

THE RELATIONSHIP BETWEEN ACADEMIC SELF-EFFICACY AND ACADEMIC PROCRASTINATION OF PRE-SERVICE TEACHERS

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Abstract

The main objective of this study is to investigate the relationship between academic self-efficacy and academic procrastination of pre-service teachers. Cross-sectional survey research design was used in this study. A total of 550 pre-service teachers from Yangon University of Education participated in this study. As the research instruments, Academic Self-Efficacy Scale (ASES) developed by Sagone and Caroli (2014) and Academic Procrastination Scale developed by Thae Phyu Phyu Nyein (2022) were used. The reliability of ASES was 0.789 and that of APS was 0.932. Regarding gender, male pre-service teachers were more likely to procrastinate in academic tasks than female pre-service teachers, but significant gender related difference was not found on academic self-efficacy. Then, younger pre-service teachers were found to possess higher academic self-efficacy than older pre-service teachers, but more advanced pre-service teachers showed higher academic procrastination. Furthermore, younger pre-service teachers were found to possess higher academic self-efficacy than the older ones, but academic procrastination of older pre-service teachers were found to be significantly higher than that of younger pre-service teachers. Moreover, pre-service teachers with lower daily internet use were more likely to have higher academic self-efficacy than the ones with higher daily internet use, but pre-service teachers with higher daily internet use were more likely to procrastinate in academic activities compared to those with lower daily internet use. According to the results of Pearson product-moment correlation, there was a significant negative correlation between academic self-efficacy and academic procrastination of pre-service teachers. The results pointed out that pre-service teachers with higher academic self-efficacy possessed lower academic procrastination. In addition, this study revealed that academic self-efficacy was a significant predictor of academic procrastination. Thus, this study can be beneficial to pre-service teacher education.

Keywords: Academic Self-efficacy, Academic Procrastination, Pre-service Teachers

Introduction

Significance of the Study

In the context of Myanmar, exploring the relationship between academic self-efficacy and academic procrastination among pre-service teachers holds significant implications for educational practices and professional development. Understanding the dynamics between these two factors is crucial for addressing challenges that pre-service teachers may face in their academic pursuits. High academic self-efficacy might correlate with lower instances of procrastination, as individuals confident in their abilities may approach tasks with greater motivation and a sense of competence.

Unraveling the intricate relationship between academic self-efficacy and academic procrastination for pre-service teachers in Myanmar provides a foundation for targeted interventions and improvements in teacher training programs. Therefore, quantitative data will be collected and analyzed for this study. Therefore, it is time for the study on the relationship between academic self-efficacy and academic procrastination of the pre-service teachers.

Purpose and Research Questions

The primary purpose of this study is to investigate academic self-efficacy and academic procrastination of pre-service teachers. Specifically, this study aims at answering the following research questions:

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1. Is there any significant difference in academic self-efficacy of pre-service teachers by gender, educational level, age and daily internet use?
2. Is there any significant difference in academic procrastination of pre-service teachers by gender, educational level, age and daily internet use?
3. Is there any significant relationship between academic self-efficacy and academic procrastination of pre-service teachers?
4. How can the academic self-efficacy predict on the pre-service teachers' academic procrastination?

Definitions of Key Terms

Academic procrastination. Academic procrastination can be defined as the postponing academic duties such as preparing for exams and delaying homework sometimes or constantly (Rothblum et al., 1986).

Academic self-efficacy. Individual's beliefs about his ability to organize and implement the action steps to reach the desired goal, and his beliefs about the ability to learn or perform academic task (Kitsantas & Zimmerman, 2009).

Pre-service teachers. Pre-service teachers are individuals who are enrolled in teacher education programs and are in the process of acquiring the necessary knowledge, skills, and qualifications to become certified teachers (Zhuotong & Yuan, 2024).

Review of Related Literature

Theoretical Framework of Academic Self-efficacy

Academic self-efficacy is a key determining factor in the aspects of learners' academic performance, motivation and goal attainment (Bandura, 1997; 1986). Academic self-efficacy makes students have commitment to the academic goals a student wants to achieve (Bandura, 1989). Academic self-efficacy is a crucial trait for the academic success of learners at the university level (Hill, 2002). Additionally, academic self-efficacy is a multidimensional trait and does not arise as a disposition.

Theories of Academic Procrastination

Various theories elucidate academic procrastination, characterized as the intentional delay of academic activities even though knowing negative consequences. The Temporal Motivation Theory hypothesizes that procrastination results from a preference for instant rewards over long-term destinations, specifically when activities are perceived as unfriendly (Steel & König, 2006). The Expectancy-Value Theory also indicates that procrastination arises by the time learners do not appreciate the task otherwise have poor personal value (Eccles & Wigfield, 2002). In addition, the Self-Regulation Failure Theory emphasizes that procrastination arises from an absence of efficient time management and low self-control (Wolters, 2003). Taken together, these theories highlight cognitive, self-regulatory, and motivational factors in realizing academic procrastination.

Method

Participants of the Study

The sample of this study was 550 pre-service teachers from Yangon University of Education and were collected by using random sampling technique.

Instrumentation

The present study examined the relationship between academic self-efficacy and academic procrastination in pre-service teachers. In this research, demographic data were also assessed. Academic Procrastination Scale (APS) and Academic Self-Efficacy Scale (ASES) were utilized. Then, all of the instruments in this study were adapted to Myanmar version.

Academic Self-Efficacy Scale (ASES)

The academic self-efficacy scale developed by Sagone and Caroli (2014) was utilized in this survey. It included 28 items each valuable on 4-point Likert scale, ranging from 1 (not at all efficient) to 4 (completely efficient) intervals. This scale consisted of four factors; self-engagement, self-oriented decision making, others-oriented problem solving and interpersonal climate. The reliability of the scale is $\alpha = 0.789$. Therefore, it is the acceptable scale to use in measuring academic self-efficacy of the pre-service teachers.

Academic Procrastination Scale (APS)

The academic procrastination scale developed by Thae Phyu Phyu Nyein (2022) were adapted and used it in this research. This instrument was composed of 26 items. Participants must answer 4-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree). This scale consisted of four factors; purposeful procrastination, procrastinate until deadline, avoidance to academic task and regulation on academic duty. The reliability of the scale is $\alpha = 0.932$. Therefore, it is the acceptable scale to use in measuring academic procrastination of the pre-service teachers.

Procedures of the Study

After setting the research title, the related literature was collected from dissertations, theses, books, journals, articles and internet sources. After collecting the related literature of this study, instruments were adapted. Then, these were translated into Myanmar version. After preparing the questionnaires, expert review was conducted for the face validity and content validity by experts who were specialized in the fields of Educational Psychology and Educational Test and Measurement. According to their suggestions and recommendations, the questionnaires were revised and modified. By the use of these instruments, test administration was conducted. Permission was requested from the Rector of the University to use this data. After that, pilot testing was conducted with 80 pre-service teachers. After piloting, item analysis was used to test the reliability and validity of these instruments.

Research Findings

The current study was conducted to analyse the academic self-efficacy and the academic procrastination of pre-service teachers. After collecting the data, the data analysis was conducted for the study. Descriptive statistics, independent samples *t*-test, one-way ANOVA, correlation, and regression analysis were used to investigate the research questions.

Comparison of Academic Self-efficacy of Pre-service Teachers by Gender

Descriptive statistics revealed the gender difference in academic self-efficacy of pre-service teachers. The mean, standard deviation and *t* value of male and female pre-service teachers were reported in Table 1.

Table 1 showed that there was slightly difference in mean scores of academic self-efficacies in male and female pre-service teachers. The mean score of academic self-efficacy of male students was .979 more than that of the females. To find out the significant difference between male and female pre-service teachers in academic self-efficacy, independent sample *t*-test was used. It was found that there was no significant difference ($t = 1.545$, $p > .05$) between academic self-efficacy of the pre-service teachers by gender. It could be interpreted that academic self-efficacy of pre-service teachers was not dependent on their gender in this study. However, it was found that there were slightly significant differences in self-oriented decision making ($t = 2.446$, $p < .05$) and others-oriented problem solving ($t = 2.300$, $p < .05$) by gender. It could be interpreted that male students were more likely to make self-oriented decision and solve others-oriented problems than the female students.

Table 1 Means, Standard Deviations and Results of Independent Samples *t*-test of Academic Self-efficacy of Pre-service Teachers by Gender

Variable	Gender	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Self-engagement	Male	254	19.44	2.62	.105	498.148	.916
	Female	296	19.41	2.22			
Self-oriented Decision Making	Male	254	20.55	2.39	2.446*	548	.015
	Female	296	20.06	2.27			
Others-oriented Problem Solving	Male	254	18.55	3.28	2.300*	548	.022
	Female	296	17.94	2.93			
Interpersonal Climate	Male	254	20.42	2.59	-.663	548	.508
	Female	296	20.56	2.33			
Academic Self-efficacy	Male	254	78.97	7.90	1.545	501.950	.123
	Female	296	77.99	6.78			

* $p < .05$.

Comparison of Academic Self-efficacy of Pre-service Teachers by Education Level

Table 2 Means, Standard Deviations and ANOVA Results of Academic Self-efficacy of Pre-service Teachers by Education Level

Variable	Education Level	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Self-engagement	First Year	110	19.82	2.50	4.983**	.001
	Second Year	110	19.94	1.89		
	Third Year	110	18.99	2.28		
	Fourth Year	110	19.57	2.56		
	Fifth Year	110	18.80	2.58		
Self-oriented Decision Making	First Year	110	20.69	2.58	3.451**	.008
	Second Year	110	20.44	2.03		
	Third Year	110	19.85	2.15		
	Fourth Year	110	20.60	2.40		
	Fifth Year	110	19.84	2.37		

Variable	Education Level	N	M	SD	F	p
Others-oriented Problem Solving	First Year	110	18.60	2.93	5.587***	.000
	Second Year	110	18.43	2.89		
	Third Year	110	17.38	2.75		
	Fourth Year	110	19.05	3.26		
	Fifth Year	110	17.66	3.41		
Interpersonal Climate	First Year	110	20.56	2.27	1.347	.251
	Second Year	110	20.60	2.06		
	Third Year	110	20.40	2.29		
	Fourth Year	110	20.82	2.58		
	Fifth Year	110	20.10	2.94		
Academic Self-efficacy	First Year	110	79.68	7.59	6.681***	.000
	Second Year	110	79.43	5.78		
	Third Year	110	76.62	6.29		
	Fourth Year	110	80.06	7.63		
	Fifth Year	110	76.41	8.33		

** $p < .01$, *** $p < .001$.

To explore the mean and standard deviation of academic self-efficacy of the pre-service teachers by education level, descriptive statistics were conducted.

According to the Table 2, the mean score of fourth year was the highest and slightly higher in academic self-efficacy than other groups of education level. To obtain more information, one-way ANOVA was conducted and the results revealed that there were significant differences in subscales of self-engagement and others-oriented problem solving and overall scale of academic self-efficacy of pre-service teachers between education level. Then, Post-Hoc test was executed by Tukey HSD method. The result was shown in Table 3. According to the result, there were significant differences in the mean scores of pre-service teachers for the subscales and academic self-efficacy by education level.

Table 3 Results of Tukey HSD Multiple Comparison for Academic Self-efficacy of Pre-service Teachers by Education Level

Variable	Education Level (I)	Education Level (J)	Mean Difference(I-J)	p
Self-engagement	First Year	Fifth Year	1.018*	.013
		Third Year	.954*	.025
	Second Year	Fifth Year	1.136**	.004
Others-oriented Problem Solving	First Year	Third Year	1.218*	.027
		Third Year	1.672**	.001
	Fourth Year	Fifth Year	1.390**	.007
Academic Self-efficacy	First Year	Third Year	3.054*	.015
		Fifth Year	3.263**	.007
	Second Year	Third Year	2.809*	.032
		Fifth Year	3.018*	.017
	Fourth Year	Third Year	3.436**	.004
		Fifth Year	3.645**	.002

* $p < .05$, ** $p < .01$.

Comparison of Academic Self-efficacy of Pre-service Teachers by Age

Table 4 Means, Standard Deviations and ANOVA Results of Academic Self-efficacy of Pre-service Teachers by Age

Variable	Age	N	M	SD	F	p
Self-engagement	Below 21Years	214	19.85	2.19	6.382**	.002
	21-22 Years	198	19.30	2.30		
	Above 22 Years	138	18.94	2.76		
Self-oriented Decision Making	Below 21Years	214	20.50	2.32	1.460	.233
	21-22 Years	198	20.18	2.24		
	Above 22 Years	138	20.11	2.49		
Others-oriented Problem Solving	Below 21Years	214	18.50	2.79	2.024	.133
	21-22 Years	198	18.21	3.13		
	Above 22 Years	138	17.81	3.49		
Interpersonal Climate	Below 21Years	214	20.62	2.16	2.743	.065
	21-22 Years	198	20.66	2.52		
	Above 22 Years	138	20.07	2.72		
Academic Self-efficacy	Below 21Years	214	79.47	6.51	4.997**	.007
	21-22 Years	198	78.36	7.38		
	Above 22 Years	138	76.96	8.22		

** $p < .01$.

To access the significant differences in academic self-efficacy of the pre-service teachers by age, one-way analysis of variance (ANOVA) is used for further detailed analyses and computations.

According to Table 4, there were slightly differences in mean scores of academic self-efficacies in pre-service teachers by age. To access whether there were significant differences between academic self-efficacy with subscales such as self-engagement, self-oriented decision making, others-oriented problem solving, interpersonal climate by age group, further analyses and computations were undertaken by using one-way analysis of variance. It was found that there were significance differences in academic self-efficacy ($p < .05$) of the pre-service teachers by age group. Then, Post-Hoc test was executed by Tukey HSD method. The result was shown in Table 5.

Table 5 Results of Tukey HSD Multiple Comparison for Academic Self-efficacy of Pre-service Teachers by Age

Variable	Age (I)	Age (J)	Mean Difference (I-J)	p
Self-engagement	Below 21 Years	Above 22 Years	.901**	.002
Academic Self-efficacy	Below 21 Years	Above 22 Years	2.508**	.005

** $p < .01$.

According to the result, there were significant differences in the mean scores of pre-service teachers for academic self-efficacy by age. It could be interpreted that the pre-service

teachers who are below 21 years have a higher level of academic self-efficacy and self-engagement pre-service teachers who are more than 21 years.

Comparison of Academic Self-efficacy of Pre-service Teachers by Daily Internet Use

In order to investigate whether academic self-efficacy of the pre-service teachers by their daily internet use differed or not, the following analysis was analysed the mean comparison of academic self-efficacy by daily internet use was described in Table 6.

Table 6 Means, Standard Deviations and ANOVA Results of Academic Self-efficacy of Pre-service Teachers by Daily Internet Use

Variable	Daily Internet Use	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Self-engagement	<1 hour	27	20.03	2.12	4.139**	.003
	1-3 hours	248	19.73	2.43		
	4-6 hours	204	19.13	2.17		
	7-9 hours	53	19.35	2.56		
	>9 hours	18	17.88	3.56		
Self-oriented Decision Making	<1 hour	27	20.96	2.31	2.364	.052
	1-3 hours	248	20.52	2.34		
	4-6 hours	204	20.00	2.29		
	7-9 hours	53	20.20	2.32		
	>9 hours	18	19.61	2.57		
Others-oriented Problem solving	<1 hour	27	18.22	2.15	5.258***	.000
	1-3 hours	248	18.77	2.92		
	4-6 hours	204	17.85	3.04		
	7-9 hours	53	17.88	3.26		
	>9 hours	18	16.00	4.33		
Table 6 (Continued)						
Interpersonal Climate	<1 hour	27	19.74	2.55	1.163	.326
	1-3 hours	248	20.45	2.39		
	4-6 hours	204	20.55	2.24		
	7-9 hours	53	20.94	3.03		
	>9 hours	18	20.27	3.37		
Academic Self- efficacy	<1 hour	27	78.96	6.55	3.964**	.004
	1-3 hours	248	79.48	7.52		
	4-6 hours	204	77.53	6.45		
	7-9 hours	53	78.39	8.28		
	>9 hours	18	73.77	9.64		

** $p < .01$, *** $p < .001$.

Table 7 pointed out that the mean score of daily internet use for (1-3 hours) was slightly higher than other groups of daily internet use. A p -value of .004 indicates that there were significant differences among pre-service teachers according to their daily internet use. Beyond this result, Tukey (HSD) was conducted.

Table 7 Results of Tukey HSD Multiple Comparison for Academic Self-efficacy of Pre-service Teachers by Daily Internet Use

Variable	Daily Internet Use (I)	Daily Internet Use (J)	Mean Difference (I-J)	<i>p</i>
Self-engagement	<1 hour	>9 hours	2.148*	.026
	1-3 hours	>9 hours	1.844*	.014
Others-oriented Problem solving	1-3 hours	4-6 hours	.917*	.014
		>9 hours	2.770**	.002
Academic Self-efficacy	1-3 hours	4-6 hours	1.944*	.038
		>9 hours	5.706*	.012

* $p < .05$, ** $p < .01$.

Based on the results shown in Table 7, the pre-service teachers who use internet daily for (1-3 hours) were slightly higher in academic self-efficacy than other groups of daily internet use. It could be interpreted that the students who use internet for (1-3 hours) were more likely to regulate themselves in performing academic tasks well and have higher academic self-efficacy than students who addict internet use more.

Comparison of Academic Procrastination of Pre-service Teachers by Gender

Descriptive statistics revealed the gender difference in academic procrastination of pre-service teachers. The mean, standard deviation and *t* value of male and female pre-service teachers were reported in Table 4.12.

Table 8 showed that there were slightly differences in mean scores of academic procrastinations in male and female pre-service teachers. The mean score of the academic procrastination of male students was 2.8 more than that of the females.

To find out the significant differences between male and female pre-service teachers in academic procrastination, independent samples *t*-test was used. It was found that there was significant difference ($t = 2.590$, $p < 0.05$) between academic procrastination of the pre-service teachers by gender. It could be interpreted that male students were more likely to procrastinate in academic tasks than female pre-service teachers. It was also found that there were significant differences in procrastination until deadline ($t = 5.511$, $p < .001$) by gender. It could be interpreted that the male students were more likely to procrastinate until deadline.

Table 8 Means, Standard Deviations, and Results of Independent Samples *t*-test of Academic Procrastination of Pre-service Teachers by Gender

Variable	Gender	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i>
Purposeful Procrastination	Male	254	25.52	5.95	.931	503.930	.352
	Female	296	25.08	5.15			
Procrastination until Deadline	Male	254	16.13	4.14	5.511***	490.618	.000
	Female	296	14.32	3.41			
Avoidance to Academic Task	Male	254	12.22	3.28	1.667	499.759	.096
	Female	296	11.78	2.79			
Regulation on Academic Duty	Male	254	9.25	2.39	.680	548	.497
	Female	296	9.12	2.11			
Academic Procrastination	Male	254	63.12	13.61	2.590*	499.389	.010
	Female	296	60.30	11.57			

* $p < .05$, *** $p < .001$.

Comparison of Academic Procrastination of Pre-service Teachers by Education Level

To explore the mean and standard deviation of academic procrastination of the pre-service teachers by education level, descriptive statistics were conducted. In order to test whether there was a significant different in academic procrastination of the pre-service teachers with respect to education level, one-way ANOVA was conducted and the result revealed that there were significant differences in the subscales of purposeful procrastination, regulation on academic duty and academic procrastination. Then, Post Hoc test was computed by Tukey (HSD) method to be specific about the significance between academic procrastination of the pre-service teachers by educational level.

Table 9 Means, Standard Deviations, and ANOVA Results of Academic Procrastination of Pre-service Teachers by Education Level

Variable	Educational Level	N	M	SD	F	p
Purposeful Procrastination	First Year	110	24.76	5.60	5.06**	.001
	Second Year	110	23.62	5.28		
	Third Year	110	26.37	5.11		
	Fourth Year	110	25.26	5.45		
	Fifth Year	110	26.40	5.80		
Procrastination until Deadline	First Year	110	15.06	3.40	1.17	.324
	Second Year	110	14.90	3.58		
	Third Year	110	15.24	4.10		
	Fourth Year	110	14.78	3.71		
	Fifth Year	110	15.80	4.42		
Avoidance to Academic Task	First Year	110	11.89	3.15	1.63	.164
	Second Year	110	11.68	2.80		
	Third Year	110	12.35	2.79		
	Fourth Year	110	11.61	3.32		
	Fifth Year	110	12.39	3.02		
Regulation on Academic Duty	First Year	110	9.04	2.05	6.71***	.000
	Second Year	110	9.00	2.09		
	Third Year	110	10.01	1.99		
	Fourth Year	110	8.54	2.59		
	Fifth Year	110	9.33	2.22		
Table 9 (Continued)						
Academic Procrastination	First Year	110	60.75	12.63	3.42**	.009
	Second Year	110	59.20	11.86		
	Third Year	110	63.97	12.01		
	Fourth Year	110	60.19	12.58		
	Fifth Year	110	63.92	13.40		

** $p < .01$, *** $p < .001$.

Table 10 Results of Tukey (HSD) Multiple Comparison for Academic Procrastination of Pre-service Teachers by Education Level

Categories	Education Level (I)	Education Level (J)	Mean Difference(I-J)	<i>p</i>
Purposeful procrastination	Third Year	Second Year	2.75**	.002
	Fifth Year	Second Year	2.78**	.002
Regulation on Academic Duty	Third Year	First Year	.97*	.010
		Second Year	1.01**	.006
		Fourth Year	1.47***	.000
Academic Procrastination	Third Year	Second Year	4.77*	.039
	Fifth Year	Second Year	4.72*	.042

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 10 showed that there were significant differences in the mean scores of pre-service teachers for the above subscales of academic procrastination by education level.

Comparison of Academic Procrastination of Pre-service Teachers by Age

To find out the significant differences between academic procrastination with subscales such as purposeful procrastination, procrastinate until deadline, avoidance to academic task, regulation on academic duty by age, descriptive statistics was made. According to the results, the mean values of academic procrastination of pre-service teachers by age were reported in Table 11. To make the confirmation of the significant differences of academic procrastination of pre-service teachers by age, ANOVA was calculated.

According to Table 11, there were slightly differences in mean scores of academic procrastinations in pre-service teachers by age. To obtain more detailed information, the Post-Hoc Test was carried out by Tukey method (see Table 12).

Table 11 Means, Standard Deviations, and ANOVA Results of Academic Procrastination of Pre-service Teachers by Age

Variable	Age	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Purposeful Procrastination	Below 21 Years	214	24.07	5.35	8.916***	.000
	21-22 Years	198	26.21	5.47		
	Above 22 Years	138	25.84	5.60		
Procrastinate until Deadline	Below 21 Years	214	14.80	3.42	1.511	.222
	21-22 Years	198	15.35	4.01		
	Above 22 Years	138	15.43	4.28		
Avoidance to Academic Tasks	Below 21 Years	214	11.71	2.88	1.558	.212
	21-22 Years	198	12.21	3.16		
	Above 22 Years	138	12.09	3.05		
Regulation on Academic Duty	Below 21 Years	214	8.94	1.99	2.819	.061
	21-22 Years	198	9.46	2.40		
	Above 22 Years	138	9.14	2.33		
Table 11 (Continued)						
Academic Procrastination	Below 21 Years	214	59.51	11.80	5.032**	.007
	21-22 Years	198	63.24	12.79		
	Above 22 Years	138	62.51	13.21		

** $p < .01$, *** $p < .001$.

Table 12 Results of Tukey (HSD) Multiple Comparison for Academic Procrastination of Pre-service Teachers by Age

Categories	Age (I)	Age (J)	Mean Difference (I-J)	<i>p</i>
Purposeful Procrastination	21-22 Years	Below 21 Years	2.15***	.000
	Above 22 Years	Below 21 Years	1.78**	.008
Academic Procrastination	21-22 Years	Below 21 Years	3.73**	.007

** $p < .01$, *** $p < .001$.

Comparison of Academic Procrastination of Pre-service Teachers by Daily Internet Use

In order to investigate whether academic procrastination of the pre-service teachers by their daily internet use differed or not, the following analysis was analyzed. The mean comparison of academic procrastination by daily internet use was described in Table 13. According to the results, the mean score of pre-service teachers who used the internet less than 1 hour was the lowest and those who used the internet above 9 hours were the highest.

Table 13 pointed out that there were significant differences among groups of academic procrastination of the pre-service teachers by daily internet use. To obtain more detailed information, the post-Hoc Test was carried out by Tukey method (see Table 14).

Table 13 Means, Standard Deviations, and ANOVA Results of Academic Procrastination of Pre-service Teachers by Daily Internet Use

Variable	Daily Internet Use	<i>N</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Purposeful Procrastination	<1hr	27	22.93	4.98	15.811***	.000
	1-3hrs	248	23.78	5.22		
	4-6hrs	204	26.27	5.14		
	7-9hrs	53	28.06	5.64		
	>9hrs	18	30.17	6.33		
Procrastinate until Deadline	<1hr	27	14.44	3.86	16.573***	.000
	1-3hrs	248	14.27	3.48		
	4-6hrs	204	15.48	3.52		
	7-9hrs	53	16.49	4.29		
	>9hrs	18	20.78	5.32		
Avoidance to Academic Tasks	<1hr	27	11.63	3.31	14.021***	.000
	1-3hrs	248	11.14	2.85		
	4-6hrs	204	12.51	2.82		
	7-9hrs	53	13.08	3.01		
	>9hrs	18	15.06	3.37		
Regulation on Academic Duty	<1hr	27	8.48	2.38	11.236***	.000
	1-3hrs	248	8.72	2.06		
	4-6hrs	204	9.39	2.22		
	7-9hrs	53	10.21	1.88		
	>9hrs	18	11.28	3.20		

Table 13 (Continued)

Variable	Daily Internet Use	N	M	SD	F	p
Academic Procrastination	<1hr	27	57.48	11.19	19.986***	.000
	1- 3hrs	248	57.91	11.69		
	4-6hrs	204	63.65	11.46		
	7-9hrs	53	67.83	12.44		
	>9hrs	18	77.28	16.30		

*** $p < .001$.

Table 14 Results of Tukey (HSD) Multiple Comparison for Academic Procrastination of Pre-service Teachers by Daily Internet Use

Categories	Daily Internet Use (I)	Daily Internet Use (J)	Mean Difference (I-J)	p
Purposeful Procrastination	4-6 hrs	<1 hr	3.35**	.017
		1-3 hrs	2.50***	.000
	7-9 hrs	<1 hr	5.13***	.000
		1-3 hrs	4.28***	.000
	>9 hrs	<1 hr	7.24***	.000
		1-3 hrs	6.39***	.000
		4-6hrs	3.89*	.023
Procrastinate until Deadline	4-6 hrs	1-3 hr	1.21**	.005
	7-9 hrs	1-3 hr	2.22**	.001
	>9 hrs	<1 hr	6.33***	.000
		1-3 hr	6.50***	.000
		4-6 hrs	5.30***	.000
		7-9 hrs	4.29***	.000
Avoidance to Academic Task	4-6 hrs	1-3 hr	1.37***	.000
	7-9 hrs	1-3 hr	1.94***	.000
	>9 hrs	<1 hr	3.43**	.001
		1-3 hr	3.92***	.000
		4-6 hrs	2.55**	.004
Regulation on Academic Duty	4-6 hrs	1-3 hr	.67*	.010
	7-9 hrs	<1 hr	1.73**	.007
		1-3 hr	1.49***	.000
	>9 hrs	< 1 hr	2.80***	.000
		1-3 hr	2.56***	.000
		4-6 hrs	1.89**	.004
Academic Procrastination	4-6 hrs	1-3 hr	5.74***	.000
	7-9 hrs	< 1 hr	10.35**	.002
		1-3 hrs	9.92***	.000
	>9 hrs	< 1 hr	19.80***	.000
		1-3 hr	19.37***	.000
		4-6 hrs	13.63***	.000

* $p < .05$, ** $p < .01$, *** $p < .001$.

Relationship between Academic Self-efficacy and Academic Procrastination of Pre-service Teachers

This study investigated the relationship between academic self-efficacy and academic procrastination of pre-service teachers. The Pearson product-moment correlation coefficient was used to examine the relationship among the variables. The correlation between academic self-efficacy and academic procrastination is shown in Table 15.

Table 15 Correlation between Academic Self-efficacy and Academic Procrastination of Pre-service Teachers

Variables	Academic Procrastination
Academic Self-efficacy	-.353**

** $p < .01$.

The results of bivariate correlations showed that there was a significant negative correlation between academic self-efficacy and academic procrastination of pre-service teachers. It seemed that pre-service teachers with higher self-efficacy in their academic abilities tend to procrastinate less. Conversely, those with lower academic self-efficacy are more likely to delay academic tasks.

This finding aligned with Bandura's (1997) social cognitive theory, which posited that self-efficacy influenced motivation, effort, and persistence in academic tasks. This finding was also consistent with the previous research findings revealed by Klassen et al. (2008), Steel (2007) and van Eerde (2003) in that procrastination was linked to low self-efficacy because students who doubted their abilities tended to avoid challenging tasks.

This study provided valuable insights into strengthening self-efficacy could contribute to better academic performance and lower procrastination, ultimately enhancing the quality of education and supporting the development of strong institutions.

Regression Analysis for the Prediction of Pre-Service Teachers' Academic Procrastination

To develop predictive model of pre-service teachers' academic procrastination, bivariate regression analysis was performed.

Table 16 Summary of Regression Analysis for the Predictive Contribution of Academic Self-Efficacy to Academic Procrastination

Predictor	<i>B</i>	β	<i>t</i>	<i>R</i>	R^2	<i>Adj R</i> ²	<i>F</i>
Constant	109.251			0.353	0.125	0.123	77.994***
ASE	-0.607	-0.353	-8.831***				

*** $p < 0.001$.

Note. ASE = Academic Self-Efficacy

The results of simple linear regression pointed out that the academic self-efficacy made a significant predictive contribution to academic procrastination, $F(1, 548) = 77.994$, $p < 0.001$, and explained for 12.3 % (adjusted R^2) of the variance in academic self-efficacy. According to Cohen (1988), this is a medium effect.

Then, the result model can therefore be defined as in the following equation:

$$AP = 109.251 - 0.607 ASE$$

Where, AP = Academic Procrastination, ASE = Academic Self-Efficacy.

It seemed that changes in academic self-efficacy levels could directly influence procrastination tendencies among pre-service teachers. This finding supported the idea that self-efficacy was a critical determinant of students' ability to manage their academic responsibilities effectively (Bandura, 1997). This finding was consistent with the previous research findings revealed by Schunk and DiBenedetto (2021), Klassen et al. (2008) and Steel (2007) in that self-efficacy was a strong negative predictor of procrastination, as students who believed in their academic abilities were more likely to engage in self-regulated learning and persist to complete academic tasks.

This study highlighted institutions that prioritized self-efficacy development contributed to quality education and strong institutions, ultimately leading to greater academic prosperity.

Conclusion, Discussion and Recommendations

Conclusion and Discussion

This study was conducted with a total of 550 pre-service teachers from Y.U.O.E since they are going through the process of becoming teachers and enter into service and so they need to understand the relationship between academic self-efficacy and academic procrastination. Quantitative data analysis was performed to study the relationship between academic self-efficacy and academic procrastination of the pre-service teachers. A significant negative correlation between academic self-efficacy and academic procrastination of pre-service teachers were found. The pre-service teachers with higher academic self-efficacy possess lower level of academic procrastination. On the other hand, the more the pre-service teachers procrastinate, the less the academic self-efficacy they possess.

Students with high academic self-efficacy are more likely to set challenging goals and persist in their efforts, which reduces academic procrastination (Schunk, 1991). Higher academic self-efficacy is associated with lower academic procrastination because students who believe in their capabilities are less likely to delay tasks and more likely to engage in effective academic behaviors (Eerde, 2000).

Teacher educators should encourage pre-service teachers to engage in progressively challenging academic tasks with constructive feedback to boost their confidence. Furthermore, teacher educators should also foster a growth mindset that promotes persistence despite challenges and emphasize positive academic culture to mitigate anxiety-related procrastination. Given the critical role teachers play in shaping future generations, strengthening pre-service teachers' self-efficacy will not only improve their academic performance but also prepare them to be more effective educators. This study underscores the need for institutions to integrate self-efficacy-building-strategies into pre-service teacher education programs to promote academic prosperity and professional preparedness.

Recommendations

Based on the research findings on the relationship between academic self-efficacy and academic procrastination in pre-service teachers, several recommendations can be made. Firstly, teacher education programs should incorporate strategies to enhance academic self-efficacy among pre-service teachers. This can be achieved through workshops, mentoring, and reflective practices that help these future educators develop confidence in their teaching and academic

abilities. Secondly, it is important to integrate time management and goal-setting techniques into the curriculum of teacher education programs. Pre-service teachers should be equipped with practical tools and strategies to manage their academic responsibilities effectively, thereby reducing the likelihood of procrastination. Training sessions focused on these skills can help pre-service teachers develop habits that will benefit them throughout their careers. Furthermore, educational institutions should provide ongoing support through academic advising and counselling services that address both self-efficacy and procrastination. By offering tailored guidance, these services can help pre-service teachers overcome barriers to academic success. Moreover, to enhance teaching and learning strategies for quality education, universities of education should incorporate self-regulated learning strategies in their curriculum, teaching students how to set realistic academic goals. For sustainable educational prosperity, policy makers should prioritize psychological well-being of students by integrating mental health support systems into academic institutions. Lastly, longitudinal studies should be conducted within the context of pre-service teacher education in Myanmar.

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