

ICEEPSY 2016 : 7th International Conference on Education and Educational Psychology

Decisional Procrastination: The Role of Courage, Media Multitasking and Planning Fallacy

Jeremy Kristanto^a, & Juneman Abraham^{a*}

* Corresponding author: Juneman Abraham, +62215345830 ext. 2632, juneman@binus.ac.id

^aBina Nusantara University, Psychology Department, Jl. Kemanggisan Ilir III/45, DKI Jakarta 11480, Indonesia

Abstract

<http://dx.doi.org/10.15405/epsbs.2016.11.69>

Some adverse effects of procrastination are anxiety, tension, loss of valuable opportunities, as well as the breakdown of relationships with other people. This study assumed that procrastination is learned. Procrastination can be avoided by identifying its predictors; the question is: Are courage, media multitasking, and planning fallacy able to predict the decisional procrastination? The purpose of this study was to test the following hypotheses: (1) Courage can predict decisional procrastination in the negative direction; (2) Media multitasking can predict it in a positive direction, and (3) Planning fallacy can predict it in a positive direction. Participants of this study were 192 university students in the Greater Area of Jakarta, the capital of Indonesia (116 males, 76 females; mean of age = 20.77 years old; standard deviation = 3.02 years) recruited using convenience sampling technique. The research data were obtained through questionnaires in Indonesian and analyzed using multiple linear regression analysis. Multiple linear regression analysis showed that our model can explain the decisional procrastination, with R-square = 6.4%. This study found that (1) The higher one's courage, the lower his/her decisional procrastination, (2) Media multitasking and planning fallacy cannot predict it. Since the planning fallacy is laden with cognitive processes, courage has a dominant affective or behavioral attitudinal nuance, and media multitasking can be viewed as a psychomotor variable; the current study concludes that the affective variable is the principal thing to be intervened to prevent or stop the decisional procrastination.

© 2016 Published by Future Academy www.FutureAcademy.org.uk

Keywords: Psychology of procrastination, courage, multitasking, fallacy.

1. Introduction

Most of the time, obstacles in life are followed by a set of tasks and challenges in different contexts. Actions taken could differ greatly, ranging from an immediate action to delaying till the last minute. Individuals who do not immediately take action tend to delay and avoid their actions for some time until they are in the right mood to do it. One common example of this phenomenon could be observed



This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

by looking at the behavior of student X. Student X was given an assignment from his lecturer that gave him a three-week deadline. Because of the long duration, he didn't even touch and read any of the assignment. Then, in the next two weeks and five days, he was asked by his friends to help about their assignment and he was panicked, because he had forgotten all about it, and thus, pulled an all-nighter to complete the whole assignment. This phenomenon is called procrastination and was based on interviews conducted by the author with some university students.

Stead, Shanahan, and Neufeld (2010) described procrastination as a delay of an action. Take an example of student X's behavior above, in which he chose to delay his assignment, and when the deadline neared, panic struck. Perhaps this example of behavior doesn't really describe procrastination as a whole. In the task completion process, individuals may delay and avoid an assignment, due to their set of priorities, or perhaps they need some sorts of break to release some stress. There are two types of delays; some people delay to avoid the undesired outcome and some delay for no strong reason. The positive delay is done to avoid the impulsive decision-making, and the negative delay is caused by no apparent reason (Ferrari, as cited in Orellana-Damacela, Tindale, & Suarez-Balcazar, 2000). Therefore, there are two types of procrastination; functional and dysfunctional. Functional procrastination is the delay of task completion to find more compatible and suitable information, so that the task results can be perfect. On the other hand, dysfunctional procrastination is the delay of task completion with no clear purpose and direction. Dysfunctional procrastination is a form of unrelated activity, which is not relevant in the context of the work. There are two forms of dysfunctional procrastination, which are decisional procrastination and behavioral-avoidant procrastination (Ferrari & Emmons, 1995). Decisional procrastination is a form of cognitive thinking that delays the decision making of an assignment in order to face stressful situations, thus reducing the pressure in the mind to deal with other situations (Pychyl, Morin, & Salmon, 2000), while behavioral avoidant procrastination is a continuity of decisional procrastination (Ferrari & Emmons, 1995). Decisional procrastination is a tendency of incapability to decide in a certain time range (Janis & Mann, as cited in Fabio, 2006; Ling, 2012). Burka and Yuen (as cited in Ling, Yuwanto, & Siaputra, 2012) described it as an avoidance of decision-making; people deliberately delay making a decision because they chose to do other priorities that they perceive will be less stressful.

Every student has ever experienced of being given plentiful tasks and materials. There are some who do the assignment straight away and some need to take some time to start the assignment, thus disrupting the functionality of the assignment. This delay is called dysfunctional delay (Steel, 2007). In this case, procrastination is an irrational delay because it opposes the requirement of an assignment, which is to be completed immediately. Procrastinators are associated with bad labels, such as slack, careless, ignorant, and unappreciative (Orellana-Damacela et al., 2000). However, in the end, the student who procrastinates still does the assignment, which proves the labels otherwise. It means that these labels cannot fully describe academic procrastinators.

According to Marano (2003), procrastination is a self-regulation problem. People with low self-regulation tend to have problems in managing time. Other features of procrastination were described as follows: (1) A procrastinator tends to be more optimistic in predicting the time and tends to underestimate the time needed to finish the task. They also tend to dupe themselves, by constantly

believing that they still have time to finish it tomorrow; (2) Procrastination is something learned and avoidable; (3) Procrastination has a bigger impact than just a problem of not being punctual. Referring to the case of student X above, what would have happened if the lecturer had not given out a specific deadline, and X had forgotten to do the assignment?

Roughly, 70% of students tend to procrastinate and more than 20% procrastinate in the daily basis (Schraw, Wadkins and Olafson, as cited in Lowinger, He, Lin & Chang, 2014). In Indonesia, Ursia, Siaputra, and Sutanto (2013) found out that almost 57% of students procrastinate. Procrastination is also found among academicians, ones of the most common individuals who procrastinate (Ferrari & Emmons, 1995). The outcomes of procrastination on students are unfinished assignments, rushed and unsatisfactory results, and high level of anxiety and guilt, and low concentration in the studying process (Solomon & Rothblum, 1984). Negative consequences caused by procrastination include career opportunity loss, lower interpersonal relationships, loss of clear perspective, anxiety, high stress and depression (OvercomingProcrastination.net, 2011).

Because of the high prevalence and harmful outcomes of procrastination, there is a demand to highlight what causes students procrastinate. In addition, seeing the difficulty of eradicating procrastination in spite of the vast investigation out there, the author suspected that there are more reasons underlying procrastination that needs to be known and comprehended.

Procrastination is the result of the cognitive failure; that is the form of a wrong mindset to start and/or complete a task that has a limited time (Fabio, 2006). Such failure may result in a delay in completing and collecting assignments, therefore impedes the learning process. The delay of an assignment usually takes the consideration of a given deadline. People usually procrastinate because they believe they can make it before the deadline (Orellana-Damacela et al., 2000).

This current study focuses on decisional procrastination, a cognitive deviation that causes people to delay decisions. Individuals with high levels of this kind of procrastination tend to have conflicts in choosing information and ways to do assignments. Therefore, avoiding these conflicts, they try to distract themselves by focusing on less stressful activities (Pychyl et al., 2000). Although students already knew the consequences of decisional procrastination, there were many who still did it on a daily basis (Steel, 2010).

1.1. Procrastination and Courage

There are lots of advices and best practices describing what and how to combat procrastination. One of the most essential explanation about procrastination was of Bayati (2015), "*How to Erase Procrastination Out of Your Life with this One Secret*". He stated, "What happens in a moment of procrastination is unconsciously your fear takes over, and you start to focus on why it won't work, whether you can or can't do the task and the possible implications of the task" (Bayati, 2015, p. 1). The way to combat procrastination is to be courageous and to take the risk (Bergman, 2013).

This explanation and advice in combatting procrastination were also supported by Burka and Yuen (2008), in which they mentioned that the emotional roots of procrastination involve inner feelings, fears, hopes, memories, dreams, doubts, and pressures. However, "many procrastinators don't recognize all that's going on 'under the surface' because they use procrastination to avoid uncomfortable feelings" (Burka & Yuen, 2008, p. 1).

The word 'courage' originates from an old French "*corage*", translated as "heart and spirit"; courage also originates from the Latin word "*cor*", translated as "more at heart" (Spence & Smythe, 2007). By this etymology, the word courage is associated with the power from the heart and strength from the inside. The APA Dictionary (VandenBos, 2007) defines courage as the ability to face challenges up front when the physical, psychological and moral conditions are threatened.

Courage is deemed as one of the four main virtues of human, alongside with self-control, justice, and wisdom (Harrington & Keenan, 2010); the act in facing a stimulus that is perceived as scary, new and unusual (Norton & Weiss, 2009). There are three main attributes of courage: (1) A willingness to pursue driving an appropriate course of action; (2) having a noble goal or higher purpose; and (3) Despite the risk, danger, or fear (Goud, 2005; Schwartz, 2012). High level of courage is associated with endurance from the fear-inducing stimulus. Despite experiencing fear, *courageous* individual completes the same course of action as the fearless individual; while the *fearless* individual does not experience fear at all. (Rachman et al., as cited in Norton & Weiss, 2009). In other words, "Courage was not the absence of fear, but the triumph over it. The brave man is not he who does not feel afraid, but he who conquers that fear – quoting Nelson Mandela" (Greenberg, 2012, p. 1).

In conclusion, the key to combat fear that was induced by procrastination is courage. Therefore, the author hypothesized that the higher one's level of courage becomes, the lower the level of decisional procrastination will be (H1).

1.2. Procrastination and Media Multitasking

The other variable that the author hypothesized that it could predict decisional procrastination is multitasking. Dzubak (2007) defined multitasking as the engagement in individuals and discrete tasks that are performed in succession. There is necessarily some time spent switching between tasks. "The switching between tasks is a part of the sequential processing of information and necessitates the selection of information that will be attended to, processed, encoded and stored" (Dzubak, 2007, p. 1).

Because of the sequential processing of information, the concentration of task will be divided and scattered. Moreover, if addictive things such as internet, games, etc. are involved, the attention span will focus on enjoyable things other than the task at hand (Burka & Yuen, 2008). These findings are also supported by Hembrooke and Gay's (2003) research results discovering a limited processing channel in the brain; therefore, the results of information from multitasking are usually capped and not optimized. Ellis, Daniels, and Jauregui (2010) also found the limited processing in the brain sensory, which may cause attention to be easily distracted. Therefore task completion will be delayed. Combining those insights, multitasking and procrastination have similarities in the limited processing resulting in dysfunctional delays. Therefore, the author hypothesized that multitasking can predict the decisional procrastination in a positive way (H2).

1.3. Procrastination and Planning Fallacy

Planning fallacy refers to "the conviction that a current project will go as planned even though most projects from a relevant comparison set have failed to fulfill their planned outcomes" (Buehler, Griffin, & Peetz, 2010, p. 2). Planning fallacy was first introduced by Kahneman, Slovic, and Tversky (1982) describing people's proneness "to underestimate the time required to complete a project, even when

they have considerable experience of past failures to live up to planned schedules” (p. 415). Planning fallacy happens as soon as the individual ignores his/her past experience and performance and adopts his/her internal perspective, i.e. maintaining their optimism about the current project in the face of historical evidence to the contrary (Buehler et al., 2010; Pychyl et al., 2000).

Planning fallacy is caused by an individual’s cognitive state of mind to underestimate the completion and planning, delaying the task by doing other insignificant task (Brunnermeier, Papakonstantinou. & Parker, 2008). These definitions and implications have compatibilities with procrastination. Therefore, the author hypothesized that planning fallacy can predict decisional procrastination in a positive direction (H3).

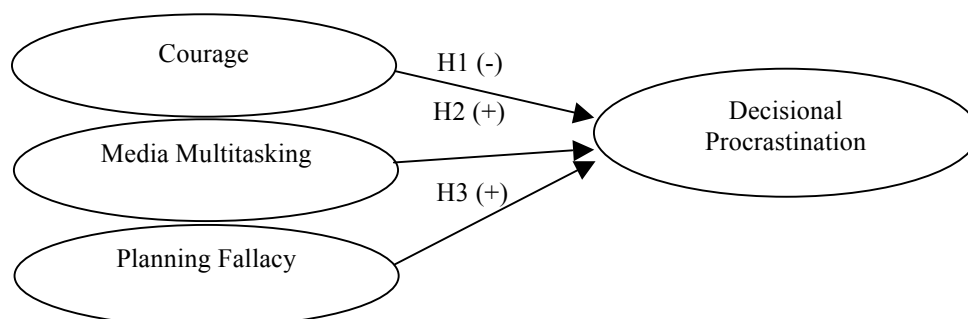
The overall hypothetical model is described in Fig. 1.

2. Methods

2.1. Participants and Design

In this study, the characteristics of participants are (1) Active university students; (2) Aged between 16 and 27 years old; and (3) Attending campus in Greater Jakarta Region. The sampling technique was non-probability sampling, i.e. convenience sampling.

The study used predictive-correlational design, with Courage, Media Multitasking and Planning fallacy as the predictors (independent variables); and Decisional procrastination as the criterion (dependent variable).



Note: (+) Positive prediction
(-) Negative prediction

Fig. 1. The hypothetical model.

2.2. Measurement and Procedure

The scale measuring the perceived courage was adapted into Indonesian from the scale of Norton and Weiss (2009). Examples of items are: (1) If the thought of something makes me feel anxious, I will usually avoid it (*unfavorable item, reversely scored*); (2) Other people describe me as courageous; and (3) If there is an important reason to face something that scares me, I will face it anyway. The response options range from *Strongly Disagree* (score 1) to *Strongly Agree* (score 6). From the reliability test of Courage measurement, the Cronbach’s Alpha coefficient found for courage was 0.825 (Alpha coefficient > 0.600). There was a discarded item (number 12) because it failed to meet the item validity

standards (CIT; corrected item-total correlations value was below 0.250). After being discarded, the Alpha coefficient showed an increase from 0.789 to 0.825. The CIT ranged from 0.260 to 0.790. Therefore, the final courage scale (11 items) can be used to measure courage. The total score is used for further calculation.

For measuring multitasking behavior, the author adapted it from the *Media Multitasking Inventory* (MMI) questionnaire of Ophir, Nass, and Wagner (2009) developed by Cardoso-Leite et al. (2016) into Indonesian. This measurement gathers responses of self-report and frequencies of simultaneous activities using a variety of media. Examples are: (1) Please report the total number of hours per week you spend using each of the following media: Print media __; computer-based video __; instant messaging __; (2) For each type of media, please indicate how often you simultaneously engage with each of the other types of media. The response items are: “Never” (score 0), “A little of the time” (score 1), “Some of the time” (score 2), and “Most of the time” (score 3) (see Fig. 2).

	TV	Computer/internet based video	Music	Nonmusic audio	Games	Telephone/mobile phone voice calls	Instant messaging	Email	Web surfing	Other computer/internet-based applications	SMS
Print media											
TV											
Computer/internet based video (Youtube, Vimeo, etc.)											
Music											
Nonmusic audio (Audiobook, audio online lecture, audio records of procedures or instructions, etc.)											
Games (console/computer/tablet/hp)											
Telephone/mobile phone voice calls											
Instant messaging (including Line, BBM, WeChat)											
Email											
Web surfing (Wikipedia, Google, etc.)											
Other computer/internet-based applications (including Facebook, Instagram, Path)											

Fig. 2. Media Multitasking Inventory sample form (Cardoso-Leite et al., 2016).
 Note. **bolded** words = **added or modified** by the author

The characteristic of the measurement is factual (not latent variable). The MMI scoring procedure follows the formula as shown in Fig. 3 (Ophir et al., 2009; Cardoso-Leite et al., 2016).

$$\sum_{i=1}^{11} \frac{m_i \times h_i}{h_{total}}$$

Fig. 3. MMI formula resulting an index.

Note. “ m_i is the number of media typically used while using primary medium i , h_i is the number of hours per [day] reportedly spent using primary medium i , and h_{total} is the total number of hours per [day] spent with all primary media” (Ophir et al., 2009, p. 15586).

For measuring planning fallacy, the author constructed the scale based on conceptual comprehension from previous studies (Buehler et al., 2010; Buehler, Griffin, & Ross, 1994; Koole & van't Spijker, 2000; Pezzo, Pezzo, & Stone, 2006; Pychyl et al., 2000). Among others, the dimensions are optimism, imposing a deadline, ignorance of the past mistakes (of similar tasks), confidence in resources, and self-representation. All of the previous research of planning fallacy uses the experiment to gather the data. However, the author tried to capture the planning fallacy using a scale. In the scale, the author gave an introduction to participants, “*Courage is defined as one’s persistence in facing a thing, even though he/she has fear. It takes courage to be able to engage and persist in frightening activities.*” Examples of items are: (1) Nothing could hamper my planning; (2) My planning is never wrong; (3) I want to prove to people that I am able to finish the work in critical times; and (4) I will not be careless in carrying out my commitment to complete the task as shown in the past experiences. The response options ranged from *Strongly Disagree* (score 1) to *Strongly Agree* (score 6). To get the reliability and item validity maximum index of the Planning fallacy scale, the author discarded items numbered 2, 8, and 24. The Cronbach’s Alpha coefficient increased from 0.877 to 0.895, and no single item has the CIT below 0.254 (CIT ranged from 0.274 to 0.746). Therefore, the planning fallacy scale (of 21 items) is reliable and valid. The total score is used for further calculation.

For measuring decisional procrastination, this study used the *Decisional Procrastination Questionnaire* (DPQ) that was adapted and translated by Ling et al. (2012) in Indonesian based on Mann’s study (as cited in Ferrari, Johnson, & McCown, 1995). The introduction of this scale is as follows, “*People differ in how they go about making decisions. Please indicate how you make decisions by selecting the response from 1 (Strongly Disagree) to 6 (Strongly Agree) to each question that best fits your personal style.*” The measurement uses a 6-point Likert scale to record the responses from the participants. Examples of items are: (1) I waste a lot of time on trivial matters before getting to the final decision; (2) Even after I make a decision I delay acting upon it; and (3) I don’t make decisions unless I really have to. There weren’t any discarded items, because all of the items met the requirement of item validity, as seen by the lower CIT value ranged from 0.559 to 0.749 and internal consistency reliability index of Cronbach’s Alpha of 0.840. Therefore, the decisional procrastination scale (5 items) is reliable and valid. The total score is used for further calculation.

The data were analyzed using multiple linear regression analysis to predict the decisional procrastination.

3. Results

3.1. Description of the Demography

The participants consists of 76 males and 116 females ($M_{age} = 20.77$ years old; $SD_{age} = 3.02$ years). There were 116 participants from the 1st to the 4th semester, 70 people were from the 5th to the 8th semester, and 6 people were in the 8th semester and beyond. Most of the respondents (70) were Psychology students, followed by 24 students majoring in Accounting, and the rest (98) majoring in the Business, English, Communication Visual Design, Economics, Law, Medicine, Marketing, Information System, Informatics, and Industrial Engineering studies.

3.2. Regression Assumption Test

Regression assumption is satisfactorily fulfilled, indicated by: (1) Data distribution is normal (Fig. 4); (2) The data is free from heteroscedasticity (Fig. 5); and (3) Multicollinearity does not occur. All the tolerance values for Courage, Planning fallacy and Media multitasking are greater than 0.10. Meanwhile, the VIF values of Courage, Planning fallacy, and Media multitasking are less than 10 (Table 1).

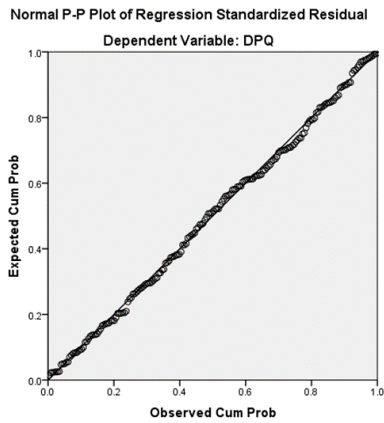


Fig. 4. Normality test result.

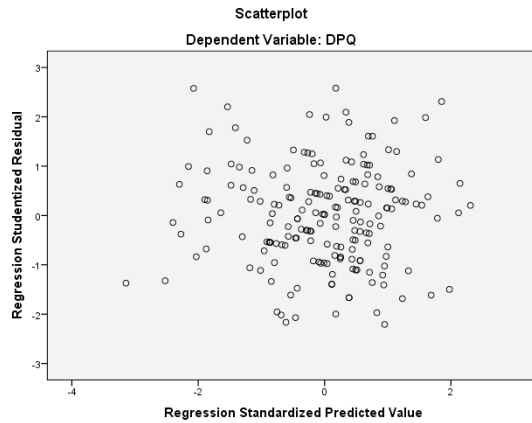


Fig. 5. Heteroscedasticity test result.

Table 1. Multiple linear regression analysis predicting Decisional Procrastination ($n = 192$).

Predictor	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>p</i>	<i>Tolerance</i>	<i>VIF</i>
Courage	-0.222	0.064	-0.274	0.001	0.805	1.242
Planning fallacy	0.045	0.031	0.116	0.145	0.792	1.263
Media multitasking	-0.069	0.099	-0.050	0.486	0.967	1.034

3.3. Regression Result

Courage, Planning fallacy and media multitasking can predict decisional procrastination with $F(3, 191) = 4.321, p = 0.006, p < 0.01, R^2 = 0.064$ or 6.4%.

The analysis for multiple regression (Table 1) showed that Courage can predict the decisional procrastination ($\beta = -0.274, p < 0.01$). H1 was supported by empirical data. However, Planning fallacy ($\beta = 0.116, p > 0.05$) and Media multitasking ($\beta = -0.050, p > 0.05$) cannot predict it. H2 and H3 were not supported by empirical data.

4. Discussion

Courage can predict decisional procrastination. Prior to this current study, to our knowledge, no research has empirically confirmed the predictive power of courage toward procrastination. This study found that the higher the courage, the lower the decisional procrastination. Goud (2005) stated that courage (1) is the fundamental motivational power of self-growth or self-realization, (2) allows one to generate effective action even though faced with negativities such as risks, dangers, and fears, (3) allows, quoting Aristotle (as cited in Goud, 2005), people to have “appropriate fear and action” against fearful objects at the right time. The characteristics of courage are very incompatible with procrastination. For example, Ferrari, Johnson, and McCown (as cited in Ling, 2012) in the conflict paradigm of decision making, showed that the decisional procrastinator is a maladaptive coping actor in a dilemma situation. In fact, by definition, a courageous person is an effective coping actor as well, at the proper moment. Following the paradigm of Temporal Motivation Theory, Steel (as cited in Ling, 2012) stated that people who procrastinate in decision making has low self-efficacy and achievement needs, and they tend to get bored easily to dutiful situations. In the meantime, in the context of the paradigm of growth (Goud, 2005), courageous people precisely (1) have confidence, perseverance, control, and persistence to take on responsibilities and meet the expectations directed for their development, (2) love to walk in a new and uncertain situation, and (3) do not easily take the reaction of “flight” against most of aversive situations.

In addition, impulsiveness is the greatest representation of sensitivity to delay dimension of procrastination (Ling, 2012; Steel, 2007). People who could suddenly act on something thought or desired are likely to have a low sensitivity. When connected to one of the dimensions of courage that is “appropriate action”, it is clear that procrastination violates this. Aristotle (as cited in Goud, 2005) explained that courageous people do not have the quality of “foolhardy”, i.e. acting impulsively and taking unnecessary risk. Courageous people will even decide for not taking an action if there are certain impulses which press them to do unethical things. In this case, “no action” is an action too. Conversely, a procrastinator in the sense of urgency may choose forced or brutal or blind bravery without sufficient mental shrewdness, and does not care about the impact of his/her actions, because he/she lacks of good assessment of faced fear and danger.

Another pivotal dimension of decisional procrastination is the high intention-action gap (Ling, 2012; Steel, 2007). Ling (2012, p. 17) explained, “Someone will tend to delay a task that does not give direct rewards of both prizes and punishments.” This dimension is also an opposition of courage, because courage bases itself on the conscience, and not merely anticipates reward or pain (Klausner, 1961).

Intention-action gap in courageous people is low. Klausner mentioned, in the conflicted-values situation that raises existential anxieties, a courageous person has a “motivational resources or internal systems motive” to act in handling the anxiety even though he/she knew that the resulting actions might be imperfect. For courageous people, anxiety is recognized, accepted, and faced. It is not “distorted” by using a psychological defense mechanism. In addition, “Courage implies a conscious decision, an act of will” (Klausner, 1961, p. 67). This statement implies that courage is not only being cautious (not reacting impulsively), but also having had the results of intentions and already undergone lots of considerations. This intention provides the significant energy to “reach” action. These things explain the reason why the higher the courage a person has, the lower his/her decisional procrastination will be.

Therefore, to prevent procrastination, one needs to instill courageous mindset inherent in him/her, so that he/she can apply the mindset in any culture and work field. A number of ways could be taken as indicated by Gruber (2011). First, one needs to repetitively reflect that “Courage is self-affirmation ‘in spite-of’, that is in spite of that which tends to prevent the self from affirming itself” (Tillich, as cited in Gruber, 2011, p. 274). Second, to enhance the courage, in the perspective of Existential/Phenomenological of Rollo May (as cited in Gruber, 2011, p. 275), one needs training for flourishing autonomous thoughts, creativity, and independence. It was no surprise that these three things – not only positively correlated with courage – but also facilitate the efficient and effective decision-making process. Third, courage can also be enhanced by boldly held freedom to choose his/her own life spaces that are capable of stimulating, challenging, and sustaining his/her courage. Fourth, Maddi (2004) suggested that we should constantly be questioning the meaning of our lives – rather than getting busy in satisfying our biological needs (entering a “comfort zone”), because by being on the “status quo”, there will be no emerged existential anxiety as the necessary condition of courage. By having the courage, we actually have a future time perspective in decision-making, and it is not compatible with procrastination. Fifth, establishing trusting connections are also needed in developing courage (Brendtro, Brokenleg, & Van Bockern, 2005). These five methods to improve courage can be applied to construct procrastination prevention training modules. It is also advised for teachers and lecturers not to give assignments in intimidating ways. All those descriptions show key words that have affective nuance contents. Klausner actually stated that the equivalent of “courage” in terms of Tillich’s terminology is “faith”, and courageous faith as an “existential confidence” discussed in this current study is classified as “the ‘purely affective’ model” (Bishop, 2016).

Contrary to the hypothesis, planning fallacy is not able to predict decisional procrastination. While planning fallacy has the potential to lead to procrastination (Brunnermeier et al., 2008), it also has another direction of influence. This is in line with the statement (Buehler & Griffin, 2003, p. 88), “The planning fallacy cannot be attributed simply to a subset of individuals who tend to delay working at their tasks.” Buehler (2007, p. 2) stated that a person who makes planning fallacy can also have “strong desires to finish tasks early”. In this case, they do have high initiation. They do not delay to start working on a task. However, they are too focused on the internal characteristics of the task and do not consider factors beyond the task itself. They are less aware of or less tolerant to that “events don’t usually unfold exactly as planned” (Buehler, 2007, p. 2). Hence, planning fallacy has two possible

ways of influence on the decisional procrastination, i.e. positively and negatively. Therefore, the scores reduce each other so as to produce “zero-summed” or no correlation.

Media multitasking could not predict decisional procrastination either. Galluch and Thatcher (2006) found that multitasking is associated with cyberloafing (i.e. reduction of efforts in working on the main task, and enhanced activities of non-relevant tasks, in which non-relevant task is done through the medium of the internet), in particular, through the mediation of cognitive absorption variable. Association between multitasking and cyberloafing is described by Rajah and Lim (2011, p. 3) as follows:

“Yet, when employees cyberloaf at work, such as having other non-work related websites open in other browsers, they are essentially juggling multiple mental tasks at the same time [I]ndividuals who engaged in multi-tasking performed worse in the tasks assigned.”

Those findings connote that the internet multitasking (and the associated cyberloafing) contains the psychological processes that are detrimental to productivity. Cyberloafing in this study can be considered as the direct-impacted psychological processes of media multitasking; with the presence of today’s smartphones. The majority of media mentioned in Cardoso-Leite et al.’s (2016) study, which become the measurement instrument in this study, are now connected to the internet. If it is related to decisional procrastination, the media multitasking can provoke the procrastination. This is because distractability is something quite peculiar to a procrastinator; i.e. a person is easily distracted by other things that are assumed to be more fun than the main task he is working on (Ling, 2012), and media multitasking has an association with the distractibility (Moisala et al., 2016). However, Handoyo (2016) through his meta-synthesis found that cyberloafing does not only have negative impacts. Cyberloafing also proved to have a positive impact of reducing boredom (because of the potential for informative and recreational activities) and encouraging creativity, and also build confidence on interrelatedness among networks (Handoyo, 2016). As stated above, creativity and trusting connections are “ingredients” to impede or even halt decisional procrastination. Media multitasking also offers employees a break, allowing them to “zone out” and to shift their attention from work demands (Lim & Chen, 2009). Similar to planning fallacy, of which there is an ambiguity of the ways media multitasking influence on decisional procrastination, either negatively or positively, it is not surprising that no predictive correlation was found between the two.

5. Conclusion

This study concludes that the affective variable (courage) is the main variable to predict the decisional procrastination. However, the cognitive (planning fallacy) and the psychomotor (media multitasking) variables cannot predict it.

References

- Bayati, H. (2015). How to erase procrastination out of your life with this one secret. *GuidedMind*. Retrieved from <https://www.guidedmind.com/blog/how-to-erase-procrastination-out-of-your-life>
- Bergman, P. (2013, May). The unexpected antidote to procrastination. *Harvard Business Review*. Retrieved from <https://hbr.org/2013/05/the-unexpected-antidote-to-pro.html>

- Bishop, J. (2016). Faith. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Summer 2016 Ed.). Retrieved from <http://plato.stanford.edu/archives/sum2016/entries/faith/>.
- Brendtro, L. K., Brokenleg, M., & Van Bockern, S. (2005). The circle of courage and positive psychology. *Reclaiming Children and Youth, 14*(3), 130-136.
- Brunnermeier, M. K., Papakonstantinou, F., & Parker, J. A. (2008). An economic model of the planning fallacy. *NBER Working Paper* No. 14228. Retrieved from <http://www.nber.org/papers/w14228>
- Buehler, R. (2007). Planning fallacy. In R. F. Baumeister & K. D. Vohs (Eds.), *Encyclopedia of Social Psychology* (pp. 672-673). <http://dx.doi.org/10.4135/9781412956253.n401>
- Buehler, R., & Griffin, D. (2003). Planning, personality, and prediction: The role of future focus in optimistic time predictions. *Organizational Behavior and Human Decision Processes, 92*, 80-90.
- Buehler, R., Griffin, D., & Peetz, J. (2010). The planning fallacy: Cognitive, motivational, and social origins. In M. P. Zanna & J. M. Olson (Eds.), *Advances in Experimental Social Psychology* (Vol. 43, pp. 1-62). San Diego: Academic Press. [http://dx.doi.org/10.1016/S0065-2601\(10\)43001-4](http://dx.doi.org/10.1016/S0065-2601(10)43001-4)
- Buehler, R., Griffin, D., & Ross, M. (1994). Exploring the "planning fallacy": Why people underestimate their task completion times. *Journal of Personality and Social Psychology, 67*(3), 366-381. <http://dx.doi.org/10.1037/0022-3514.67.3.366>
- Burka, J. B., & Yuen, L. M. (2008). *Procrastination: Why you do it, what to do about it now*. Cambridge, MA: Da Capo Lifelong.
- Cardoso-Leite, P., Kludt, R., Vignola, G., Ma, W. J., Green, C. S., & Bavelier, D. (2015). Technology consumption and cognitive control: Contrasting action video game experience with media multitasking. *Attention, Perception, & Psychophysics, 78*(1), 218-241. <http://dx.doi.org/10.3758/s13414-015-0988-0>
- Dzubak, C. M. (2007). *Multitasking: The good, the bad, and the unknown*. Retrieved from <http://www.hawaii.edu/behavior/306/downloads/Multitasking%20-%20Dzubak.pdf>
- Ellis, Y., Daniels, B., & Jauregui, A. (2010). The effect of multitasking on the grade performance of Business students. *Research in Higher Education Journal, 8*, 1-10.
- Fabio, A. D. (2006). Decisional procrastination correlates: Personality traits, self-esteem or perception of cognitive failure? *International Journal for Educational and Vocational Guidance, 6*(2), 109-122. <http://dx.doi.org/10.1007/s10775-006-9000-9>
- Ferrari, J. R., & Emmons, R. A. (1995). Methods of procrastination and their relation to self-control and self-reinforcement: An exploratory study. *Journal of Social Behavior & Personality, 10*(1), 135-142.
- Ferrari, J. R., Johnson, J. L., & McCown, W. G. (1995). *Procrastination and task avoidance: Theory, research, and treatment*. New York: Springer US. <http://dx.doi.org/10.1007/978-1-4899-0227-6>
- Galluch, P. S., & Thatcher, J. B. (2006). Slacking and the internet in the classroom: A preliminary investigation. *Proceedings of the Fifth Annual Workshop on HCI Research in MIS*, Milwaukee, Wisconsin, 9 December, 2006. Retrieved from http://sighci.org/uploads/published_papers/ICIS2006/SIGHCI_2006_Proceedings_paper_2.pdf
- Goud, N. (2005). Courage: Its nature and development. *Journal of Humanistic Counseling, Education and Development, 44*, 102-116.
- Greenberg, M. (2012, August). The six attributes of courage. *PsychologyToday*. Retrieved from <https://www.psychologytoday.com/blog/the-mindful-self-express/201208/the-six-attributes-courage>
- Gruber, C. (2011). The psychology of courage: Modern research on an ancient virtue. *Integrative Psychological and Behavioral Science, 45*, 272-279. <http://dx.doi.org/10.1007/s12124-011-9155-x>
- Handoyo, S. (2016). Cyberloafing di tempat kerja: Merugikan atau menguntungkan? In A. Supratiknya, T. Susana, S. U. Aditya, J. Abraham, & I. N. Alfian (Eds.), *Psikologi dan teknologi informasi* (in press). Jakarta: Himpunan Psikologi Indonesia.
- Harrington, D. J., & Keenan, J. F. (2010). *Paul and virtue ethics: Building bridges between New Testament studies and moral theology*. Landham, MD: Rowman & Littlefield Publishers, Inc.
- Hembrooke, H., & Gay, G. (2003). The laptop and the lecture: The effects of multitasking in learning environments. *Journal of Computing in Higher Education, 15*(1), 46-64. <http://dx.doi.org/10.1007/BF02940852>
- Kahneman, D., Slovic, P., & Tversky, A. (Eds.). (1982). *Judgment under uncertainty: Heuristics and biases*. Cambridge, UK: Cambridge University Press.
- Klausner, S. Z. (1961). The social psychology of courage. *Review of Religious Research, 3*(2), 63-72.
- Koole, S., & van't Spijker, M. (2000). Overcoming the planning fallacy through willpower: Effects of implementation intentions on actual and predicted task-completion times. *European Journal of Social Psychology, 30*(6), 837-888. [http://dx.doi.org/10.1002/1099-0992\(200011/12\)30:6<873::AID-EJSP22>3.0.CO;2-U](http://dx.doi.org/10.1002/1099-0992(200011/12)30:6<873::AID-EJSP22>3.0.CO;2-U)

- Lim, V. K. G., & Chen, D. J. Q. (2009). Cyberloafing at the workplace: Gain or drain on work? *Behaviour & Information Technology*, 25(1), 1-11. <http://dx.doi.org/10.1080/01449290903353054>
- Ling, K. (2012). *Validasi alat ukur prokrastinasi dalam pengambilan keputusan*. Unpublished Bachelor's Thesis. Faculty of Psychology, University of Surabaya.
- Ling, K., Yuwanto, L., & Siaputra, I. B. (2012). Validation of decisional procrastination instrument. *Anima Indonesian Psychological Journal*, 27(2), 102-116.
- Lowinger, R., He, Z., Lin, M., & Chang, M. (2014). The impact of academic self-efficacy, acculturation difficulties, and language abilities on procrastination behavior in Chinese international students. *College Student Journal*, 1, 141-152.
- Maddi, S. R. (2004). Hardiness: An operationalization of existential courage. *Journal of Humanistic Psychology*, 44(3), 279-298. <http://dx.doi.org/10.1177/0022167804266101>
- Marano, H. E. (2003, October). Ending procrastination. *PsychologyToday*. Retrieved from <https://www.psychologytoday.com/articles/200310/ending-procrastination>
- Moisala, M., Salmela, V., Hietajärvi, L., Salo, E., Carlson, S., Salonen, O., Lonka, K., Hakkarainen, K., Salmela-Aro, K., & Alho K. (2016). Media multitasking is associated with distractibility and increased prefrontal activity in adolescents and young adults. *NeuroImage*, 134, 113-121. <http://dx.doi.org/10.1016/j.neuroimage.2016.04.011>
- Norton, P. J., & Weiss, B. J. (2009). The role of courage on behavioral approach in a fear-eliciting situation: A proof-of-concept pilot study. *Journal of Anxiety Disorders*, 23(2), 212-217. <http://dx.doi.org/10.1016/j.janxdis.2008.07.002>
- Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences of the United States of America*, 106(37), 15583-15587. <http://dx.doi.org/10.1073/pnas.0903620106>
- Orellana-Damacela, L. E., Tindale, R. S., & Suarez-Balcazar, Y. (2000). The impact of self-discrepancies on people's tendency to procrastinate. *Journal of Personality and Social Behavior*, 15, 225-238.
- OvercomingProcrastination.net. (2011). The effects of procrastinating. Retrieved from <http://www.overcomingprocrastination.net/effects.htm>
- Pezzo, S. P., Pezzo, M. V., & Stone, E. R. (2006). The social implications of planning: How public predictions bias future plans. *Journal of Experimental Social Psychology*, 42(2), 221-227. <http://dx.doi.org/10.1016/j.jesp.2005.03.001>
- Pychyl, T. A., Morin, R. W., Salmon, B. R. (2000). Procrastination and the planning fallacy: An examination of the study habits of university students. *Journal of Social Behavior & Personality*, 15(5), 135-150.
- Rajah, R., & Lim, V. K. G. (2011). Cyberloafing, neutralization and organizational citizenship behavior. *Proceedings of PACIS 2011 - 15th Pacific Asia Conference on Information Systems: Quality Research in Pacific*, Queensland University of Technology (QUT), Brisbane, Australia, 7-11 July 2011 (Paper 152). Retrieved from <http://aisel.aisnet.org/pacis2011/152/>
- Schwartz, A. J. (2012). *Searching for Courage: Exploring the idea of a courageous mindset*. Oskin Leadership Institute, Widener University. Retrieved from http://www.widener.edu/about/widener_values/leadership/oskin_leadership/about/OLI_CourageWP_13.pdf
- Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology*, 31(4), 503-509. <http://dx.doi.org/10.1037/0022-0167.31.4.503>
- Spence, D., & Smythe, L. (2007). Courage as integral to advancing nursing practice. *Nursing Praxis in NZ*, 23(2), 43-55.
- Stead, R., Shanahan, M. J., Neufeld, R. W. J. (2010). "I'll go to therapy, eventually": Procrastination, stress and mental health. *Personality and Individual Differences*, 49, 175-180. <http://dx.doi.org/10.1016/j.paid.2010.03.028>
- Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin*, 133(1), 65-94. <http://dx.doi.org/10.1037/0033-2909.133.1.65>
- Steel, P. (2010). Arousal, avoidant and decisional procrastinators: Do they exist?. *Personality and Individual Differences*, 48(8), 926-934. <http://dx.doi.org/10.1016/j.paid.2010.02.025>
- Ursia, N. R., Siaputra, I. B., & Sutanto, N. (2013). Prokrastinasi akademik dan self-control pada mahasiswa skripsi Fakultas Psikologi Universitas Surabaya. *Makara Seri Sosial Humaniora*, 17(1), 1-18. <http://dx.doi.org/10.7454/mssh.v17i1.1798>
- VandenBos, G. R. (Ed.). (2007). *Courage*. *APA dictionary of psychology*. Washington, DC: American Psychological Association.