Fear of failure and academic procrastination among university students: The role of achievement expectancy and year of study

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Article Info	ABSTRACT
Article history: Received May 25, 2021 Revised Dec 4, 2021 Accepted Dec 29, 2021 *Keywords:* Achievement expectancy Fear of failure Procrastination Year of study	This current study aimed to investigate whether expectancy-value model of achievement choice mediates the relationship between fear of failure (FOF) and academic procrastination (AP) among undergraduate students of Psychology Department at a private university in Malaysia. Based on the Krejcie-Morgan Table and G*Power, 102 undergraduate students (aged 18-24) who enrolled in core subjects were recruited to represent the population via snowball sampling method. PROCESS macro for SPSS was utilized to perform the Bootstrap analysis with 5,000 sampling at 95% confidence interval to test the mediation hypothesis. Results showed a significant positive total effect of FOF on AP and significant negative direct effect of expectancy-value model on academic procrastination, supporting the hypothesis for path c and path b. However, no significant direct effect was found between FOF and expectancy-value model (path a). Mediation did not occur, therefore FOF is still considered a robust and significant predictor of AP among the population of psychology students in the aforementioned university. Furthermore, our results suggested that the aforementioned link did not significantly occur among the first-year students. *This is an open access article under the CC BY-SA license.*

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1. INTRODUCTION

Academic procrastination (AP) is a common phenomenon among university students and it is widely studied in many higher education settings [1], yet not well-explained because of the complexity of the issue [2]. AP is conceptually defined as a voluntary act of delaying to begin or finish a task or activity that is related to learning or studying despite knowing that the task would be worse off if delayed [3]. Concerns about the negative consequences of procrastination have been raised frequently as it may maliciously harm one's life [3]. It is reported to be problematic for students as it deters students' productivity and causes students to miss deadlines for assignments, poor overall academic performance and academic satisfaction [4], as well as emotional discomfort [5]. It could even result in severe psychological problems and becomes a barrier for students to achieve success [6], to curb such behavior, it is important to understand why students procrastinate and determine its predictors.

Nevertheless, the main factor of procrastination among university students seems to be culture-sensitive. For instance, a study by Mohsenzadeh *et al.* on 179 students in Tehran, Iran [7], stated that the fear of failure (FOF) was the robust predictor of AP across all the personality types among university students. On the other hand, another study on 1,184 students in China [8] indicated that self-efficacy fully mediated the link between FOF and AP. This difference might be explained by Li *et al.* [9], that Iranian students have

higher tendency to take risk than the students from China; therefore, while the former will only procrastinate when the risk of failure is strong enough to be feared, the latter would not procrastinate when they believe that they can perform the task well. The culture-sensitivity of the AP phenomenon posed further challenges for researchers in this field. In the last decade, some tried to study further into internal factors, such as self-esteem esteem [10] and self-efficacy [11].

While they found the significant link between the internal factors and the AP, many studies indicated that individuals would procrastinate only after receiving certain social feedback. For instance, Lemoine [12] reported that AP is common among individual with learned helplessness, a construct that occurred due to continuous negative constraining social feedback [13]. However, the finding of Prihadi et al. in Malaysian context [14] suggested that learned helplessness is no longer a significant predictor of AP when controlling for internal locus of control.

Symbolic interaction theory [15] explained that continuous lifelong social feedback tends to alter the way individuals evaluate themselves and therefore produces the factors of AP, such as the aforementioned learned helplessness, self-efficacy, or internal locus of control, internalization of positive values in order to reduce AP might not be a feasible way to be applied to individuals who have reached their young adulthood, such as university students. Supporting that, Nordbly et al. [16] proposed that one of the external factors that can be altered to reduce AP is the classroom engagement; when the deliverance of the subject is considered engaging, students would have their AP tendency reduced. Nevertheless, another study in Malaysian context denied it by reporting that classroom engagement was still fully mediated by the internal locus of control of the students [17].

The aforementioned studies indicated that continuous social feedback might have gone imprinted in the mind of certain students, and these led them to many factors that predicted their AP. In this current study, we attempt to introduce cognitive-motivational-relational perspective, which is the expectancy of valuable achievement. Hypothetically, we proposed that even one has developed FOF through lifelong unsupportive social feedbacks, they might not procrastinate their task when they believe that achieving the academic goal is valuable. In other words, whether expectancy value belief mediates the link between FOF and AP.

As a multidimensional construct, FOF is conceptually defined as how strong an individual believe that aversive consequences accompany failure, and potentially preventing one from reaching their highest potential [18]. Individuals who associate failure with negative consequences will view failure as a menacing experience and they encounter great fear in evaluative situations [19]. Consequences of FOF involve burnout, compromising an individual's mental and physical health, moral development, and decreasing appraisal of self-ability in accomplishing meaningful personal goals [19].

Based on cognitive-motivational-relational perspective, five aversive consequences that are believed to accompany failure are identified [20]. They are: i) Experiencing shame and embarrassment, which is related to personal diminishment; ii) Devaluing one's self-estimate, which is believing that one have poor ability and losing control over task performance; iii) Important others losing interest, which is related to the beliefs of one losing social value due to poor task performance; iv) Having an uncertain future, which is related to one losing future opportunities; and v) Upsetting important others, which is related to beliefs that one lose affection of others due to failure. Failure in achieving satisfied standard of academic achievement could be daunting to students as it is an experience of being emotionally, academically, and even socially separated by peers [21], [22]. Shame and self-devaluation may be elicited in individuals who fear failure, as they view failure as a set-back, thus leading them to undesirable social behaviors [23].

For few decades, past studies have continuously found predictive relationship of FOF on AP. As reported by Zhang, et al. [23], FOF accounts for 49.4% of the variance explained for AP. Some studies in current decade found similar findings such as the correlation study [7] on 179 male high-school students analyzed that 37% of AP among students was predicted by FOF. In an even more recent study, it was found that a positive predictive relationship of FOF on AP exist among a sample of 293 undergraduate students [20]. In short, FOF predicted procrastination, the maladaptive self-protective strategy.

Some studies have suggested that based on the self-worth theory of achievement motivation, an individual prioritizes their search for self-acceptance and incline to protect their own self-worth by avoiding failure [24]. In school settings, students' self-worth is largely measured by their ability to succeed; a sense of incompetence would trigger feelings of embarrassment [20]. They may also have been constantly judged and criticized by others for failing, thus building a greater FOF and believing that they must constantly succeed to be deemed as worthwhile [8]. When students perceive they would fail, they maintain their self-worth through procrastination, a self-handicapping approach, by intentionally choosing "obstacles" to deflect the blame of failure away from their ability [24], [25].

Studies in current decade have also found that students with high FOF procrastinate more in situations where evaluation would occur [24], [26]. They would rather endure the guilt for not putting effort in their studies, than being humiliated for being incompetent, therefore putting in little to no effort in their

studies to mask their true ability and avoid shame [20]. More studies in current decade have subsequently found that besides protecting self-worth, students' motivation to persevere and perform on task can also be seen by how well they believe they have the ability to do it and how much they value the task at hand [27]. These internal beliefs seem to precede academic procrastination.

The expectancy-value model of achievement choice was introduced to explain students' academic choices and performance as well as predicting their achievement motivation and learning behavior [28], [29]. Based on the expectancy-value theory, this model consists of two main components, namely expectancy-related beliefs and task-value beliefs [27]. Beliefs about ability, under expectancy-related beliefs, is closely tied to Bandura's self-efficacy theory [30], [31], whereby it is an evaluation of one's ability to accomplish an achievement task. Expectancy for success, also under expectancy-related beliefs, refers to how well an individual expects him/herself to achieve success in task [32].

On the other hand, task-value beliefs look into the worthiness of a task to either increase or decrease one's effort in engaging in the said task, which includes four constructs, namely: interest value, attainment value, utility value, and perceived cost [32]. Students are more likely to put in effort and engage in a task when there are less or no negative aspects when doing the task (cost), they intrinsically enjoy it (interest value), believe the task is useful in helping them achieve their goals (utility value), and believe the importance of doing well as it concerns their personal identities and personal values (attainment value) [33]. For two decades, studies have consistently supported that expectancy-related beliefs influence students' motivation in behavior and learning while task-value beliefs predict the course plan and activity choices of a task [27].

Looking at the expectancy-related beliefs component of the expectancy-value model of achievement choice, FOF is significantly related to one having negative outcome expectations and setting low achievement goals [34]. For two decades, studies found that FOF is a strong predictor of the defensive pessimism approach, which is a key element included in when one sets low expectations [35]. Students who adopt this defensive pessimism approach would cognitively and affectively prepare themselves in the face of failure by setting low expectations, expecting the worst outcome possible in a situation and not expecting themselves to succeed [24]. On the other hand, past study found that students high in FOF tend to adopt the avoidance achievement goal approach in their studies, and this will lead to an unfulfilling and decreased satisfaction with achievement pursuits [36]. They engage in maladaptive performance behaviors that eventually diminish their intrinsic motivation towards academics, through constant anxiety, withdrawal of cognitive resources, and exposure towards failure-relevant information [37], [38]. Therefore, high FOF would reduce the intrinsic value component of task value as there would be a reduced enjoyment that an individual will gain from the task.

For the many factors that predicts procrastination, Akmal *et al.* [39] has classified them into either personality-based reason (fear of failure), task-related reasons, perception of ability, or influence of environment. In 2018, Zhang *et al.* [23] who used brain mapping intervention to look into the relationship between task value and procrastination found that an increase in task-value indeed leads to a decrease in procrastination due to a reduced interaction between the hippocampal and striatal during task construction.

Looking from the psychological perspective as to why students procrastinate, beliefs about ability, under the expectancy-related beliefs, relates to one's perceived self-competence and believing that they are capable of attaining success in the academic task or assignment [31]. Recently, it was reported that students who expect to fail will be unmotivated to engage in a task although they view the task as highly valuable [40], it was also suggested that expectancy-related beliefs and task-value beliefs interact with one another and should be studied together when looking at a student's academic behavior, choice and performance. This raises an important issue that a high expectancy-related belief or a high task-value belief alone does not necessarily lead to high motivated academic behavior [40].

We did not find any recent study establishing the role of this factor, duration of the study in the university level, in the formation of AP behavior among university students at bachelor levels alone. One of the two studies we found advocated that younger students tend to conduct active AP, where they intentionally decided to delay the action of starting their work; older students, as in final years or postgraduate levels, tend to be involved in passive AP, whereby they had to postpone their work due to lack of information, knowledge, or abilities in finishing the task [41]. The latest one we found was done in Bristol in 2017 [42], and it was recorded that AP was found to be much more severe among bachelor students than postgraduate students. Because we did not plan to compare the AP between postgraduate and undergraduate students, we investigated whether the year level in undergraduate study (first year, second year, third year) might interact with the FOF and expectancy value belief in predicting the AP behavior.

This study was aimed to examine if expectancy-value model of achievement choice mediates the relationship between FOF and academic procrastination. The predictor, mediator, and outcome variables in this study were FOF, expectancy-value model of achievement choice, and AP respectively. The aforementioned literature had us to the following hypotheses: i) There is a significant positive total effect of

FOF on academic procrastination; ii) There is a significant negative direct effect of FOF on the expectancy-value model of achievement choice; iii) There is a significant negative direct effect of expectancy-value model of achievement choice on academic procrastination; iv) There is e a significant indirect effect of FOF on AP via expectancy-value model of achievement choice. Other than that, the 5th hypothesis to test is whether the mediation occurred in certain condition of the year of study; in other words, this study also investigated whether the mediation phenomenon occurred among students at the earlier stage of the higher study. It is important to note that we do not hypothesize any interaction or statistical relationship between optimism and PSS because our literature suggested that both of them might mediate the association between mattering and happiness separately. Another important note is that this study is quantitative correlational, therefore despite we might collect some evidence of relationship, our findings do not imply any causal relationship between any pair of variables.

2. RESEARCH METHOD

2.1. Participants

Snowball sampling was conducted to ensure participants fulfill the criteria of participation: i) aged between 18 and 35; ii) undergraduate students who are currently still studying; iii) enrolled in a general education course (core subject) in the semester during which the recruitment was going on; and iv) not diagnosed with any psychological illness. Sample size was calculated using G*Power 3.1.9.6 for a medium effect size of 0.15, power $(1-\beta)=0.80$, and $\alpha=0.05$. The calculation indicated that 105 participants were enough to test our hypotheses, and the same number of university students was recruited to participate in this study (N=105, 31 males and 74 females). However, only 102 participants were included in the final sample (n=102, 30 males and 72 females). Three participants were excluded for not fulfilling the participation criteria. Participants were all aged between 18 and 24 years old ($M_{age}=20.90$, SD=1.08).

2.2. Scales

Performance failure appraisal inventory (PFAI) [43] was used in this study to measure participants' general FOF level. PFAI consists of 25 items that measures five different appraisals, namely fear of experiencing shame and embarrassment, fear of devaluing one's self-estimate, fear of having an uncertain future, fear of important others losing interest, and fear of upsetting important others, with Cronbach alpha of .80, .74, .80, .81, and .78 respectively [43]. PFAI uses a five-point Likert Scale, whereby "-2" indicates "Do not believe at all", "0" indicating "Believe 50% of the time" and "+2" indicates "Believe 100% of the time". A higher rating of item indicates higher general FOF level. However, as Google Form only allows "0" as the lowest score on their survey form, researcher used the points from "0" to "4" on the Google form. When tabulating the score, researcher converted the data from "0" to "4" to "-2" to "+2" accordingly. Some examples of items on the inventory include, "When I am failing, it upsets important others" and "When I am failing, I blame my lack of talent". Item 12 was reverse-scored.

The mediator variable, expectancy-value model of achievement choice, was being measured by using the motivated strategy for learning questionnaire (MSLQ) by Pintrich *et al.* [44]. From the original 81 items, two subcomponents (self-efficacy for learning and performance subcomponent from the expectancies component and task value subcomponent form the values component) were extracted from the MSLQ to measure participants' EVB. MSLQ was chosen in this study as it shares a common basis construct as the expectancy-value model, which is the social-cognitive model of motivation [28], [44]. Specifically, the Expectancies component and Values component of the questionnaire are what make the expectancy-value model much more social-cognitive in nature [45], [46]. In fact, the items under task-value were constructed based on task-value beliefs as described in the expectancy-value model [46], [47]. A total of 14 items were used in this study with eights items measuring expectancy-related beliefs and six items measuring task-value beliefs. Cronbach alphas were .93 and .90 respectively [44]. MSLQ used a seven-point Likert Scale, with 1 being "not at all true of me" and 7 being "very true of me". A higher rating of item indicates higher expectancy-value beliefs. Some examples of items included "I believe I will receive an excellent grade in this class", "I expect to do well in this class" and "It is important for me to learn the course material in this class".

To measure participants' AP level, the academic procrastination scale (APS) was used [48]. APS was chosen over the other APS, such as the general procrastination scale [49], the procrastination assessment scale-students (PASS) [50] and the procrastination scale [51] as it covers limitations presented by the other scales, which are invalid and vague items, non-comprehensive conceptual definition of AP when designing scale items, limited areas of academic performance being observed, and small sample size used [48], [52]. APS had a Cronbach alpha of .94 and it consisted of 25 items that look into six facets (distractions, psychological beliefs about ability, time management, social factors, laziness and personal initiative). Responses were recorded on a five-point Likert Scale, with 1 being "Strongly disagree" and 5 being

"Strongly agree". A higher rating of items indicates higher procrastination level. Some examples of items on the scale included, "I put off projects until the last minute" and "I only study the night before exam". Items 1, 8, 12, 14 and 25 were reverse scored.

3.   RESULTS AND DISCUSSION

First of all, we conducted the path analysis without including the variable of study duration. The path analyses were conducted by utilizing PROCESS macro model 4 because we opted to conduct the analyses with bootstrap method in order to see the significance of the mediation effects. The bootstrap was conducted with 5,000 samplings at 95% confidence interval. Figure 1 illustrates the results of the path analysis.
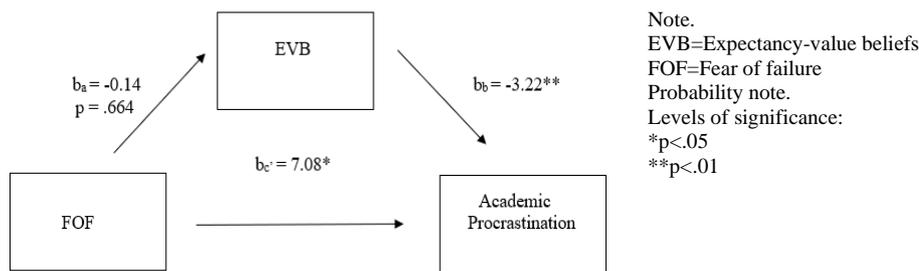

Figure 1. Results of the path analysis

Figure 1 illustrated that FOF as a model significantly predicted AP without controlling for any mediator, $F_{(1, 100)}=5.30$, p=.023, R^2=.05, explaining 5.0% of the variance in the outcome variable. FOF significantly and positively predicted academic procrastination, b=7.51, 95% CI [1.04, 13.99], $t_{(100)}$=2.30, p=.023, indicating the first hypothesis of the significance of path c was supported. The figure also suggested that FOF as a model did not significantly predict Expectancy-value beliefs (EVB), $F_{(1, 100)}$=0.19, p=.664, R^2=.002, explaining 0.2% of the variance in EVB. As seen in Figure 1, FOF did not predict EVB, b=-0.14, 95% CI [-0.76, 0.49], $t_{(100)}$=-0.44, p=.664 indicating the that the hypothesis of the significance of path a was not supported.

The overall model of EVB and FOF significantly predicted academic procrastination, $F_{(2, 99)}$=8.14, p=.001, R^2=.14, explaining 14.1% of the variance in academic procrastination. Specifically, as seen in Figure 1, EVB significantly and negatively predicts AP when controlling for FOF, b=-3.22, 95% CI [-5.19, -1.25], $t_{(99)}$=-3.24, *p*=.002. Therefore, the third hypothesis that path be would be significant, was supported. As presented in Figure 1, FOF significantly and positively predicted AP when controlling for EVB, b=7.08, 95% CI [0.88, 13.27], $t_{(99)}$=2.27, p=.026, which indicated that path c' is also significant. In other words, both FOF and EVB are robust predictors of AP because they are still significant after controlling for each other. Nevertheless, EVB did not explain (mediate) the relationship between FOF and AP, because FOF did not predict EVB.

Furthermore, model 8 of PROCESS Macro was used to analyze moderated mediation, where the duration of study is involved as a moderator variable to examine whether the indirect effect and direct effect of FOF on AP is moderated by the duration of study, whereby the indirect effect occur due to year of study moderating path a. Figure 2 illustrates that year of study plays its role as a moderator that will provide the conditions for path a, path c, and path c' to occur significantly.
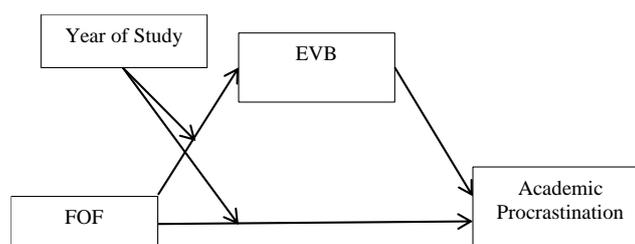

Figure 2. Moderated mediation model

As illustrated in Table 1, FOF has a significant and positive direct effect on AP for year 2 and year 3 students, but not for year 1 students, b=3.15, 95% CI [-4.88, 11.17], t (97)=0.78, p=.438. At year 2, every 1-unit increase in FOF significantly predicts 7.82-unit increase in academic procrastination, b=7.82, 95% CI [1.69, 13.95], t (97)=2.53, p=.013. At Year 3, every 1-unit increase in FOF significantly predicts a 12.49-unit increase in academic procrastination, b=12.49, 95% CI [3.46, 21.53], t (97)=2.74, p=.007.

Table 1. Conditional direct effect of FOF on AP

Year of study	Effect	se	t	p	95% CI	
					Lower	Upper
1	3.15	4.04	0.78	.438	-4.88	11.17
2	7.82	3.09	2.53	.013	1.69	13.95
3	12.49	4.55	2.74	.007	3.46	21.53

Interestingly, as shown in Table 1, FOF has a significant and positive direct effect on AP for year 2 and year 3 students, but not for year 1 students, b=3.15, 95% CI [-4.88, 11.17], t (97)=0.78, *p*=.438. At year 2, every 1-unit increase in FOF significantly predicts 7.82-unit increase in academic procrastination, b=7.82, 95% CI [1.69, 13.95], t (97)=2.53, p=.013. At year 3, every 1-unit increase in FOF significantly predicts a 12.49-unit increase in academic procrastination, b=12.49, 95% CI [3.46, 21.53], t (97)=2.74, p=.007. Nevertheless, as shown in Table 2, moderated mediation (b=1.05) did not occur as the 5,000-bootstrap sample contains zero, BCaCI [-1.40, 2.94].

Table 2. Moderated mediation table

	Index	BootSE	95% CI	
			Lower	Upper
Year of study	0.56	1.05	-1.40	2.94

The results represented in Table 1 and Table 2 are twofold. First, the effect of FOF got stronger and more significant the longer they study in the university levels. It was not even significant among junior students. Second, EVB did not explain (mediate) the relationship between FOF and AP, among any batch of students.

4. DISCUSSION

The results support the previous findings that FOF significantly predict AP [7], [20], [23], we also discovered that this relationship did not occur to junior university students, who have not finished their first year. As explained by previous studies [24], [27] that FOF might only occur when social feedback is expected; when the students were in the first year, they might not have received any negative social feedback from their peers, parents, or educators, therefore their FOF was not strong enough to significantly predict any AP behavior.

Our results also suggested that there is no significant link between FOF and EVB, which means that the fear of getting low marks had nothing to do with whether the students perceive submitting work on-time is valuable or not. In other words, we did not support the expectancy-value model of achievement choice, which explained that FOF predicts expectation of low value works [34], [35], that led the students to cognitively and affectively prepare themselves for failures and resort to AP behavior [24], [36].

Our findings support the work of previous researchers [31], [40] who stated that when the students put high values in the results of their work, they would not likely to delay their work and submission. However, we also confirmed that this path from EVB to AP did not mediate the path from FOF to AP. This leads us to the practical implication that in order to significantly reduce the AP behavior among students in our population, we can either improve their perceived values of submitting on-time, or reducing their fear of scoring bad by reminding the parents and educators to not show any overreaction to any academic results that fell below their expectations.

This study was not without limitation. First of all, despite the fact that our sample can be justified by G*Power to measure the connection among the variable larger size of participants might lead to a better understanding and generalizability of the results. Wider range of demography, such as types of university, types of major, financial support resources, and other cultural traits might be involved in future studies to get a better grasp of the phenomenon. Second, other internal variables, such as students' efficacy towards certain

subjects, previous academic achievements, and their source of motivations should be included in the study in order to mimic the actual complexity in the field of higher education. Third, longitudinal studies where data were taken from the same participants at different point of study, such as year 1, year 2 and year 3 should be conducted in order to investigate the consistency of the AP behavior across the years among the same individuals.

In the context of this current study, our results suggested that when students experience fear of getting low mark for their tasks, they will resort to procrastination as a coping mechanism. At the same time, they might also reduce their procrastination behavior when they believe that finishing their task on-time is a valuable virtue. Furthermore, their fear of getting low marks is not related to whether they consider finishing task on-time is a valuable virtue. Additionally, we also discovered that being afraid to score low did not predict procrastination behavior among junior students in their first year of study.

5. CONCLUSION

Thus, we can safely conclude that both expectancy value belief is a robust significant protective factor of academic procrastination, and that FOF is a robust significant predicting factor of academic procrastination. We can also state that first year students have not developed significant fear of failures that lead them to procrastinate much of their work. Therefore, conducting any intervention program to reduce procrastination behavior towards junior students might be more appropriate and meaningful than to senior students.

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