

ANALYSIS OF ACADEMIC PROCRASTINATION IN PROFESSIONAL STUDENTS OF A TERTIARY TRAINING PROGRAMME

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Abstract

Academic procrastination is a common behavior among tertiary students. In particular, part-time adult students who undergo professional training usually find it very difficult to balance tertiary study, work, and family responsibilities. It is important to investigate factors contributing to and consequences resulting from adult students' academic procrastination, so that we can provide them with targeted help. In this study, we collected data from more than 1800 students who participated in a postgraduate training programme for teaching professionals. Specifically, we examined data on assignment grades, student demographic factors, and assignment extensions. Our analysis suggests that students tend to procrastinate on assessment tasks that are not closely related to their professional practice and skills. We also find that students using personal reasons to apply for extensions are more likely to not complete their assignments, even after being given extensions. With regards to demographic factors, female students, students aged 35 and over, and students working at intermediate and composite schools have a higher tendency to postpone their work. By analyzing the grade means and variances of assignments submitted early, on time, and with extensions, we conclude that procrastination is negatively associated with academic performance.

Keywords

Academic procrastination, adult student, assessment

1. Introduction

As rapid globalization and technological advancements demand more and more from educators, many teachers participate in part-time postgraduate programmes to update their knowledge and skills in hopes of advancing their careers. Such teachers face the challenge of balancing academic pursuits and various responsibilities at school and at home; this is one cause for their frequent academic procrastination.

Traditionally, procrastination is defined as the undesirable behavior of irrationally delaying a course of intended action, with the understanding that it may result in unideal outcomes. Approximately 50% of students procrastinate consistently at university (Solomon & Rothblum, 1984). Procrastinators usually have low self-efficacy and a weak desire for achievement, a lack of self-control, poor organizational skills, and are easily bored or distracted (Steel, 2007). Students who often procrastinate generally experience less stress at the beginning of a semester, more stress later on, and are generally more anxious than non-procrastinators (Tice & Baumeister, 1997).

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Procrastination is negatively correlated with many academic performance measures including overall GPA, course GPA, exam scores, and assignment grades (Steel, 2007). Procrastination is positively correlated with reduced time for task preparation (Van Eerde, 2003), which likely leads to reduced accuracy, thoroughness, and punctuality in completing such tasks; therefore, procrastination may have negative impacts on student grades. Meta-analysis conducted by Kim and Seo (2015) reveals that there is considerable variation among correlations between procrastination and several performance measures; they also found that academic procrastination and assignment grade have the highest average correlation coefficients.

One common reason for procrastination is task aversiveness, i.e., people tend to favor tasks that are more pleasant in the short term over unpleasant or uninteresting tasks (Solomon & Rothblum, 1984). Procrastination was reported to be negatively correlated with task significance, feedback from a task, and autonomy (Lonegan & Maher, 2000). Students tend to put off tasks that require the most effort or induce anxiety; instead, they prefer to complete tasks that enable them to demonstrate and develop skills and self-confidence (Ferrari & Scher, 2000).

However, Choi and Maron (2009) suggest that such aforementioned procrastinators should be defined as passive procrastinators. They propose that there exists a group of active procrastinators who may deliberately postpone completing certain tasks to first deal with other important work — yet they are still able to complete postponed tasks with positive outcomes. Chu and Choi (2005) proposed four criteria for this kind of active procrastination: a deliberate decision to postpone a task, good performance under time pressure, ability to meet deadlines, and producing a desirable outcome. Kim et al. (2016) found that students who voluntarily delay their tasks often prefer to work under time constraints and expect to perform well academically, but students who unintentionally put off their work usually expect worse outcomes.

Although there is a large body of research on tertiary students' academic procrastination, to our knowledge procrastination among part-time adult students has not been properly investigated. Thus, in this paper, we seek to examine the impact of academic procrastination on learning outcomes of part-time professional students, as well as patterns of procrastination across an entire postgraduate programme. Our hope is that these findings will help tertiary education providers identify at-risk students and intervene with timely, targeted support.

2. Data preparation

The focus of this study is a postgraduate certificate programme. The students who enroll in the programme are mainly full-time secondary and primary school teachers in New Zealand. The 32-week programme is assessed through assignments. We collected data on 1886 students from six consecutive intakes over a period of two years. We used assignment data for five assessments, which are indexed as 1, 2, 3, 4, and 5 according to the chronological order of their final due dates.

Each assessment has two due-date options. The first due date is recommended for early submission, which gives instructors time to provide early feedback and suggest possible areas for further improvement. The second due date is the final submission date for the assignment. A student may apply for an extension beyond this date under special circumstances, which is only granted if she or he can present a compelling reason with supporting evidence (such as a medical certificate or Principal's letter). The reason provided for an extension request could

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be medical, personal, workload-related, or any two of the above. If approved, the student is generally granted an extension of up to four weeks.

In order to investigate the impact of submission time on assignment grade, as well as factors that may contribute to extension requests, we aggregated the following three data sets in our analysis:

- (1) Demographic data – student gender, age, and the types of schools they work in
- (2) Assignment record – assignment grade (100 as maximum grade) and submission time
- (3) Extension reason – medical, personal, workload, or a combination of any two of the three reasons above

3. Analysis and discussion

3.1. Impact of submission time on assignment grade

For each assessment, we divided submitted assignments into three groups according to their submission times — the “Early” group categorizes assignments submitted by the early-submission deadline, the “On Time” group categorizes assignments submitted by the official final due date, and the “Extension” group categorizes assignments submitted by an extended deadline under special circumstances. The assignment count, grade mean, and grade variance of each assignment group are displayed in Table 1.

Assess-ments	Number of assignments			Mean of assignment grades			Variance of assignment grades		
	Early	On Time	Extension	Early	On Time	Extension	Early	On Time	Extension
1	762	903	40	72.25	70.32	67.15	114.04	117.23	124.95
2	595	838	62	76.82	75.56	72.85	78.32	93.18	134.81
3	593	831	49	78.25	76.48	73.14	81.93	99.53	125.88
4	902	547	49	83.30	81.60	76.06	49.41	69.61	135.56
5	1042	445	37	83.39	82.02	76.03	51.40	86.15	249.92

Table 1: Assignment count, grade mean and grade variance by submission time

For each assessment, we carried out F-tests to compare grade variance between different groups of assignments. The F-test results indicate that grade variances between most assignment groups are statistically unequal (p-value of F-Test < 0.05), so we used the Z-test to examine whether there is a significant difference between the grade means of assignment groups. Table 2 displays the p-values of those tests.

Assessments	p-value of F-test on null hypothesis of equal variance			p-value of z-test on null hypothesis of equal mean		
	Early vs On Time	Early vs Extension	On Time vs Extension	Early vs On Time	Early vs Extension	On Time vs Extension
1	3.47E-01	3.20E-01	3.64E-01	3.70E-04	4.84E-03	7.85E-02
2	1.16E-02	8.98E-04	1.66E-02	1.06E-02	9.05E-03	7.36E-02
3	5.60E-03	1.36E-02	1.11E-01	1.85E-04	1.45E-03	4.16E-02
4	2.98E-06	6.35E-09	2.39E-04	7.06E-05	1.65E-05	1.13E-03
5	1.49E-11	0.00E+00	1.52E-07	5.46E-03	4.76E-03	2.30E-02

Table 2: p-values of F-tests and T-tests on assignment grades

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The p-values of Z-tests for the “On Time” and “Extension” groups of Assessments 1 and 2 indicate that there is no significant difference between the grade means of those groups, but for all other assessments, the average grades of assignments submitted “Early” are significantly higher than those of assignments submitted “On Time” or after an extension. Moreover, the average grades of “On Time” assignments are higher than “Extension” assignments.

The students who submit assignments early do not procrastinate, a proportion of students who submit assignments by their official due dates put off tasks until very late, and most students who apply for extensions procrastinate either intentionally or unintentionally (although some of these students may postpone work due to genuinely unforeseeable or unavoidable circumstances such as sickness and family emergencies). Therefore, groups with a larger proportion of procrastinators have significantly lower average grades than groups with fewer or no procrastinators, which leads to the conclusion that procrastination is inversely associated with student academic performance.

As most “Extension” groups have significantly larger grade variances, some students in these groups obtain high marks, although the groups’ average marks are lower. Such students in “Extension” groups may be considered active procrastinators who deliberately postpone tasks and are still able to complete assignments with satisfactory results.

3.2. Factors associated with assignment extension

In this study, we use “Extension rate” and “Incompletion rate” to describe assignment extensions, as shown in Table 3.

Rates	Calculation
Extension rate	$\frac{\text{number of extensions}}{\text{number of submitted assignments submitted early or on time} + \text{number of extensions}}$
Incompletion rate	$\frac{\text{number of extensions with nonsubmitted assignment}}{\text{number of extensions}}$

Table 3: Calculation of extension and incompletion rates

3.2.1. Effect of assessments

Figure 1 shows the extension and incompletion rates for the five assessments. χ^2 tests are conducted to examine if incompletion and extension rates are independent of assessment tasks. The p-value (0.863) for the χ^2 test on incompletion rate indicates that the proportions of incomplete extensions do not differ significantly among assessments, but the p-value (0.0005) on extension rate suggests that the proportion of assignment extensions granted significantly differs among assessments.

Assessment 2 has the highest extension rate, which is consistent with the nature of the task. Assessment 2 requires students to write an in-depth literature review on the recent development of digital or collaborative learning. Most students had not often conducted formal research and lacked experience in completing academic tasks such as literature reviews, so greater effort and a steeper learning curve were unavoidable for many. The assignments for other assessments were closely related to the students’ teaching practice, so students were often able to make good use of their existing skills and knowledge. The impact of task aversion on procrastination is illustrated here – students tend to delay more effortful tasks and favour tasks they can complete with their existing professional skills and knowledge.

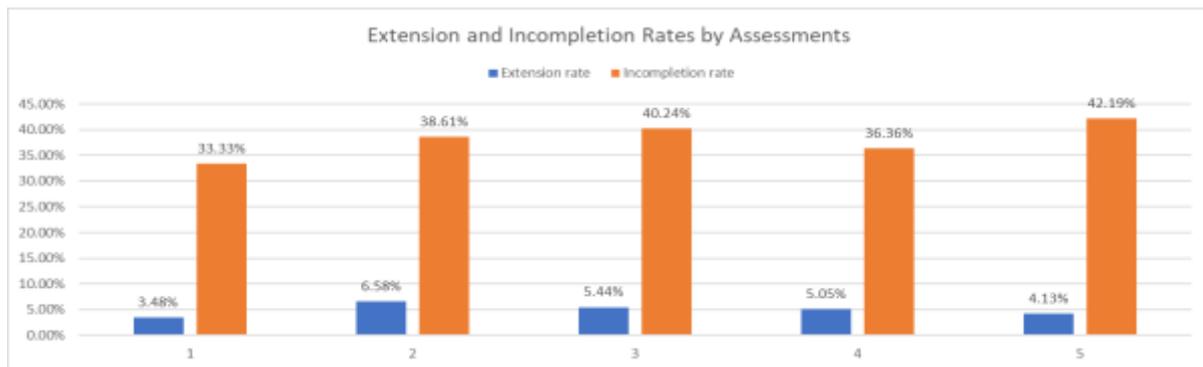


Figure 1: Extension and incompletion rates of assessments

The key to mitigating task aversion is to equip students with skills and knowledge necessary to complete each task, and to make the process of doing work enjoyable and rewarding for students. Procrastination on assignments may be reduced by providing step-by-step instructions, encouraging and timely feedback, and interesting topics (Ackerman and Gross, 2005). Breaking a big assignment into a series of smaller interdependent tasks may result in less procrastination (Stell, 1997), as students are less likely to put off a smaller, less effortful task compared to a big comprehensive assignment; successful completion of each smaller task will reinforce their confidence and desire to carry on with subsequent tasks. For part-time professional students, it is particularly important to associate assessment tasks with professional practice, so the students have opportunities to utilize and further develop their skills.

3.2.2. Effect of application reasons

Figure 2 displays incompletion rates by reasons given for extension requests.

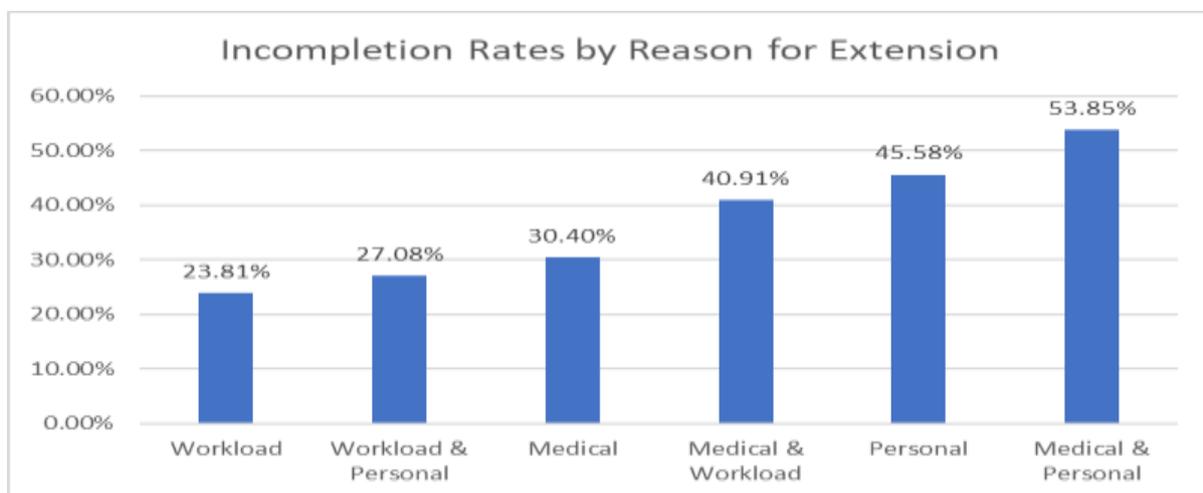


Figure 2: Incompletion rates by categories of reasons for extension requests

As shown in Figure 2, there are six categories encapsulating such reasons. Like our analysis of the effect of assessments, we conducted a two-way χ^2 test to examine if incompletion rate is independent from categories of extension-request reasons. The p-value (about 0.0003) for the χ^2 test suggests that the percentage of incomplete assignments are not independent from categories of extension-request reasons.

Students with “Personal” and “Medical and Personal” reasons are most likely to fail to complete their assignments, and students with “workload” difficulties tend to complete the

largest proportion of assignments. It could be hard for the students to overcome their personal or medical problems because they are often so unforeseeable; however, they may be able to deal with heavy workloads by seeking help from their managers, as most schools are supportive of staff attending professional training. Students who cite personal reasons for delaying work are more likely to be passive procrastinators, whereas applying for extensions to balance heavy workloads could be considered an act of active procrastination.

Total incompleteness rate is around 30%, which means that on average about one-third of students granted extensions failed to complete their assignments. Therefore, educators need to provide extra targeted assistance to students like these, particularly those who are passive procrastinators.

3.2.3. Effect of demographic factors

As with the previous analysis, we conducted χ^2 tests to examine if extension and incompleteness rates are independent from demographic factors. According to the χ^2 test, there is no significant difference in incompleteness rates between male and female students, but the number of female students who applied for extension is significantly higher than that of male students. With respect to the types of schools the students work for, the difference in incompleteness rates is insignificant, but the students who teach at primary schools are least likely to apply for extensions, and most likely to complete their assignments after being given extensions. Both extension and incompleteness rates differ significantly among age groups: students aged younger than 30 applied for fewer extensions but had the highest completion rate. A significantly higher proportion of students aged over 35 requested extensions. A possible explanation is that older students often have more family commitments and take on more responsibilities at work, which means that they have less time and energy to complete their academic tasks.

4. Conclusion

By comparing the grades of assignments submitted by different due dates, we found that procrastination generally has a negative impact on academic performance. However, active procrastinators who deliberately postpone their tasks are still able to complete such tasks with satisfactory outcomes, and our research suggests that active procrastinators exist among the adult professional students. If active procrastinators can be distinguished from passive procrastinators early on, we can target help for passive procrastinators. One future research direction could be developing prediction models for active and passive procrastinators using statistical modelling or machine-learning algorithms.

Our research agrees with the findings in literature (Ferrari & Scher, 2000) that task aversion is one of the causes for procrastination among adult students, which may be reduced by making tasks clear, short, interesting, rewarding, and most importantly, relevant to the professional practice of the students. Although students who use personal reasons for extension requests are more likely to fail to complete their assignments, the overall high incompleteness rates among extension applicants indicate that extra time is not enough for those students to complete their tasks, and additional and personalised support is also essential. Female students, students aged 35 and over, and students working at intermediate and composite schools have higher tendencies to postpone their work. Further research could also focus on understanding why and how aforementioned factors impact procrastination, so that educators can provide more efficient and timely assistance to students who are most in need.

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