30-minute session during a regular psychology class. All students had previously taken other psychology classes. The female students were attending college in Nagasaki or Hiroshima, while the male students were attending college in Hiroshima. The confidentiality of all responses was assured.

**Measures**

A two-part questionnaire was conducted. In Part 1, the general ADOGS devised by Ogawauchi et al. (2013) was used. This ADOGS is composed of 14 items that are rated on a 5-point scale.

For Part 1, an ADOGS specific to the class situation was also devised. First, the instructor asked the students to list the types of deviant behavior they had witnessed in the classroom. In this case, deviant behavior referred to not actively engaging with the learning materials and not delaying immediate gratification. Next, the instructor confirmed that these deviant behaviors were occurring in the classroom through observation. Thus, an ADOGS specific to the class situation was devised (Table 1). In Part 1, all students were also asked to respond to this instrument using the same 5-point scale.

In Part 2, eight hypothetical class situations were prepared by manipulating the following three factors: class utility value (high, low), class intrinsic value (high, low), and degree of teacher strictness (high, low; Table 2). The eight hypothetical class situations were presented in the order shown in Table 2. All students were then instructed to read each hypothetical class situation and respond on a 5-point scale to the ADOGS devised in Part 1 for hypothetical class situations.
Table 1. Academic Delay of Gratification Scale (ADOGS) in the instruction and learning situations

|   |   |
|---|---|
| 1. | You delay the need to sleep until the class finishes and seriously listen to what the teacher says. |
| 2. | You delay the need to send or read e-mails until the class finishes and seriously listen to what the teacher says. |
| 3. | You delay the need to talk with your friends until the class finishes and seriously listen to what the teacher says. |
| 4. | You delay the need to leave the classroom until the class finishes and seriously listen to what the teacher says. |
| 5. | You seriously listen to the teacher’s lecture without being distracted. |

Table 2. The eight kinds of hypothetical class situations used in this study

(1) Teacher Strictness H, Intrinsic Value H, and Utility Value H Condition

You are in class. Your teacher is very strict and strongly scolds you for talking with your friends, reading your e-mail, or sleeping during class. However, the class is very interesting and the content seems very useful for obtaining your desired job.

(2) Teacher Strictness H, Intrinsic Value H, and Utility Value L Condition

You are in class. Your teacher is very strict and strongly scolds you for talking with your friends, reading your e-mail, or sleeping during class. The class is very interesting. However, the content does not seem useful for obtaining your desired job.

(3) Teacher Strictness H, Intrinsic Value L, and Utility Value H Condition

You are in class. Your teacher is very strict and strongly scolds you for talking with your friend, reading your e-mail, or sleeping during class. The class is not interesting. However, the content seems very useful for obtaining your desired job.

(4) Teacher Strictness H, Intrinsic Value L, and Utility Value L Condition

You are in class. Your teacher is very strict and strongly scolds you for talking with your friends, reading your e-mail, or sleeping during class. The class is not interesting and the content does not seem useful for obtaining your desired job.

(5) Teacher Strictness L, Intrinsic Value H, and Utility Value H Condition

You are in class. Your teacher is not strict and does not scold you for talking with your friends, reading your e-mail, or sleeping during class. The class is very interesting and the content seems very useful for obtaining your desired job.

(6) Teacher Strictness L, Intrinsic Value H, and Utility Value L Condition

You are in class. Your teacher is not strict and does not scold you for talking with your friends, reading your e-mail, or sleeping during class. The class is very interesting. However, the content does not seem useful for obtaining your desired job.
Results

The sum scores were calculated for both the general ADOGS devised by Ogawauchi et al. (2013) and the ADOGS specific to the class situation used in Part 1. In calculating the scores, items were reversed if necessary so that higher scores would indicate a stronger tendency to delay immediate gratification in academic situations.

If the ADOGS specific to the class situation was valid, the following would be possible. The total scores of the ADOGS specific to the class situation used in Part 1 would be positively correlated with the total scores of the general ADOGS devised by Ogawauchi et al. (2013).

Pearson correlation coefficients between the sum scores of the general ADOGS devised by Ogawauchi et al. (2013) and the ADOGS specific to the class situation used in Part 1 were then calculated according to sex; significant moderate positive correlation coefficients were obtained (male: $r(95) = .66, p < .01$; female, $r(71) = .46, p < .01$; total, $r(168) = .59, p < .01$).

Tables 3 and 4 show the mean academic delay of gratification scores for each hypothetical situation. A $2 \times 2 \times 2 \times 2$ analysis of variance was performed using the academic delay of gratification scores as the dependent variable. Significant main effects were found for intrinsic value ($F(1, 168) = 35.20, p < .01$), utility value ($F(1, 168) = 149.3, p < .01$), and degree of teacher strictness ($F(1, 168) = 6.65, p < .01$). The H conditions for the intrinsic value, utility value, and teacher strictness H condition were all associated with higher academic delay of gratification scores compared with the L conditions.

As the interaction effect between sex and teacher strictness approached significance ($F(1, 168) = 2.99, p = .09$), we analyzed the effects of teacher strictness according to sex. No simple main effects of teacher strictness were observed for male students. By contrast, the simple main effect of teacher strictness was significant for female students; the strictness H condition was associated with higher delay of gratification scores than the strictness L condition ($F(1, 168) = 9.29, p < .01$).

The interaction effect between teacher strictness and class intrinsic value ($F(1, 168) = 3.43, p = .06$) approached significance. For the intrinsic value L condition, the teacher strictness H condition was associated with significantly higher academic delay of
gratification scores than the L condition ($F(1, 336) = 10.08, p < .01$). Furthermore, the simple main effect of the intrinsic value was analyzed for each teacher strictness condition. The teacher strictness H ($F(1, 336) = 87.03, p < .01$) and L ($F(1, 336) = 123.19, p < .01$) conditions were associated with higher scores for the intrinsic value H condition than the intrinsic value L condition.

A significant interaction effect was also found between teacher strictness and utility value ($F(1, 168) = 8.60, p < .01$). The simple main effect of teacher strictness was significant for the utility value L condition ($F(1, 336) = 14.39, p < .01$), with the teacher strictness H condition more strongly associated with higher scores than the teacher strictness L condition. Furthermore, the simple main effect of class utility value was analyzed for each teacher strictness condition. The results indicated that the simple main effect of class utility value was significant for both the teacher strictness H ($F(1, 336) = 52.87, p < .01$) and L ($F(1, 336) = 178.11, p < .01$) conditions, with the utility value H condition yielding higher scores

### Table 3. Mean ADOGS for each condition in male students

| Strictness H | Intrinsic Value H | Utility Value H | Strictness L | Intrinsic Value H | Utility Value L |
|--------------|-------------------|----------------|--------------|-------------------|----------------|
|              | 19.99 (5.48)      | 18.04 (5.32)   | 20.41 (5.81) | 17.74 (5.82)      |
| Intrinsic Value L | 18.21 (5.48)      | 13.79 (6.01)   | 17.94 (5.74) | 13.22 (6.30)      |

*Note. ADOGS: Academic Delay of Gratification Scale; H: high; L: low. Number in the parenthesis indicates SD.*

### Table 4. Mean in ADOGS scores for each condition in female students

| Strictness H | Intrinsic Value H | Utility Value H | Strictness L | Intrinsic Value H | Utility Value L |
|--------------|-------------------|----------------|--------------|-------------------|----------------|
|              | 20.53 (3.99)      | 18.57 (4.48)   | 20.78 (4.12) | 17.75 (4.73)      |
| Intrinsic Value L | 18.80 (4.08)      | 14.77 (4.85)   | 17.39 (5.27) | 13.14 (5.28)      |

*Note. ADOGS: Academic Delay of Gratification Scale; H: high; L: low. Number in the parenthesis indicates SD.*
for both intrinsic value conditions. Similarly, the simple main effect of the intrinsic value was significant for the utility value H ($F(1, 336) = 50.40, p < .01$) and L ($F(1, 336) = 166.05, p < .01$) conditions; the intrinsic value H condition was more strongly associated with higher academic delay of gratification scores for both utility value conditions.

**Discussion**

If the ADOGS devised in the present study to be specific to the class situation was valid, then the total ADOGS scores specific to the class situation used in Part 1 would be positively correlated with the total scores from the general ADOGS devised by Ogawauchi et al. (2013).

The sum scores from the ADOGS specific to the class situation had significant modest positive correlations with the sum scores of the general ADOGS devised by Ogawauchi et al. (2013); this indicates that the ADOGS specific to the class situation has adequate concurrent validity.

The purpose of the present study was to investigate the effects of class utility value, class intrinsic value, and teacher strictness on academic delay of gratification among college students. In data analysis, we found both main and interaction effects. Therefore, the interpretation of the interaction effects should be prioritized. However, in the Introduction, we established our hypotheses regarding the main effects. Therefore, the present study first tested the validity of the hypotheses regarding the main effects of the situational factors, and then conducted an exploratory investigation of the interaction effects.

A main effect of class utility value on the academic delay of gratification was found, which supported our first hypothesis. This result might be interpreted as follows. When the class utility value is high, students may internalize the reasons they have to study and thus frequently delay gratification. This result is consistent with findings from previous research (Bembenutty, 1999; Bembenutty & Karabenick, 1998, 2004; Karabenick & Bembenutty, 1998; Kim et al., 2001; Wakamatsu et al., 2004).

A main effect of class intrinsic value was also found. This result indicates that when the intrinsic value of the class is high, college students might actively engage in learning material based on intrinsic motivation and thus frequently delay gratification, which supports our second hypothesis. This result is also consistent with findings from previous research (Bembenutty & Karabenick, 1998, 2004; Ogawauchi et al., 2013).

A main effect of teacher strictness was also found, thereby supporting our third hypothesis. This result may be interpreted as follows. In situations involving a strict teacher, college students might anticipate punishment if they do not delay gratification. Therefore, students might frequently delay gratification based on extrinsic motivation. This result is also consistent with previous research reporting that the academic delay of gratification is positively related to extrinsic value (Bembenutty & Karabenick, 1998).

However, an interaction effect was also found between sex and teacher strictness. When females engage in deviate classroom behavior, they anticipate punishment from a
strict teacher. Generally, females tend to be less physically and verbally aggressive than males (Ando et al., 1999). Therefore, when less aggressive females engage in deviate classroom behavior, it is difficult for them to avoid punishment from a strict teacher, and that so there is a greater need for them to show academic delay of gratification.

Thus, a stronger tendency to anticipate punishment among female students might result in improved academic delay of gratification. On the other hand, when males engage in deviate classroom behavior, they anticipate punishment from a strict teacher. However, males are generally more physically and verbally aggressive than females (Ando et al., 1999). Because of this generally higher level of physical and verbal aggressiveness, there are more opportunities for aggressive males to not be noticed and to avoid punishment from a strict teacher. Thus, when more aggressive males express deviate classroom behavior, there could be no observable effects in terms of teacher strictness.

We also found an interaction effect between class intrinsic value and teacher strictness. This result might be interpreted as follows. Students may actively engage in learning material based on intrinsic motivation and may frequently delay gratification when the intrinsic value of the class is high, even if the teacher is not strict. However, in situations in which a non-strict teacher presents something uninteresting to students, they are strongly tempted to engage in deviant classroom behavior. Thus, the academic delay of gratification may not frequently occur in situations in which a non-strict teacher presents uninteresting learning material. Therefore, when the intrinsic value of the class is low, the teacher may have to deal strictly with deviant behavior and make students delay immediate gratification based on extrinsic motivation.

Similarly, an interaction effect was found between class utility value and teacher strictness. This result might be interpreted as follows. Students might frequently delay gratification when class utility value is high, even if the teacher is not strict, because they internalize the reasons why they must study. However, in situations in which a non-strict teacher presents something considered useless, students might be strongly tempted to engage in deviant behavior. Thus, the academic delay of gratification might not frequently occur in situations in which a non-strict teacher presents something considered useless. Therefore, similar to the intrinsic value, when the utility value of the class is low, the teacher may have to deal strictly with deviant behavior and make students delay immediate gratification based on extrinsic motivation.

Finally, an interaction effect was found between class utility value and class intrinsic value. This result suggests that students may delay gratification to some extent when either the intrinsic or utility value of the class is high, even if the other is low. However, students may delay gratification most frequently when both the utility and intrinsic value of the class are high.

In conclusion, these results suggest that situational factors affect the academic delay of gratification in instruction and learning situations, that is, increasing both the utility and intrinsic value of the class may lead to an increase in delay of gratification among college students. However, when students do not perceive or understand the utility or intrinsic value of the class, it may be necessary for the teacher to give the perception that he or she is strict.
In the present study, the sex of the teacher, which may influence the academic delay of gratification in college students, was not manipulated in the instruction and learning situations. Further research is needed to investigate these effects.

This study investigated the academic delay of gratification among college students in eight kinds of instruction and learning situations established by manipulating class utility value, class intrinsic value, and teacher strictness. Therefore, students were given tasks related to the academic delay of gratification eight times. However, it should be noted that the investigation of the three items in this study—class utility value, class intrinsic value, and teacher strictness—was carried out in the order shown in Table 2; this order was not counterbalanced. Therefore, the order in which these items were investigated may have induced a bias. Further research in which this order is counterbalanced is necessary.

Furthermore, the present study used hypothetical instruction and learning situations. Further research that manipulates the class utility value, class intrinsic value, and degree of teacher strictness will be needed to investigate the effects of these factors on the academic delay of gratification in actual instruction and learning situations. For instance, research in which the teacher performs eight kinds of instruction methods that manipulate the utility value, intrinsic value, and degree of teacher strictness is needed to investigate the effects of these methods on the academic delay of gratification. In such research, we could measure the class utility value, class intrinsic value, and degree of teacher strictness after the class has been finished. We could then designate a high group above the median and a low group below the median for all these factors. Thus, scores among the eight groups for the academic delay of gratification resulting from the combination of the high and low groupings could be compared.

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