

Tomorrow Will Always Come, I Am a Last-Minute Person: Validation of the Active Procrastination Scale-Bahasa Indonesia

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Abstract

Procrastination, the habitual delaying of tasks, has long been considered to negatively affect procrastinators. Chu and Choi (2005), however, have newly recognized active procrastination, a form that has positive effects on procrastinators. This study aims to validate the use of the Active Procrastination Scale (APS) in *bahasa Indonesia*. In this validation, 239 undergraduate students completed online questionnaires consisting of the APS and other measurements (GPA, Pure Procrastination Scale (PPS), Academic Motivation Scale (AMS), and International Personality Item Pool (IPIP-50 item) in Indonesian. The data was analyzed using confirmatory factor analysis (CFA), exploratory factor analysis (EFA), reliability analysis, intra-correlation analysis, and correlation analysis with other criteria. Both CFA and EFA revealed that all items matched the same factors as Choi and Moran (2009)'s original design ($RMSEA \leq 0.08$, $GFI \geq 0.9$, $CR \geq 0.7$, $AVE \geq 0.5$). In addition, all dimensions were reliable ($CITC \geq 0.3$, $\alpha \geq 0.6$). Meanwhile, intra-correlation analysis indicated that each dimension correlated with all others, in keeping with previous findings. The same findings were also found in correlation analysis. Each dimension showed the same correlation patterns with other criteria as the prior findings. In conclusion, the APS-Bahasa Indonesia is a valid procrastination measurement.

Besok Pasti akan Datang, Saya adalah Seorang “Last-Minute”: Validasi Active Procrastination Scale-Bahasa Indonesia

Abstrak

Selama ini prokratinasi sering kali diketahui sebagai perilaku menunda-nunda tugas yang berakibat negatif terhadap pelakunya. Namun, Chu dan Choi (2005) mengungkapkan jenis prokratinasi baru, yang memiliki efek positif terhadap pelakunya, yaitu prokratinasi aktif. Tujuan dari penelitian ini adalah memvalidasi *Active Procrastination Scale (APS)-Bahasa Indonesia*. Pada validasi ini, 239 mahasiswa mengisi kuesioner *online* yang berisi APS dan alat ukur lain, yaitu IPK, *Pure Procrastination Scale (PPS)*, *Academic Motivation Scale (AMS)*, dan *International Personality Item Pool (IPIP)-50 item*, dalam bahasa Indonesia. Data yang diperoleh dianalisis menggunakan *confirmatory factor analysis (CFA)*, *exploratory factor analysis (EFA)*, analisis reliabilitas, korelasi antardimensi, dan korelasi dengan variabel lain. Berdasarkan hasil CFA dan EFA, diketahui bahwa semua butir dari APS-Bahasa Indonesia mengelompok sesuai dengan rancangan milik Choi dan Moran (2009). Selain itu, semua dimensi memiliki reliabilitas yang baik ($CITC \geq 0.3$, $\alpha \geq 0.6$). Berdasarkan korelasi antardimensi, setiap dimensi berkorelasi satu sama lain seperti penelitian sebelumnya. Berdasarkan korelasi dengan variabel lain, setiap dimensi juga memiliki pola korelasi yang sama dengan penelitian sebelumnya. Secara keseluruhan, APS-Bahasa Indonesia adalah alat ukur prokratinasi yang valid.

Keywords: active procrastination, correlation analysis, factor analysis, reliability, validation

Citation:

Purwanto, C. V. & Natalya, L. (2019). Tomorrow will always come, I am a last-minute person: Validation of the Active Procrastination Scale-Bahasa Indonesia. *Makara Human Behavior Studies in Asia*, 23(1), 46-58. doi: 10.7454/hubs.asia.1130118

1. Introduction

Procrastination occurs in many domains of individual life. Any person, regardless of age, gender, or

occupation, can procrastinate (Burka & Yuen, 1983). Procrastination is defined as the behavior of delaying tasks over and over until experiencing subjective uncomfortable feelings (Solomon & Rothblum, 1984). In

line with Solomon and Rothblum, Koestner and Vallerand (1995) describe procrastination as “delaying the start of a task until one experience distress about not having performed the activity earlier.” Steel (2007) defines procrastination as a series of delays done voluntarily in spite of the bad outcomes that this will cause. Steel (2007) explains that procrastination behavior is one’s own choice, and thus that procrastination is done consciously and voluntarily. In addition, Steel (2011) also mentions that there are twelve domains of life in which procrastination can occur, namely, health, career, education, community, environment, love, finance, friendship, family, leisure time, spirituality, and child care. Procrastination can cause damage in every domain (Steel, 2011).

Some studies of procrastination argue that procrastination is a bad thing (Chu & Choi, 2005) because it causes a number of negative effects. Ferrari (2001 in Chu & Choi, 2005) even depicts a procrastinator as one who is lazy and/or spoiled. Likewise, Ellis and Knaus (1997) describe a non-procrastinator as one who has high motivation and performance. Meanwhile, many studies have attempted to search for the positive effects of procrastination. Tice and Baumeister (1997) conducted a study that found differences between non-procrastinators and procrastinators in stress levels, physical health, and other characteristics. Based on those findings, Chu and Choi (2005) searched in more depth for the positive effects of procrastination and proposed two types of procrastination: passive and active. Choi and Moran (2009) described “active procrastination [as] intentional decisions to procrastinate, thus applying strong motivation under time pressure; they are able to complete tasks before deadlines and achieve satisfactory outcomes,” whereas passive procrastination is illustrated as traditional procrastination, that is when a person postpones the task until the deadline approaches, which is accompanied with fear of failure to accomplish the task and other negative feelings (Chu & Moran, 2009).

Active procrastinators are distinguished from passive procrastinators by four characteristics. First, active procrastinators choose to complete their tasks at the last minute in order to feel the challenge of time pressure which increases their motivation (Chu & Choi in Choi & Moran, 2009), whereas passive procrastinators cannot stand time pressure and end up becoming pessimistic about completing their tasks (Chu & Choi, 2005). Second, active procrastinators set a schedule to complete their tasks, but can intentionally decide to delay their tasks (Chu & Choi in Choi & Moran, 2009). In contrast, passive procrastinators tend to not plan their schedules (Bond & Feather in Choi & Moran, 2009). Active procrastinators are also characterized by their ability to meet deadlines in spite of having postponed their tasks (Chu & Choi in Choi & Moran, 2009). Passive procrastinators,

in contrast, often fail to complete their tasks by the deadlines (Ferrari; Knaus in Choi & Moran, 2009). Finally, because they can motivate themselves by working under pressure and thereby accomplish tasks on time, active procrastinators tend to achieve satisfactory results (Tice & Baumeister in Choi & Moran, 2009), whereas passive procrastinators usually obtain unsatisfactory outcomes (Harriott & Ferrari; Knaus in Choi & Moran, 2009).

The measurement of procrastination is not a new field of study. In fact, Steel (2007) states that there have been many references to procrastination in literature over the last 3,000 years. Many procrastination measurements have been well-designed by experts. For example, Ferrari, Johnson, and McCown (1995) wrote that there are at least seven procrastination measurements, namely, the Procrastination Assessment Scale-Student (PASS), Aitken Procrastination Inventory (API), The Procrastination Scale (TPS), General Procrastination Scale (GPS), Decisional Procrastination Questionnaire (DPQ), Adult Inventory of Procrastination (AIP), and Tel-Aviv Procrastination (TAP). In addition, Fischer and Corcoran (2007) mention the Indecisiveness Scale (IS) and Procrastination Scale (PS), also designed for measuring procrastination. However, all these measurements concern passive procrastination. Until recently, there was no measurement tool for active procrastination. To address this, Chu and Choi (2005) initiated the creation of the Active Procrastination Scale (APS). This measurement tool was then revised by Choi and Moran (2009).

In Indonesia, procrastination measurements are widely used, but very few of these measurements have been tested for validity and reliability (Endy, 2012). At a digital image library (digilib) of a private university in Surabaya, only 41 out of 33,772 theses were about validation. Validation here refers not only to validation of psychological measurements but also to validation of any measurement in any field of study. There were only six theses about validating procrastination measurements. The measurements that have been validated in Indonesian are the Aitken Procrastination Inventory (API) (Adeli, 2012), Irrational Procrastination Scale (IPS) (Prayitno, 2012), Steel Procrastination Scale (SPS) (Endy, 2012), PASS (Romli, 2012), Temporal Motivation Test (TMt) (Putra, 2011), and DPQ (Ling, 2012). Furthermore, none of these measurements assess active procrastination. Therefore, this study will aim to validate the usefulness of the Active Procrastination Scale (APS) - *Bahasa Indonesia* and affirm its suitability for future studies. Validated measurements are more illustrative of real conditions and the results obtained using such measurements can be more easily generalized to larger populations. In addition, this study contributes to the development of Indonesia’s studies about psychology, particularly procrastination, to show that procrastination

may sometimes bring positive impacts (Widjojo, 2012). This may be helpful in changing the negative stigma about procrastinators. People may be able to stop seeing procrastinators as bad people and instead appreciate their choice to procrastinate.

2. Methods

Data for this study was collected using online surveys. The participants of this study were mostly second-year psychology students at a private university in Surabaya who were enrolled in the Psychological Measurement class. 239 people filled out the *APS-Bahasa Indonesia*. Respondents were chosen based on purposive sampling - they were chosen because at that time they were also learning how to evaluate a psychological measurement, particularly *APS-Bahasa Indonesia*, with expert guidance (lecturers). The respondents were 73.64% female (n = 176) and 15.06% male (n = 36). The rest of the respondents (n = 27) chose not to report their genders.

Based on The Standards for Educational and Psychological Testing (AERA, 1999), there are five sources of evidence needed to prove a measurement's validity, which are validity evidence based on test content, validity evidence based on response process, validity evidence based on internal structure, validity evidence based on relations to other variables, and validity evidence based on testing consequences. In this study, the sources of evidence used to examine the validity of *APS-Bahasa Indonesia* were validity evidence based on internal structure and relations to other variables. Both sources of validity evidence were chosen because they were the most important forms of evidence needed after the data was collected. To obtain the validity evidence based on internal structure, consistency internal analysis was conducted using the Alpha Cronbach reliability test. Confirmatory factor analysis (CFA) was also conducted and supported by exploratory factor analysis (EFA) according to Kim, Ku, Kim, Park, and Park (2016). To fulfill validity evidence by correlation, some other measurements were tested alongside *APS-Bahasa Indonesia*, namely, the Pure Procrastination Scale, International Personality Item Pool-50 item, and Academic Motivation Scale. Those measurements were also tested to obtain scores for passive procrastination, personality, and academic motivation, which were needed for validity evidence based on correlation to other variables. Another variable needed was academic achievement which was assessed based on the respondents' GPAs. Those variables were chosen based on Chu and Choi's (2005) and Choi and Moran's (2009) studies.

The APS was translated into Indonesian. This measurement consists of four dimensions (outcome satisfaction, preference for pressure, intentional decision to procrastinate, and ability to meet deadlines) which characterizes active procrastinators (Choi & Moran,

2009). Each dimension consists of four statements, each of which had seven possible responses, ranging from 1 (*sangat tidak setuju*/totally disagree) to 7 (*sangat setuju*/totally agree). If there was an unfavorable item, the score for this item was reversed. For instance, if a respondent gave a score of 1 to an unfavorable item, the obtained score for this item was 7. After that, all scores of a dimension were averaged to get that dimension's score, whereas variable scores were obtained by averaging the dimensions' scores. Table 1 shows the specifications of APS (Indonesian version).

One variable that we chose to correlate with active procrastination was passive correlation. Passive procrastination was chosen because, in Chu and Choi's (2005) study, it was found that academic procrastination and active procrastination were not correlated, with an r value of only 0.03. In addition, Choi and Moran (2009) also found that passive procrastination and active procrastination did not correlate each other, with an r value of only 0.07. Theoretically, Chu and Choi (2005) explain that passive procrastination and active procrastination have major cognitive, affective, and behavioral differences, which means that active procrastinators and passive procrastinators also have different psychological means of achieving their goals. In this study, passive procrastination was measured by the Pure Procrastination Scale (PPS). PPS was designed by Steel (2010) as an unidimensional procrastination measurement that focuses on dysfunctional delay. PPS was developed by combining three procrastination measurements: AIP, GPS, and DPQ. PPS consists of 12 favorable items. Steel's (2010) study found that the reliability of PPS was 0.92, and in this study, PPS was used to measure passive procrastination with an Alpha Cronbach reliability value of 0.902. Therefore, PPS was confirmed as a reliable measurement.

Another variable correlated with active procrastination was personality. Personality is an appropriate variable because it is able to define a person's characteristics in the cognitive, affective, and behavioral domains (Hogan et al. in Karatas, 2015). Therefore, it is expected that

Table 1. Specification of Active Procrastination Scale-Bahasa Indonesia

Dimension	Number of Items	Total
Outcome satisfaction (OS)	1*,2*,3*,4*	4
Preference for pressure (PP)	5*,6*,7*,8*	4
Intentional decision to procrastinate (IDP)	9,10,11,12	4
Ability to meet deadlines (AMD)	13*,14*,15*,16*	4
Total		16

Note: *reversed item

Table 2. Specifications of International Personality Item Pool-50 Items (Indonesian Version)

Dimension	Number of Items	Total
Openness	5, 10*, 15, 20*, 25, 30*, 35, 40, 45, 50	10
Conscientiousness	3, 8*, 13, 18*, 23, 28*, 33, 38*, 43, 48	10
Extraversion	1, 6*, 11, 16*, 21, 26*, 31, 36*, 41, 46*	10
Agreeableness	2*, 7, 12*, 17, 22*, 27, 32*, 37, 42, 47	10
Neuroticism	4*, 9, 14*, 19, 24*, 29*, 34*, 39*, 44*, 49*	10
Total		50

Note: *reversed item

personality findings should enable us to identify an active procrastinator. Many measurements have been created using trait theory (Klages; Baumgarten; Allport & Odbert; Cattell; Burger in Sutejo, 2011). Goldberg (1981) developed a measurement called the International Personality Item Pool (IPIP) which can illustrate an individual's behavior according to their characteristics in each personality type (openness, conscientiousness, extraversion, agreeableness, and neuroticism). This study used the International Personality Item Pool with 50 items. Table 2 shows the specifications of IPIP-50 items.

The IPIP response options ranged from 1 (*sangat tidak setuju*/totally disagree) to 6 (*sangat setuju*/totally agree). IPIP's Alpha Cronbach reliability values obtained from this study ranged from 0.694 to 0.852, which indicates good reliability. Even though the Alpha Cronbach value of agreeableness did not exceed 0.7, this dimension is still considered reliable because the value almost reached 0.7, and if items with a corrected-item total correlation value below 0.3 were deleted, the resulting change in reliability value was not significant. The details of Alpha Cronbach reliability and corrected-item total correlation values are shown in Table 3.

According to Chu and Choi (2005), one characteristic that differentiates active procrastinators and passive procrastinators is the outcome obtained by the procrastinators. Active procrastinators tend to obtain satisfactory results because they can meet their deadlines. Passive procrastinators tend to fail to meet their deadlines and as a result to receive unsatisfactory results. This theory was supported by the correlation result in Chu and Choi's (2005) study which was -0.200.

Because our sample consisted of college students, academic achievement is the best variable to indicate outcome. Academic achievement is a result of students' learning outcomes in a certain period (Farkhana, 2010). Academic achievement is usually a main focus in education. Pascarella and Terenzini (in Kuh et al., 2006) explain that course grades which are the components of Grade Point Average (GPA) are the best indicator for measuring academic achievement. In this study, academic achievement was measured by the 4.0 scale GPA.

Motivation was the other variable used to obtain validity evidence based on correlation to other variables. This variable was chosen because it is one of the factors that drive a person to act (Chu & Choi, 2005). The result of Chu and Choi's (2005) study showed that neither extrinsic nor intrinsic motivation was correlated with active procrastination. This study used the Academic Motivation Scale (AMS) to measure academic motivation. AMS is an academic motivation measurement created by Vallerand, Pelletier, Blais, Brière, Senécal, and Vallières (1992) based on Self-Determination Theory (SDT).

Table 3. Reliability Results of IPIP-50 Items (Indonesian Version)

Dimension	Alpha Cronbach	Corrected-Item Total Correlation	Total Items
Openness	0.778	0.106–0.555	10
Conscientiousness	0.758	0.204–0.601	10
Extraversion	0.762	0.271–0.600	10
Agreeableness	0.694	0.069–0.607	10
Neuroticism	0.852	0.175–0.721	10

Table 4. Specifications of Academic Motivation Scale (Indonesian Version)

Dimension	Number of Items	Total
Intrinsic Motivation (IM)	2,4,7,10,12,14,17,19,22,25,27,29	12
Extrinsic Motivation (EM)	1,3,8,9,11,15,16,18,23,24,26,30	12
Total		24

Table 5. Reliability Results of Academic Motivation Scale (Indonesian Version)

Dimension	Alpha Cronbach	Corrected-Item Total Correlation	Total Items
Intrinsic Motivation (IM)	0.895	0.465–0.731	12
Extrinsic Motivation (EM)	0.895	0.486–0.719	12

In the AMS, academic motivation is divided into three dimensions: intrinsic motivation, extrinsic motivation, and amotivation. The present study only used two of these dimensions, namely, intrinsic motivation and extrinsic motivation, because there is no reference that correlates amotivation with active procrastination. The specifications of the AMSs used in the present study are shown in Table 4.

Respondents answered questions with six response options ranging from 1 (sangat tidak setuju/totally disagree) to 6 (sangat setuju/totally agree). The results of the reliability test of AMS showed that the Alpha Cronbach values of both intrinsic motivation and extrinsic motivation were 0.895 with corrected-item total correlation values ranging between 0.465 and 0.731. The details of the reliability results of AMS can be found in Table 5. These findings indicated that all dimensions fulfilled the reliability criteria. Therefore, AMS is a reliable measurement.

3. Results

In evaluating psychological measurements, five forms of validity evidence are needed to prove whether the measurement is usable (AERA, 1999). In the process of validation, however, there is no minimum quantity of evidence. In this study, the validation of APS-Bahasa Indonesia started with CFA. The results of CFA were then also supported by EFA. Because all items on the APS-Bahasa Indonesia were confirmed to be grouped into the right dimensions, the next step was analyzing the test's internal consistency. To this end, the Alpha Cronbach reliability test was used. The last analysis conducted was correlating APS-Bahasa Indonesia with other variables, which was done to test the APS-Bahasa Indonesia for its accuracy as a predictor for other variables.

After the data was collected, CFA was conducted using AMOS. The CFA results are shown in Appendix 1. Almost all items on the APS-Bahasa Indonesia, except

number 4 and number 12, had factor loading values greater than 0.50 with details as follows. Items of outcome satisfaction had factor loading values ranging from 0.40 to 0.90. Meanwhile, the factor loading values in preference for pressure were between 0.67 and 0.80. For the intentional decision to procrastinate, item number 12 was reversed because the factor loading value is negative. Item number 12 is "I finish most of my assignments right before deadlines because I choose to do so," translated as "*Saya menyelesaikan sebagian besar tugas saya tepat sebelum batas waktu karena saya memilih untuk melakukan itu.*" If reviewed based on the item statement, it is clear that a respondent who agreed with the statement was not an active procrastinator. Therefore, this item was indeed an unfavorable item, so that the score was reversed. Due to the reversal, the factor loading values ranged from 0.17 to 0.87. The last dimension, ability to meet deadlines, had factor loading values between 0.64 and 0.81. The CFA of each dimension of APS (Indonesian version) were fit to χ^2 values ranging from 0.176 to 2.995, $p \geq 0.050$, RMSEA ≤ 0.080 , GFI ≥ 0.900 , AGFI ≥ 0.900 , NFI ≥ 0.900 , TLI ≥ 0.900 , and CFI ≥ 0.900 . Meanwhile, the CR value and AVE value of all APS-Bahasa Indonesia dimensions ranged from 0.70 to 0.82 and from 0.39 to 0.54, respectively.

Based on CFA results, there were two items that did not fit the model. An EFA was performed to solve this problem. EFA was conducted using SPSS and the results are shown in Appendix 2. The proposed number of factors into which the APS-Bahasa Indonesia should be grouped was four (based on a priori criterion, latent root criterion), three (based on percentage of variance explained criterion), or five (based on scree plot criterion). By analyzing the rotated component matrix, it was decided that four was the most appropriate number of factors into which the APS-Bahasa Indonesia items should be grouped. Table 7 gives information about the rotated component matrix of these four factors.

It was found that all items did not cross, except item number 2, and were not zero loading, except item number 12. Item number 2 cross-loaded into components 1 and 4, whereas item number 12 had a factor loading value below 0.400, specifically -0.359. The ability to meet deadlines and preference for pressure items were grouped perfectly in accordance with the original design. However, items showing outcome satisfaction and intentional decision to procrastinate were not grouped in accordance with the design. An item of outcome satisfaction (item number 1) was grouped with preference for pressure, while an item of intentional decision to procrastinate (item number 12) was grouped with outcome satisfaction.

Table 6. Summary of CFA Results of Active Procrastination Scale-Bahasa Indonesia

Item	Factor Loading	Goodness of Fit	CR	AVE
Outcome Satisfaction (OS)				
APS_OS_01	0.52	$\chi^2 = 2.226$; $p = 0.136$; RMSEA = 0.072 ; GFI = 0.995 ; AGFI = 0.954 ; NFI = 0.988 ; TLI = 0.958 ; CFI = 0.993	0.70	0.39
APS_OS_02	0.90			
APS_OS_03	0.55			
APS_OS_04	0.40			
Preference for Pressure (PP)				
APS_PP_05	0.68	$\chi^2 = 2.995$; $p = 0.224$; RMSEA = 0.046 ; GFI = 0.994 ; AGFI = 0.968 ; NFI = 0.990 ; TLI = 0.990 ; CFI = 0.997	0.82	0.53
APS_PP_06	0.67			
APS_PP_07	0.73			
APS_PP_08	0.80			
Intentional Decision to Procrastinate (IDP)				
APS_IDP_09	0.75	$\chi^2 = 0.176$; $p = 0.675$; RMSEA = 0.000 ; GFI = 1.000 ; AGFI = 0.996 ; NFI = 0.999 ; TLI = 1.015 ; CFI = 1.000	0.78	0.51
APS_IDP_10	0.82			
APS_IDP_11	0.87			
APS_IDP_12R*	0.17			
Ability to Meet Deadlines (AMD)				
APS_AMD_13	0.64	$\chi^2 = 1.817$; $p = 0.403$; RMSEA = 0.000 ; GFI = 0.996 ; AGFI = 0.981 ; NFI = 0.994 ; TLI = 1.002 ; CFI = 1.000	0.82	0.54
APS_AMD_14	0.79			
APS_AMD_15	0.81			
APS_AMD_16	0.65			

Note: *reversed item, χ^2 = chi-square, p = sig. value, RMSEA = Root Mean Square Error of Approximation, GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit, NFI = Normed Fit Index, TLI = Tucker-Lewis Index, CFI = Comparative Fit Index, CR = Composite Reliability, AVE = Average Variance Extracted, (variable name)_(dimension name)_(number of item) (i.e., APS_OS_01) = item name structure

To enhance the validity of the APS-Bahasa Indonesia based on internal structure evidence, the reliability of each factor was also analyzed using Alpha Cronbach Reliability of SPSS. The results in Table 8 indicate that all dimensions had Alpha Cronbach values between 0.696 and 0.811, with Corrected-Item Total Correlation values between 0.384 and 0.760. There were three total items in intentional decision to procrastinate because item number 12 had a corrected-item total correlation value of -0.118 . Therefore, we decided to exclude it so that the Alpha Cronbach value increased from 0.625 to 0.853. As shown in Table 8, the Alpha Cronbach value of outcome satisfaction was below 0.7. There are many references that state that the minimum Alpha Cronbach needed to ensure reliability of a measurement is 0.7 (Hair Jr., Babin, & Krey, 2017). However, Hair, Anderson, Tatham, and Black (2006) opine that an Alpha Cronbach value of 0.6 is still acceptable, especially if all items in that dimension have corrected-item total correlation values of more than 0.3. Therefore, we conclude that outcome satisfaction is a reliable dimension.

To add some more evidence, intra-correlation analysis and correlation analysis were also conducted. The results in Table 9 show that almost all dimensions of the APS-Bahasa Indonesia correlated positively each other with r values exceeding 0.200 (ranging from 0.354 to 0.800). However, only intentional decision to procrastinate and ability to meet deadlines had a negative correlation,

Table 7. Rotated Component Matrix of Four Factors

	Component			
	1	2	3	4
APS_PP_08R	0.806			
APS_PP_07R	0.806			
APS_PP_06R	0.762			
APS_PP_05R	0.656			
APS_OS_01R	0.485			
APS_AMD_15R		0.835		
APS_AMD_14R		0.816		
APS_AMD_13R		0.744		
APS_AMD_16R		0.714		
APS_IDP_11			0.874	
APS_IDP_10			0.855	
APS_IDP_09			0.839	
APS_OS_03R				0.782
APS_OS_04R				0.728
APS_OS_02R	0.504			0.598
APS_IDP_12				

(variable name)_(dimension name)_(number of item)
(i.e., APS_OS_01) = item name structure

with an r value greater than -0.200 , which was -0.226 . Meanwhile, the dimensions of outcome satisfaction and intentional decision to procrastinate did not correlate ($r = 0.175$) and the same results were shown in the correlation between preference for pressure and intentional decision to procrastinate ($r = 0.086$).

Table 8. Reliability Results of Active Procrastination Scale-Bahasa Indonesia

Dimension	Alpha Cronbach	Corrected-Item Total Correlation	Total Items
Ability to Meet Deadlines (AMD)	0.811	0.568–0.700	4
Outcome Satisfaction (OS)	0.696	0.384–0.612	4
Intentional Decision to Procrastinate (IDP)	0.853	0.686–0.760	3
Preference for Pressure (PP)	0.810	0.592–0.683	4
Active Procrastination (AP)	0.798	0.163–0.626	15

Table 9. Intra-Correlation and Correlation Results of Active Procrastination and Other Criteria

M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	3.7316	0.667	1												
2	3.3075	0.986	0.758**	1											
3	3.2103	1.138	0.800**	0.534**	1										
4	3.5256	0.936	0.354**	0.175**	0.086	1									
5	4.8828	1.163	0.583**	0.228**	0.335**	-0.226**	1								
6	3.6757	1.032	-0.369**	-0.107	-0.339**	0.328**	-0.689**	1							
7	3.9308	0.601	0.285**	0.148*	0.315**	0.014	0.202**	-0.295**	1						
8	4.1357	0.639	-0.004	-0.154*	0.013	-0.180**	0.266**	-0.427**	0.361**	1					
9	3.5887	0.687	0.128	-0.041	0.174**	-0.066	0.214**	-0.221**	0.307**	0.182**	1				
10	4.2593	0.556	0.074	-0.048	0.138*	-0.038	0.107	-0.099	0.297**	0.244**	0.473**	1			
11	3.6276	0.828	-0.310**	-0.13	-0.349**	-0.053	-0.209**	0.176**	-0.141*	-0.014	-0.266**	-0.195**	1		
12	4.6258	0.613	0.056	-0.144*	0.116	0.013	0.128	-0.191**	0.400**	0.289**	0.298**	0.355**	0.695**	1	
13	4.8105	0.622	-0.029	-0.11	-0.041	0.014	0.058	-0.073	0.293**	0.371**	0.205**	0.244**	0.181**	0.695**	1
14	3.2942	0.385	0.229**	0.063	0.134*	-0.014	0.352**	-0.204**	0.283**	0.221**	0.078	0.220**	0.695**	0.181**	0.167*

*sig.<0.05, **sig.<0.01, M=mean, SD=standard deviation, 1=active procrastination, 2=outcome satisfaction, 3=preference for pressure, 4=intentional decision to procrastinate, 5=ability to meet deadlines, 6=passive procrastination, 7=openness, 8=conscientiousness, 9=extraversion, 10=agreeableness, 11=neuroticism, 12=Intrinsic motivation, 13=extrinsic motivation, 14=GPA

In addition, not all criteria correlated with either active procrastination or the dimensions of active procrastination. Positive correlation was found between active procrastination and GPA ($r = 0.229$), preference for pressure and openness ($r = 0.315$), intentional decision to procrastinate and passive procrastination ($r = 0.328$), ability to meet deadlines and openness ($r = 0.202$), ability to meet deadlines and conscientiousness ($r = 0.266$), ability to meet deadlines and extraversion ($r = 0.214$), and ability to meet deadlines and GPA ($r = 0.352$).

Meanwhile, negative correlations were found between active procrastination and passive procrastination ($r = -0.369$), active procrastination and neuroticism ($r = -0.310$), preference for pressure and passive procrastination ($r = -0.339$), preference for pressure and neuroticism ($r = -0.349$), ability to meet deadlines and passive procrastination ($r = -0.689$), and ability to meet deadlines and neuroticism ($r = -0.209$).

Negative results signify that a higher score obtained in one variable is associated with lower scores in another variable. In contrast, positive correlations signify that a higher score obtained in one variable is associated with higher scores in another variable.

4. Discussion

This study was conducted to examine the validity of APS-Bahasa Indonesia. The validity was tested with reference to multiple sources of evidence including internal structure (CFA, EFA, reliability, and intra-correlation) and correlation with other criteria.

Based on CFA, the preference for pressure and the ability to meet deadlines showed good fit, as indicated by the fulfillment of goodness of fit criteria (RMSEA ≤ 0.05, GFI ≥ 0.9, CR ≥ 0.7, AVE ≥ 0.5). Meanwhile, outcome satisfaction was also valid, even though the factor loading value of item number 4 was 0.40; there-

fore, item number 4 was reviewed in the subsequent analysis. Formerly, by contrast, the intentional decision to procrastinate did not show good fit. When item number 12 was reversed, however, this dimension met the criteria of goodness of fit although the factor loading value was not greater than 0.50. Therefore, the intentional decision to procrastinate is a valid dimension though item number 12 needs to be further reviewed.

In keeping with the CFA results indicating that item number 12 needed to be reviewed, the EFA and reliability analysis suggested the same outcome. Therefore, we excluded item number 12 in order to ensure that this dimension met the reliability criteria and could be identified as a valid dimension.

The validity of *APS-Bahasa Indonesia* was also supported by intra-correlation results. Overall, active procrastination and all dimensions of active procrastination were correlated with each other, in keeping with previous findings. Active procrastination correlated positively with all dimensions of *APS-Bahasa Indonesia*. This is similar to findings by Choi and Moran (2009); Kim, Fernandez, and Terrier (2017); Gendron (2011); and Seo (2013). More specifically, outcome satisfaction correlated positively with preference for pressure, in keeping with findings by Choi and Moran (2009); Kim, Fernandez, and Terrier (2017); Chowdhury (2016); Gendron (2011); and Seo (2013). Outcome satisfaction also correlated positively with ability to meet deadlines, as in previous findings by Kim et al. (2017); Chowdhury (2016); Hensley (2013); and Seo (2013). In addition, there was no correlation between outcome satisfaction and intentional decision to procrastinate, in keeping with Chowdhury (2016) and Seo (2013). Moreover, preference for pressure did not correlate with intentional decision to procrastinate. Similar results were found by Choi and Moran (2009); Kim et al. (2017); Chowdhury (2016); Gendron (2011); Hensley (2013) and Seo (2013). On the other hand, preference for pressure had a positive correlation with ability to meet deadlines, corresponding with the results of Chowdhury (2016); Gendron (2011); and Seo (2013). Lastly, intentional decision to procrastinate correlated negatively with ability to meet deadlines, supported by the previous findings of Kim et al. (2017); Chowdhury (2016); Gendron (2011); and Hensley (2013).

The final piece of evidence on validity was obtained by demonstrating correlations with other criteria. Results showed that active procrastination had a negative correlation with passive procrastination, in line with findings from Wang, Sperling, and Haspel (2015); Chowdhury (2016); McCloskey (2011); and Seo (2013). A negative correlation was also found between active procrastination and neuroticism, similarly to Chowdhury's (2016) and Gendron's (2011) findings. Active procrastination had no correlation with three personality traits:

conscientiousness, extraversion, and agreeableness. This is supported by Kim et al. (2017); and Choi and Moran (2009). Wang et al. (2015); Chu and Choi (2005); and Seo (2013) explain that active procrastination also does not correlate with intrinsic motivation, and this study shows the same results. In addition, Wang et al. (2015); and Seo (2013) also showed that there was no correlation between active procrastination and extrinsic motivation, and the results of this study affirm this. Studies show that active procrastination correlates negatively with GPA (Kim & Seo, 2015; Gendron, 2011; Chu & Choi, 2005). In this study, active procrastination also had a negative correlation with GPA.

Previous findings show that outcome satisfaction is not correlated with passive procrastination (Chowdhury, 2016; Seo, 2013), openness, conscientiousness, extraversion, agreeableness, neuroticism (Kim et al., 2017; Choi & Moran, 2009), intrinsic motivation, extrinsic motivation (Seo, 2013), and GPA (Kim et al., 2017; Choi & Moran, 2009; Gendron, 2011). All of these previous findings were confirmed in this study; active procrastination had no correlation with any of these criteria.

Kim, Fernandez, and Terrier (2017) and Choi and Moran (2009) found that preference for pressure had no correlation with conscientiousness, extraversion, agreeableness, and GPA. In addition, preference for pressure was also found to be correlated negatively with neuroticism (Kim et al., 2017; Choi & Moran, 2009). Those findings were very much in keeping with the findings of this study. Furthermore, this study also confirmed that preference for pressure did not correlate with intrinsic motivation and extrinsic motivation, as Seo (2013) had previously shown.

Intentional decision to procrastinate correlated positively with passive procrastination. This finding supports the validity of this dimension because the same results were found by Kim et al. (2017) and Hensley (2013). Kim et al. (2017) and Choi and Moran (2009) as well as the present study found that intentional decision to procrastinate has no correlation with the five-factor model of personality (openness, conscientiousness, extraversion, agreeableness, and neuroticism). Moreover, Seo (2013) also explains that intentional decision to procrastinate is not correlated with either intrinsic or extrinsic motivation. This study yielded comparable findings and also found that intentional decision to procrastinate had no correlation with GPA. Similarly, no correlation between intentional decision to procrastinate and GPA were shown by Kim et al. (2017); Choi and Moran (2009); Gendron (2011); and Hensley (2013).

In contrast with other dimensions, ability to meet deadlines had varied patterns of correlation with other criteria. It was found that ability to meet deadlines had a negative correlation with passive procrastination. This

result is supported by the results of Kim et al. (2017); Chowdhury (2016); Hensley (2013); and Seo (2013). Moreover, ability to meet deadlines also correlated negatively with neuroticism. Kim et al. (2017) also found the same results. Meanwhile, we found that ability to meet deadlines had no correlation with agreeableness, as in Choi and Moran's (2009) findings. Our results showed the same correlation patterns reported by Kim et al. (2017) and Choi and Moran (2009), namely, positive correlations between ability to meet deadlines and other personality traits (openness, conscientiousness, and extraversion). In addition, there was also a positive correlation between ability to meet deadlines and GPA, in keeping with the findings of Kim et al. (2017); Choi and Moran (2009); Gendron (2011); and Hensley (2013). In this study, intrinsic motivation and extrinsic motivation had no correlation with ability to meet deadlines. Seo's (2013) finding of no correlation between ability to meet deadlines and either intrinsic or extrinsic motivation strengthened the validity of the ability to meet deadlines dimension.

Overall, our findings were similar to previous findings. Three correlation results, i.e., the correlations between active procrastination and openness; between preference for pressure and passive procrastination; and between preference for pressure and openness, were different from those reported in former studies. Nevertheless, the overall similarity of our findings with those of previous studies indicates that this measurement, the APS-Bahasa Indonesia, indeed measures active procrastination. Therefore, it can be assumed that the APS-Bahasa Indonesia is sufficiently valid based on intra-correlation evidence and correlation with other criteria of evidence.

5. Conclusion

The aim of this study was to validate the APS-Bahasa Indonesia. Based on the validity evidence obtained in this study, all dimensions fulfilled the goodness of fit criteria, although there were several notes in two dimensions. All items were proved to be grouped into four factors in EFA. Those four dimensions also had adequate reliability results and correct intra-correlation patterns, and almost all correlations with other criteria results resembled previous findings. Therefore, in conclusion, APS-Bahasa Indonesia can be used to accurately measure active procrastination.

For further studies, APS-Bahasa Indonesia can be further refined, particularly with regard to item number 12 and/or item number 4. To add more evidence of validity, we suggest a comparison between findings of the APS and those of a passive procrastination measurement. This is needed to determine whether the APS is different from passive procrastination measurements, as Chu and Choi (2015) have proposed.

The main limitation of this study is the small number of forms of validity evidence provided. We only provide two of the five possible forms of validity evidence, so we recommend further studies to provide additional evidence, perhaps in the form of qualitative research using a response process. Another limitation is the small number of variables whose correlations with APS-Bahasa Indonesia were tested. Future studies should assess correlations with other variables such as self-efficacy, time management, stress, life satisfaction, and emotion coping.

Declaration of Interest

The authors report no conflicts of interest in this work.

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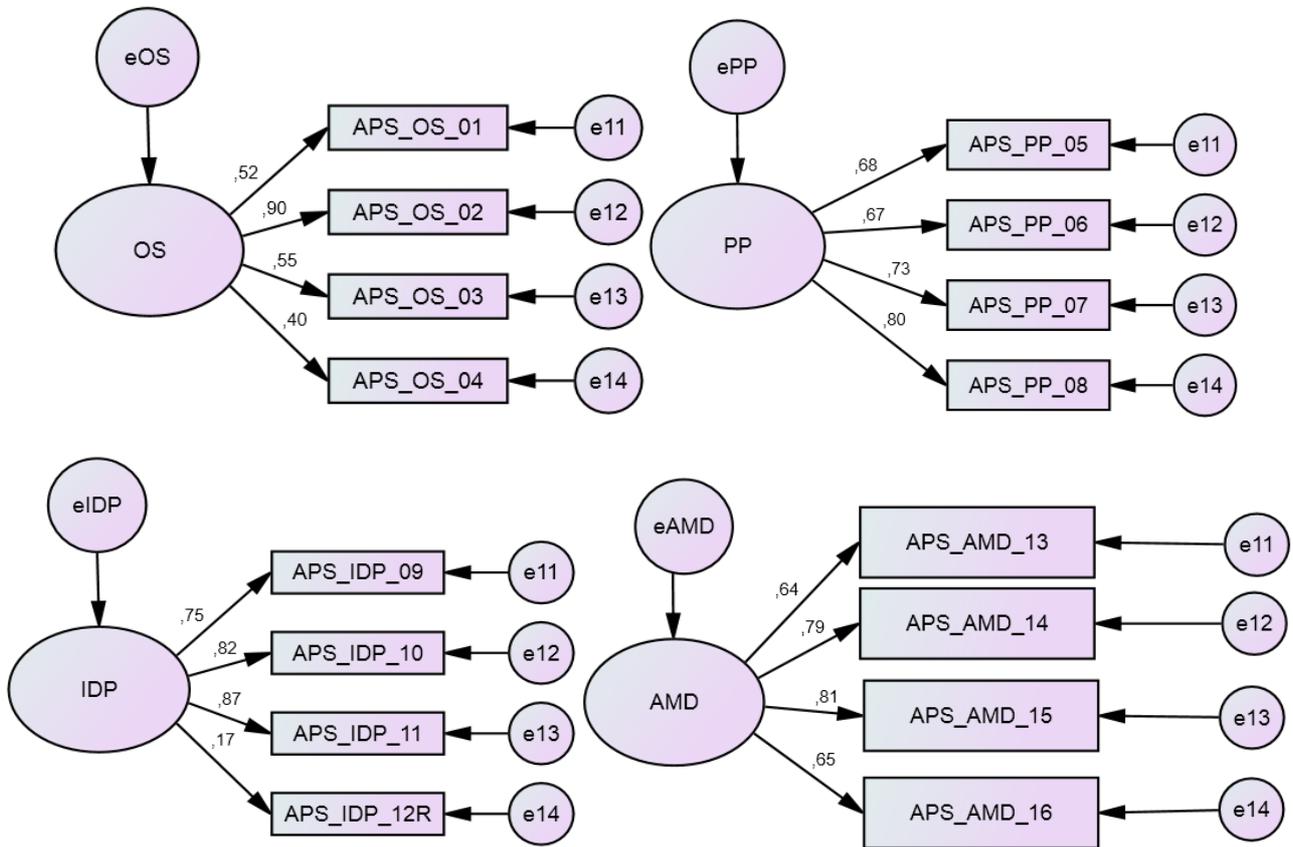
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Appendices

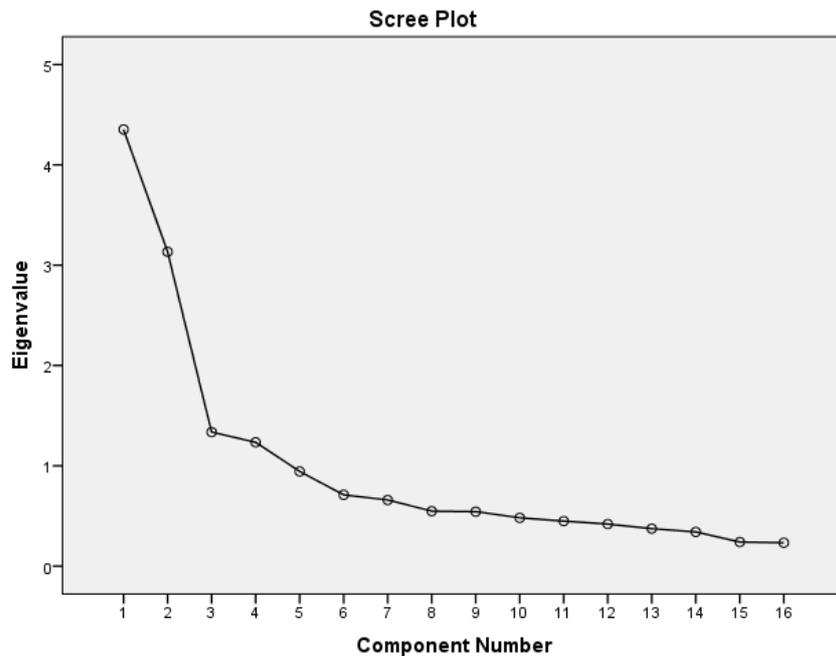
Appendix 1. CFA Results of Active Procrastination Scale (Indonesian Version)



Appendix 2. EFA Results of Active Procrastination Scale (Indonesian Version)

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.353	27.205	27.205	4.353	27.205	27.205	2.962	18.513	18.513
2	3.133	19.583	46.789	3.133	19.583	46.789	2.666	16.660	35.173
3	1.336	8.351	55.140	1.336	8.351	55.140	2.384	14.902	50.075
4	1.234	7.715	62.855	1.234	7.715	62.855	2.045	12.780	62.855
5	.944	5.901	68.756						
6	.711	4.442	73.198						
7	.659	4.121	77.319						
8	.548	3.426	80.745						
9	.543	3.394	84.139						
10	.482	3.010	87.149						
11	.449	2.806	89.956						
12	.419	2.621	92.576						
13	.374	2.337	94.913						
14	.341	2.132	97.045						
15	.240	1.499	98.545						
16	.233	1.455	100.000						

Extraction Method: Principal Component Analysis.



Appendix 3. Questionnaire of Active Procrastination Scale (Indonesian Version)

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1. Kinerja saya cenderung memburuk ketika semakin mendekati batas waktu.
 2. Saya tidak dapat mengerjakan tugas dengan baik apabila tergesa-gesa.
 3. Saya tidak akan puas dengan hasil kerja saya ketika saya telah menunda mengerjakannya sampai batas waktu yang telah ditentukan.
 4. Saya mencapai hasil yang lebih baik jika saya menyelesaikan tugas tersebut jauh sebelum batas waktu.
 5. Saya merasa pusing setiap kali saya harus mengerjakan tugas dengan batas waktu yang semakin dekat.
 6. Saya kecewa dan enggan untuk bertindak ketika saya harus bekerja di bawah tekanan.
 7. Saya merasa tegang dan tidak dapat berkonsentrasi mengerjakan tugas saat ada tugas lain yang juga memiliki batas waktu yang berdekatan.
 8. Saya merasa frustrasi saat saya harus mengejar batas waktu pengumpulan tugas.
 9. Untuk menggunakan waktu secara efisien, saya sengaja menunda mengerjakan tugas saya.
 10. Saya sengaja menunda mengerjakan tugas saya untuk menambah motivasi.
 11. Saya sengaja menunda agar saya dapat memanfaatkan waktu dengan lebih baik.
 12. Saya menyelesaikan sebagian besar tugas saya tepat sebelum batas waktu karena saya memilih untuk melakukan itu.
 13. Saya sering memulai mengerjakan tugas beberapa menit sebelum waktu pengumpulan, sehingga saya merasa kesulitan dalam menyelesaikan pekerjaan tersebut tepat waktu.
 14. Saya sering gagal menyelesaikan tugas yang sudah saya targetkan.
 15. Saya sering terlambat menyelesaikan tugas.
 16. Saya kesulitan untuk menyelesaikan tugas sesaat setelah saya memulai tugas tersebut.
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