Anima, Indonesian Psychological Journal
2012, Vol. 27, No. 2, 93-101

Academic Procrastination and Achievement Motivation

Clarissa Sugito and Ide Bagus Siaputra
Faculty of Psychology
Universitas Surabaya

The purpose of this research is to test the Temporal Motivation Theory (TMT) by correlating academic procrastination and achievement motivation on psychology students. Subjects were every psychology student of University of Surabaya from generation 2008 to 2011, focusing on those who were still active on the first semester of the 2011/2012 study term (*N* = 518). Data were collected with three instruments: Aitken Procrastination Inventory (API), Achievement Motivation Inventory (AMI) (short version), and the Utilitas Tugas (UT) Inventory. Results show a negative corellation between academic procrastination and achievement motivation (*r* = - .481). One of the aspects of achievement motivation, the task-related motivation, is found to be the root of relation between academic procrastination and achievement motivation.

Keywords: academic procrastination, achievement motivation

Tujuan penelitian ini adalah menguji Temporal Motivation Theory (TMT) dengan mengorelasikan prokrastinasi akademik dan motivasi berprestasi pada mahasiswa psikologi. Subjek adalah mahasiswa psikologi Universitas Surabaya dari angkatan 2008 hingga 2011, terfokus pada mereka yang masih aktif pada semester gasal tahun akademik 2011/2012 (*N* = 518). Data dikumpulkan melalui penggunaan tiga instrumen: Aitken Procrastination Inventory (API), Achievement Motivation Inventory (AMI) (versi singkat), dan Angket Utilitas Tugas (UT). Hasil menunjukkan adanya korelasi negatif (*r* = - .481). Salah satu aspek motivasi berprestasi, yaitu motivasi terkait-tugas, ditemukan menjadi sumber adanya hubungan antara prokrastinasi akademik dan motivasi berprestasi.

Kata kunci: prokrastinasi akademik, motivasi berprestasi

According to Aitken (1982), Procrastination is "...habitual delay which continues until a deadline elicits a spurt of activity" (p. 29). The definition which Aitken stated shows that a procrastinator start working on something at a particular deadline. Similar to Aitken, Solomon and Rothblum (1984) stated that a procrastinator usually finishes their tasks at the last moment.

Steel (2011) explained that procrastination can happen in 12 areas of life, one of them being the area of academic. Procrastination that happens in the area of academic is called academic procrastination (Liu, 2010). Rothblum, Solomon, and Murakami (1986) defined academic procrastination as the self-reported tendency to nearly always or always delays doing an assignment and nearly always or always feel anxious when doing procrastination.

The tendency in self-reporting as a person that often or always delays doing academic assignments is found in some of psychology students of University of Surabaya (Ubaya). From the results of the second preliminary study conducted by the first author on May 7th, 2011[1], it was found that most of the subjects from the 2008 generation admitted more frequently in delaying working on academic papers. In other words, the phenomenon of academic procrastination was also found in the vicinity of the first author, who was also a student of Ubaya's Faculty of Psychology.

One of procrastination phenomena is cramming, could be seen from the results of the first preliminary study conducted on March 20th, 2011 to students of the Faculty of Psychology. According to Sommer (1990), the behaviour of college students in doing assignments in a short period of time (cramming) after procrastinating happens quite often in academic environment. The term cramming itself is more known as sistem kebut semalam (SKS) by the college students from

Correspondence concerning this article should be addressed to I. B. Siaputra, Faculty of Psychology Universitas Surabaya. Jalan Raya Kalirungkut, Surabaya 60293. E-mail: siaputra@gmail.com

[1] Data collection in the preliminary study on May 7th, 2011 and March 20th, 2011 was done by using the *Blackberry Messenger* facility on *Blackberry*® with hopes of being able to collect data from several different generations (2007, 2008, and 2009) of psychology students of Ubaya.

where the first author come from. The results of the first preliminary study show that most subjects from the 2008 generation (67.86%) resorted to doing cramming/SKS when they were doing their assignments.

Academic procrastination is a common problem happening on college students (Solomon & Rothblum, 1984; Burka & Yuen, 2008). In both local and foreign researches, some college students were found to have high level of academic procrastination (Akinsola, Tella, & Tella, 2007; Delta, 2007; Budianto, 2008). Several researches show that students with high procrastination level tend to have lower grades compared to those with low procrastination level (Rothblum, Solomon, & Murakami, 1986; Popoola, 2005; Akinsola, Tella, & Tella, 2007; Liu, 2010). According to Popoola, the negative effect of procrastination on academic performance can be explained with the low level of achievement motivation.

In the second preliminary study conducted on May 7th, 2011, it was found that the most common reason for delaying the working of academic assignment was laziness (27.6%). Laziness shows a lack of will in the subject for working on an assignment. According to Schuler, Thornton, Frintrup, and Mueller-Hanson (n. d.b), the will for setting a goal and working according to a challenging goal is the definiton of ambition. Referring to the definition of ambition used by Schuler et al., it can be explained that laziness is also a form of low ambition.

Ambition is one of the aspects of achievement motivation (Schuler et al., n. d.b). Thus, laziness does not only show a low score in ambition, but also a low score in the subject's achievement motivation. Laziness as the reason of the second preliminary study subjects' reason for delaying on working on assignments can support the authors in using achievement motivation as the second variable in this research.

Achievement motivation is the general orientation of individuals towards matters that are related to achievement or performance (Schuler, Thornton, Frintrup, & Mueller-Hanson, as cited in Cigularov, 2008). According Schuler, Thornton, Frintrup, and Mueller-Hanson (n. d.a), achievement motivation consists of 17 aspects. Byrne, Mueller-Hanson, Cardador, Thornton, Schuler, Frintrup, and Fox (2004) and Schuler et al. (n. d.b) explained that those 17 aspects mentioned by Schuler et al. (n. d.a) consist of three main aspects. Those three main aspects are ambition, self-assurance, and task-related motivation[2] (Schuler et al., n. d.b).

In Temporal Motivation Theory (TMT), need for achievement is a part of the value aspect (Steel, 2007). Steel explained that the existence of achievement motivation in an individual can make the assignment being done more interesting and fun, so that the value of an assignment will increase. The higher the value of an assignment, the higher the will of an individual to finish the assignment (utility), therefore reducing the level of procrastination.

Several earlier researches have shown that there's a negative correlation between academic procrastination and achievement motivation (Aitken, 1982; Rumiani, 2006; Delta, 2007; Budianto, 2008). This research was reconducted according to the suggestion of Delta to conduct a similar research, but with psychology students from other universities.

Budianto (2008) actually already conducted a research according to the suggestion of Delta (2007) because Budianto did the research with psychology students from University of Surabaya. None the worse, there are several differences between this research with the one done by Budianto. The subjects in Budianto's research were based on their Grade Performance Average (GPA). The subjects in this research were chosen without comparing GPA among generations.

Besides, the difference of this research with those from Rumiani (2006), Delta (2007), and Budianto (2008) lies in the inventories being used. The authors apply the Achievement Motivation Inventory (AMI) short version, as the inventory for collecting data concerning achievement motivation. As for the data collection on academic procrastination, the Aitken Procrastination Inventory (API) from Aitken was applied (1982). The two inventories were used because the two of them have passed the reliability test (May 27th, 2011), so both inventories are proven to be reliable.

Method

The subjects were every psychology student of University of Surabaya of generation 2008, 2009, 2010, and 2011 who were still active on the first semester of the 2011/2012 study term. There's a total of 552 individuals as the subjects in this research, but only 518 were available for data collecting. Data from subjects was collected by using the inventories, which were an inventory about the subject's identity, API (Aitken, 1982), AMI (short version), and Utilitas Tugas (UT) Inventory (Siaputra & Amanda, 2011).

The instrument which was used to measure academic procrastination was API (Aitken, 1982) and it was found to be valid and reliable. API consists of 19 items (favorable and unfavorable) with five answer choices,

[2] According to Schuler (personal communication, January 11, 2012), the term *self-control* written in Schuler et al. (n. d.b) can be replaced with the term *task-related motivation*.

which were false (1), mostly false (2), sometimes false/sometimes true (3), mostly true (4), and true (5) (Ferrari, Johnson, & McCown, 1995).

Meanwhile, the instrument being used to measure achievement motivation was AMI (short version). AMI (original version) consists of 170 items with 10 items for each aspect of achievement motivation (Schuler et al., n. d.a). According to Schuler et al., AMI was proven to be valid and reliable. In this research, the AMI instrument being used consists of only 51 items (favorable and unfavorable), taken from the original version of AMI which each aspect having three items. Three items of the 17 aspects of achievement motivation with the highest factor loading score on Cigularov (2008) will be used on the short version of AMI. The available answers were numbered from "1" (does not apply at all) to "7" (applies fully to me).

The third instrument being used is the UT inventory, which was constructed based on TMT (Siaputra & Amanda, 2011). According to Siaputra and Amanda, the items in the UT inventory are valid. The use of this instrument is targeted to support API which was not developed with TMT as the basis, nor to test whether the three aspects of achievement motivation can be categorized into the aspects of TMT. The total number of items in the UT inventory were eight items (favorable) with five options for the answer, which are never (1), seldom (2), often (3), frequently (4), and always (5).

Several data analysis techniques were used in this research are: the frequency distribution test, reliability test, normality test, and correlation test. The frequency distribution test was applied on the particular characteristic obtained from the identity inventory. There were several subject's characteristics that were distributed by categorizing them firstly into group norms (six categories). Meanwhile, the reliability test is done by using the alpha Cronbach because the reliability measured in this research is the internal reliability (Chadha, 2009). The items are considered reliable if the alpha Cronbach score is $\geq$ .70 (Nunnally, 1981).

Results

Subject Description

Subject characteristics:

1. Gender: 83.4% female.
2. Generation: 26.4% were from the 2010 generation.
3. Age: 92% are 18 – 22 years of age.
4. GPA: 29.2% considered below average ($2.201 < GPA \leq 2.724$; not including those from the 2011 generation).
5. Credits taken in the first semester in year 2011/2012: 50.2% considered to be above average ($20 < Credits \leq 23$).
6. Cumulative Credits: 21% considered to be above average ($78 < Credits \leq 112$; not including those from the 2011 study term year).
7. Duration to work on the inventories: 54.2% needed one day to work on the inventories.

Research Variable Description

The API and AMI (short version) score categories of the subjects will be taken from the group norm categories. According to the API group norm categories, it was discovered that most of the subjects (42.5%) were categorized into the upper above average for the academic procrastination ($50.84 < API \leq 61.10$). For the AMI, it was discovered that most of the subjects (38.6%) have below average scores for the achievement motivation category ($192.84 < AMI \leq 219.82$).

Measurement Results Reliability

The validation of the results of this research is done by using the reliability test on the three instruments used: API, AMI (short version), and UT inventory. All subjects ($N = 518$) completed the instruments, except for the UT inventory, where one subject did not complete one of the items, lowering the subject total to 517 for this instrument.

For the API instrument, the reliability test is done with the total score because API is an unidimentional instrument for academic procrastination. The alpha Cronbach coefficient score for API in the results was .835, meaning that API can be considered as a reliable academic procrastination measuring instrument.

Reliability is measured on the UT inventory using the total value aspect score and the sub-aspect for low need for achievement. The alpha Cronbach coefficient score in the results for the sub-aspect for low need for achievement is .619 and .728 for the value aspect. According to Nunnally at 1967 (Moore & Benbasat, 2001) and Sekaran and Bougie (2010), although the reliability coefficient of value aspect and low need for achievement sub-aspect are less than .70, it still can be considered as acceptable at the developmental phase of an instrument.

On the AMI (short version), the reliability test was done four times, one for the total AMI score and three times for each aspects: self-assurance, ambition, and task-related motivation. The alpha Cronbach coefficient score for the AMI total score was .882. For the three other aspects, the scores were .812; .849; and .754 for self-assurance, ambition, and task-related motivation

Table 1
Major and Minor Hypotheses Test Results

Hypothesis	Variable	*r*	*p*
Major Hypothesis	Academic Procrastination – achievement motivation	- .481	.000
Minor Hypothesis 1	Academic Procrastination – self-assurance	- .296	.000
Minor Hypothesis 2	Academic Procrastination – ambition	- .342	.000
Minor Hypothesis 3	Academic Procrastination – task-related motivation	- .524	.000

respectively. AMI can be considered as a reliable achievement motivation measuring instrument.

Normality Test

Normality test was done on the three instruments used in this research. Using *p* Kolmogorov-Smirnov > .05 as the benchmark, it was revealed that the data spread was not normal in both API and UT inventory. The data spread for the self-assurance and task-related motivation on the AMI instrument are not normal. Meanwhile, the normal data spreading is found in ambition aspect in AMI and AMI total score.

Hypotheses Test

There are one major hypothesis and three minor hypotheses in this research. One-tail hypothesis test is done by using the Spearman non-parametric correlation statistic technique. The results of the hypothesis test are shown in Table 1.

Table 1 shows that there's an adequate and significant correlation between academic procrastination and achievement motivation (r = -.481; p = .000), between academic procrastination and ambition (r = - .342; p = .000), and also between academic procrastination and task-related motivation (r = - .524; p = .000). In other words, the major hypothesis and also the second and the third minor hypotheses are accepted.

Table 1 also reveals that there is no adequate (r < - .30) although statistically significant correlation between academic procrastination and self-assurance (Cohen as cited in Hemphill, 2003). Fisher[3] test was done to find out whether the difference between the requirement of adequate correlation ($r \geq \pm$ .30) and the correlation coefficient achieved is statistically significant. The Fisher test score resulted in .004, which is not considered to be significant (z = .070; p = .944). Therefore, the correlation coefficient between academic procrastination and self-assurance (r = - .296) can be considered to be correlating adequately. Academic procrastination and self-assurance could be considered to have an adequate and significant negative correlation.

The correlation coefficient between task-related motivation and academic procrastination was found to be $\geq \pm$ .5, meaning that there's a common factor (Myers & Robertson, 1972; Carroll, 1961) on the items of API and the task-related motivation aspect items of AMI. To find out about the finding, the authors did a factor analysis[4] on the task-related motivation aspect items of the AMI and the items of API. Results of the factor analysis show that several items of API have the same factor with those used in the task-related motivation aspect of AMI (Table 2). Factor thought to be the common factor is factor 1 because there are 10 API items and three AMI items that are using the same factor.

When the API and AMI items that have factor inside them (API item number 1, 3, 4, 7, 8, 9, 10, 13, 14, 15; AMI item number 17, 34, 51) were controlled, the correlation between task-related motivation and academic procrastination became less adequate (r = - .014; p = .381). By controlling the items with factor 1, the correlation between task-related motivation and academic procrastination changes, therefore factor 1 is considered to be the common factor. This factor 1, believed to be the common factor, was named as the coincidental/conscious element by the authors.

Extra Data/Proof for the Research

One of the extra test was targeted in finding out whether the UT Inventory developed based on the TMT could support the API which was not developed with TMT as the base. The test was done by correlating the total score from API and the score of each aspects and sub-aspects from the UT inventory. Results are shown in Table 3.

[3] Fisher Test was done using the Fife-Schaw calculator (2006). The z score was transformed into the *p score* using the Ryan statistic table (2004).

[4] Factor analysis was done using *SPSS 16.0 for Windows* program with the guide from Sutejo (2011). In the factor analysis, three loads where used because it was hoped that the result from the analysis of the AMI and API items would be divided into three factors, which are academic procrastination, task-related motivation, and common factor.

Table 2
Results of the Factor Analysis Between the Academic Procrastination Factor (API) and the Task-Related Motivation Aspect (AMI)

	Factor				Factor				Factor		
	1	2	3		1	2	3		1	2	3
API1	.706			API18		.739		AMI50			.641
AMI17	- .681			API17		.697		AMI49			.587
API10	.676			API16		.587		AMI32			.566
API3	.673			API12		.510		AMI33			.540
AMI51	- .635			API2		.483		AMI16			.462
API15	.631			API6		.473		AMI15			
API9	.612			API11		.463		API19			
API4	.599			API5							
API14	.541	.431									
API13	.538										
AMI34	- .464		.425								
API7	.442										
API8	.407		- .405								

Table 3
Results of Correlation Between API and UT Inventory

No.	Variable	*r*	*p*
1.	Academic procrastination (API) –low expentancy (UT inventory)	.286	.000
2.	Academic procrastination (API) –low value (UT inventory)	.454	.000
3.	Academic procrastination (API) –task aversiveness (UT inventory)	.398	.000
4.	Academic procrastination (API) –low need of achievement (UT inventory)	.310	.000
5.	Academic procrastination (API) –boredom proneness (UT inventory)	.382	.000
6.	Academic procrastination (API) –impulsiveness (UT inventory)	.418	.000
7.	Academic procrastination (API) delay (UT inventory)	.358	.000

Table 4
Results of Correlation Between the Aspects of AMI and UT Inventory

No.	Variable	*r*	*p*
1.	Self-assurance (AMI) – low expectancy (UT inventory)	- .415	.000
2.	Ambition (AMI) – low need for achievement (UT inventory)	- .226	.000
3.	Ambition (AMI) – delay (UT inventory)	- .236	.000
4.	Task-related motivation (AMI) – impulsiveness (UT inventory)	- .437	.000

Table 3 shows that the low expectancy aspect from the UT inventory has no adequate although statistically significant correlation coefficient ($r = .286$) with academic procrastination (API). The difference between the requirement of adequate correlation ($r \geq \pm .3$) with the correlation coefficient from the results was .014. When the Fisher test was done, it was found that the difference was not significant ($z = .246$; $p = .806$). Therefore, low expectancy and academic procrastination can be considered to have an adequate and significant positive correlation. Meanwhile for the other aspects from TMT, which are low value, impulsiveness and delay from the UT inventory have an adequate and significant correla-tion with academic procrastination (API). This adequate and significant correlation proofed that the developed UT Inventory can support API.

The other extra data was targeted in finding out whether the three aspects of achievement motivation can be categorized into the aspects of TMT. The testing was done by correlating self-assurance and low expectancy; ambition and low need for achievement; ambition and delay; and task-related motivation and impulsiveness. Results are shown in Table 4.

Table 4 reveals an adequate and significant negative correlation between self-assurance and low expectancy and also between task-related motivation and impulsive-

ness. Meanwhile, ambition and low need for achievement (r = - .226) and ambition and delay (r = - .236) have no adequate but significant correlation.

A Fisher test was done by the authors to discover whether there's a significant difference between the correlation coefficient from the correlation between ambition and low need for achievement (r = - .226) and the requirement of adequate correlation ($r \geq .3$). The results show that there's no significant difference (z = 1.277; p = .202). The non-significant difference means that ambition and low need for achievement can be regarded as having an adequate and significant correlation.

A Fisher test was also done to find out whether there are significant differences that is acquired between the correlation coefficient between ambition and delay (r = - .236) and the requirement of adequate correlation ($r \geq .3$). Result of the Fisher test shows the nonexistence of significant difference between the correlation coefficient (z = 1.107; p = .268). This shows that ambition and delay can be regarded as having an adequate and significant negative correlation.

Extra data from the results of the correlation tests shows that there is an adequate and significant correlation between self-assurance and low expectance, ambition and low need for achievement, ambition and delay, also between task-related motivation and impulsiveness. With this adequate and significant correlation being present, it is shown that the three aspects of achievement motivation can be categorized into the aspects of TMT. Self-assurance can be categorized into expectancy, ambition can be categorized into the low need for achievement and delay, and task-related motivation can be categorized into impulsiveness.

Discussion

The acceptance of the major hypothesis is in accordance with several earlier researches conducted by Aitken (1982), Rumiani (2006), Delta (2007), Steel (2007), and Budianto (2008), who also discover the existence of negative correlation between those two variable. If compared with Aitken research (1982) and Delta (2007), the correlation coefficient value discovered in this research is higher. But if compared to the research by Rumiani (2006), Steel (2007), and Budianto (2008), the correlation coefficient score found in this research is lower.

When the Fisher test is conducted between correlaion coefficient discovered in this research and five earlier researches, the correlation coefficient difference was found to be significant ($p <$ .05) and the other one is insignificant ($p \geq .05$). Insignificant correlation coefficient difference is found between this research and Aitken research (1982) (z = 1.439; p = .150), Rumiani (2006) (z = - .906; p = .365), dan Delta (2007) (z = .852; p = .394). The nonexistence of significant difference shows that this research outcome is identical (there are not too many differences) with the earlier research. Meanwhile, a significant difference in correlation coefficient is found between this research with those of Steel's meta-analysis (2007) (z = -1.990; p = .047) and Budianto's research (2008) (z = -3.644; p = .000).

The insignificant difference between this research with those of Aitken (1982), Rumiani (2006), and Delta (2007) shows that the results of this research support the results of those three earlier researches. Even though academic procrastination and achievement motivation was measured with different instruments, the results are similar. This explains that the theory about the negative correlation between academic procrastination and achievement motivation are supportive of the empirical data.

The significant difference between this research with that of Steel (2007) was most likely caused by the difference of subjects' sample size and source. Even though it is different statistically, the correlation coefficient found in this research can be considered to be similar. The reason is because the correlation coefficient found in this research (r = - .481) is still in the range of the correlation coefficient found by Steel (- .47 to - .62).

A very significant difference in correlation coefficient (p = .000) was found between this research and Budianto's (2008). The difference could be caused by the difference of the instruments used to measure achievement motivation and the subjects' sample size and source. In Budianto's research, the instrument used to measure achievement motivation was based on McClelland's achievement motivation aspects, while the one used in this research was based on the aspects by Schuler et al. (n. d.a). The difference in the theories being used may have caused the difference in the aspects measured in the instrument, thus causing the very significant difference in the correlation coefficient score.

Negative correlation between academic procrastination and achievement motivation shows that there is a reverse relationship between the two. Individuals that procrastinate are aware that by doing so they will get worse consequences, but delays their work anyway (Steel, 2002). This behaviour shows that they do not have the orientation towards achievement. From this explanation, the negative correlation between achievement motivation and academic procrastination becomes clear.

Between the four hypotheses offered by the author, it is found that all correlation coefficients acquired in those four hypotheses are close to - .30. But it can be seen that

the correlation coefficient between academic procrastination and task-related motivation (minor hypothesis 3) is bigger when compared with the score from the correlation between academic procrastination and the other two achievement motivation aspects. This indicates that the main source of the correlation between academic procrastination and achievement motivation is the task-related motivation aspect. Even so, the existence of the significant correlation between academic procrastination and the other two aspects shows that self-assurance and ambition still have a contribution towards the correlation between achievement motivation and academic procrastination, though in a smaller portion compared to task-related motivation.

The odds regarding task-related motivation being the main source of correlation between achievement motivation and academic procrastination are supported by the result of the partial correlations. This was done by correlating achievement motivation and academic procrastination, and controlling the items of the task-related motivation aspect. This resulted in the score $r = -.215$ with $p = .000$. This indicates that if the task-related motivation variable is being controlled, the correlation between achievement motivation and academic procrastination will be lower and not adequate, even though still significant.

A different issue is found in the result of partial correlation between academic procrastination and the other two aspects of achievement motivation. In the first partial correlation test, it is between academic procrastination and achievement motivation by controlling self-assurance, the result was the score - .428 ($p = .000$). In the second partial correlation, it is between academic procrastination and achievement motivation by controlling ambition, the result was the score - .325 ($p = .000$). These findings further supports the assumption that task-related motivation aspect is the main factor in the relation between academic procrastination and achievement motivation.

The correlation between self-assurance, ambition, and task-related motivation and academic procrastination causes the existence of correlation between achievement motivation and academic procrastination. This is caused by the fact that the three aspects are aspects of achievement motivation, therefore the relation between achievement motivation and academic procrastination always contribute to the relation between the three aspects of achievement motivation and academic procrastination.

According to TMT, the negative correlation between self-assurance and academic procrastination is believed to be explainable through the description of low expectancy aspect. One of the findings in the extra testings shows that self-assurance correlate negatively with low expectancy. Low level of self-assurance has the tendency to be accompanied with low expectancy. This finding indicates that the assumption that low level of self-assurance reflected from low level of expectation is valid. According to the low expectancy, the negative correlation between academic procrastination and self-assurance explains that individuals with low confidence levels on their skills tend to have high scores in academic procrastination while also having low hopes for the quality of their own work. Because of this low hope, individuals with low self-assurance score tend to have high scores in academic procrastination. Meanwhile, individuals with high hopes on their work quality tend to have high self-assurance score and low academic procrastination score.

The relation between ambition and academic procrastination can be explained by using the aspects of low need for achievement and delay from TMT. In the minor hypothesis 2 test, ambition and academic procrastination was found to have negative correlation scores. Individuals with high ambition tend to have low academic procrastination score. This is caused by the tendency on individuals with high ambition to have a high need for achievement score and low delay score, as supported by the findings on Table 3 and 4 in the extra data testings.

Individuals with high goal setting and ambition seldom postpone working on their academic tasks. This is because individuals who has determination to work also have high level of need for achievement, which helps the individual in liking the assignment he/she is working on. According to Steel's (2007) words earlier, it can be confirmed that the high level of need for achievement helps individuals love their jobs or assign-ments they're working on, making them avoid delaying their work.

Besides that, with the existence of determination to set a purpose (ambition), the time needed to achieve the expected result (delay) will be shorter. Therefore, if delay is at low level, the level of postponing the work will also be lower This means that a high level of ambition have the tendency to be accompanied by low academic procrastination level, because the duration of working the tasks tends to be shorter.

In other findings from the extra testings, it was found that task-related motivation correlate negatively with impulsiveness, while impulsiveness have a positive correlation with academic procrastination. It is also found that task-related motivation correlates positively with academic procrastination. Based on these three findings, the negative correlation between task motivation and academic procrastination can be explained by using the impulsiveness aspect in TMT. Individuals with high task-related motivation score tend to have low academic procrastination level because they tend not to be easily impulsive.

Schuler et al. (n. d.a) and Steel (2007) both believe that procrastination can be related to self-control. Self-control is a part of task-related motivation aspect (Schuler et al., n. d.b). According to Steel, the lack of self-control is a part of one of TMT's aspect, which is impulsiveness or sensitivity to delay. The results found in this research is in the same vein with that of Schuler et al. and Steel's.

In conclusion, the main source of the correlation between academic procrastination and achievement motivation is casued by one of the aspects of AMI, which is task-related motivation.

Limitations

There are some flaws in this research. The first flaw is involved with the subject of the first (March 20th, 2011) and second (May 7th, 2011) preliminary studies. By using Blackberry Messenger facility on Blackberry®, the authors expect to be able to gather subjects from several different generations in the faculty of psychology. But the results were not as planned, as the authors could only contact subjects mostly from the 2008 generation. This small setback caused the results of the first and second surveys to be focused on subjects from the 2008 generation only.

Another flaw is related to the AMI assessing tool. Schuler et al. (n. d.b) strictly categorized sub-aspect of eagerness to learn in the ambition aspect. In fact, factor analysis result of AMI assessing tool in Byrne et al. (2004) shows that sub-aspect of eagerness to learn was loaded with two other factors. Upon seeing the factor loading score (Byrne et al., 2004), the eagerness to learn sub-aspect should have been categorized into the self-assurance aspect instead. This is because the factor loading score of the eagerness to learn sub-aspect is higher when it is loaded into the self-assurance aspect, compared to the ambition aspect (Byrne et al., 2004). Therefore, it is advised to other researcers to do a internal structure validity test on AMI if they are planning to use it as an achievement motivation measuring instrument.

Another flaw considered is related to the findings of relatively high correlation between task-related motivation and academic procrastination. This may mean the existence of a common factor measured by AMI and API. In relation to this research, this finding should not have happened because API and AMI are used to measure different factors. API was supposed to be used for measuring the aspects of academic procrastination, while AMI was supposed to be used for measuring aspects of achievement motivation which consists of the aspects self-assurance, ambition, and task-related motivation.

Suggestion for the next research using API as academic procrastination assessing tool is to do validity test in API internal structure. This is suggested so API can be tested whether it measures procrastination as a unidimentional factor or as multidimentional factors.

References

Aitken, M. E. (1982). *A personality profile of the college student procrastinator* (Unpublished doctoral dissertation). University of Pittsburgh.

Akinsola, M. K., Tella, A., & Tella, A. (2007). Correlates of academic procrastination and mathematics achievement of university undergraduate students. *Eurasia Journal of Mathematics, Science & Technology Education, 3*(4), 363-370.

Budianto, Y. E. (2008). *Hubungan antara motivasi berprestasi dan prokrastinasi akademik* (Unpublished minor thesis). Universitas Surabaya.

Burka, J. B., & Yuen, L. M. (2008). *Procrastination: Why you do it, what to do about it now*. Cambridge: Da Capo Press.

Byrne, Z. S., Mueller-Hanson, R. A., Cardador, J. M., Thornton, G. C. III, Schuler, H., Frintrup, A., & Fox, S. (2004). Measuring achievement motivation: Tests of equivalency for English, German, and Israeli versions of the Achievement Motivation Inventory. *Personality and Individual Differences, 37*, 203-217.

Carroll, J. B. (1961). The nature of the data, or how to choose a correlationn coefficient. *Psychometrika, 26*(4), 347-372.

Chadha, N. K. (2009). *Applied psychometry*. New Delhi: SAGE Publications India Pvt Ltd.

Cigularov, K. P. (2008). *Achievement motivation in Bulgaria and The United States: A cross-country comparison* (Unpublished doctoral dissertation). Colorado State University.

Delta, P. E. (2007). *Hubungan antara prokrastinasi akademis dengan motivasi berprestasi pada mahasiswa Fakultas Psikologi Universitas Indonesia* (Unpublished minor thesis). Universitas Indonesia, Jakarta.

Fakultas Psikologi Ubaya. (2005). *Modul praktikum metode riset kuantitatif*. Surabaya: Author.

Ferrari, J. R., Johnson, J. L., & McCown, W. G. (1995). *Procrastination and task avoidance*. New York: Plenum Press.

Fife-Schaw, C. (2006). *Statistics FAQ*. Retrieved from http://www.surrey.ac.uk/psychology/current/statistics/index.htm

Hemphill, J. F. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist, 58*(1), 78-80.

Liu, K. (2010). *The relationship between academic procrastination and academic achievement in Chinese university students* (Unpublished thesis). New York State University.

Moore, G. C., & Benbasat, I. (2001). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information system research, 2*(3), 192-222.

Myers, J. H., & Robertson, T. S. (1972). Dimensions of opinion leadership. *Journal of Marketing Research, 9*(1), 41-46.

Nunnally, J. C. (1981). *Psychometric theory*. New Delhi: Tata McGraw-Hill.

Popoola, B. I. (2005). A study of the relationship between procrastinatory behaviour and academic performance of undergraduate students in a Nigerian univeristy. The African Symposium: An On Line *Journal of African Educational Research Network*.

Rothblum, E. D., Solomon, L. J., & Murakami, J. (1986). Affective, cognitive, and behavioral differences between high and low procrastinators. *Journal of Counseling Psychology, 33*, 387-394.

Rumiani. (2006). Prokrastinasi akademik ditinjau dari motivasi berprestasi dan stres mahasiswa. Jurnal *Psikologi Universitas Diponegoro, 3*(2), 37-48.

Ryan, P. (2004). *Statistical table*. Retrieved from http://health.adelaide.edu.au/publichealth/staff/ASCIEB_statistical_tables.pdf

Schuler, H., Thornton, G. C., Frintrup, A., & Mueller-Hanson, R. (2004). *AMI achievement motivation inventory: Technical and user's manual*. Oxford: Hogrefe & Huber Pub.

Schuler, H., Thornton, G. C. III, Frintrup, A., & Mueller-Hanson, R. (n. d.a). *AMI achievement motivation inventory*. Retrieved from http://www.unifr.ch/ztd/HTS/inftest/WEB-Informationssystem/en/4en001/1eff2be638e4e8aa4d5a23f5cec2826/hb.htm

Schuler, H., Thornton, G. C. III, Frintrup, A., & Mueller-Hanson, R. (n. d.b). *AMI achievement motivation inventory narrative report*. Retrieved from http://www.unifr.ch/ztd/HTS/inftest/WEB-Informationssystem/en/4en001/1eeff2be638e4e8aa4d5a23f5cec2826/examples .htm

Sekaran, U., & Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). Chichester: John Wiley & Sons.

Siaputra, I. B., & Amanda, D. (2011). *Angket utilitas tugas* (Unpublished research report). Universitas Surabaya.

Solomon, L. J., & Rothblum, E. D. (1984). Academic procrastination: Frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 31*(4), 503-509.

Sommer, W. G. (1990). Procrastination and cramming: How adept students ace the system. *Journal of American College Health, 39*, 5-10.

Sutejo, A. (2011). *Principle component analysis* (1.8 ed.). Surabaya: Center for Lifelong Learning, Faculty of Psychology Universitas Surabaya.

Steel, P. (2007). The nature of procrastination: A meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*(1), 65-94.

Steel, P. (2011). *The procrastination equation: How to stop putting things off and start getting stuff done*. New York: Harper.

Steel, P. D. G. (2002). *The measurement and nature of procrastination* (Unpublished thesis). University of Minnesota.