The Impact of Academic Procrastination, Self-Efficacy, and Motivation on Academic Performance: Among Undergraduates in Non-State Universities in Sri Lanka

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

Original Research Article

ABSTRACT

The aim of this research study is to identify the relationship between Academic Procrastination, with students' personality traits such as self-efficacy and motivation to determine the impact on academic performance among undergraduates in non-state universities in Sri Lanka. Data obtained from 381 students from three non-state universities in Sri Lanka were selected through Simple Random Sampling. Structural Equation Model was adopted to determine relationship between self-efficacy, motivation and academic performance mediating with academic procrastination. The findings revealed that Academic Procrastination is a mediator between self-efficacy and motivation and has a direct impact on academic performance. Moreover, the results revealed that self-efficacy and motivation do not have a direct impact on academic performance.

Keywords: Academic procrastination; self-efficacy; motivation; GPA; Sri Lanka.

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1. INTRODUCTION

In this era of knowledge economy, globalization brings in everything closer and the service sector has a significant role to run the economy. During these times, every human being needs formal education to live happily[1]. In reality, the level of education level determines the quality of life of human beings [2,3]. Once a child starts formal education, he needs to balance personality traits accordingly to improve to achieve academic success. Currently, student-centered learning techniques are being applied by many educational institutes, which have led children to engage in more activities than those under the traditional system. Thus, it makes the situation harder for children to balance academic life and social life [4-6].

In this day and age of millennials', generation diversity has already determined the level of educational qualifications that a person needs [3]. This generation is also known as as the 'multitasking generation' [7]. Students of this decade are involved in academic actives and in the meantime, engaged in jobs. With this busy lifestyle, when someone is involved in multitasking, less amount of valuable time is available to groom personality characteristics. As such, it exerts much pressure on students to act according in a given situation with good personality traits. Consequently, the behavior of Academic Procrastination, self-efficacy and motivation will be subject to vary. This study is directed towards identifying this change [8,9].

The purpose of this research study is to identify the relationship between academic procrastination, self-efficacy and motivation as well as the impact of these three aspects which make a significant impact on academic performance among undergraduates in non-state universities in Sri Lanka. It can be expected that such traits influence undergraduates for negative behaviors such as late submissions, plagiarism, last moment studying and more academic offenses [10].

A pilot study conducted provided an entry to the research study, with the background of the problem and significance of the study. From the pilot study, it has been identified that the attrition rate (30 %) in non-state universities are lower than that of state universities. Besides, with the governance procedure of the University Grant Commission (UGC), the apex body of the University System in Sri Lanka, learning outcomes from students are expected to be higher [11]. Non-state universities attempt to maintain the efficiency of students' outcomes by practicing experimental learning. However, it is observed from the pilot study that the dropout rate of freshman and sophomore students is more than 40%. The academic pressure from private universities causes academic stress among students and impair their academic performance. Many researchers discovered that academic achievement is a result of external as well as internal stimulations [12]. Students who get good grades in one semester show lower grades in another semester; also, it is common for some students to repeat the same module continuously for several semesters. Most of the undergraduates in non-state universities discontinue the program, as a result of poor academic performance [13]. Students who have high motivation and self-efficacy show how best their academic achievements are than those with low self-efficacy [12]. Also, challenging classes, language barriers, lack of social support can cause to lower academic achievement. Moreover, the students' stressors related to academic matters and stressors related to personality have a positive correlation with academic performance [14].

Unreasonably postponed academic activities and doing last-minute submissions are considered as academic procrastination [15]. Among many other reasons, personality traits, such as academic procrastination, classroom anxiety, lack of motivation, or lower self-efficacy could be major causes for lower academic performance [16]. The pilot survey discovered that academic procrastination is common among students regardless of nationality.

If academic performance improves among graduates it will in turn contribute to enhance the economic performance of the country. To improve the opportunity of university placement for a high school leaver and resolve the crisis of university admissions, the government of Sri Lanka approved non-state universities to the nation. As of 2018, the unemployment rate of the non-state sector graduates is 34% [11].

Thus, the above explanation shows the need to determine causes for the high dropout and unemployment rates. Personality traits of students such as procrastination, self-efficacy and motivation are likely to be compromised with their academic achievement [17-21], The relationship between personality traits and the

academic performance has been studied in the past several years in many contexts. In Sri Lanka too, studies conducted to date have focused on state sector universities and its educational outcomes. Thus, it is useful to conduct a research to determine how personality traits affect academic performance among students in non-state sector universities. The purpose of this study is to identify the impacts of personality traits such as academic procrastination, academic self-efficacy, and academic motivation on academic performance of undergraduates.

This study provides foundations for policymakers to identify how the personality traits of the student relate to their academic achievement. This study contributes to the empirical gap of the related field with its findings unique to the Sri Lankan setting. It contributes further acumen to the knowledge in personality related research especially on issues of non-state sector university students in the Sri Lankan context.

2. LITERATURE REVIEW

This research study evaluates three personality traits associated with academic performance. Grade Point Average (GPA) is the measurement used to appraise the academic performance of students. Academic Procrastination is one of the critical and major factors that highly impact the difference in academic performance or the GPA of undergraduates [22]. Due to this academic procrastination behavior, undergraduates tend to produce a lower level of academic performance or a low GPA [9]. Similar to other goals, academic goals also need encouragement and the drive to guide throughout the goal achievement process. In this case, academic motivation plays the main role. Undergraduates need to be encouraged by their internal or external stimulus. When an undergraduate is motivated towards academic performance, the efficiency and effectiveness of academic activities will increase accordingly [21,23].

Every undergraduate has a perception or a sense about his or her existing level of knowledge, skills, and abilities to achieve their academic goals or perform necessary academic activities. This perceptual limit or the sense of undergraduate's capabilities can be noticed as academic self-efficacy that can influence the changes in academic performance [24,25].

The rest of the paper covers theoretical background and hypotheses development, research methodology, results, discussion and conclusion for recommendations for future studies.

3. LITERATURE REVIEW

3.1 Academic Procrastination

A tendency to postponed academic activities and eliminate meeting deadlines are identified as Academic Procrastination [17,26]. It has been descriptively analyzed that procrastinators can be identified in two types namely, intentional or the active type and unintentional or the passive type. Meanwhile, academic procrastination can be seen on an intrinsic and extrinsic basis. On one hand, intentional or active procrastinators involve academic procrastination directly with their own decision to postpone activities. On the other hand, unintentional or passive procrastinators involve procrastination without their direct decision. Intrinsic or extrinsic factors also affect these two types of procrastinators accordingly. Active procrastinators can work harder, better and faster with a constructive vision under the pressure of less amount of time, even though they start tasks at the last moment. It can be highlighted that passive procrastinators will have a high level of depression and anxiety with the pressure encountered at the last moment. All factors mentioned above indicate the difference between active and passive procrastinators' attitude, which includes the cognitive, behavioral and affective circumstances [27,24].

Procrastination is recognized as a behavior rather than a personality characteristic [28,29] common among the millennial generation [30] which produces negative consequences on the academic activities of undergraduates. A study revealed that nearly 70% of undergraduates have shown academic procrastination behavior [31]. With the students-centered learning pedagogy, student contribution to learning is high and it leads to increase Academic Procrastination. The overload creates stress among students and in turn students fail to meet deadlines. Thus, Academic Procrastination has been identified as the major reason for academic failure [30,32]. The passive academic procrastination influence negatively on academic performance [27,30]. This study further revealed that out of 135 students, around 50% have been involved in some sort of academic procrastination and the majority of them failed their exams [27,30,33]. Ellis and Knaus [34]

clarify that 95% and Potts [35] revealed that 75% of the procrastinating undergraduates know that they are procrastinators and considered themselves as intentional or active procrastinators [36]. If an individual has a positive high level of academic self-efficacy and academic motivation, the probability that the individual will involve in academic procrastination is at a lower level [28].

However, not all procrastination situations result in negative outcomes. In some cases, the pressure triggered by procrastination builds up a higher level of encouragement and effectiveness among intentional procrastinators. Therefore, the latter can manage their activities at a satisfactory level before the deadline. A procrastinator of this type can be identified as active procrastinators. Active academic procrastination influences positively on academic performance while passive academic procrastination negatively influences academic performance. A relationship of this type convinces academic procrastination and does not constantly make a negative or positive impact; however, it always differs with the type of academic procrastination [30,37,38].

Passive academic procrastination can affect academic failure if students are fragile in terms of self-efficacy or self-esteem. Moreover, gender can be a predictor for negative performance [39-42]. Procrastination can be caused by one or more of several negative psychological conditions such as depression, anxiety, stress, neuroticism, conscientiousness, irritation, or similar kinds of situations [28,33]. However, procrastination is not the single factor impacting a weak performance [4,32]. The majority of undergraduates revealed that the negative consequences of procrastination and their efforts to eliminate such behavior [17,43]. The self-esteem of the students mediates significantly between positive parenting, procrastination and academic achievement [44]. Hence, performance of students influences academic procrastination which increases the college dropout ratio (i.e. deteriorate the drop out situation), further worsening the negative impact.

3.2 Self-Efficacy

Self-efficacy is defined as the perception of oneself regarding knowledge, skills and abilities to complete a particular task assigned to a person with the expected level of performance [26]. Moreover, self-efficacy is defined as a person's trust within oneself to accomplish an allocated or desired particular activity [25,42].

When a someone has both self-reliance and self-confidence simultaneously, self-efficacy will materialize [25].

Students with positive self-efficacy have a higher possibility to achieve potential academic outcomes or the academic performance at an appropriate level; negative self-efficacy paves the way for potential academic failure [24,25,46].

A person with positive self-efficacy, usually is aware of how to achieve a good level of academic performance with a proper plan or a schedule in place, thereby to avoid inconvenience from the extensive workload. In general, an undergraduate with positive academic self-efficacy creates paths to achieve the desired academic performance level, with the help of perceptual beliefs [24,25,46,47,48].

If students have learning motivation and work harder to achieve high academic performance, these are likely reasons for a positive self-efficacy. Learning motivation is a part of academic self-efficacy which is positively correlated with academic motivation [6]. Student-centered learning technique build up positive academic self-efficacy within undergraduates to maintain their academic career in the proper direction by achieving a sufficient level of academic performance [6,48]. Female students have higher self-efficacy compared to that of male students because of their learning motivation [49]. Self-efficacy has a significant positive impact on academic performance and mediated with self-esteem and produces an impact on academic procrastination [50,51]. Self-efficacy, however, directly or indirectly affects academic performance and there is a significant negative correlation between academic self-efficacy and academic procrastination [41].

Self-efficacy can be identified as a significant factor that negatively affects academic performance. Having said this, students with higher academic self-efficacy have scored a better level of academic performance [26,41,52]. Self-efficacy is positively correlated with motivation while indicating a negative correlation with academic procrastination. Thus, self-efficacy is a significant predictor of academic motivation according to their study [26].

3.3 Academic Motivation

Academic motivation is defined as students' impressive behavior towards the academic task [21]. In an academic context, motivation plays a

major role. In other words, motivation is crucial to retain and enhance the curiosity and courage of an undergraduate to involve continuously in academic activities in an efficient manner. Motivated students are more creative and discover strategies to achieve the expected level of academic performance. Generally, positive academic motivation always result in a better level of academic performance continuously [18,51,53,54,55].

In past researches, pioneers in the field of motivation have applied goal theory, self-efficacy theory, self-determination theory and the expectancy theory with regard to identifying and analyzing the relationship between academic motivation and academic performance. However, the motivational approach is more reliable in this case. [56].

Thoughts about a negative consequence makes undergraduates worried and motivate to avoid that negative consequence; on the contrary, thoughts about a positive consequence can motivate to attain that positive consequence [56-58].

State of the art technology is prominent in this digitalized world. The young generation too is addicted to use and rely heavily on new technology. E-commerce is increasingly being used in the current environment and the majority including millennials, are forced to use it. This type of learning approach can encourage and enhance motivation for learning; as a result, positive motivation could be possible [21]. Academic Motivation can be caused due to a change in academic persistence, academic self-efficacy, academic achievement, academic curiosity as well as academic performance [55].

Academic motivation can be classified into two namely, internal and external. Internal motivation can emerge with an internal stimulus of the undergraduate while external motivation can emerge with an external stimulus [59]. When an undergraduate is internally motivated, it can be noticed that the undergraduate enjoys working on academic activities, but without expecting a reward. On the other hand, an undergraduate who is externally motivated will always look forward for a reward and for this purpose, he is working on the task [32].

Parenting problems have become a significant factor that can influence students' cognition. The unbalanced cognitive state makes

undergraduates, to have negative motivation towards academic achievements and academic performance [60].

Cavusoglu, & Karatas [32] in their research found out motivation as a mediation variable to academic procrastination, which makes both the personality characteristics are involved in defining academic performance. Procrastination is positively correlated with motivation. Academic motivation is positively correlated with academic self-efficacy and negatively correlated with academic procrastination [26].

4. CONCEPTUAL FRAMEWORK AND HYPOTHESES

By referring to this literature, it can be noted that relationships exist among academic procrastination, academic self-efficacy and academic motivation. Scholars have predicted various directions and strengths with reference to particular studies and findings. These personality traits directly or indirectly impact performance as confirmed by most research studies. Thus, to test this phenomenon, a conceptual framework was developed (Fig. 1) and the following five hypotheses were derived.

H_1: Academic *self-efficacy negatively affects* academic *procrastination among undergraduates in non-state universities in Sri Lanka.*

H_2: *Academic motivation negatively affects* academic *procrastination among undergraduates in non-state universities in Sri Lanka.*

H_3: *Academic self-efficacy positively affects* academic *performance among undergraduates in non-state universities in Sri Lanka.*

H_4: *Academic motivation positively affects* academic *performance among undergraduates in non-state universities in Sri Lanka.*

H_5 *Academic Procrastination negatively affects* academic *performance among undergraduates in non-state universities in Sri Lanka.*

5. METHODOLOGY

5.1 Population and Sample

This study covers the sample population consisting of undergraduates selected from the 19 non-states degree awarding institutes registered under the UGC in Sri Lanka [61]. The

study has applied two phases for sampling. First, the present study used purposive sampling techniques to select three larger universities among 19 universities that have approximately 9,000 undergraduates. In the second phase, a simple random sampling method was adopted to collect data from 381 students, during academic year 2019-2020, according to Morgan's sample size table with a 95% confidence level and with an error margin of 5% [62]. The sample covered students in all faculties in the age range 22-24 years (M = 22.55, SD = .67) without gender bias.
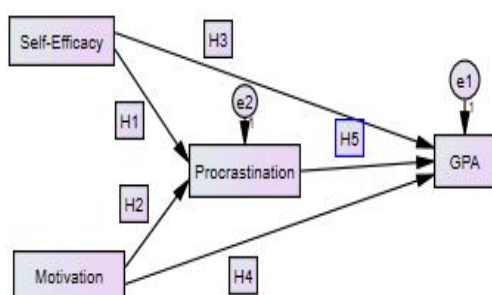

Fig. 1. Hypothesized model
Source: Author's illustrations

5.2 Measures

5.2.1 Procrastination assessment scale for students (PASS)

Procrastination was measured by modifying the Procrastination Assessment Scale for Students (PASS) developed by Solomon and Rothblum [36]. The original study includes 55 items with a .85 Cronbach alpha value of internal consistency [36]. In addition to the PASS, Tuckman Procrastination Scale (TPS) have been also considered in developing a measurement scale for this study [63]. Previous studies show that Cronbach alpha values for PASS and TPS are .76 and .80, respectively [40], [32]. Following a review of these two scales, the procrastination scale was developed with 10 items which focused on starting a writing assignment before the deadline, submitting an assignment, studying for the exam, reviewing lessons, registering for classes, getting ID cards, attending tasks, meeting with the student's advisor, making an appointment with a professor and other university activities in general. The Cronbach alpha value was .87 for this modified scale. The Cronbach value of this study is beyond the expected value (of 0.7) mentioned previously and hence, can be accepted as reliable.

5.2.2 Academic self-efficacy scale

The present study used a tested questionnaire based on available literature. The questionnaire was amended to align with the objective of this study based on Pintrich & De Groot's [64] Motivational Strategies for Learning Questionnaire (MSLQ). Previous research shows that the value of Cronbach alpha was .85 is highly reliable to measure self-efficacy [41]. The modified question with 10 items secured a Cronbach alpha value of .78.

5.2.3 Academic motivation scale (AMS)

The Academic Motivation Scale (AMS) was adopted and updated to achieve the objectives of this study [65]. The Cronbach alpha was .76 for the scale used for the study with 10 items.

5.2.4 Academic performance (GPA)

The Cumulated Grade Point Average (CGPA) has been taken as a tool to measure students' performance in line with previous researchers who adopted GPA as a measurement scale of students' performance [12]. The grades varied on a scale from 0 to 4, where 0 is very poor and 4 is an excellent grade.

5.3 Data Analysis

The Structural Equation Modelling analysis (SEM) was used to analyze data. Factor analysis was conducted to test the validity and reliability of the model. The hypotheses were tested by using path analysis and various fit indices like the Chi-square, Root Mean Square Error Of Approximation (RMSEA) were used to determine the overall fit of the model.

6. RESULTS AND DISCUSSION

6.1 Profile of the Participants

The sample of 381 students consist of 60 (15.7%) freshman, 128 (33.6%) sophomore, 141 (37%) junior and 52 (13.6%) senior-level students. Of these students, 254 (66.7%) have a CGPA over three, 3 (0.8%) have a CGPA below two, and 124 (32.5%) with a CGPA between 2.0 - 3.0. After cross tabulating academic year with GPA, 254 have scored GPA above three out of 381 undergraduates. Among them, 53 (20.9%) are freshmen, 99 (39%) are sophomore, 92 (36.2%) junior and 10 (3.9%) have above 3.0 GPA. Out of 124 students who have a GPA in the range of 2-3 represents, 5.6% freshman,

21.8% sophomore, 39.5% junior and 33.1% senior students. It is recognized that the majority of the participants are from the sophomore and junior level while having a GPA above 3 out of a total score of 4.

6.2 Structural Equation Modelling (SEM)

6.2.1 Model evaluation criteria: goodness of fit

The primary purpose of applying the SEM is to identify fitness of data for testing the hypotheses derived from the model. A variety of model fit criterion was used as shown in Table 01.

The RMSEA of .075 which is below .08, CFI value is .910, GFI value is .905 and NFI values are .941, all being above .9 indicated that the research model fit (acceptable) for the analysis. Under parsimonious model of fit, CMIN (chi-square goodness fit) value of 3.140 is below 5.0 and $\chi 2/df$ of .75 with p=0.000. All these values obtained against those recommended are within acceptable levels. Thus, the model fits satisfactorily for the analysis. Moreover, when considering the confirmatory model of fit, several items were removed from the main model. Accordingly, from the procrastination scale, third and seventh items; from the self-efficacy scale first and ninth items; and from the motivation scale first, second, fifth and tenth items, were removed. Those items were removed due to its high value of standardized residual covariance even after fixing the modification indexes.

6.3 The Structural Model Path Diagram

Figure 02 shows the structural model path diagram developed for the model and the results of the hypotheses. The results of the path analysis are summarized in Table 02, which depicts that out of five hypotheses three were accepted. Table 03 presents the direct and indirect causal effects.

H_1 indicated that a strong negative relationship exists between academic self-efficacy and academic procrastination and H_2 indicated a strong negative relationship between academic motivation and academic procrastination respectively. Both hypotheses were accepted and showed a significant negative relationship with academic procrastination with β values of -.528 and -.359 (p<.05), respectively. R^2 = .72 indicated that these two variables together explain 72% variance of procrastination. Several

previous researchers revealed that there is a reverse relationship between self-efficacy and procrastination [22,37,66]. This result also revealed that the lack of academic self-efficacy among undergraduates influences them to procrastinate in their academic activities. Accordingly to the results, self-efficacy is the strongest factor which influences procrastination among other personality traits [67]. Procrastination has a negative effect on self-efficacy and students' self-efficacy impacting negatively on their performance [24]. Changes in students' self-efficacy can have a direct impact on changes in their academic performance [68]. Instead of self-efficacy influencing academic procrastination, Ferrari et al. [69] revealed that procrastination can influence self-efficacy, which was contradictory to results of the present study. Self-efficacy expectation and anxiety are correlated with academic procrastination [60]. Self-efficacy explained 25% variance of academic procrastination [12].

The results of the H_2, of this study was consistent with those of several previous studies. Klassen et al.'s [71] revealed self-efficacy as a motivation viable for students. The academic motivation was stronger than self-efficacy toward procrastination [72,73]. Academic motivation has been able to predict 33% of procrastination [74]. The results of the Prat-Sala & Redford, (2010) are confirmed in the findings of the current study.

According to the results, H_3 and H_4 were rejected. Academic self-efficacy and motivation did not significantly influence GPA with β values of .122 and .076 direct effect and β values of .257 and .227 indirect effect, respectively (p>.05) (Table 03). The results of this study have not been supported by many previous studies. However, this study findings reveal insights unique to a Sri Lankan context and thus, contributes to the empirical gap in this sphere of research. Many studies revealed that self-efficacy and motivation have a direct positive impact on academic performance, but R^2 values are lower than 50% [19,52,53,75]. These two variables together with procrastination explain 12% variance of GPA (R^2 =12%). The finding of this study also revealed that other than the personality factors such as self-efficacy and motivation, GPA depends on the learning ability, teaching pedagogy, family, or any other social issues. According to this finding, 88% of other variables influence students' GPA rather than their personality traits [76,77]. Self-efficacy and motivation have a prediction power over

academic performance among high school students [78].

Procrastination has a negative impact on GPA (β= -.377, p>.05), confirming the initial hypothesis H_5. It means that if students have high proficiency for academic procrastination, their GPA would be lowered. Previous researches related to this proposition where the findings were supported by those of the present study [79]. Goroshit [30] asserted that academic procrastination has a negative impact on students' final exam grade, which was affirmed in

the results of the current study. A meta-analysis of 33 studies with 38,529 participants, revealed that academic procrastination has a negative impact on academic performance [80]. With a sample of 178 students in Switzerland, Kim, Fernandez, & Terrier, [81] revealed that personality has a direct influence on procrastination and in turn, it has a negative relationship with students' GPA. Akinsola, et al. [82] revealed that procrastination has influenced on students' grades in Mathematics irrespective of gender.

Table 1. Model fit criterion

Fit statistics	Recommended		Obtained
Chi-square goodness of fit	>3	[83]	3.140
	< 2.0	[84]	
($\chi 2/df$)	< 5.0		.75
P-value of close fit	p < = 0.05		.000
Goodness-of-fit Index (GFI)	>0.9	[85]	.905
Comparison of Fit Index (CFI)	>0.9	[85]	.910
Tucker Lewis Index (TLI)	<0.95	[86]	.980
Normed Fit Index (NFI)	>0.9	[85]	.941
Root Mean Square Error of Approximation (RMSEA)	<0.08	[87]	0.75
Root Mean Square Residual (RMR)	<0.05	[88]	.005

Source: Author's Calculations
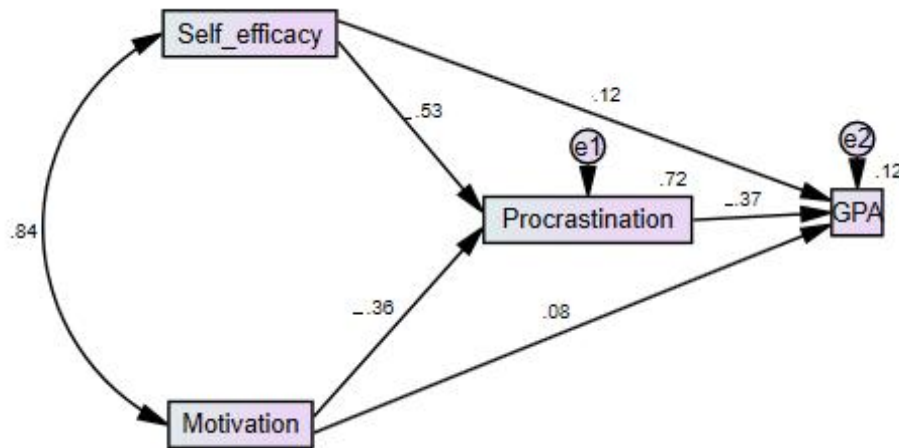
Fig. 2. Standard path coefficient of the research model

Table 2. Hypothesis testing results

				Path coefficient	P	Supported
H_1	Procrastination	<---	Self-efficacy	-.528	.000	yes
H_2	Procrastination	<---	Motivation	-.359	.000	Yes
H_3	GPA	<---	Self-efficacy	.122	.227	No
H_4	GPA	<---	Motivation	.076	.418	No
H_5	GPA	<---	Procrastination	-.377	.000	Yes

Note: All path coefficients are significant at the p<0.05.
Source: Author's Calculations

Table 3. Standardized causal effects

Dependent latent variables	Independent latent variables	Standardized estimates		
		Direct	**Indirect**	**Total**
Procrastination	Self-efficacy	-.528	---	-.528
$(R^2=0.72)$	Motivation	-.359	---	.359
GPA	Self-efficacy	.122	.257	.379
$(R^2=0.12)$	Motivation	.076	.219	.295
	Procrastination	-.377	---	-.377

Source: Author's Calculations

7. CONCLUSION

The objective of this study is to identify the effect of academic self-efficacy, and academic motivation on academic performance mediating with academic procrastination. The findings revealed that procrastination is a mediator between self-efficacy, motivation and negatively impacts academic performance. These two personality traits act as a function of change in procrastination behavior. Moreover, the results revealed that academic self-efficacy and motivation do not have a direct impact on academic performance.

8. IMPLICATIONS, LIMITATION AND SUGGESTIONS

The study has implications for university administrators and academic staff to identify students' behavior on procrastination. If students have lower self-efficacy or motivation, it will directly affect their GPA negatively. The issues related to procrastination have not yet been identified. Reasons for student dropouts and failure could be minimized if universities can proactively manage academic procrastination. Thus, the intervention of university administrators is important to reach and counsel those affected students and reduce this unwanted procrastination behavior. An approach of this kind can enhance undergraduates' performance which can enhance student quality of university programs. This study is limited to three non-state universities in Sri Lanka. By expanding the population, results can be further validated. The scope of future research studies can be designed to be comprehensive by considering all non-state as well as state universities. Purpose of carrying out this study in a broad scale is to achieve a high level of reliability. Further, a cross-cultural study can be conducted to strengthen the results of the study. This study covers three variables while more personality traits as well as other social and environmental factors that influence students' performance can be incorporated. To further strengthen the results, future researchers can apply longitudinal study.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

REFERENCES

1. Brown P, Lauder H. Education, globalization and economic development. Journal of Education Policy. 1996;11(1):1-25.

2. Nussbaum M. Education for citizenship in an era of global connection. Studies in Philosophy and Education. 2002;21(4-5):289-303.

3. Rickes PC. Make way for millennials! How today's students are shaping higher education space. Planning for Higher Education. 2009;37(2):7.

4. Komarraju M, Karau SJ, Schmeck RR. Role of the Big Five personality traits in predicting college students' academic motivation and achievement. Learning and Individual Differences. 2009;19(1):47-52.

5. Steel P, Brothen T, Wambach C. Procrastination and personality,

performance, and mood. Personality and Individual Differences. 2001;30(1):95-106.

6. Myeong S. Effects of Project-based Learning on Students' Motivation and Self-efficacy Procedia - Social and Behavioral Sciences. 2018;73(1):95-144.

7. Wallis C. The multitasking generation. Time Magazine. 2006;167(13):48-55.

8. De Bruin R, Barber LK. Social judgments of electronic multitasking in the workplace: The role of contextual and individual factors. Computers in Human Behavior. 2019;94:110-121.

9. Mohammed A, Ali A, Mustafa H. The Relationship between the Academic Procrastination and Self-Efficacy among Sample of King Saud University Students. Journal of Education and Practice. 2014;5(16):101-111.

10. Ledwith A, Rísquez A. Using anti-plagiarism software to promote academic honesty in the context of peer reviewed assignments. Studies in Higher Education. 2008;33(4):371-384.

11. University Grants Commission Sri Lanka (UGC) Tracer study of graduates universities in Sri Lanka. 2018;11-12.
    Available:https://www.ugc.ac.lk/downloads/statistics/webTracer/2018/Tracer%20Study%202018pdf

12. Scharff L. Self-efficacy; 1997. Retrieved December 16, 2012.
    Available:http://www.umkc,edu/sites/caree web/ Self-efficacy.

13. Thayamathy P, Elango P, Karunarathna K. Factors Affecting Academic Performances of Undergraduates: A Case Study with Third Year Science Undergraduate of Eastern University, Sri Lanka. Journal of Education, Society and Behavioural Science. 2018;25(3;1-10

14. Rajapakshe W. Impact of stressors on academic performance among female students' in Saudi Arabia. IDL - International Digital Library of Management & Research. 2017;1(4).

15. Simpson WK, Pychyl TA. In search of the arousal procrastinator: Investigating the relation between procrastination, arousal-based personality traits and beliefs about procrastination motivations. Personality and Individual Differences. 2009;47:906-911.

    Available:https://doi.org/10.1016/j.paid.2009.07.013

16. Rajapakshe W. Relationship between Core Self-Evaluation and Academic Procrastination among Female Students in Saudi Arabia. International Journal of Human Resource Studies. ISSN 2162-3058. 2018:8,(3);183-198. URL:
    Available:https://doi.org/10.5296/ijhrs.v8i3.13397

17. Jiao QG, DaRos-Voseles DA, Collins K, Onwuegbuzie AJ. Academic procrastination on the performance of graduate-level cooperative groups in research methods courses. Journal of the Scholarship of Teaching and Learning. 2011;119-138.

18. Lavasani MG, Mirhosseini FS, Hejazi E, Davoodi M. The effect of self-regulation learning strategies training on the academic motivation and self-efficacy. Procedia-Social and Behavioral Sciences. 2011;29:627-632.

19. Ferguson, Heather Loraine, Mindset, Academic Motivation, and Academic Self-Efficacy as Correlates Of Academic Achievement Among Undergraduate Students in Communication Sciences and Disorders Programs. Dissertations. 2017;1648.
    Available:https://digitalcommons.andrews.edu/dissertations/1648

20. Lee Y. The Relationship between Academic Motivation and Academic Procrastination among University Students. Faculty of social science and humanities. 2019;8(1):31-59.

21. Artino J, Anthony R, Jason S. Academic motivation and self-regulation: A comparative analysis of undergraduate and graduate students learning online. The Internet Higher Education. 2009;12(3):146-151.

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

23. Bandura A. Guide for constructing self-efficacy scales. Self-efficacy beliefs of adolescents. 2006;5(1):307-337.

24. Chun Chu AH, Choi JN. Rethinking procrastination: Positive effects of" active" procrastination behavior on attitudes and

performance. The Journal of social psychology. 2005;145(3):245-264.

25. Bandura A, Barbaranelli C, Caprara GV, Pastorelli C. Multifaceted impact of self-efficacy beliefs on academic functioning. Child development. 1996;67(3)|:1206-1222.

    Available:https://doi.org/10.1111/j.1467-8624.1996.tb01791.x

26. Malkoç A, Kesen Mutlu A. Academic self-efficacy and academic procrastination: Exploring the mediating role of academic motivation in Turkish university students; 2018.

27. Fernie B, Bharucha Z, Nikcevic A, Spada M. The Unintentional Procrastination Scale. J Ration Emot Cogn Behav Ther. 2017;35(2):136-149.

28. Joseph F. Reliability of academic and dispositional measures of procrastination. Psychological Reports. (1989):64(3);1057-1058.

29. Kandemir M, Palancı M. Academic functional procrastination: Validity and reliability study. Procedia-Social and Behavioral Sciences. 2014;152:194-198.

30. Goroshit M. Academic procrastination and academic performance: An initial basis for intervention. Journal of Prevention & Intervention in the Community. 2018; 46(2):131-142.

    Available:https://doi.org/10.1080/10852352.2016.1198157

31. Schraw G, Wadkins T, Olafson L. Doing the things we do: A grounded theory of academic procrastination. Journal of Educational Psychology. 2007;99;12-25.

    Available:https://doi.org/10.1037/0022-0663.99.1.12

32. Cavusoglu C, Karatas H. Academic procrastination of undergraduates: Self-determination theory and academic motivation. The Anthropologist. 2015;20(3):735-743.

33. Rabin LA, Fogel J, Nutter-Upham KE. Academic procrastination in college students: The role of self-reported executive function. Journal of Clinical and Experimental Neuropsychology. 2011; 33(3):344-357.

34. Ellis A. Knaus WJ. Overcoming procrastination. New York: Institute for Rational Living; 1977.

35. Potts TJ. Predicting Procrastination on Academic Tasks with Selfreport Personality Measures. Unpublished PhD Dissertation, Hofstra University, New York; 1987.

36. Solomon LJ, Rothblum ED. Academic procrastination: Frequency and cognitive-behavioral correlates. Journal of Counseling Psychology. 1984;31(4):503.

37. Ariani DW, Susilo YS. Why do it later? Goal orientation, self-efficacy, test anxiety, on procrastination. Journal of Educational, Cultural and Psychological Studies (ECPS Journal). 2018;17):45-73.

38. Gustavson DE, Miyake A. Academic procrastination and goal accomplishment: A combined experimental and individual differences investigation. Learning and Individual Differences. 2017;54:160-172.

39. Zimmerman BJ, Bandura A, Martinez-Pons M. Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. American Educational Research Journal. 1992; 29(3):663-676.

40. Khan MJ, Arif H, Noor SS, Muneer S. Academic procrastination among male and female university and college students. FWU Journal of Social Sciences. 2014; 8(2):65.

41. Batool SS, Khursheed S, Jahangir H. Academic procrastination as a product of low self-esteem: A mediational role of academic self-efficacy. Pakistan Journal of Psychological Research. 2017;195-211.

42. Zimmerman BJ, Bandura A, Martinez-Pons M. Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. American Educational Research Journal. 1992; 29(3):663-676.

    Available:https://doi.org/10.3102/00028312029003663

43. Onwuegbuzie AJ. Academic procrastination and statistics anxiety. Assessment & Evaluation in Higher Education. 2004;29(1):3-19.

44. Batool SS. Academic achievement: Interplay of positive parenting, self-esteem, and academic procrastination. Australian Journal of Psychology; 2020.

    Available:https://doi.org/10.1111/ajpy.12280

45. Bandura A. Guide for constructing self-efficacy scales. Self-Efficacy Beliefs of Adolescents. 2006:14 (3);307–337.

46. Lindahl M, Archer T. Depressive expression and anti-depressive protection in adolescence: stress, positive affect, motivation and self-efficacy. Psychology. 2013;4(06):495.

47. Talsma K, Schüz B, Norris K. Miscalibration of self-efficacy and academic performance: Self-efficacy≠ self-fulfilling prophecy. Learning and Individual Differences. 2019;69:182-195.

    Available:https://doi.org/10.1016/j.lindif.2018.11.002

48. Walter O, Shenaar-Golan V, Greenberg Z. Effect of short-term intervention program on academic self-efficacy in higher education. Psychology. 2015; 6(10):1199.

49. Bassi M, Steca P, Delle Fave A, Caprara GV. Academic self-efficacy beliefs and quality of experience in learning. Journal of Youth and Adolescence. 2007;36(3):301-312.

50. Mustafa M, Esma C, Ertan Z. The relationship between self-efficacy and academic performance. Procedia - Social and Behavioral Sciences. 2012;46(1): 1143-1146.

51. Sukor R, Ayub M, Norhasnida Z, Khaizura N. Influence of students motivation on academic performance among non-food science students taking food science course. International Journal of Academic Research in Progressive Education and Development. 2017;6(4):104-112.

52. Mostafa AA. Academic procrastination, self-efficacy beliefs, and academic achievement among middle school first year students with learning disabilities. International Journal of Psycho-Educational Sciences. 2018;7(2):87-93.

53. Dogan U. Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. The Anthropologist. 2015;20(3):553-561.

54. Stover J, Iglesia G, Boubeta A, Liporace M. Academic motivation scale: adaptation and psychometric analyses for high school and college students. Psychol Res Behav Manag. 2012;5(1):71-83.

55. Vallerand RJ, Pelletier LG, Blais MR, Briere NM, Senecal C, Vallieres EF. The academic motivation scale: A measure of intrinsic, extrinsic, and motivation in education. Educational and Psychological Measurement. 1992;52(4):1003-1017.

56. Fortier MS, Vallerand RJ, Guay F. Academic motivation and school performance: Toward a structural model. Contemporary Educational Psychology. 1995;20(3):257-274.

57. Green J, Liem GAD, Martin AJ, Colmar S, Marsh HW, McInerney D. Academic motivation, self-concept, engagement, and performance in high school: Key processes from a longitudinal perspective. Journal of Adolescence. 2012;35(5):1111-1122.

58. Domene JF, Socholotiuk KD, Woitowicz LA. Academic motivation in post-secondary students: Effects of career outcome expectations and type of aspiration. Canadian Journal of Education. 2011;34(1):99-127.

59. Daniela P. The relationship between self-regulation, motivation and performance at secondary school students. Procedia - Social and Behavioral Sciences. 2015; 191(3):2549-2553.

60. Schiffrin HH, Liss M. The effects of helicopter parenting on academic motivation. Journal of Child and Family Studies. 2017;26(5):1472-1480.

61. University Grants Commission Sri Lanka (UGC) 2020, Degrees of Institutes Recognized under Section 25 A of the Universities Act No. 16 of 1978.

    Available:https://www.ugc.ac.lk/index.php?option=com_content&view=article&id=101&Itemid=37&lang=en

62. Morgan PB. Search and optimal sample sizes. The Review of Economic Studies. 1983;50(4):659-675.

    Available:https://doi.org/10.2307/2297768

63. Tuckman W. Measuring procrastination attitudinally and behaviorally. Annual Meeting of the American Educational Research Association; 1991. Retrieved on September 22, 2012 from

    Available:http://www.scribd.com/doc/14952850/1990- Tuckman-Procrastination-Scale

64. Pintrich PR, De Groot EV. Motivational and self-regulated learning components of classroom academic performance. Journal of Educational Psychology. 1990;82(1):33–40.

Available:https://doi.org/10.1037/0022-0663.82.1.33

65. Vallerand RJ, Pelletier LG, Blais MR, Brière NM, Senecal C, Vallières ÉF. On the assessment of intrinsic, extrinsic, and amotivation in education: Evidence on the concurrent and construct validity of the academic motivation scale. Educational and Psychological Measurement. 1993; 53(1):159-172.

66. Wolters CA. Understanding procrastination from a self-regulated learning perspective. Journal of Educational Psychology. 2003; 95:179-187.

67. Howell AJ, Watson DC, Powell RA, Buro K. Academic procrastination: The pattern and correlates of behavioral postponement. Personality and Individual Differences. 2006;40(8):1519-1530.

68. Ouweneel E, Schaufeli W, Blanc P. Believe, and you will achieve: changes over time in self-efficacy, engagement, and performance. Appl Psychol Health Well Being. 2013;5(2):225-247.

69. Ferrari JR, Ware CB. Academic procrastination: personality. Journal of social Behavior and Personality. 1992;7(3):495-502.

70. Haycock LA, McCarthy P, Skay CL. Procrastination in college students: The role of self-efficacy and anxiety. Journal of Counseling & Development. 1998;76(3): 317-324.

Available:https://doi.org/10.1002/j.1556-6676.1998.tb02548.x

71. Klassen RM, Ang RP, Chong WH, Krawchuk LL, Huan VS, Wong IYF, Yeo LS. Academic procrastination in two settings: Motivation correlates, behavioral patterns, and negative impact of procrastination in Canada and Singapore. Applied Psychology: An International Review. 2010;59:361–379.

DOI:10.1111/j.1464-0597.2009.00394.x

72. Gao Z, Lochbaum M, Podlog L. Self-efficacy as a mediator of children's achievement motivation and in-class physical activity. Perceptual and Motor Skills. 2011;l113:969–981.

DOI:10.2466/06.11.25. PMS.113.6.969-981

73. Katz I, Eilot K, Nevo N. "I'll do it later": Type of motivation, self-efficacy and

homework procrastination. Motivation and Emotion. 2014;38(1):111-119.

74. Cerino ES. Relationships between academic motivation, self-efficacy, and academic procrastination. Psi Chi Journal of Psychological Research. 2014;19(4).

75. Owens AM, Newbegin I. Procrastination in high school achievement: A causal structural model. Journal of Social Behavior & Personality. 1997;12(4):869–887.

76. Becker Stephen P, Gable Robert K. The Relationship of Self-Efficacy and GPA, Attendance, and College Student Retention. NERA Conference Proceedings. 2009;26.

Available:https://opencommons.uconn.edu/nera_2009/26

77. Bandura A. Perceived self-efficacy in cognitive development and functioning. Educational Psychologist. 1993;28(2):117-148.

78. Akomolafe MJ, Ogunmakin AO, Fasooto GM. The role of academic self-efficacy, academic motivation and academic self-concept in predicting secondary school students' academic performance. Journal of Educational and Social Research. 2013;3(2):335.

79. Lakshminarayan N, Potdar S, Reddy SG. Relationship between procrastination and academic performance among a group of undergraduate dental students in India. Journal of Dental Education. 2013; 77(4):524-528.

80. Kim KR, Seo EH. The relationship between procrastination and academic performance: A meta-analysis. Personality and Individual Differences. 2015;82:26-33.

Available:https://doi.org/10.1016/j.paid.2015.02.038

81. Kim S, Fernandez S, Terrier L. Procrastination, personality traits, and academic performance: When active and passive procrastination tell a different story. Personality and Individual Differences. 2017;108:154-157.

82. Akinsola MK, Tella A, Tella A. Correlates of academic procrastination and mathematics achievement of university undergraduate students. Eurasia Journal of Mathematics, Science and Technology Education. 2007;3(4):363-370.

83. Straub DW. Validating instruments in MIS research. MIS quarterly. 1989;1:147-69.

84. Tabachnick BG, Fidell LS, Ullman JB. Using multivariate statistics. Boston, MA: Pearson; 2007.

85. Bentler PM, Bonett DG. Significance tests and goodness of fit in the analysis of covariance structures. Psychological Bulletin. 1980;88(3):588.

86. Hu LT, Bentler PM. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: a Multidisciplinary Journal. 1999;6(1):1-55.

87. Browne MW, Cudeck R. Alternative ways of assessing model fit". In testing structural equation models, Edited by: Bollen KA, Long JS. Newbury Park, CA: Sage. 1993;136–62.

88. Marsh HW, Balla JR, McDonald RP. Goodness-of-fit indexes in confirmatory factor analysis: The effect of sample size. Psychological bulletin. 1988; 103(3):391.

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