

Procrastination Scale: A Psychometric Study And Its Application To Students In Yogyakarta

Melda Werty, Fatwa Tentama

Abstract— The research objectives are to: analyse construct validity and procrastination construct reliability, and find the aspects and indicators which form procrastination construct. Procrastination is measured by four aspect are perceiver time, intention-action, emotional distress, and perceived ability. The research subject is 60 students domiciled in Yogyakarta. Data collecting method uses procrastination. Research data is analysed by Structural Equation Modelling (SEM) SmartPLS 3.2.8 with reflective construct through CFA 2nd order. Based on analysis result, the aspects and indicators form procrastination construct is valid and reliable. The dominant aspect reflects procrastination is intention-action with loading factor of 0.882. The lowest aspect reflects procrastination is emotional distress with loading factor of 0.565. This points all aspects and indicators can reflect and form procrastination construct. By then, the structural model can be accepted because of the theory which uses procrastination is corresponding to empirical data from subject.

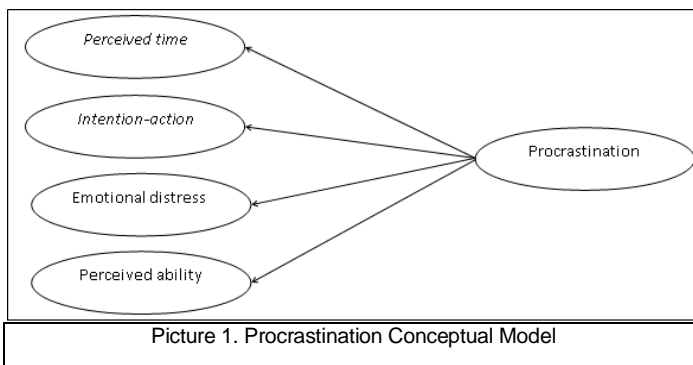
Abstract— Construct Validity, Emotional Distress, Perceived Ability, Perceived Time, Procrastination, Intention-Action, Reliability Construct.

1 INTRODUCTION

The students are one of academic civitas who do their role as agent of change whose task to bring nation towards change the better. The students should passes the various lecturing system, one of them is the process of carrying out the task by the lecturer [1]. During carrying out the assignment, the students should do and collect the assignment on time so the learning process and each academic stage can be finished on time. The students often meet various problems which hinder the academic assignment completion. One of the problem is encountered by the students is delaying the academic assignment completion. The delaying is one of the characteristic of procrastination [2]. It is similar to Dryden [3] opinion who stated when carrying out the assignment, the students often act procrastination. According to Kim and Seo [4], procrastination is the delaying assignment completion phenomena or delaying learning commonly happened in students circle whereas procrastination is unfavorable [5]. According to Ferrari and Morales [6], academic procrastination is giving more negative than positive impact. Procrastination by individuals tend to cause problems [7], for instance, the reducing of responsibility and individual will to do the assignment [8], which gives much bad impact of the drop achievement [9],[10]. Saleem, Bashir, Ameen, and Noor [11] research shows that significantly, it influences to individual self-regulation failure. It also increases the stress related to college assignments [12], positively related to fatigue when doing the assignment [13], and influence the academic performance [14]. Even though the procrastination has various negative impacts but some individuals are unaware of the consequences of its negative impacts [15]. It is caused by the assumption that if an individual starts to do the assignment in last minute, the individual is able to complete the task on time [16]. First actual historical analysis of procrastination was written by Milgram and Ravi [17]. Otherwise based on Ferrari, Johnson, and McCown [18] procrastination had been existed over history but previously it seen as neutral and wise actions. As the time passed by, in procrastination modern era is assumed as illness [19]. Solomon and Rothblum [20] opined that procrastination is being important to investigate because the procrastination frequency is high and causing damage to doers.

Burka and Yuen [21] stated the procrastination is from “procrastinate” is delaying a work until the next time or day. Solomon and Rothblum [20] define procrastination as the delaying tendency to start finishing the assignment by doing other useless activity so the assignment obstructed and unfinished on time. Procrastination is the tendency to avoid and delay activities on time [22]. Same with Ferrari [23] opinion, he defined procrastination as the delaying tendency of doing or completing assignments. Meanwhile, it can be interpreted as intentional delaying activities of the desired activities even the individual realize it can induce bad impact [24]. In past decade, procrastination empirical study shows that it can influence self-efficacy [25],[26],[27], academic motivation [28], self-control [29], emotional intelligence [30], attention and emotional regulation [31]. The previous research discussed the procrastination behaviour phenomena which majority focused to academic procrastination [32]. For instance, the research is done by Chowdhury and Pychyl [33] which refers to Haghbin and Pychyl theory [34]. The research uses Delay Questionnaire scale as data collecting instrument. The further research by Wohl, Pychyl, and Bennett [35] it refers to procrastination theory according to Steel [24]. Meanwhile, in this research, procrastination uses Ferrari [23]. Ferrari, Johnson, and McCown [18] said there are four procrastination aspects. Those are perceived time, intention-action, emotional distress, and perceived ability. Perceived time is present oriented individual behaviour and not considering future which is showed by individual behaviour who likes to delay work and fail to complete task due deadline. Intention-action is the gap between will and action where the individual is unable to do the task based on the plan and finds the difficulty to do something due to the deadline. Emotional distress is worried feeling when procrastinating, the feeling discomfort the doer but the individual feels calm when the time of doing task is considered a lot. Perceiver ability is the belief of self-capability, included the doubt to self-capability and afraid of failure so individual doesn’t want to start doing task.

- Melda Werty, Master in Psychology Ahmad Dahlan University, Yogyakarta, E-mail: halomelps@gmail.com
- Fatwa Tentama, Master in Psychology Ahmad Dahlan University, Yogyakarta, PH-081904100008.
- E-mail: fatwa.tentama@psy.uad.ac.id



According to Picture 1. Is arranged the research hypothesis as below:

H : Procrastination aspect are: *perceived time*, *intention-action*, *emotional distress*, and *perceived ability* which could form procrastination construct.

One of the approaches can be used in testing the construct of measure instrument is Confirmatory Factor Analysis. CFA is one of the factor analysis primary approaches. CFA can be used to test a construct dimensionality. The test is used to perform the model measurement so it can describe the dimension and behaviour indicator in reflecting latent variable is procrastination by looking at factor loading from each aspect which forms a construct. CFA is also used to test construct validity and reliability of the indicators (items) which formed the latent construct [36]. CFA which used in the research is second order confirmatory factor analysis (2nd Order CFA) is measurement model consisted of two levels. The first, the analysis is done from the dimension of latent construct to its indicators and both analyses from latent construct to other dimension construct [36]. According to the explanation above, it can be concluded that procrastination is the form of delaying the assignment completion or delaying learning and this phenomenon is common among students. As the procrastination is important to analyse because the procrastination frequency is high among students, then the problem formulation in this research are: 1) is the procrastination construct valid and reliable? 2) Is the aspect of perceived time, intention-action, emotional distress, and perceived ability able to form procrastination variable construct. The research objectives are to: 1) know validity and reliability of procrastination construct, 2) find the indicator to form the procrastination variable.

2 RESEARCH METHOD

2.1 Subject

The research subjects were the students who are studying at least 2nd semester and domiciled in Yogyakarta. The totals of subject were 60 people with age range of 18-28 years old.

2.2 Research Design

The research program is semi-constructive, where it would be scale programmed using theoretical study collaboration with direct information from the field data. The benefit of using this semi construction program is strengthening the existed theory and multiplying behaviorism indicator as much as it could be. Then, the test is done to psychometric property, involved the content validity analysis, discriminating power, confirmatory factor analysis, and external validity concurrent [37].

2.3 Data Collecting Method

The data collecting method of the research uses scale by the researchers who refer to Ferrari, Johnson, and McCown [18] which consisted of 4 aspects are perceived time, intention-action, emotional distress, and perceived ability. The scale model of the research is to use semantic differential model and arranged with several word pairs, where each of it has moving number from 1-5 as the answer of that statement. The example of statement items on these aspects can be seen on the table below:

TABLE 1.
THE EXAMPLES OF ITEM STATEMENT ON PERCEIVED TIME ASPECT

When I get college assignment, I						
Immediately do it	1	2	3	4	5	To do the assignment close to the deadline
Target completion deadline	the	1	2	3	4	5
						Has no target

The items forming in this research refers to procrastination aspects by Ferrari, Johnson, and McCown [18]. There is blueprint from procrastination scale which can be seen on table 2.

TABLE 2.
BLUEPRINT OF PROCRASTINATION SCALE

Forms	Indicator	Item	Amount
Perceived time	Fail due <i>deadline</i>	1, 2, 3,	6
Intention-action	Like to delay the assignment	4, 5, 6	
Emotional distress	The time gap between personal work plans and actual work	7, 8, 9,	6
Perceived time	Difficult to do something due deadline	10, 11,	
Intention-action		12	
Emotional distress			
Perceived ability	Be worried when doing procrastination	13, 14,	6
Perceived time	Be calm because there is a lot of time	15, 16,	
Intention-action		17, 18	
Emotional distress	Unsure of self-capability	19, 20,	6
	Be afraid to fail	21, 22,	
		23, 24	
Total			24

2.4 Construct Validity and Construct Reliability

The research validity test uses confirmatory reflective validity construct to present how good the received result from measure instrument using reference to define a construct. There are two validity tests in construct validity namely:

Convergent validity, measuring the magnitude correlation between item score with construct score which is valued by loading factor. Based on Hair, Hult, Ringle, and Sarstedt [38], the higher the factor loading score is the more important the loading role will be of interpreting the factor matrix with loading value of > 0.5 is significant, then average variance extracted (AVE) value of > 0.5 [39]. Discriminant validity is carried out as the different construct gauges should not be high correlated is expected the cross loading value between construct and item is bigger than others construct value. The method is comparing a construct of AVE root which should be higher than the correlation between latent variable [39]. Reliability test is to do to present the measure instrument of internal consistency by seeing the Composite Reliability value and Cronbach's Alpha with the higher value so it will present the

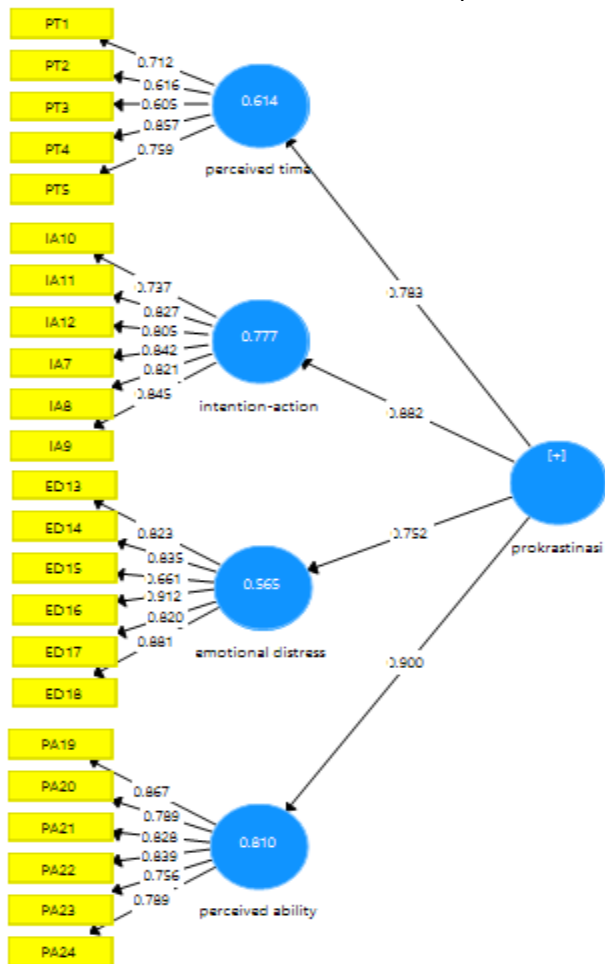
consistency value of each item in measuring latent variable. Based on Hair, Hult, Ringle, and Sarstedt [38], the expected Composite Reliability and Cronbach's Alpha value is of > 0.7 and 0.6 is acceptable. Then according to Cooper, internal consistency test is reachable if the construct validity have reached the criteria so the AVE value have represented the internal consistency because of the valid construct, by then the the construct is reliable but the opposite, the reliable construct is indefinite as valid construct [39].

2.5 Data Analysis

The research data which analysed using SmartPLS 3.2.8 with reflective construct through 2nd Order CFA. According to Hartono and Abdilla [40] PLS is Structural Equation Modelling (SEM) based on variants that simultaneously can do the model measurement test in order to test validity and reliability.

3 RESULT

Based on analysis test result of outer model which is done, the procrastination variable has met the validity and reliability. The test result of outer model can be seen on picture 2.



3.1 Convergent Validity

Based on convergent validity test on outer model, it is obtained that the loading factor value from variable to aspects has the value of > 0.5 which is showed on the table 3.

TABLE 3.
Loading factor value of VARIABLE-ASPECT

Form	The Loading Factor Value	Information
Perceived Time	0.783	Valid
Intention-action	0.882	Valid
Emotional Distress	0.565	Valid
Perceived Ability	0.810	Valid

Based on the convergent validity test on outer model, it is obtained that the loading factor value from aspects to indicators has the value of > 0.5 which it is showed on the table 4.

TABLE 4.
LOADING FACTOR VALUE OF ASPECT-INDICATOR

Item	The Loading Factor Value	Information
PT1	0.712	Valid
PT2	0.616	Valid
PT3	0.605	Valid
PT4	0.857	Valid
PT5	0.759	Valid
IA7	0.842	Valid
IA8	0.821	Valid
IA9	0.845	Valid
IA10	0.737	Valid
IA11	0.827	Valid
IA12	0.805	Valid
ED13	0.823	Valid
ED14	0.835	Valid
ED15	0.661	Valid
ED16	0.912	Valid
ED17	0.820	Valid
ED18	0.881	Valid
PA19	0.867	Valid
PA20	0.789	Valid
PA21	0.828	Valid
PA22	0.839	Valid
PA23	0.756	Valid
PA24	0.789	Valid
PT1	0.712	Valid

The further convergent validity is seen from the value of average variance extracted (AVE) by referring on AVE value of > 0.5 and AVE value of variable construct is 0.504 which it means that the convergent validity is achieved. The Average Variance Extracted (AVE) value of each aspect can be seen of the table below:

TABLE 5.
VALUE OF AVERAGE VARIANCE EXTRACTED (AVE)

Form	AVE Value	Information
Perceived Time	0.512	Valid
Intention-action	0.662	Valid
Emotional Distress	0.682	Valid
Perceived Ability	0.660	Valid

3.2 Discriminant Validity

Based on discriminant validity test value, it shows the root from Average Variance Extracted (AVE) on each higher dimension than the other dimension of AVE root, so the discriminant validity criterion is achieved. The root AVE value of procrastination value can be seen on table 6.

Picture 2. Procrastination Construct of Output PLS Outer Model

TABLE 6.
THE ROOT VALUE OF AVERAGE VARIANCE EXTRACTED (AVE) PROCRASTINATION CONSTRUCT

Aspect	PT	IA	ED	PA
PT	0.716	0.634	0.529	0.670
IA	0.634	0.814	0.625	0.681

ED	0.529	0.625	0.826	0.522
PA	0.670	0.681	0.522	0.812

The construct validity in SEM (Confirmatory Factor Analysis/CFA) shows that the four indicators is valid with loading factor (λ) \geq 0.5.

3.3. Reliability Test Value

Based on the reliability test result which had done, the procrastination variable can be reliable as it is seen from the Composite Reliability value and Cronbach's Alpha value of >0.7 and it can be seen on the table below:

TABLE 7.
VALUE OF COMPOSITE RELIABILITY AND CRONBACH'S ALPHA
PROCRASTINATION CONSTRUCT

Variable	Composite Reliability	Cronbach's Alpha	Information
Procrastination	0.945	0.938	Reliable

Construct reliability test result with Confirmatory Factor Analysis 2nd order on table 7 indicates that the construct has good reliability and gives the meaning the aspect which measuring procrastination latent construct is reached to the unidimensional criteria [38]. This is showed by Composite Reliability value of 0.945 and Cronbach's Alpha 0.938.

The validity test and construct reliability obtain the valid items and reliable. The item can reflect the procrastination aspect is on number 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24. Meanwhile the item which are unable to reflect the procrastination aspects is on number 6.

Based on the processing and data analysis research to procrastination variable aspect which form by Confirmatory Factor Analysis 2nd Order, and the result present the model can be accepted because of all aspect could reflect the construct formed.

4 DISCUSSION

According to the construct validity analysis result and the construct reliability, the aspects and indicators which form procrastination are valid and reliable. It shows all aspects and indicators which is able to reflect the procrastination. The most dominant aspect which is capable to reflect it be intention-action that is by loading factor of 0.882. The intention-action aspect is drawn by the failure due deadline when doing work or assignments which given to the students. It proves that there is gap between will and student action, and the difference between both. This failure makes the students are unable to do academic assignment and have the difficulty of doing assignment on time, even though the students have the will to complete it [18]. The lowest aspect reflecting procrastination is emotional distress that is loading factor of 0.565. Emotional distress is pictured by feeling calm when the time is a lot but worried when doing procrastination. It proves the delaying behavior pushes discomfort feeling of the doers, and caused negative consequence could induce self-anxiety of doer [18].

Lodha, Sharma, Dsouza, Marathe, Dsouza, Rawal, Pandya, and De Sousa [41] research finding prove the procrastination meet the reliability requirement by the value of Cronbach's Alpha of 0.711. The other finding is done by Gagnon, Dionne, and Pychyl [42] proves that procrastination meet reliability requirement of Cronbach's Alpha value of 0.87. Meanwhile on the research is done by Çapri, Gündüz, and Akbay [43] which

proves the procrastination meet reliability requirement Cronbach's Alpha value of 0.92. Then the research by Bashir and Gupta [44] prove the same with the Cronbach's Alpha value of 0.889. This research get the higher reliability value than the previous research with Cronbach's Alpha value of 0.938. The research finding is expected to provide the pictures of validity and procrastination construct reliability to the students domiciled in Yogyakarta so it can be used as the reference of further research related to procrastination.

CONCLUSION

Based on the analysis finding and discussion, it can be conclude that procrastination construct meet the good validity and reliability. All aspect or indicator significantly can form the procrastination. The aspect has the dominant influence to it is intention action that is by loading factor of 0.882. By then the finding of the research is able to give theoretical implication in development and practical procrastination implication of students. To the following researcher is able to examine the procrastination model using other variable to enlarge the different research which it can be generalized.

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