

Effects of Self-Control on Cheating Among Indonesian College Students

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Abstract

Cheating among college students has long been a concern in the academic field. In addressing this problem, it is imperative to determine in what circumstances college students cheat. Looking into the internal factor, previous research found that the depletion of self-control increased the probability of cheating. To determine whether this result could be replicated in an Indonesian population, we conducted an experimental study. A sample of 63 undergraduates was randomized into two groups, a self-control depletion group (had difficult essay-writing task) and a self-control no-depletion group (had an easy essay-writing task). After writing the essay, the participants were then asked to complete a knowledge task directly on the test sheet and then copy their answers into a pre-marked sheet. Cheating was determined as modified answers from the test sheet to the pre-marked sheet. The results showed a significant difference in modified answers between the depleted and non-depleted self-control group ($t = 2.09, p < 0.05$). This finding indicates that depletion of self-control affects cheating. This study has a meaningful implication for determining the ideal setting in which the university should conduct their examinations.

Keywords: Cheating, college students, dishonesty, self-control, self-control depletion

Introduction

In their attempts to pursue certain personal advantages in educational contexts, individuals sometimes perpetrate acts of dishonesty, including academic dishonesty. Cheating has long been a concern in education. Bjorklund and Wenestam (2000) found cheating to be a pervasive problem at a university level. However, only a few universities can determine the exact prevalence and dynamics of cheating behaviors among their students. Based on the evidence presented by Kurnia (2008), academic dishonesty often occurred during examinations, as students discussed answers with each other, and secretly brought notes for themselves. □

Several definitions of cheating follow. It is an act in which unauthorized ways are taken to gain success or avoid academic failure (Nursalam, Bani, & Munirah, 2013). It is unethical behavior that generates negative feelings like guilt (Klass, 1978; Wright, 1971) and discomfort (Noel, 1973; Shaffer, 1975). Such uncomfortable feelings related to cheating arise as a result of a discrepancy among actions, purposes, and beliefs (Shu & Gino, 2012). Cheating can cause a person to disregard the prevailing moral rules (Shu & Gino, 2012). Thus, cheating remains widespread and is even considered reasonable by many students.

Dishonesty in education is influenced by several personal and extrinsic factors, such as an obsession with good grades on tests, excessive study loads, high stress levels, teacher attitudes, and general non-compliance with academic regulations (Bjorklund & Wenestam, 2000; Austin, Simpson, & Reynen, 2005; Engler, Landau, & Epstein, 2008; Gallant, 2008; McCabe, Trevino, & Butterfield, 2001a; Williams, 2012; Orosz, Farkas, & Roland-Lévy, 2013). One of the appealing personal factors influencing cheating that is scarcely studied is self-control.

If adequate self-control is present, individuals can follow the rules and regulations used to upholding academic honesty (Tuk, Zhang, & Sweldens, 2015; Tangney, Baumeister, & Boone, 2004). Self-control is the capacity to alter one's self-response to elicit the behaviors that are appropriate for given goals and standards (Mead et al., 2009). Baumeister, Vohs, and Tice (2007) define self-control as the capacity to change one's responses and adapt them to existing standards, such as ideals, values, morals, and social expectations. Self-control is used to enable the achievement of long-term goals.

Muraven, Tice, and Baumeister (1998) stated that self-control is evident in one's ability to cease bad habits, resist temptation, and maintain good self-discipline.

However, under some circumstances, known as self-control depletion conditions, self-control cannot manifest properly. In such depletion, the state of mental resources for performing self-control and the willingness to use it are limited. When the energy available for mental activity dissipates, self-control becomes disturbed, a state called ego depletion (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Such depletion occurs when limited mental resources (for self-control) have been spent on a cognitively demanding task, reducing the resources available to perform other tasks (Baumeister et al., 1998; Finkel, Campbell, Brunell, Dalton, Scarbeck, & Chartrand, 2006). For example, a person working on a short writing task that requires a high degree of concentration will experience exhaustion of mental energy. Thus, it results in self-control depletion and subsequent degradation of performance (Muraven et al., 1998).

Lowered self-control causes an inability to distinguish acceptable behavior from behavior that should otherwise not be accepted (Santrock, 2007). Also, in addition to violating moral code, lack of self-control can make it more difficult for a person to withstand selfish impulses and behave morally (Mead et al., 2009). Therefore, dishonest behavior occurs more often when students are in a self-control-depleted condition (Mead et al., 2009; Gailliot, Baker, Gitter, & Baumeister, 2012; Gino, Schweitzer, Mead, & Ariely, 2011; Baumeister & Alghamdi, 2015).

There are differences in cheating behaviors between students in developed and developing countries (Taylor-Bianco & Deeter-Schmelz, 2007; Lupton & Chapman 2002). Countries with collectivist cultures report higher incidences of cheating than countries with individualist cultures, such as the United States (Preiss, Klein, Levenburg, & Nohavova, 2013). Students in collectivist cultures tolerate cheating behavior because helping other students cheat in exams is considered acceptable, and even encouraged by other students (Magnus, Polterovich, Danilov, & Savvateev, 2002). Consistently, individuals in a collectivist culture, such as China and India, are more likely to employ deceptive tactics like cheating, if it aids a group in achieving its goals (Triandis, Carnevale, Gelfand, Robert, Wasti, Probst, et al., 2001). However, other studies have reported that cultural and demographic differences give little indication of actual rates of cheating (Williams, Nathanson, & Paulhus, 2010).

A cross-cultural study conducted by a group of researchers reported that students across nations engage in academic dishonesty (Miller, Agnich, Posick, & Gould, 2014). However, this is an especially pressing problem in education in Indonesia. Indonesia ranked second place compared among other 30 nations in terms of the problematic nature of its academic cheating (Miller, Agnich, Posick, & Gould, 2014). The widespread prevalence of cheating among developing countries, especially Indonesia, requires urgent solutions that may find their roots in this research. Thus, this study aimed to determine whether the results of Mead et al. (2009) could be replicated in an Indonesian population.

This study also investigated the role of mood in mediating self-control and cheating. Hagger, Wood, Stiff, and Chatzisarantis (2010) found that samples in the depletion of self-control had a significant effect size on negative affect. Supported by this, the work of Halali, Berebi-Meyer, and Meiran (2013) led to the conclusion that depletion of self-control may reduce one's ability to overcome negative emotions. These emotions, in turn, increase one's vulnerability to dishonesty.

This study, a follow-up of Mead et al.'s (2009) work, used several modifications of the research procedure, related to the requirements for essay writing and the rewards systems used to motivate participants. The instruction that the essays be written "without the use of the letters A and N" was replaced with another direction that they be composed "without using the letters E and N". It is because many highly common Indonesian language words needed in the essay, such as the singular personal pronouns, use the letter "A" (saya, kamu, dia). Besides, participants did not receive money for each correct answer, as was the case in Mead et al. (2009), but three highest scorers would win a prize. These modifications were made to conform to the characteristics of Indonesian language and the feasibility of the study. We hypothesized that there would be a significant difference in modified answers (from the test sheet to the answer sheet) between the self-control-no-depletion group and the self-control-depletion group.

Research Methodology

Sample

Based on power analysis using effect size from Mead et al.'s (2009) study ($\Phi = 0.313$), the minimum sample size was 81 participants. However, due to constraint in time and resources, only 65 college students were recruited in the study. In all, data from 63 college students from several faculties in Universitas Indonesia (41.3% men, 58.7% women, $Mage = 19.46$, $SD = 1.31$) were processed

The inclusion criteria for the prospective participants included students from Universitas Indonesia from any major and year. Participants were recruited online and randomized into two groups. In this experiment, gender distribution differs quite sharply between the groups, as there is a notable difference between the proportion of males and females in the self-control-no-depletion group, but not in the self-control-depletion group. We informed the participants through the online recruitment form that they could win a power bank as the prize in the study.

Preliminary analysis found that individual factors, such as gender and age, have no correlation with cheating, as shown in Table 1. Participants showed no significant differences in cheating between sexes in the self-control-depletion group, $\chi^2(1, n = 32) = 0.43, p > .05$. or in the self-control-no-depletion group, $\chi^2(1, n = 31) = 0.94, p > .05$. As for age, there is no significant difference in cheating behavior among participants' ages, from 18 years old to 22 years old, in the self-control-depletion group, $F(1, 31) = 0.26, p > .05, \eta^2 = 0.02$. and the self-control-no-depletion group, $F(1, 30) = 0.34, p > .05, \eta^2 = 0.03$.

Research Design

This study used a between-subjects experimental study design. We randomized the participants into two groups: the self-control-depletion group ($n=33$) and the self-control-no-depletion group ($n=32$) using a draw.

Instrument and Measurement.

A 30-minute essay-writing task was administered to participants to manipulate their self-control. They were asked to share memorable experiences during high school. The essay length was to be three paragraphs, ranging from four to seven sentences each. In the condition of self-control depletion, the participants were not allowed to use words containing the letters E and N, which are common and widely used in Indonesian language. Meanwhile, self-control no-depletion group was not allowed to use words containing the letters X and Z. These letters were unusual and not commonly used in Indonesian language.

We used Positive and Negative Affect Schedule (PANAS) to measure positive and negative affect experienced after manipulation. PANAS has good reliability and validity. We measured two types of affects. The PA scale in PANAS measures the positive affect felt by the participants, while the NA stands for the negative affect. The PA and NA scales have good reliability index ($\alpha = .86$ and $\alpha=.87$, respectively). PANAS has strong a convergent validity and discriminant validity to assess mood on college students ($r > 0.89$ and $r < 0.02$, respectively) (Watson, Clark, & Tellegen, 1988).

We used a knowledge test consisting of 30 items with multiple-choice items (originally used for the Student Scientific Olympiad Quiz) to measure cheating. This test was impossible to complete perfectly due to its level of difficulty and time restriction of 15 minutes. One question used was "What is the name of the bridge located in the province of Maluku, the city of Ambon that has a length of 1140 meters and is 22.5 meters wide?"... We used two sheets for this task; the question sheet and the pre-marked answer sheet. Cheating was determined to be the gain scores (scores from pre-marked sheet minus scores from the question sheet). We use this type of test because it was relevant for the students, who usually take multiple-choice exams.

Materials.

Supplementary procedures can be accessed on bit.ly/selfcontroloncheat.

Procedure.

Before the experiment began, a pilot study with 10 participants was conducted to test the research instruments. The results showed that the participants could finish the task of writing an essay without the letters E and N, as expected. We also made revisions related to the format and answer options in PANAS, as a result of findings in the pilot study.

The experiments were conducted for five days in two rooms with similar arrangements for the self-control-depletion and the no-depletion condition. We standardized the study environment by using the same size rooms, temperature, room lighting, time of conducting this research in each group (i.e., in the morning and afternoon around 4 pm). The participants were randomized into the two groups and arranged into seats set far apart from one another, to prevent the participants from viewing the other

participants' papers. After filling out their demographic data, the participants were asked to write an essay under the determined conditions for each group. We then gave the PANAS questionnaire to the participants.

On the knowledge tasks, participants were asked to complete the answers directly on the question sheet and were only permitted to change their answers once. We informed both groups about the prize. Intentionally, the researchers pretended to forget to prepare the answer sheets and only gave them out when the time was up. Then, the participants were asked to ignore the pre-existing marks on the answer sheets and copy their previous answers from the question sheets onto the answer sheets. The time given for transferring the answers from the question sheets to the pre-marked sheets was 3-5 minutes. Finally, we gave a manipulation check and objective awareness test to the participants.

Results

Out of 65 participants, data from 63 participants were processed. One participant did not complete the questionnaire, while the other did not perform the essay task according to the instructions.

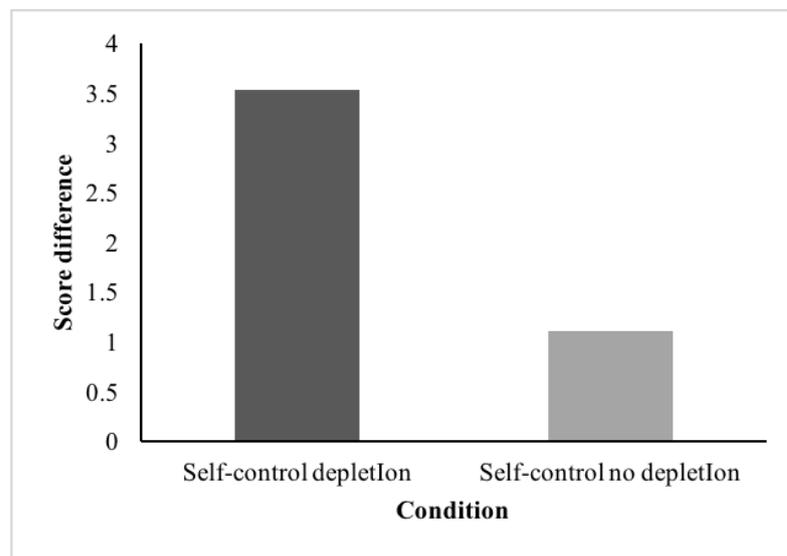


Figure 1. Changed scores in depleted and non-depleted self-control group ($N = 63$)

The data from Figure 1 showed that there was a significant difference in modified scores between the students in self-control-depletion group ($M = 3.53$, $SD = 6.18$) and self-control-no-depletion group ($M = 1.10$, $SD = 2.18$) (see Table 1; see figure 1). Given that the mean difference was significant, ($t(61) = 2.09$, $p < .05$, $d = 0.52$), we found support for our hypothesis, which predicted that the depletion of self-control would increase cheating behavior. We also analyzed the impact of age and sex in cheating behavior. The mean differences were not significant, $t(61) = 0.443$, $p > 0.05$, $d = 0.11$, between male ($M = 2.65$, $SD = 5.95$) and female ($M = 2.11$, $SD = 3.84$). The mean differences were not significant, $F(4, 58) = 0.389$, $p > 0.05$, $\eta^2 = 0.026$, between the age of 18 years ($M = 1.74$, $SD = 3.90$), 19 years ($M = 1.13$, $SD = 2.32$), 20 years ($M = 3.29$, $SD = 5.28$), 21 years ($M = 3.00$, $SD = 5.66$), 22 years ($M = 3.71$, $SD = 8.54$) (see Table 2).

Table 2. Participant's age ($N = 63$)

Age (in years)	N	Mean	SD
18	19	1.74	3.90
19	15	1.13	2.32
20	17	3.29	5.28
21	5	3.00	5.66
22	7	3.71	8.54

Table 3. Age comparison in self-control depletion group and self-control-no-depletion group

Self-control depletion			Self-control no depletion			t	df
<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>		
32	19.75	1.34	31	19.16	1.21	0.07*	61

Note. * $p \leq .05$

Table 4. Results of chi-square test and descriptive statistics for self-control by sex

Sex	Self-control	
	Depletion	No depletion
Female	17 (53.1%)	20 (64.5%)
Male	15 (46.9%)	11 (35.5%)

Note. $\chi^2 = 0.843$, $df = 1$. Numbers in parentheses indicate column percentages. * $p < .05$

Furthermore, the researchers found an effect size of $r^2 = 0.254$. According to Gravetter and Wallnau (2016), this is a substantial effect, implying that self-control depletion's effect on cheating behavior among Indonesian college students was noteworthy. However, the study found no significant difference in PANAS scores between the groups (PA $t(61) = 0.76$, $p = 0.45$, $d = 0.19$ and NA $t(61) = 0.71$, $p = 0.48$, $d = 0.18$).

Discussion

According to Muraven, Tice, and Baumeister (1998), the ability to control oneself is evident from one's ability to cease bad habits, resist temptation, and maintain good self-discipline. Based on our observations, several participants in the depletion group did not keep self-discipline and were unable to endure. They appeared to give up and went to sleep. These behaviors were in accordance to the characteristics of a self-control depleted person. Those characteristics are feelings of fatigue after forcing oneself to concentrate on doing the task, inability to manage one's the moods or emotions, inability to withstand unwanted impulses, and a lack of self-discipline (Tangney et al., 2004). Thus, it appeared that the treatment had successfully resulted in the depletion of participants' self-control.

Consistent with Mead et al. (2009), Gino et al. (2011), as well as Gailliot et al. (2012), we found that self-control depletion promoted cheating. This result may be due to lowered self-control results in an inability to distinguish acceptable behavior from behavior that should otherwise not be accepted (Santrock, 2007; Gino et al., 2011). In other words, participants did not have enough resources to monitor their moral component of the decision. Lack of self-control can also make it more difficult for a person to withstand impulsive and selfish behaviors as well as to behave morally (Mead et al., 2009; Yam, Chen, & Reynolds, 2014). Another explanation is self-control depletion resulted in increased fatigue, perceived difficulty, and lower self-efficacy that impaired performance on a subsequent test (Schmeichel, 2007; Hager, Wood, Stiff, & Chatzisarantis, 2010). Thus, the participants might feel justified to cheat, as they did not feel they have performed as well as they usually would.

Based on the analysis of PANAS' scores, we found no difference in affect between the groups. This result is consistent with Mead et al. (2009), who found that mood did not directly correlate with self-control. Further, Simola (2017) established that individuals are unable to accurately predict their feelings about what they are doing when cheating. Thus, they may not be aware of their negative or ambivalent feelings toward their behavior. Also, individuals involved in victimless cheating report experiencing greater positive feelings than those who do not commit acts of cheating (Ruedy, Moore, Gino, & Schweitzer, 2013). Thus, there were still mixed results on whether negative moods mediate the relationship between self-control and cheating. As such, Mead et al. (2009) suggested that PANAS might be used only to control possible emotional differences caused by manipulation. PANAS scales might not be appropriate for manipulation check and measuring the depletion of self-control.

Furthermore, demographical factors, including gender, did not correlate with cheating behavior. Previous studies have also shown that there is no difference in cheating behavior between men and women in academia (Williams, Nathanson, & Paulhus, 2010). Although self-reported rates of cheating are higher in males, no differences appear for research on cheating conducted in a more concrete fashion (Williams, Nathanson, & Paulhus, 2010). Studies showed that explanations of sex differences in cheating are largely speculative (Cizek, 1999). Additionally, significant differences have not been found

relative to age. Our results are consistent with a previous study by Desalegn and Berhan (2014); that age is not significantly associated with cheating at universities.

Regarding the limitation of this study, researchers have not provided adequate control to some extraneous variables. Although researchers have used several control techniques, some unexamined individual differences might exist, such as intelligence, cheating habit, the level of stress that is being experienced for at least a week, and cultural background (social norms) (Bjorklund & Wenestam, 2000; Austin, et al., 2005; Engler, et al., 2008; Gallant, 2008; McCabe, et al., 2001a; Williams, 2012). However, we have tried to level the participants' motivation to perform well on the test. All participants were made aware of the possibility of a prize for the top scorer. While it is not among the most reliable predictors (Orosz et al., 2013; Hager et al., 2010), previous work has suggested that extrinsic motivation predicts academic cheating.

Another limitation is we only used a sample from Universitas Indonesia, one of the top public colleges in Indonesia. Thus, it might not necessarily represent characteristics of common college students. Lastly, no correlation found between cheating and demographical variables. It may be due to the study's low statistical power (power = 0.7). Nonetheless, the study still showed significant findings on our main hypothesis.

The results of this study supported previously established findings on self-control resources in unethical academic behavior. First, our findings extend commonly theoretical frameworks by further establishing the link between self-control depletion and unethical conduct, especially academic cheating. The results are consistent with many studies (Mead et al., 2009; Gailliot et al., 2012; Gino et al., 2011; Baumeister & Alghamdi, 2015). Second, our work suggests an explanation for consistent findings on behavioral ethics literature that cheating may be a result of not having enough cognitive resources despite being in positive or negative states of feelings. Third, it may also confirm studies by Williams, Nathanson, and Paulhus (2010) that cultural and demographic differences give a little indication in terms of cheating. Cheating is more probable to happen because of the limitation on cognitive resources. At the same time, our findings challenge a study that stated emotion such as shame and guilt may cause and prevent students' from cheating (Rettinger, 2017).

This result has meaningful implications applicable to academic settings in Indonesia, as Indonesian students are more prone to cheat during exams than other nations. One example is that the exam may need to be held in the morning before students have done many exhausting activities. Another is to hold a special week of exams not followed by other classes, with only a maximum of two exams per day, with appropriate time lags. Boston College in the United States has already implemented this procedure, where students are forbidden to take more than two exams a day. If a student is scheduled for three exams in a day, it is a responsibility of the instructor holding the third exam to give a make-up exam (Boston College, 2017).

Students should also be well-rested before their exams, including having had enough sleep to maintain self-control resources. Having numerous healthy habits, such as eating healthy snacks, exercising, and getting consistent sleep, was proven to mediate the effects of self-control (Galla & Duckworth, 2015). As a result of maintaining good self-control, students' academic performance also improves over the long term, helping maintain an emotional distraction of declining learning performance (Tangney et al., 2004). Students can also be trained mindfulness through meditation, as high levels of mindfulness are associated with higher levels of self-control and academic performance as well as reduced impulsiveness and anxiety (Anila & Dhanalakshmi, 2016; Rush, 2013). Universities can implement such an intervention program to promote greater self-control in students.

In future research, we may use other instruments to examine participants' self-control depletion. Previous studies had limitation in only measuring the self-control depletion indirectly, using observation on participants' post-depleted performance (Hagger et al., 2010). Future studies may use instruments such as the Self-Control Behavior Inventory (which measures using observational checks with trained observers) by Fagen, Long, and Stevens (1975) called , the Marlowe-Crowne Social Desirability Scale, and BIDR measurements, examining the effects of self-control on school performance (Tangney et al., 2004), or Tangney Self-Control Scale (which measures people's ability to control impulses, alter emotions and thoughts, as well as to interrupt undesirable behavioral tendencies and to refrain from acting upon them; Tangney, Baumeister, & Boone, 2004).

Future research may also wish to investigate whether the promotion of self-control prevents students from committing academic misconduct. Tibbetts and Myers (1999) found that students who have low self-control are less likely to be affected by punishments resulting from rule violations.

Researchers may identify these individuals, promote their self-control by manipulation, and examine whether the levels of cheating decrease.

Moreover, future research may consider other types of tasks to manipulate self-control. The experimenter may apply verbal writing tasks such as poetry writing or give a numerical ability test, such as Sudoku or arithmetic tests. This suggestion is based on Brewer, Lau, Wingert, Ball, and Blais' (2017) study that executive functioning, including operations of working memory (Hofmann, Schmeichel, & Baddeley, 2012) associated with depletion and motivation. Besides, using a complex task, such as mixed arithmetic operation test, may even further deplete self-control resources (Hager et al., 2010). Varying manipulation to more condition will increase the external validity of the study.

It would also be interesting to investigate motivation as a moderator. When an individual loses motivation, they may shift their attention away from the exertion of self-control to cues that are more personally gratifying (Brewer et al., 2017). In this context, this would denote cheating. Incentivized tasks might also increase an individual's reliance on heuristic processes and initiate less-systematic and robust processes for complex decision-making (Alós-Ferrer, Hügelschäfer, & Li, 2015; Hagger et al., 2010). Perhaps, therefore, it is possible to replace the reward with a less exciting prize or exclude one's incentives as a way of varying the level of motivation.

Conclusion

The results of this study support the claim that self-control depletion affects cheating. The current findings provide another argument that factors increasing the possibility of cheating may come from internal factors. It also suggests implications for determining the ideal setting to conduct university examinations and advice for students on how they can perform at their best.

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