

The Effects of Self-Control Behaviors on Boredom

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Abstract

The purpose of this study is to investigate whether there was a difference in the degree of boredom between groups according to whether they participated in the self-control program, and to verify whether the individual's degree of boredom was lowered before and after the self-control program. 148 college students participated in this study. The results showed that the experimental group who participated in the self-control program had significantly lower boredom than the control group. Furthermore, the boredom of individuals who participated in the self-control program was significantly lower after participating in the self-control program than before. This study showed that self-control behaviors significantly affect boredom. Based on the results, theoretical and practical implications to cope with boredom were discussed.

Keywords: Boredom, Self-control, Boredom Coping Strategies

1. INTRODUCTION

Why do people feel bored? Erin and Timothy explained that boredom is the result of a loss of meaning and lack of interest [1]. In other words, if the bored state continues, then the meaning of life disappears, and the problem of not being able to focus attention occurs. In addition, boredom is an emotion that occurs when the emotional response to a certain situation is weakened, and it stimulates us to take specific actions [2]. Nevertheless, if the problem of boredom is not well coped with, subsequent boredom is repeated [3]. Therefore, when people feel bored, they feel repeated pain and set up various strategies to escape it.

Everyone feels boredom state, but some people experience boredom more repeatedly, while others quickly get out of the boredom state. This is because the way people deal with boredom is different. There are two main strategies for coping with boredom. There is an approach strategy in which people face a boring situation and try to solve it and an avoidance strategy in which people run away from something that makes them feel bored [4]. Avoidance strategies such as looking at a smartphone to get away from work showed a negative correlation with behavioral motivation and achievement. Conversely, the approach strategy not only resulted in less boredom, but also showed a positive correlation with motivation and achievement [5]. Depending on which strategy is set when experiencing boredom, it can have a great impact on the achievement level and quality of life [6].

Avoiding or running away from what people are doing because they feel bored does not solve the underlying problem of boredom. Individuals must take an approach strategy that removes potential elements that can

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interfere with concentration on a given task and practices self-control to focus on the task. In particular, students who use approach strategies have a stronger ability to control and manage their behavior than students who use avoidance strategies [5]. If self-control is weakened, people will easily avoid objects whenever they feel bored, and the bored state will be repeated and difficult to get out of.

Self-control is behavior that regulates oneself for a desired outcome or goal [7-9]. As can be seen in previous studies, students with high self-control achieve higher academic achievement, self-control is directly linked to the experience of task success. [10, 11] Self-control is the starting point of adaptive coping with boredom, and it can be said to be a major driving force that sustains motivation and leads to achievement. This study aims to find out the relationship between boredom and self-control behaviors by designing a self-control program.

2. THEORETICAL BACKGROUND

2.1 Boredom

Boredom is a feeling of regret and discomfort because people want to do something, but they cannot do a satisfying activity [12, 13]. High boredom reduces the quality of life and reduces life satisfaction [14]. This low sense of life satisfaction and meaning affects depression, anxiety, and personal well-being [15]. According to previous studies, it was found that high boredom interferes with building effective strategies even in academic situations, and the more boredom is not resolved, the lower the academic performance [16].

Boredom often has more negative effects than positive functions across generations. Lehr and Todman studied the correlation between boredom and academic performance in 10-year-old children. The more bored the children were, the worse their academic performance was, especially the better their reading skills, the less they felt bored in everyday life [17]. In adulthood, people view boredom as a negative emotion. In Chin's study, participants in the experiment ranked boredom as the fourth negative emotion after extreme fatigue, frustration, and indifference [18]. According to Conroy's study, which analyzed the causes of cognitive decline in old age, it was found that cognitive decline in old age was negatively correlated with boredom [19].

Because boredom negatively affects all generations and people's lives in general, Bench argued that boredom stimulates action [2]. People make several attempts to escape boredom, and according to Elpidorou, boredom was seen as a role to "encourage" them to engage in something else [20]. If boredom makes social isolation unbearable and leads to behaviors that cause social chaos [21], it is essential for individuals to prepare strategies to appropriately cope with boredom in daily life.

2.2 Self-Control Behavior

Self-control can be defined as behaviors that regulate oneself for desired outcomes or goals [7, 8]. This is a holistic effort of consciousness that regulates emotions, thoughts, and behaviors, and through this process, individuals can achieve long-term goals more effectively [22]. Conversely, people with low self-control are more impulsive than those with high self-control, and lack diligence or persistence to satisfy their needs right now [23]. This leads to a loss of cognitive, emotional, and behavioral control by not focusing attention on the target behavior and satisfying immediate needs [24].

Summarizing previous studies, self-control is the ability to accurately recognize one's emotions, intentions, thoughts, and abilities and efficiently regulate them in line with individual goals or social needs to be achieved [25, 26]. In this respect, self-control is a major factor influencing successful life and life satisfaction and plays a key role in pursuing long-term goals [27-29].

Self-control is a behavior that regulates oneself for a long-term goal [7] and is very similar to the definition of routine as we know it in terms of the ability to efficiently control one's life [25]. Routine refers to specific actions that one trains repeatedly every day to achieve the future shape and goal one dream of [30]. These routines well reflect the characteristics of self-control in that they are systematic and specific cognitive behaviors composed of cognitive strategies and behavioral strategies [31]. Considering that one of the

important concepts of self-control is a conscious effort to regulate emotions, thoughts, and behaviors to achieve a goal set by the individual [22], specific action guidelines for self-control can be defined as routines. Thus, routine programs and self-control programs are used interchangeably in this study.

2.3 Boredom and Self-Control

Given the important function of self-control, it is not surprising that people who frequently feel bored may find it difficult to exercise self-control in their daily lives [32-34]. Individuals get bored more easily when they do not meet the competencies they want to have or when they are not the masters of their own lives [35]. Additionally, individuals with low self-control often feel bored [36]. Individuals with high boredom proneness experience negative emotions such as boredom again because they fail to exercise self-control behavior in daily life and ultimately fail to achieve their long-term goals. In addition, people with high boredom tendencies have a greater desire for freedom and eventually lose self-control [37].

People do not want to have negative feelings such as boredom, so they try to avoid boredom even by doing unwanted actions [38]. If people manage their desire to escape boredom, it can be transformed into a desire to move passionately toward their goals [39]. In other words, individuals can recognize boredom as an energy to exercise self-control, and if they reduce boredom by exercising self-control in daily life, they will be able to achieve their long-term goals.

Self-control is negatively correlated with boredom even after controlling for various variables [40]. For example, boredom remains highly negatively correlated with self-control even after controlling for variables such as age and gender [33]. Previous studies measured the degree of self-control with a simple questionnaire, and there is a limitation in that the correlation between self-control and boredom was based on self-report. Therefore, in this study, specific action plans that can reduce boredom were investigated.

2.4 Research Hypotheses

Hypothesis 1: The experiment group who participated in the self-control program for 21 days will have lower levels of boredom than the control group.

Hypothesis 2: After participating in the self-control program for 21 days, the individual's boredom level will be lower than before.

3. RESEARCH METHOD

3.1 Participants

A total of 180 college students participated in the study, of which 148 data were used for analysis, excluding the data of 32 incomplete responses. According to Miyake, since the prefrontal cortex is not fully developed until an individual is in their 20s, they can exert self-control from their 20s [41]. Therefore, college students with a developed prefrontal cortex and relatively able to actively control their lives were selected as the study subjects.

To examine the difference in boredom between the group that participated in the self-control program and the group that did not participate in the self-control program, experimental group and control group participants were recruited separately. A total of 71 subjects participated in the self-control program, and a total of 66 participants were analyzed, excluding 5 incomplete responses. The average age of the experiment group was 21.45 (SD=2.19), and there were 44 females (66.7%). Their majors were liberal majors 21.2%, psychology 18.2%, and computer science 15.2%. A total of 109 control groups did not participate in the self-control program, and a total of 82 responses were analyzed except for 27 incomplete responses. The average age of the control group was 21.6 years (SD = 2.16), and there were 43 males (52.4%). Their majors were engineering (39.0%), social sciences (14.6%), and management and humanities, each accounting for 8.5%.

3.2 Procedures

This study compared the degree of boredom between experiment and control groups and also, compared the boredom before and after the self-control program within the experiment group. To examine the difference between the groups, 66 of the 148 participants were assigned to the experiment group and 82 to the control group. To investigate boredom within the group, 66 participants in the experiment group compared pre-boredom and post-boredom.

This study was designed in three phases. In the first phase, participants were gathered in a classroom to complete measurements including demographic information, and were provided training on the use of the research platform. In the second phase, self-control program was conducted. In the third phase, participants completed questionnaires, participated in a debriefing session, and received compensation. From the control group, demographic information and boredom responses were collected via an online questionnaire form.

Table 1. Experiment Procedure

Procedure	Detailed Procedure	Activities
Phase 1 (Offline Orientation)	Questionnaire	Boredom was measured before participating in the program and demographic information was collected
	Self-Control Program	The researcher explained the definition of self-control behavior, and the experiment group (66 people) participants set a self-control behavior (routine) to be executed for 21 days. It was guided that the self-control behavior should meet four conditions: 1) it should be about 40 minutes or more per day, 2) there are no limits for the number of activities, 3) each activity should be performed everyday, and 4) self-control activities are to achieve their long-term goal.
	Platform Training Session	The SLACK application was used to measure the self-control behaviors. SLACK is a collaboration tool for project management developed by Slack Technologies. Participants installed and signed up for the SLACK application on site and received training on using the SLACK application.
Phase 2 (21-day Self-Control Program)	Self-Control Program	All participants started the self-control activities on the same day for 21 days. When the self-control activities were completed, they send the picture of self-control activities to the researcher by midnight on the day. Then the research team sends a confirmation message through SLACK every night at 10:00 pm.
Phase 3 (Debriefing session)	Post Survey	After the self-control program was over, participants gathered again and completed the boredom scale. For participants who did not participate in the offline debriefing session, responses were collected online within 3 days of the end of the program.
	Debriefing	A debriefing session was conducted immediately after the program ended. The purpose of this study was informed to the participants, and all participants were provided with a gift certificate worth about 5,000 won.

3.3 Measurements

3.3.1 Boredom

To measure boredom, the Boredom Propensity Scale developed by Farmer and Sundberg and translated by Bae Kyong Mi was used. [14, 42] It consists of a total of 28 questions on a 7-point Likert scale, with 1 point being "strongly disagree" and 7 points being "strongly agree". Examples of the item include "I am easily immersed in my activities" and "I always plan what I will do in my head", and the Cronbach's alpha of the original scales was .778, and the reliability of this study was .879.

3.3.2 Self-Control

To measure self-control, a self-control program was developed by referring to the Brief Self-Control Scale (BSCS) developed by Tangney et al [11]. The first sub-factor, 'self-control', refers to the ability to control current behavior for the sake of a larger goal and benefit, and the second sub-factor, 'focus', is defined as the ability to focus on the actions to be taken to achieve a long-term goal [43].

Individuals were asked to devise their own self-control activities based on the definition of self-control and to write down goals they would like to achieve in the future. To achieve the goal, they were instructed to focus on the self-control activities for about 40 minutes a day. During the self-control activities, they were guided not to have conversations with people around them and not to be engaged in multiple tasks. After the research participants achieved their planned self-control activities, they took a picture of themselves engaging in self-control activities and sent the picture to the researcher using the SLACK application. Each completed day was counted to measure the self-control behavior. Examples of self-control activities include "reading for 30 minutes a day" and "walking 3km a day", and participants reported an average of 2.72 self-control activities. The mean of self-control behavior was 6.97(SD=4.74).

Although there is a debate about how long it takes for a new behavior to become adaptive and to become a regular routine. Lally and his research team claimed that it takes a minimum of 21 days and a maximum of 66 days for an individual to habituate a new behavior [44]. The book of *Psycho-Cybernetics* claims that it takes at least 21 days for people to make a new behavior a routine [45]. Therefore, this researcher devised a self-control program that individuals can practice for 21 days in their daily life.

4. RESULTS

4.1 Descriptive Statistics of Self-control Activities

A total of 20 self-control activities were proposed from the participants in the experiment group. The activities were classified into five sub-categories: physical activity, learning activity, writing activity, eating activity, and others. Among them, learning activities and physical activities were the most common, specifically reading (20%), followed by meditation and prayer (17%), exercise (13%), stretching and yoga (7%), writing a diary (7%), review of the lectures (7%). Participants seem to have designed a self-control program by dividing static and dynamic activities, and self-control activities are relatively simple and do not require much time and effort but seem to be helpful in achieving future goals.

4.2 Boredom in the Experiment Group and Control Group

In order to analyze the difference in boredom between the experiment and control groups, the independent sample t-test was conducted. As a result, there was a significant difference in boredom between the two groups (<Table 3>). The mean boredom of the experiment group was 3.29 (SD=.60), and the control group mean was 4.27 (SD=.61). The results showed that the boredom of participants in the self-control program was significantly lower than those who did not ($t(146) = -7.281, p < .001$). Therefore, Hypothesis 1 was supported.

Table 2. List of Self-Control Activities

Categories	Specific Activities	Frequency	%
Physical Activities	Exercise	23	13%
	Stretching and yoga	13	7%
	Hiking	6	3%
	Playing musical instruments	3	2%
Learning Activities	Reading	36	20%
	Learning foreign language	6	3%
	Lecture review	12	7%
	Summarizing news article	3	2%
Writing Activities	Writing a diary	13	7%
	Writing an article	1	1%
	Writing a book	1	1%
	Writing practice	1	1%
Eating Activities	Taking nutritional supplements	9	5%
	Having breakfast	5	3%
	Having teatime	1	1%
	Drinking water	1	1%
Others	Meditation and prayer	31	17%
	Cleaning	11	6%
	Planning daily to-dos	3	2%
	Recording income and expense logbook	1	1%
	Total	180	100%

Table 3. Independent T-Test

Variable	Groups	N	M	SD	t
Boredom Proneness	Experiment Group	66	3.29	.60	-7.281 ***
	Controlled Group	82	4.27	.61	

* $p < .05$, ** $p < .01$, *** $p < .001$

4.3 Boredom Before and After Self-Control Program

A paired-sample t-test was conducted to compare pre-and post-boredom within the experimental group that executed the self-control program. There was a significant difference in boredom before and after at the .001 significance level (<Table 4>). The mean of pre-boredom was 3.54 (SD=.62), and the mean of post-boredom was 3.29 (SD=.60), indicating that the level of boredom decreased significantly after participating in the self-control program ($t(65) = -3.93, p < .001$). Therefore, Hypothesis 2 was also supported.

Table 4. Dependent T-Test

Variable	Groups	Pre-M (SD)	Post-M (SD)	T
Boredom Proneness	Experiment Group	3.54 (.62)	3.29 (.60)	-3.930 ***

* $p < .05$, ** $p < .01$, *** $p < .001$

5. DISCUSSION

Boredom has a critical influence on daily life, and its importance is gradually emerging [18]. Boredom negatively affects various aspects of psychological disorder-related domains such as depression, anxiety, obsessive-compulsive disorder, and interpersonal sensitivity [46, 14, 48]. Therefore, specific, and practical implications that can be applied in real life are needed so that individuals can reduce their level of boredom. According to the results of this study, self-control activities played a significant role in reducing boredom. The experiment participants who participated in the self-control program for 21 days showed significantly lower boredom. This study provides meaningful information in that we measured self-control behavior through an experiment. Based on the Brief Self-Control Scale (BSCS) developed by Tangney et al. we designed a valid experiment to measure self-control behavior. Another strength of the study is that we provide concrete and actionable plans to alleviate boredom. The self-control program designed by the participants in this study is not complicated in its process and is easily accessible in daily life. The activities most participants participated in were "reading (20%), meditation (17%), and exercise (13%)". Through this study, it was confirmed that boredom could be effectively reduced just by consistently repeating the target activity for more than 40 minutes a day for 21 days. Therefore, this study suggested a strategy for individuals to adaptively cope with boredom in daily life.

Despite the strength of the study, there are some limitations. First, since the experiment was conducted with university students, it is difficult to generalize the results to all generations. Boredom can vary across life cycles [48, 18]. Therefore, future research with a sample of various age groups may provide another aspect of understanding boredom. Second, it is suggested that there may be differences in the time required for each individual to form a self-control program into an individual habit, but we set as a 21-day program. According to Fisher and Hamilton, vulnerability to boredom varies among individuals according to their ability to control attention [49, 50]. In addition, there are individual differences in establishing a target behavior as a regular routine, and according to previous studies, the period required for habit formation is different. Maltz stated in his study that it takes at least 21 days to change a habit, and Lally and his research team suggested that it takes a minimum of 18 days and a maximum of 254 days for each person to form a habit. [45, 44]. In their study, the average period of habit formation was 66 days, but a large number of dropouts occurred during the long-term experiment [44].

Akers and Sellers questioned in their study whether the operant definition of self-control is valid in measuring each person's level of self-control [51]. To address their concerns, we developed the self-control program and measured self-control behaviors using the number of days completed self-control activities. For the future study, we suggest multiple methods to measure self-control behaviors such as measurement and experiments. Also, it is necessary to explore variables that mediate the relationship between self-control and

boredom. Previous studies suggest meaning of life as an important variable in relation to boredom [52, 53]. Self-control is positively correlated with meaning in life, and increased meaning in life can reduce boredom [54, 55]. Future studies can examine whether meaning of life is a significant variable in the relationship between self-control and boredom.

6. CONCLUSION

The purpose of this study was to find out whether there was a difference in boredom between groups according to self-control activities and whether self-control activities alleviated individual boredom. In particular, it was confirmed whether self-control activities that can be performed in daily life can significantly reduce individual boredom. As a result of the study, the experimental group that performed the self-control program had a significantly lower degree of boredom than the control group, and there was a significant change in boredom before and after the experimental group that did the self-control activity.

This study is meaningful in that an experimental study was planned to confirm the correlation between self-control and boredom. In addition, to measure individual self-control, a practical self-control program based on the existing self-control scale was planned. In order to set a long-term goal in an individual's life and achieve it, meaningful activities that can be repeatedly performed for 21 days were planned. This is very suggestive in that it suggests a practical way for individuals to reduce boredom in their daily lives.

REFERENCES

- [1] Westgate, E. C. and Wilson, T. D., "Boring thoughts and bored minds: The MAC model of boredom and cognitive engagement," *Psychological Review*, Vol. 125, No. 5, pp. 689, 2018. <https://doi.org/10.1037/rev0000097>
- [2] Bench, S. W. and Lench, H. C., "On the function of boredom," *Behavioral sciences*, Vol. 3, No. 3, pp. 459-472. 2013. <https://doi.org/10.3390/bs3030459>
- [3] Pekrun, R., Hall, N. C., Goetz, T. and Perry, R. P., "Boredom and academic achievement: Testing a model of reciprocal causation," *Journal of educational Psychology*, Vol. 106, No. 3, pp. 696, 2014. <https://doi.org/10.1037/a0036006>
- [4] Nett, U. E., Goetz, T. and Hall, N. C., "Coping with boredom in school: An experience sampling perspective," *Contemporary educational psychology*, Vol. 36, No. 1, pp. 49-59, 2010.10.1016/j.cedpsych.2010.10.003
- [5] Heo, H. M. and Cho, H. I., "Latent Groups of Boredom Coping Strategies and their Relationship with Self-Regulated Learning, Self-Determination Motivation, General Boredom, Academic Achievement, and Subjective Well-Being of College of Education Students," *Journal of the research institute of Korean education*, Vol. 37, No. 4, pp. 219-244, 2019. <https://doi.org/10.22327/kei.2019.37.4.219>
- [6] Lee, D. G. and Park, H. J., "Clusters of Coping Styles and Their Differences in Procrastination and Psychological Distress," *Korean Journal of Social and Personality Psychology*, Vol. 23, No. 2, pp. 43-57, 2009. 10.21193/kjspp.2009.23.2.003
- [7] Barkley, R. A., "Attention-deficit/hyperactivity disorder, self-regulation, and time: toward a more comprehensive theory," *Journal of Developmental & Behavioral Pediatrics*, Vol. 18, No. 4, pp. 271-279. 1997.
- [8] Baumeister, R. F. and Vohs, K. D., "Self-Regulation, ego depletion, and motivation," *Social and personality psychology compass*, Vol. 1, No. 1, pp. 115-128. 2007. <https://doi.org/10.1111/j.1751-90042007.00001.x>
- [9] Muraven, M. and Slessareva, E., "Mechanisms of self-control failure: Motivation and limited resources," *Personality and social psychology bulletin*, Vol. 29, No. 7, pp. 894-906, 2003. <https://doi.org/10.11770146167203029007008>
- [10] Duckworth, A. L. and Seligman, M. E., "Self-discipline outdoes IQ in predicting academic performance

- of adolescents,” *Psychological science*, Vol. 16, No. 12, pp. 939-944. 2005. <https://doi.org/10.1111/j.1467-9280.2005.01641.x>
- [11] Tangney, J. P., Baumeister, R. F. and Boone, A. L., “High self-control predicts good adjustment, less pathology, better grades, and interpersonal success,” *Journal of personality*, Vol. 72, No. 2, pp. 271-324. 2004. [10.1111/j.0022-3506.2004.00263.x](https://doi.org/10.1111/j.0022-3506.2004.00263.x).
- [12] Eastwood, J. D., Frischen, A., Fenske, M. J. and Smilek, D., “The unengaged mind: Defining boredom in terms of attention,” *Perspectives on Psychological Science*, Vol. 7, No. 5, pp. 482-495. 2012. <https://doi.org/10.1177/1745691612456044>
- [13] [12] Fahlman, S. A., Mercer-Lynn, K. B., Flora, D. B. and Eastwood, J. D., “Development and validation of the multidimensional state boredom scale,” *Assessment*, Vol. 20, No. 1, pp. 68-85. 2013. <https://doi.org/10.1177/1073191111421303>
- [14] Farmer, R. and Sundberg, N. D., “Boredom proneness--the development and correlates of a new scale,” *Journal of personality assessment*, Vol. 50, No. 1, pp. 4-17.1986. https://doi.org/10.1207/s15327752jpa5001_2
- [15] Fahlman, S. A., Mercer, K. B., Gaskovski, P., Eastwood, A. E. and Eastwood, J. D., “Does a lack of life meaning cause boredom? Results from psychometric, longitudinal, and experimental analyses,” *Journal of social and clinical psychology*, Vol. 28, No. 3, pp. 307. 2009. [10.1521/jscp.2009.28.3.307](https://doi.org/10.1521/jscp.2009.28.3.307)
- [16] Kass, S. J., Vodanovich, S. J., Stanny, C. J. and Taylor, T. M., “Watching the clock: Boredom and vigilance performance,” *Perceptual and motor skills*, Vol. 92, No. 3, pp. 969-976. 2001. <https://doi.org/10.1177/003151250109203c01>
- [17] Lehr, E. and Todman, M., “Boredom and boredom proneness in children: Implications for academic and social adjustment,” *Self-regulation and social competence: Psychological studies in identity, achievement and work-family dynamics*, Vol. 1, No. 18. 2009
- [18] Chin, A., Markey, A., Bhargava, S., Kassam, K. S. and Loewenstein, G., “Bored in the USA: Experience sampling and boredom in everyday life,” *Emotion*, Vol. 17, No. 2, pp. 359, 2017. <https://doi.org/10.1037/e0000232>
- [19] Conroy, R. M., Golden, J., Jeffares, I., O'Neill, D. and McGee, H., “Boredom-proneness., loneliness, social engagement and depression and their association with cognitive function in older people: a population study,” *Psychology, health & medicine*, Vol. 15, No. 4, pp. 463-473, July 2010. <https://doi.org/10.1080/13548506.2010.487103>
- [20] Elpidorou, A., “The bright side of boredom,” *Frontiers in psychology*, Vol. 5, Article. 1245, 2014. <https://doi.org/10.3389/fpsyg.2014.01245>
- [21] Killgore, W. D., Cloonan, S. A., Taylor, E. C. and Dailey, N. S., “Loneliness: A signature mental health concern in the era of COVID-19,” *Psychiatry research*, Vol. 290, Article. 113117, 2020. <https://doi.org/10.1016/j.psychres.2020.113117>
- [22] Zeidner, M., Boekaerts, M. and Pintrich, P. R., “Self-regulation: Directions and challenges for future research,” *Academic Press*, pp. 749-768. 2000. <https://doi.org/10.1016/B978-012109890-2/50052-4>
- [23] Arneklev, B. J., Grasmick, H. G., Tittle, C. R. and Bursik, R. J., “Low self-control and imprudent behavior,” *Journal of Quantitative Criminology*, Vol. 9, No. 3, pp. 225-247. September 1993. <https://doi.org/10.1007/BF01064461>
- [24] Muraven, M. and Baumeister, R. F., “Self-regulation and depletion of limited resources: Does self-control resemble a muscle?,” *Psychological bulletin*, Vol. 126, No. 2, pp. 247. 2000 <https://doi.org/10.1037/0033-2909.126.2.247>
- [25] Bandura, A., “Social cognitive theory of self-regulation,” *Organizational behavior and human decision processes*, Vol. 50, No. 2, pp. 248-287. 1991. [https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/10.1016/0749-5978(91)90022-L)
- [26] Kopp, C. B., “Antecedents of self-regulation: a developmental perspective,” *Developmental psychology*, Vol. 18, No. 2, pp. 199. 1982.
- [27] <https://doi.org/10.1037/0012-1649.18.2.199>
- [28] Baumeister, R. F. and Exline, J. J., “Self-control, morality, and human strength,” *Journal of Social and Clinical Psychology*, Vol. 19, No. 1, pp. 29. 2000.

- [29] Will Crescioni, A., Ehrlinger, J., Alquist, J. L., Conlon, K. E., Baumeister, R. F., Schatschneider, C., and Dutton, G. R., "High trait self-control predicts positive health behaviors and success in weight loss," *Journal of health psychology*, Vol. 16, No. 5, pp. 750-759. 2011. <https://doi.org/10.1177/1359105310390247>
- [30] Normandeau, S. and Guay, F., "Preschool behavior and first-grade school achievement: The mediational role of cognitive self-control," *Journal of Educational Psychology*, Vol. 90, No. 1, pp. 111. 1998.
- [31] <https://doi.org/10.1037/0022-0663.90.1.111>
- [32] Jeon, J. H., "A study on the performance of Olympic gold medalists using their routines," *Korean Association For Learner-Centered Curriculum And Instruction*, Vol. 18, No. 17, pp. 857-877. 2018.
- [33] Kim, B. H., "The Development on Pre-Shooting Routine Program of Archery Players in Competitions," *Korean Society of Sport Psychology*, Vol. 18, No. 3, pp. 119-143. 2007.
- [34] I410-ECN-0102-2008-690-002597406
- [35] Isacescu, J. and Danckert, J., "Exploring the relationship between boredom proneness and self-control in traumatic brain injury (TBI)," *Experimental brain research*, Vol. 236, No. 9, pp. 2493-2505. 2016. <https://doi.org/10.1007/s00221-016-4674-9>
- [36] Isacescu, J., Struk, A. A., and Danckert, J., "Cognitive and affective predictors of boredom proneness," *Cognition and emotion*, Vol. 31, No. 8, pp. 1741-1748. 2017. <https://doi.org/10.1080/02699931.2016.1259995>
- [37] Struk, A. A., Scholer, A. A. and Danckert, J., "A self-regulatory approach to understanding boredom proneness," *Cognition and Emotion*, Vol. 30, No. 8, pp. 1388-1401. 2016. <https://doi.org/10.1080/02699931.2015.1064363>
- [38] Sulea, C., Van Beek, I., Sarbescu, P., Virga, D. and Schaufeli, W. B., "Engagement, boredom, and burnout among students: Basic need satisfaction matters more than personality traits," *Learning and Individual Differences*, Vol. 42, pp. 132-138. 2015. <https://doi.org/10.1016/j.lindif.2015.08.018>
- [39] Boylan, J., Seli, P., Scholer, A. A. and Danckert, J., "Boredom in the COVID-19 pandemic: Trait boredom proneness, the desire to act, and rule-breaking," *Personality and individual differences*, Vol. 171, 2021. <https://doi.org/10.1016/j.paid.2020.110387>
- [40] Rey-Ares, L., Fernández-López, S., Castro-González, S. and Rodeiro-Pazos, D., "Does self-control constitute a driver of millennials' financial behaviors and attitudes?," *Journal of Behavioral and Experimental Economics*, Vol. 93, 2021. <https://doi.org/10.1016/j.socec.2021.101702>
- [41] Kierkegaard and Soren, *Either /Or: A Fragment of Life*, Penguin Classics, 1992.
- [42] McDonald, W., "Essays on boredom and modernity," Brill, Vol 31, pp. 61-84, 2009.
- [43] Drody, A. C., Hicks, L. J. and Danckert, J., "Boredom proneness and rule-breaking: A persistent relation one year into the COVID-19 pandemic," *Behavioral Sciences*, Vol. 12, No. 8, pp. 251, 2022. <https://doi.org/10.3390/bs12080251>
- [44] Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A. and Wager, T. D., "The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis," *Cognitive psychology*, Vol. 41, No. 1, pp. 49-100, 2000. <https://doi.org/10.1006/cogp.1999.0734>
- [45] Bae, K. M., "A Study on the Relationship between Personality Characteristics, Abnormality Tendency, and Drinking Behavior," *Korea University Graduate School Master's Degree thesis*, 2003.
- [46] Hong, H. K., Kim, H. S., Kim, J. H. and Kim, J. H., "Validity and Reliability Validation of the Korean Version of the Brief Self-Control Scale (BSCS)," *Korean Journal of Psychology: General*, Vol. 31, No. 4, pp. 1193-1210, 2012.
- [47] Lally, P., Van Jaarsveld, C. H., Potts, H. W. and Wardle, J., "How are habits formed: Modeling habit formation in the real world," *European journal of social psychology*, Vol. 40, No. 6, pp. 998-1009, 2009. <https://doi.org/10.1002/ejsp.674>
- [48] M. Maltz, *Psycho-Cybernetics*, Prentice Hall Press, 1960.
- [49] Sommers, J. and Vodanovich, S. J., "Boredom proneness: Its relationship to psychological-and physical-health symptoms," *Journal of clinical psychology*, Vol. 56, No.1, pp. 149-155, 1999. <https://doi.org/10.10>

02/(SICI)1097-4679(200001)56:1<149:AID-JCLP14>3.0.CO;2-Y

- [50] Anshel, M. H., "A survey of elite athletes on the perceived causes of using banned drugs in sport," *Journal of Sport Behavior*, Vol. 14, No. 4, pp. 283, December 1991.
- [51] Giambra, L. M., Camp, C. J. and Grodsky, A., "Curiosity and stimulation seeking across the adult life span: Cross-sectional and 6- to 8-year longitudinal findings," *Psychology and Aging*, Vol. 7, No. 1, pp. 150–157, March 1992. <https://doi.org/10.1037/0882-7974.7.1.150>
- [52] Fisherl, C. D., "Boredom at work: A neglected concept," *Human relations*, Vol. 46, No. 3, pp. 395-417. 2016. <https://doi.org/10.1177/001872679304600305>
- [53] Hamilton, J. A., "Attention, personality, and the self-regulation of mood: Absorbing interest and boredom," *Progress in Experimental Personality Research*, Vol. 10, pp. 281–315, 1981.
- [54] Akers, R. L. and Sellers, C. S., *Criminological theories: Introduction, evaluation, and application* (4th ed.), Los Angeles: Roxbury, 2004.
- [55] Maddi, S. R., The search for meaning. In W. J. Arnold & M. M. Page (Eds.), *The Nebraska symposium on motivation*, Lincoln, NE: University of Nebraska Press, pp. 134-183, 1970.
- [56] Frankl, V. E., *Man's search for meaning: an introduction to logotherapy*, New York: Simon & Schuster, 1984.
- [57] Stavrova, O., Pronk, T. and Kokkoris, M. D., "Finding meaning in self-control: The effect of self-control on the perception of meaning in life," *Self and Identity*, Vol. 19, No. 2, pp. 201-218. 2017. [10.1080/15298868.2018.1558107](https://doi.org/10.1080/15298868.2018.1558107)
- [58] Lee, S., Park, S., Choi, H., Kim, Y. and Lee, H., "The Effect of Religious Activities on Boredom through the Meaning in Life: Focusing on Protestantism," *International Journal of Advanced Culture Technology*, Vol. 10, No. 3, pp. 111-119, 2022. <https://doi.org/10.17703/IJACT.2022.10.3.111>